INVITATION TO BID
COLUMBIA COUNTY BOARD OF COMMISSIONERS
WELCOME CENTER RENOVATIONS
BID NO. 2018-N

Please be advised that Columbia County desires to accept bids on the above referenced project. Bids will be accepted until 2:00 PM on November 14,, 2018 in the office of the Board of County Commissioners located at 135 NE Hernando Ave. Room 203, Lake City, Florida 32055. A pre bid meeting will be held November 7, 2018 at 2:00 PM at the Welcome Center located at 435 NW Hall of Fame Dr., Lake City, FL 32055.

Specifications and bid forms may be downloaded at the County web site, http://www.columbiacountyfla.com/PurchasingBids.asp

Columbia County reserves the right to reject any and/or all bids and to accept the bid in the County's best interest.

Columbia County Board of County Commissioners

Welcome Center Renovations

Lake City, Florida

Construction Documents
Project Manual

Architect's Project No. 1801
August 13, 2018

Prepared for
Board of County Commissioners
Columbia County, Florida

District No. 1 – Ronald Williams
District No. 2 – Rusty DePratter
District No. 3 – Bucky Nash
District No. 4 – Everett Phillips
District No. 5 – Tim Murphy

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

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

Columbia County, Florida
Purchasing Department
General Instructions to Bidders

These instructions will bind bidders and conditions herein set forth, except as specifically qualified in special bid and contract terms issued with any individual bid.

1. The following criteria are used in determining low responsible bidder:

    A. The ability, capacity and skill of bidder to perform required service.
    B. Whether the bidder can perform service promptly or within specified time.
    C. The character, integrity, reputation, judgment, experience and efficiency of bidder.
    D. The performance of previous contracts with Columbia County.
    E. The suitability of equipment or material for county use.
    F. The ability of bidder to provide future maintenance.

2. Payment Terms are net (30) unless otherwise specified. Favorable terms, discounts, may be offered and will be considered in determining low bids if they are deemed by Purchasing Department to be advantageous to the County.

3. All bids should be tabulated, totaled and checked for accuracy. Unit price will prevail in case of errors.

4. All requested information shall be included in the envelope. All desired information must be included for your bid to receive full consideration.

5. If anything on the bid request is not clear, you should contact the Purchasing Director immediately.

6. A bidders list is available at the Purchasing Office.

7. Quote all prices F.O.B. our warehouse or as specified in bid documents.

8. Each proposal shall be clearly marked on the outside of the envelope including Fed Ex, UPS or other delivery service envelopes, as a sealed bid. The name of the item being bid shall be shown on the outside in full.

9. No responsibility shall attach to any County representative or employee for the premature opening of bids not properly addressed or identified.

10. If only one (1) bid is received, the bid may be rejected and re-advertised or excepted if determined to be in the counties best interest.

11. Bids received late will not be accepted, and the County will not be responsible for late mail delivery.

12. Telephone and facsimile bids will not be acceptable in formal bid openings (sealed bids). Should a bid be misplaced by the County and found later, it will be considered. Any bidder may request and shall receive a receipt showing the day and time any bid is delivered to the appropriate office of the County from the personnel thereof.

13. Bids requiring bid bonds will not be accepted if bond is not enclosed. Cash or certified check will be accepted in lieu of bond except on construction projects where cost exceeds $40,000.

14. All bidders must be recognized dealers in the materials or equipment specified and is qualified to advise in their application or use. A bidder at any time requested must satisfy the Purchasing Office and the County Manager that he has the requisite organization, capital, plant, stock ability and experience to satisfactorily execute the contract in accordance with the provisions of the contract in which he is interested.

15. Any alterations, erasures, additions, or admissions of required information or any changes to specifications or bidding schedule are done at the risk of the bidder. Any bid will be rejected that has a substantial variation, that is; a variation that affects price, quantity, and quality or delivery date (when delivery is required by a specific time).

16. When requested, samples will be furnished to the County free of expense, properly marked for identification and accompanied by a list where there is more than one (1) sample. The County reserves the right to mutilate or destroy any sample submitted whenever it may be to the best interest of the County to do so for the purpose of testing.

17. The County will reject any material, supplies or equipment that did not meet the specifications, even though the bidder lists the trade names or names of such material on the bid or price quotation form.

18. The unauthorized use of patented articles is done entirely at the risk of the successful bidder.

19. The ESTIMATED QUANTITY given in the specifications or advertisements is for the purpose of bidding only. The County may purchase more or less than the estimated quantity and the vendor must not assume that such estimated quantity is part of the contract.

20. Only the latest model equipment as evidenced by the manufacture's current published literature will be considered. Obsolete models of equipment not in production will not be acceptable. The equipment shall be composed of new parts and materials. Any unit containing used parts or having seen any service other than the necessary tests will be rejected. In addition to the equipment specifically called for in the specification, all equipment catalogued by the manufacturer as standard or required by the State of Florida shall be furnished with the equipment. Where required by the State of Florida Motor Vehicle Code, vehicles shall be inspected and bear the latest inspection sticker of the Florida Department of Revenue.

21. The successful bidder on motor vehicle equipment shall be required to furnish with delivery of vehicle, certificate of origin and any other appropriate documentation as required by the Florida Motor Vehicle Department.

22. Prospective bidders are required to examine the location of the proposed work or delivery and determine, in their own way, the difficulties, which are likely to be encountered in the prosecution of the same.

23. All materials, equipment and supplies shall be subject to rigid inspection, under the immediate supervision of the Purchasing Department, its designee and /or the department to which they are delivered. If defective material, equipment, or supplies are discovered, the contractor, upon being instructed by the Purchasing Department or designee, shall remove, or make good such material, equipment, or supplies without extra compensation. It is expressly understood and agreed that the inspection of materials by the County will in no way lessen the responsibility of the Contractor release him from his obligation to perform and deliver to the County Sound and satisfactory materials, equipment, or supplies. The Contractor agrees to pay the costs of all tests upon defective material, equipment, or supplies or allow the costs to be deducted from any monies due him from the County.

24. Unless otherwise specified by the Purchasing Department all materials, supplies, or equipment quoted herein must be delivered within thirty (30) days from the day of notification or exceptions noted on bid sheets.

25. A contract will not be awarded to any corporation, firm, or individual who is, from any cause, in arrears to the County or who has failed in former contracts with the County to perform work satisfactorily, either to the character of the work, the fulfillment or guarantee, or the time consumed in completing the work.

26. Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will be considered sufficient cause for rejection of all proposals in which he is interested.

27. Submitting a proposal when the bidder intends to sublet the contract may be a cause for rejection of bids or cancellation of the contract by the County Manager.

28. Unless otherwise specified the County reserves the right to award each items separately or on a lump sum basis whichever is in the best interest of the County.

29. The County reserves the right to reject any and/or all quotations, to waive any minor discrepancies in the bids for all bidders equally, quotations, or specifications, when deemed to be in the best interest of the County and also to purchase any part, all or none of the materials, supplies, or equipment specified.

30. Failure of the bidder to sign the bid or have the signature of an authorized representative or agent on the bid proposal in the space provided will be cause for rejection of the bid. Signature must be written in ink. Typewritten or printed signatures will not be acceptable.

31. Any bidder may withdraw his bid at any time before the time set for the opening of the bids. No bid may be withdrawn in the thirty- (30) day period after bids are opened.

32. It is mutually understood and agreed that if at any time the Purchasing Department or designee shall be of the opinion that the contract or any part thereof is unnecessarily delayed or that the rate of progress or delivery is unsatisfactory, or that the contractor is willfully violating any of the conditions or covenants of the agreement, or executing the same in bad faith, the Purchasing Department or his designee shall have the power to notify the aforesaid contractor of the nature of the complaint. Notification shall constitute delivery of notice, or letter to address given in the proposal. If after three (3) working days of notification the conditions are not corrected to the satisfaction of the Purchasing Director, he shall thereupon have the power to take whatever action he may deem necessary to complete the work or delivery herein described, or any part thereof, and the expense thereof, so charged, shall be deducted from any paid by the County out of such monies as may become due to the said contractor, under and by virtue of this agreement. In case such expense shall exceed the last said sum, then and in that event, the bondsman or the contractor, his executors, administrators, successors, or assigns, shall pay the amounts of such excess to the County on notice made by the Purchasing Department or his designee of the excess due.

33. If the bidder proposes to furnish any item of foreign make or product, he shall write "foreign" together with the name of the originating country opposite such item on a proposal.

34. Any complaint from bidders relative to the invitation to bid or attached specifications shall be made prior to the time of opening bids; other wise, the bidder waives any such complaint.

35. Contracts may be cancelled by the County with or without cause on thirty- (30) days advance written notice.

36. All contractors submitting bids for road projects in excess of $150,000 must be pre-qualified with the Florida Department of Transportation and shall provide proof of such qualification upon request.

37. Any bidder affected adversely by an intended decision with respect to the award of any bid, shall file with the Purchasing Department for Columbia County, a written notice of intent to file a protest not later than seventy-two (72) hours (excluding Saturdays, Sundays and legal holidays), after the posting of the bid tabulation. Protest procedures may be obtained in the Purchasing Department.

38. A person or affiliate who has been placed on the convicted vendor's list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to Columbia County, may not submit a bid on a contract with Columbia County for the construction or repair of a public building or public work, may not submit bids on leases of real property to Columbia County, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with Columbia County, and may not transact business with Columbia County for a period of 36 months from the date of being placed on the convicted vendor list.

39. Vendor/Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of;

A. all persons employed by the Vendor/Contractor during the term of the Contract to perform employment duties within Florida; and

B. all persons, including subcontractors, assigned by the Vendor/Contractor to perform work pursuant to the contract with the County.

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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 his 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.
   2. Alternate Bid: An amount stated in the Proposal to be added to or deducted from the amount of the Base Bid if the corresponding change in Project scope or materials or methods of construction described in the Contract Documents is accepted.
   3. Unit Price: An amount stated in the Proposal as a price per unit of measurement for materials and labor or services as described in the Contract Documents.

1.12 DRAWINGS

A. The official plans and other Drawings or reproductions thereof, pertaining to the work to be performed, with index of Drawings on Sheet G-1.

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 Owner-Contractor Agreement consisting of: the agreement text preceding the signature of the parties, 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, prepared by the Architect, signed by the Owner 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 Pre-Bid Conference on the date, time and place set forth. 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 five 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 Owner, indicating base bid amount and alternate bid amount(s). 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 Owner.

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 his 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 Owner. 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 his 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 - RECEIPT AND OPENING OF BIDS

7.1 RECEIPT AND OPENING

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

PART 8 - BID MODIFICATIONS

8.1 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 9 - WITHDRAWAL OF BIDS

9.1 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 his Proposal confers no right for the withdrawal of his Proposal after it has been opened.

PART 10 - AWARD OF CONTRACT

10.1 AWARD OF CONTRACT

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

10.2 RIGHT TO WAIVER

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

10.3 FURTHER REQUESTS

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

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

PART 11 - REJECTION OF BIDS

11.1 REJECTION

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

PART 12 - COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK

12.1 TIME OF COMPLETION

A. Contractor shall execute the Owner/Contractor Contract within seven calendar days from date of receipt and return to the Owner for his execution. Submit required insurance certificates within five calendar days from date of receipt of the executed Owner / Contractor Contract. Contractor shall begin work within three 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 120 calendar days from date of Notice to Proceed and Finally Completed within 14 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.

12.2 COMMENCEMENT

A. At the Preconstruction Conference, the Owner and Architect 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 13 - SUBSTANTIAL COMPLETION

13.1 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 14 - FINAL COMPLETION

14.1 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 15 - LIQUIDATED DAMAGES

15.1 LIQUIDATED DAMAGES

A. If project is not Substantially Completed, the Contractor shall pay to the Owner, as liquidated damages, two hundred 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 Owner, as liquidated damages, two hundred dollars per calendar day.

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

C. The provision for Liquidated Damages for delay shall not affect the Owner's right to terminate the Contract and the Owner'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 Owner under other provisions of the Contract.

PART 16 - REQUIREMENTS FOR CERTIFICATES OF INSURANCE

16.1 RELATED REQUIREMENTS

A. Refer to Supplementary Conditions for specific requirements.

PART 17 - BASIS FOR BIDDING

17.1 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.

17.2 SUBSTITUTIONS

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

PART 18 - EXECUTION OF CONTRACT

18.1 SIGNATURES

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

B. If the Contractor be 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 Owner.

C. If the Contractor be 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 be 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 19 - INTENT

19.1 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 Owner.

PART 20 - PRECEDENCE

20.1 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: COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
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 ($_____)

ALTERNATE BID ONE:_____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 agrees, that this Proposal shall remain valid 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 enter into a written Contract with the Owner in accordance with the accepted bid.

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

ADDENDUM NO._____ DATED: _____

ADDENDUM NO._____ DATED: _____

In witness, the Bidder has set his 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 ($_____)

ADD TO ALTERNATE BID ONE:_____DOLLARS ($_____)

DEDUCT FROM ALTENATE BID ONE:_____DOLLARS ($_____)

END OF SECTION

SECTION 00 4300

PROCUREMENT FORM SUPPLEMNTS

Submit with the Bid, in a separate sealed envelope a list of "SUBCONTRACTORS, MANUFACTURES OR SUPPLIERS" indicated below:

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. Once approved by the Owner and Architect, Subcontractors listed cannot be changed without the express written approval of the Owner and Architect. The Contractor can only change a Subcontractor upon submittal of a signed and notarized statement from the Subcontractor who is withdrawing from the project, stating the reasons for withdrawing.

Subcontractors not meeting the requirements listed below may be cause for rejection of that Subcontractor. The undersigned declares that they have reviewed each Subcontractor listed and has in his files evidence that each Subcontractor listed is currently and appropriately licensed in the State of Florida and engaged that he maintains an organization capable, technically and financially, of performing the pertinent work.

If Contractor lists himself as a Subcontractor they shall meet all the above requirements, including licenses, occupational licenses and/or certifications for each trade for which they are listed.

Subsequent to execution of Contract, Contractor will be required to submit copies of all Subcontractors' occupational licenses and evidence of compliance with the above requirements.

1. Framing _____
2. Mechanical _____
3. Plumbing _____
4. Electrical _____

IN WITNESS, the Bidder has set his signature and affixed his seal
this _____ day of _____, 20__.

(FIRM NAME) (SEAL)

By:

(Type Name and Title) (Authorized Signature)

END OF SECTION

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 Owner and Contractor
(b) Conditions of the Contract (General, Supplementary, and Special Conditions) and Attachments
(c) Drawings
(d) Project Manual
(e) Addenda issued prior to execution of the Contract
(f) 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 Owner 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 in triplicate by the Owner and Contractor for distribution to the Owner, Contractor and Architect.

1.2.2 By executing the Contract, the Contractor agrees that he has examined the Contract Documents together with the site of the proposed work as well as its surrounding territory, that he is 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 Owner 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 Owner'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 Owner 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 Owner's representative during construction and until final payment. The Architect will have authority to act on behalf of the Owner as Owner's representative to the extent provided in the Contract Documents. The Architect will advise and consult with the Owner and Owner's instructions to the Contractor shall be issued through the Architect.

2.2.3 The Architect and the Owner 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 Owner 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 his 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 Owner 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 written 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 written decision has been rendered by that date.

2.2.10 If a decision is made in writing 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 written guarantees and related documents required by the Contract and assembled by the Contractor and will recommend a Final Certificate of Payment to the Owner.

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

3.1 DEFINITION

3.1.1 The Owner is Columbia County, Florida and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative.

3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

3.2.1 The Owner, 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 Owner 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 his 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 Owner shall secure and pay for easements for permanent structures or permanent changes in existing facilities.

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

3.2.5 The Owner 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 Owner enumerated herein and especially those in respect to Payment and Insurance.

3.3 OWNER'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 Owner 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 Owner exercises his rights under this paragraph.

3.4 OWNER'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 Owner may, after seven days written notice to the Contractor and without prejudice to any other remedy he 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 Owner.

ARTICLE 4.00

CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his 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 he may discover. The Contractor shall not be liable to the Owner 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 his work. He 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 Owner 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, he shall promptly notify the Architect in writing, 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 he shall assume full responsibility and shall bear costs attributed to.

4.7.3 Contractor shall hold harmless the Owner and Architect against any claim or liability arising from or based upon the violation of law, ordinance or regulation, whether by himself, his 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 Owner, unless the Superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The Superintendent shall represent the Contractor and communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications will be confirmed in writing.

4.10 RESPONSIBILITY FOR THOSE PERFORMING THE WORK

4.10.1 The Contractor shall be responsible to the Owner for the acts and omissions of his 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 Owner 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 Owner in writing 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 Owner 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 he has determined and verified field measurements, field construction criteria, materials, catalog numbers and similar data, and that he has checked and coordinated each Shop Drawing and Sample with the requirements of the work and of the Contract Documents.

In checking his Shop Drawings prior to submittal, the Contractor is requested to note his 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 in writing 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 in writing of such deviation at the submission and the Architect has given written 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 Owner and Architect harmless because of any encroachments which may be a result of his lack of proper layout. In this regard he shall, without extra cost to the Owner, 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 he shall 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 Owner through the Architect.

4.17 INDEMNIFICATION

4.17.1 To the full extent permitted by law, the Contractor shall indemnify and hold harmless the Owner 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 an 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 Owners 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, his Agent 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, his 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 Owner 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 Owner may clean up and charge the cost of to the several contractors as the Owner 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 is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his 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 is referred to throughout the Contract Documents as if singular in number and masculine in gender and 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 Owner or the Architect and any Subcontractor or Sub-subcontractor.

5.1.4 The Owner 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 Owner and the Architect, unless the substitution is acceptable to the Owner 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 Owner 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 Owner;

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 form the Owner 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 Owner. 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 Owner and a Subcontractor or Sub-subcontractor, between the Owner and Architect or between any persons or entities other than the Owner and Contractor.

5.4 PAYMENT TO SUBCONTRACTORS

5.4.1 The Contractor shall pay each Subcontractor, upon receipt of payment from the Owner, 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 his 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 his 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 he shall 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 Owner 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 Owner 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 Owner shall coordinate the work of the Contractor with that of other Contractors on the site. The Contractor shall cooperate with the Owner 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 his 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 his 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 he will so settle. If such separate Contractor sues the Owner or initiates an mediation proceeding on account of damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings, and if judgment or award against the Owner arises, the Contractor shall pay or satisfy it and shall reimburse the Owner for attorney's fees and court or mediation costs which the Owner 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 Owner and the Contractor each binds himself, his 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 written consent of the other, nor shall the Contractor assign any monies due or to become due to him without the previous written consent of the Owner.

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 him 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 his employees, agents or others for whose acts he is 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 RIGHTS AND REMEDIES

7.5.1 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.

7.6 ROYALTIES AND PATENTS

7.6.1 The Contractor shall pay royalties and license fees. He shall defend suits or claims for infringement of patent rights and shall hold the Owner harmless from loss on account of, except that the Owner 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, he shall be responsible for such loss unless he promptly gives such information to the Owner.

7.7 TESTS

7.7.1 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.

7.7.2 If after the commencement of the work, the Architect determines that work requires special inspection, testing or approval, he will, upon written authorization from the Owner, 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 Owner shall bear such costs.

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

7.7.4 Neither the observations of the Architect in his 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.

7.8 ARBITRATION

7.8.1 The parties agree that controversies between the Owner 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.

7.9 EQUALITY AND SUBSTITUTIONS

7.9.1 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:

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

7.10 PRECONSTRUCTION CONFERENCE

7.10.1 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 Owner. If Contractor so desires, he may have present with him representatives of major subcontractors. The date and time of the conference shall be agreed upon by the Owner, Contractor and Architect.

7.11 REFERENCED SPECIFICATIONS AND DOCUMENTS

7.11.1 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.

7.11.2 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 Owner 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. He 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 Owner as liquidated damages, TWO HUNDRED DOLLARS FOR EACH CALENDAR DAY ELAPSING BETWEEN THE DATE FIXED FOR SUBSTANTIAL COMPLETION AND THE DATE SUCH 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 Owner as liquidated damages, TWO HUNDRED 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 Owner 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 Owner's right to terminate the Contract as provided in the General Conditions, and the Owner's exercise of the right to terminate shall not release the Contractor from his 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 Owner 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 Owner 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, and three originals shall be forwarded to the Architect for distribution.

9.3.2 At the discretion of the Owner, 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 Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner'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 Owner 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 he determines 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 Owner, based on the data comprising the Application for Payment, that the work has progressed to the point indicated; that, to the best of his 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 he has 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 Owner 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 Owner, 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 his Certificate in whole or in part, to the extent necessary to reasonably protect the Owner. The Architect may also decline to approve Applications for Payment, because of subsequently discovered evidence or subsequent reviews, he may nullify the whole or part of a Certificate for Payment previously issued, to such extent as may be necessary in his opinion to protect the Owner 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, he will then prepare a Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their acceptance of the responsibilities assigned to them in such certificate.

9.6.2 The Contractor shall cooperate with the Owner if it is the Owner'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, he 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 Owner's Representative; (b) An Affidavit, sufficient to establish compliance with the provisions that lienors have been paid in full; (c) If required by the Owner, 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 Owner.

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 Owner to indemnify him against lien. If lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner 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, he will issue a final Certificate of Payment to the Owner. Otherwise he 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 Owner will within thirty days after receipt by him 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 Owner 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. Owner 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 his 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. He 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 Owners 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 his 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 Owner 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 Owner’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 Owner shall act, at his 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 Owner 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 Owner 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 he agrees 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 Owner 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 Owner 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 Owner, 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 Owner 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 Owner 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 Owner 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 Owner 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 his 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 his own organization, the Contractor may add ten percent of his 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 Owner;

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 Owner, including transportation and unloading; telephone service at the site and other normal overhead expenses as approved by Owner 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, he 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 Owner 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 Owner. 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 Owner 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 Owner.

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 Owner, the Owner 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 Owner 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 Owner.

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

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming work, he 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 Owner's failure to make payment, then the Contractor may, upon notice to the Owner, terminate the Contract and recover from the Owner 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 Owner may, upon notice to the Contractor, terminate his right to proceed with the work. In such event the Owner 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, he shall be liable for damage to the Owner 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 Owner 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 Owner in completing the work.

14.2.3 If fixed and agreed liquidated damages are provided in the Contract and if the Owner 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 Owner in its contractual capacity, acts of other Contractor in the performance of a contract with the Owner, 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 Owner in writing of the causes of delay. The Architect shall ascertain the facts and extent of the delay and, with agreement of the Owner, extend the time for completing the work when, in his 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 Owner 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 he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he fails to supply properly skilled workmen or proper materials, or if he fails 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 Owner, 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 Owner.

14.5 ABANDONMENT OF THE PROJECT

14.5.1 Upon written notice to the Contractor and the Architect, the Owner 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 Owner 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 bid opening. 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 As prescribed by Florida Statures, any protestor who files an action protesting a decision or intended decision pertaining to a bid pursuant to Florida Statutes shall post at the time of filing the formal written protest, a bond payable to the Columbia County, Florida in an amount equal to twenty-five thousand dollars or two percent of the lowest accepted bid, whichever is greater, for projects valued over five hundred thousand dollars or five percent of the lowest accepted bid for other projects. The bond shall be conditioned upon payment of costs and fees which may be adjudged against the protester in the administrative hearing in which the action is brought and in subsequent appellate court proceedings. In lieu of a bond, a cashier's check, certified bank check, bank certified company check, money order or U.S. currency would be acceptable form of security. If, after completion of the administrative hearing process and appellate court proceedings, the district prevails, it shall recover costs and charges, which shall be included in the final order or judgment, but excluding attorney's fees. Upon payment of such costs and charges by the protester, the protest security shall be returned. If the protester prevails, he shall recover from the Columbia County, Florida costs and charges which shall be included in the final order of judgment, excluding attorney's fees.

16.1.4 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.

ATTACHMENTS TO THESE GENERAL CONDITIONS

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

Agreement between Owner 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

ATTACHMENT NO. 1

COLUMBIA COUNTY, FLORIDA

LAKE CITY, FLORIDA

AGREEMENT BETWEEN OWNER 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 Columbia County Board of County Commissioners – Welcome Center Renovations, Lake City, Florida, Architect's Project No. 1801, 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 Columbia County Board of County Commissioners – Welcome Center Renovations, Lake City, Florida, Architect's Project No. 1801, 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 Owner/Contractor Contract within five calendar days from date of receipt and return to the Owner 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 120 calendar days from date of Notice to Proceed and Finally Completed within 14 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 Owner liquidated damages as follows:

If the Project is not Substantially Completed, the Contractor shall pay to the Owner as liquidated damages, Two Hundred 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 Owner as liquidated damages, Two Hundred Dollars per calendar day past Final Completion date.

ARTICLE 4

CONTRACT SUM

The Owner 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 Owner 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. Contractor shall present to the Architect an Application for Payment. Owner shall remit payment, less any contested amount, not later than the 25th business day after the date on which the payment request or invoice is stamped as received.

b. The Owner may reject the payment request or invoice within 20 business days after the date on which the payment request or invoice is stamped as 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 Owner 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 Owner 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 Owner 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 Owner when agreed upon by the parties.

b. After such time as the Contract work reaches or exceeds 50% completion, the Owner 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 Owner 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 Owner or Contractor.

d. The Contractor has fourteen days from the date the Owner 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 Owner, liquidated damages for each calendar day of such delay will be assessed. The Contractor will be liable for and shall pay the Owner such amount. Waiver of this provision shall be approved by the Owner. When final punch list items have been completed to the satisfaction of Owner 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 Owner 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 Owner, or other collateral satisfactory to the Owner, to indemnify the Owner 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 Owner, 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 Owner 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 Owner 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 Owner and a Subcontractor or Sub-subcontractor, (3) between the Owner and Architect or (4) between persons or entities other than the Owner 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 Owner 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 Owner's representative is:

Donny Dupree, Maintenance Director
Columbia County Board of Commissioners
Lake City, Florida
(386) 758-2138 - Telephone

6.4 The Contractor's representative is:

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

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

ARTICLE 7

ENUMERATION OF CONTRACT DOCUMENTS

7.1 The Specifications 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 Drawings are as follows and are dated August 13, 2018. See Exhibit B (Sheet Index to be provided after bid opening) and incorporated by reference.

7.3 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 Owner.

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

_____
Witness

By: _____
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: COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NUMBER: 1801

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 his 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:_____ Owner:_____

_____

(Authorized Signature)

ATTACHMENT NO. 3

EQUAL OPPORTUNITY

CERTIFICATE OF COMPLIANCE

PROJECT TITLE:

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA
ARCHITECT'S PROJECT NO. 1801

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 Drawings** The Drawings applicable to this work are titled:

   Columbia County Board of County Commissioners
   Welcome Center Renovations

   Dated: August 13, 2018

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

   The Drawings accompany these Specifications and become a part of. The applicable Drawings consist of the sheets listed on Sheet G-1, Sheet Index.

   The Contractor shall purchase sets of Drawings and Project Manual as required of his 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 120 calendar days, and shall be Finally Completed within 14 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 Two Hundred Dollars per calendar day past the date of Substantial Completion and Two Hundred Dollars per calendar day past Final Completion.

5. **Notice to Owner** - If a Subcontractor or supplier files a Notice to Owner under the Florida Lien Law, the Owner will notify the Contractor of its receipt. Payment request delivered subsequent to receipt of that Notice to Owner 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 Owner and his Insurance Counselor such insurance as will protect him from claims, which may rise out of or result from the Contractor's operations under the Contract, whether such operations be by himself 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 Owner 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 his 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 Owner with Certificate of Insurance evidencing that Owner 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 Owner with Certificate of Insurance prior to beginning any work.

b)i Workers' Compensation:

State, Florida Statutes	Statutory
Applicable Federal	Statutory
Employer's Liability	$200,000

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 Owner 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 Owner's Protective Liability:

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

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 Owner 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 Owner 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 Owner 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 Owner. 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 Owner, 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 Owner, 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 Owner, the Contractor, Subcontractors and Sub-subcontractors in the work.

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

d) The Owner 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 Owner as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors. In waiving rights of recovery under terms, the term "Owner" shall be deemed to include his employees and the Architect, and its employees as the Owner'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.

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 shall be made in accordance with Section 01 3300. In addition, the following specific information shall 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 Owner 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 being 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 shall be grouted.

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 shall 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 shall 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 Owner.

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 staff and workers not be compromised in any way as a result of the demolition work required under this contract. 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 Owner shall make arrangements with the Contractor for the assignment of staging areas to be used for storage of materials, parking, etc.

C. Contractor shall prepare agenda with copies for participants, attend progress meetings, record minutes and distribute copies to participants and those affected by decisions made.

D. Attendance: Owner, 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:

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
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)

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
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: COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
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 his 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 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 all work and material included in this Certificate have been reviewed; and that all work has been performed and material supplied in full accordance with the terms of the Contract.

Date:_____ Architect:_____

APPROVED FOR PAYMENT:

Date:_____ Owner:_____

_____

(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: Welcome Center Renovations for the Columbia County Board of County Commissioners as outlined in the documents. The work includes, but is not limited to, alternate bids, cutting and patching, selective structure demolition, cast-in-place concrete, concrete finishing, metal fabrications, miscellaneous rough carpentry, finish carpentry, architectural wood casework, water repellents, thermal insulation, blanket insulation, vapor retarders, joint protection, door schedule, hollow metal doors and frames, flush wood doors, access doors and frames, overhead coiling doors, aluminum-entrances and storefronts, door hardware, glazing, finish schedule, gypsum board assemblies, nonstructural metal framing, acoustical panel ceilings, resilient flooring accessories, resilient tile flooring, tile carpeting, painting and coating, specialties, signage, toilet compartments, toilet accessories and termite control. Drawings include General Project Cover Sheet, Demolition Plan, Renovation Plan, Reflected Ceiling Plan and Exterior Elevations. Mechanical, Plumbing and Electrical Documents as provided.

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. Coordinate requirements of Mechanical, Plumbing and Electrical work. 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 through roofs, walls and soffits with appropriate materials.

1.5 REGULATIONS, CODES AND STANDARDS

A. Design and construction shall conform to the Florida Building Code 6th Edition 2017 and the Florida Fire Prevention Code 6th 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 shall conform to all applicable Florida Building Code, 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. References to ASCE 7-10 shall be the edition listed in these State requirements.
   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) 6th Edition 2017.
   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. Procedures for submittals during construction, including shop drawings and 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 printed 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' Printed Instructions: Submit applicable manufacturer's instructions for delivery, storage, assembly, installation, adjusting and finishing.

1.5 SAMPLES

A. Submit full range of manufacturer's standard finishes, except when more restrictive requirements are specified, indicating colors, textures or patterns for selection. Early in the construction period, the contractor shall submit the names of all manufacturers and trade names of all materials involving color, texture or pattern selection which are proposed for actual use in the project. Color items, even in the same range, vary among different manufacturer's products, and it is therefore important that samples be submitted and selections be made from items actually intended for use in the work.

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

C. Label each sample with identification required for transmittal letter.

D. Provide field samples of finishes at project, at location acceptable to Owner, 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 Owner'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' catalog 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. Sign or initial shop drawings and product data and each sample label to certify compliance with requirements of contract documents. 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 Architect's acceptance.

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, signed or initialed, 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 for each item as specified in individual specifications sections.

E. Submit under Contractor's standard transmittal letter, each transmittal letter shall be numbered for ease of reference during construction. Identify project by title and number and identify work and product by specifications section number.

1.9 RESUBMITTALS

A. Make resubmittals under procedures specified for initial submittals and identify changes made since previous submittal. Transmittal letter shall be numbered 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 shall not constitute reason for an extension of contract time.

1.10 REVIEW

A. Review of shop drawings, product data and samples shall be as promptly as possible and submittals shall be returned to Contractor for distribution within fourteen calendar days from date received.

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

C. 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 shall distribute copies of shop drawings and product data and samples, which bear stamp of approval to project site file, Subcontractors, Suppliers, other affected Contractors and other entities requiring information.

B. Shop drawings that do not bear the Architect's shop drawing stamp shall not be allowed on the job site.

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 shall employ at his sole expense 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 shall 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 shall provide the following at his sole expense, except as specified otherwise herein, 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 Owner. However, costs associated with facilities and connections to provide for power are to be paid by the Contractor.

B. Heat and ventilation.

C. Phone service.

D. Water provided by Owner.

E. Sanitary facilities.

F. Barriers.

G. Enclosures.

H. Protection of installed work.

I. Security. Coordinate with Owner.

J. Construction use fire extinguishers.

K. Water control.

L. Cleaning during construction.

M. 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 HEAT AND VENTILATION

A. Provide as required to maintain specified conditions for construction operations and to protect materials and finishes from damage due to temperature or humidity.

B. Prior to operation of permanent facilities for temporary purposes, verify that installation is approved for operation.

C. Provide ventilation of enclosed areas to cure materials, to disperse humidity and to prevent accumulations of dust, fumes, vapors or gases.

1.5 TELEPHONE SERVICE

A. Provide phone service.

1.6 WATER

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

1.7 SANITARY FACILITIES

A. Provide and maintain required temporary toilet facilities and enclosures in accordance with requirements of governing State and local health authorities. Contractor will not be allowed to use existing toilet facilities.

1.8 BARRIERS

A. Construction site as designated by the Owner. 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 shall 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.

1.9 ENCLOSURES

A. Provide temporary weather-tight closures of any openings in exterior roofs, walls or soffits to provide acceptable working conditions and protection for materials, to allow for temporary heating or ventilation and to prevent entry of unauthorized persons.

1.10 PROTECTION OF INSTALLED WORK

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

B. Provide protective coverings at walls, projections, jambs, sills and soffits of openings. Protect surfaces from traffic and movement of heavy objects and storage.

C. Prohibit traffic and storage on landscaped areas.

1.11 SECURITY

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

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

1.12 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 and instruct personnel at project site at time of their first arrival on proper use of extinguishers.

1.13 CLEANING DURING CONSTRUCTION

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

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

1.14 OFFICES AND SHEDS

A. Contractor's Field Office: At Contractor's option, provide mobile structure or other structure approved by Owner, 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 Owner.

1.15 REMOVAL

A. Remove temporary materials, equipment, services and construction prior to substantial completion review.

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 shall 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 sole 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 immediately peruse 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: Complete specifications, full size samples, photographs, 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 thorough 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 his 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. Samples submitted by successful bidders will be impounded by the Owner to insure that products delivered to site conform in every respect to the sample. The Owner will not buy samples and will not assume any costs incidental thereto. Return of samples: Samples not destroyed in testing may be claimed by the unsuccessful bidders up to thirty calendar days after bid date, and by successful bidder up to fourteen calendar days after final payment. The Owner will assume no responsibility for samples not claimed within the time specified and will not pay for samples damaged in testing.

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 hereinbefore.
4. Architect will determine acceptability of proposed substitution and will notify Contractor of acceptance or rejection in writing within a reasonable time.

1.8 SYSTEMS DEMONSTRATION

A. Prior to final review, instruct Owner'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 shall notify the Architect who shall make a substantial completion review and after said review is made, the Contractor shall 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, shall 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 walks, drives and other permanent features which have been damaged during construction shall 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 Owner, 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 as outlined in each section of the specifications. Note length of guarantees and warranties may vary from section to section. All O&M manuals, Final reports and all other closeout requirements outlined in the specifications.

1.6 PREREQUISITES TO FINAL PAYMENT (ALL APPLICABLE ITEMS LISTED BELOW SHALL BE SUBMITTED IN DUPLICATE IN ONE COMPLETE PACKAGE):

A. Contractor's affidavit that responsible representatives of the Owner 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. Heating and ventilating and air conditioning - operation and control.

2. Electrical control switches, panels, fans, motors, etc.

3. Miscellaneous equipment operation.

4. Other systems as required - sound, energy management system, data, etc.

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 Owner.

D. Submit satisfactory evidence using the latest editions of the following forms, unless otherwise stipulated by the Owner, 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 shall submit on his letterhead a type written list of all Subcontractors used for this project and include their address, telephone number and email for use by the Owner 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 Owner.

1.8 OPERATION AND MAINTENANCE MANUALS

A. Provide Operation and Maintenance Manuals for: Mechanical equipment and controls, electrical equipment and controls and as specified in individual specification sections.

B. Submit two sets bound in 8-1/2 x 11 inch three-ring side binders with durable plastic covers, unless otherwise specified in individual specifications sections.

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. Provide table of contents and assemble all documents in binder with durable plastic cover.

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 Owner and deliver to project site.

1.11 CORRECTION DURING CONTRACTOR'S ONE YEAR GUARANTEE PERIOD

A. Contractor shall report to the proper officials regarding corrections to be made after job completion.

1. Owner will notify Contractor of deficiency.

2. Contractor shall accomplish agreed upon corrective measures and notify the Owner and secure a release on the item.

3. Should the Contractor fail to perform corrective work within fourteen calendar days, Owner shall notify Architect. Architect will contact the Contractor for corrective work. If work is not begun within three working days from Architect's notification the surety company may be notified of Contractor's non-performance.

END OF SECTION

SECTION 02 4119

SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the furnishing of all labor, equipment, materials and resources to accomplish the following:

A. The Contractor shall carefully coordinate with the Owner during all the demolition work and shall adjust his schedule for this work in accordance with the Owner's requirements to minimize disruption of work in the adjacent spaces and buildings.

B. Complete wrecking of areas and the removal and disposal of demolished materials as shown on the Drawings.

C. Demolition and removal of existing walls and other items noted on the Architectural, Mechanical and Electrical Plans.

D. It is the responsibility of the Contractor to carefully review the Contract Documents and remove any items identified on the Contract Documents or required to accomplish the new construction. Any such interference with new construction encountered after the completion of demolition work shall be remedied by the Contractor at no expense to the Owner.

1.2 RELATED REQUIREMENTS

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

B. All work of this Section shall be carried out in strict accordance with OSHA Regulations and other governing Codes.

1.3 RELATED WORK

A. Section 01 0145 - Cutting and Patching.

1.4 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided.

A. Demolition Schedule: Submit proposed methods and operations of temporary shoring and demolition for review prior to the start of work. Include in the schedule the coordination for shut-off, capping and continuation of utility services as required.

1.5 JOB CONDITIONS

A. Occupancy: Areas to be demolished will be vacated and discontinued in use prior to the start of the work.

B. Condition of Structures: The Owner assumes no responsibility for the actual condition of structures to be demolished. The Contractor shall field verify these areas and remove as required.

C. Partial Removal: Salvaged items must be transported from the site as they are removed.

D. Protections: Ensure the safe passage of persons around and in the area of demolition. Conduct operations to prevent injury to persons, adjacent buildings, structures and other facilities.

E. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide all materials, suitable and in adequate quantity, required to accomplish the work as specified herein.

PART 3 - EXECUTION

3.1 DEMOLITION

A. Pollution Controls: Comply with governing regulations pertaining to environmental protection. Clean adjacent areas of the spaces and improvements of dust, dirt and debris caused by demolition operations, as directed by the Owner.

3.2 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Remove from the site debris, rubbish and other materials resulting from demolition operations and dispose of in an approved dump.

B. Title to Materials: Title to all materials and equipment to be removed, except as specified and/or noted otherwise, is vested in the Contractor upon receipt of the Notice to Proceed. The Owner will not be responsible for the condition or loss of, or damage to, such property after Notice to Proceed. Materials and equipment shall not be viewed by perspective purchasers or sold on the site. Salvage items shall be transported from the site as they are removed.

C. Salvaged Materials and Equipment: Carefully remove materials and equipment that are listed and indicated, as applicable, to be removed by the Contractor and that are to remain the property of the Owner and deliver to a storage site on campus as directed by Owner. Remove items in a manner that will prevent damage.

3.3 CLEANUP

A. Debris and Rubbish: Remove and transport debris and rubbish in a manner that will prevent spillage on streets or adjacent areas. Clean up spillage from streets and adjacent areas.

B. Regulations: Comply with applicable Federal, State and local hauling and disposal regulations.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Cast-in-place concrete slabs on grade for new underground trenching/cutting as required for new plumbing piping.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 03 5000 – Concrete Finishing

1.4 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ASTM Standards and Test Procedures as referenced herein.

C. ACI 318 - Building Code Requirements for Reinforced Concrete.

1.5 REGULATORY REQUIREMENTS

A. Applicable Codes: The American Concrete Institute Building Code (ACI-318) and the Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI-318).

1.6 TESTING

A. Testing laboratory services shall be performed under provisions of Section 01 4000, at the Contractor's sole expense.

B. A set of four concrete test cylinders shall be taken for up to a maximum of every 25 cubic yards of concrete placed each day. One cylinder shall be tested at the expiration of seven days after concrete is placed; two at the expiration of twenty-eight days after concrete is placed, and the fourth held in reserve for additional testing in the event of failure which might indicate a defective cylinder.

C. Two additional test cylinders shall be taken during cold or hot weather and cured on site under same conditions as represented concrete.

D. One slump test shall be taken for each set of test cylinders taken.

E. Tests shall be made by an independent testing laboratory under the direction of an Engineer registered in the State of Florida. Test cylinders shall be prepared and stored by the testing laboratory and said laboratory shall be charged with the full responsibility for cylinder handling and curing prior to testing. The testing laboratory shall transport all cylinders, at the proper time, to the testing facility and, after performance of tests, transmit the results.

F. If test cylinders fail under laboratory tests to meet the strength requirements specified for the particular type of concrete involved, the Owner shall have the right to order such changes in mix and water-cement ratio as necessary to secure the strength required. The Owner shall also have the right to order additional testing at the Contractor's sole expense, including load tests on any portion of the structure where test cylinders fail to show proper strength. Load tests shall be made

in accordance with applicable Sections of ACI 301 for that portion of the structure affected. If members or portions of the structure show evident failure, such changes or modifications as are necessary to make the structure adequate for the rated capacity shall be made at the Contractor's sole expense.

G. Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:
   1. Every arithmetic average of any three consecutive strength tests equals or exceeds f = c.
   2. No individual strength test (average of two cylinders) falls below f >c by more than 500 psi (3450 kPa)

1.7 SUBMITTALS: Submittals during construction shall be made in accordance with section 01 3300. In addition, the following specific information shall be provided:

A. Provide product data for specified products.

B. Submit manufacturers' instructions for specified products.

C. Submit concrete mix design for each type of concrete based on either laboratory trial batch or field experience methods in accordance with ACI 318-05 Chapter 4. Concrete design mixes shall include a specification for water added in the field to the mix in accordance with the mix design provisions of ACI 318-05 Chapter 4. Submit for approval.

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 only. Products of other manufacturers, meeting the requirements specified herein, will be considered in accordance with Section 01 6000.

B. Like items of materials or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I Portland cement; grey color.

B. Fine and Coarse Aggregates: Natural aggregates, free from deleterious coating, thoroughly washed before use; conforming to ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.3 ADMIXTURES

A. Air Entrainment: ASTM C260, except it shall be nontoxic after 30 days and shall contain no chlorides.

B. Chemical Admixture: ASTM C494, Type A - water reducing or Type D - water reducing and retarding, except shall contain no chlorides, shall be nontoxic after 30 days, and shall be compatible with the air-entraining admixtures. Super plasticizer shall comply with ASTM C494 Type F water reducing - high range or ASTM C494, Type G - water reducing, high range and retarder, shall be added at the site to mixed and batched concrete and shall be nontoxic after 30 days and shall be compatible with the air-entraining admixture and shall contain no cholides.

2.4 ACCESSORIES

A. Bonding Agent: As manufactured by Sika Chemical Corporation Lyndhurst, NJ; or Adhesive Engineering Company, San Carlos, CA; or equal. Product shall be recommended by manufacturer as suitable to meet job requirements with regard to surface, pot life, set time, vertical or horizontal application, forming restrictions, etc. Furnish manufacturer's specific instructions for this job application.

B. Non-Shrink Grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents; SET nonshrink grout as manufactured by Master Builders Co., Cleveland, OH; Crystex as manufactured by L&M Construction Chemicals, Inc., Omaha, NE; or equal.

C. Absorptive cover shall be burlap cloth weighing approximately 9 oz. per sq. yd., complying with AASHTO M182, Class 2.

D. Moisture-retaining cover shall be waterproof paper, or polyethylene film, or polyethylene-coated burlap. All moisture-retaining cover materials shall comply with ASTM C-171.

2.5 CONCRETE MIX

A. Mix concrete in accordance with ASTM C94. Delivery tickets shall contain time of departure from plant, design mix designation, design strength and shall indicate any changes to concrete mix such as added water, added superplasticizer, etc.

B. Provide concrete with the following characteristics:

Unit	Measurement
Comprehensive Strength (28 days):	3000 psi
Concrete Aggregate Size (maximum):	1-inch
Masonry Grouting Aggregate Size (maximum):	3/8-inch
Air Entrainment:	1-1/2 to 4-1/2 % by volume
Use Slump Range:	
Slab on Grade or Fill	4 inches plus or minus 1 inch
Footings, Beams, Pile Caps	4 inches plus or minus 1 inch
Columns	2-1/2 to 5 inches
Masonry grouting	8 to 11 inches

C. Use admixtures in cold weather or hot weather as required only when approved. Use of admixtures will not relax cold weather placement requirements.

D. Add air entraining admixture to concrete mix for exposed concrete work above grade and as otherwise required when approved.

E. When air temperature is between 85 and 90 degrees, the mixing and delivering time shall be less than 75 minutes. When air temperature is higher than 90 degrees, the mixing and delivering time shall be less than 60 minutes.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's instructions.

B. Install vapor barrier as specified in Section 07 2600. Do not disturb or damage vapor barrier while placing concrete.

3.3 PLACING CONCRETE

A. Notify inspector minimum 48 hours prior to commencement of concreting operations.

B. Place concrete in accordance with ACI 301.

C. Concreting shall be carried on at such a rate that concrete is at all times plastic and flows readily into spaces between reinforcement.

D. Depositing of Concrete: Concrete shall be deposited as nearly as is possible in its final location and in such a manner that it will not show segregation. After operation has started, the unit of operation shall be carried on continuously and as rapidly as possible.

E. After concreting is started, it shall be carried on as a continuous operation until placing of a panel or section, as defined by its boundaries or predetermined joints, is completed.

F. Compacting: Concrete shall be deposited in horizontal layers not to exceed 18-inches in depth and thoroughly compacted, by means of recognized methods of mechanical vibration, into all parts of the forms and until air pockets are worked out.

G. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

H. All concrete shall be thoroughly consolidated by suitable means during placement and shall be thoroughly worked around reinforcement and embedded fixtures and into corners of forms.

I. Surface of concrete construction joints shall be cleaned and laitance removed. Immediately before new concrete is placed, all construction joints shall be wetted and standing water removed.

J. Maintain minimum concrete cover around reinforcing as follows:

Item	Coverage
Slabs on Fill	3/4 inches

K. The following concrete shall be prohibited: Partially hardened concrete, contaminated concrete, retempered concrete and concrete that is re-mixed after it has taken its initial set.

3.4 FINISHING

A. Provide concrete surfaces to be left exposed with smooth rubbed finish.

B. Formed concrete surfaces not exposed shall be finished with the texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4-inch in height rubbed down or chipped off.

C. Finish floors in accordance with Section 03 3500.

3.5 COLD WEATHER PLACING

A. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as follows.

B. When air temperature has fallen to or is expected to fall below 40° F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50° F, and not more than 80° F at point of placement.

C. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators in mix designs.

3.6 HOT WEATHER PLACING

A. When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as follows.

B. Cool ingredients before mixing to maintain concrete temperature at time of placement below 95° F. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is used to calculate total amount of water. Use of liquid nitrogen to cool concrete is Contractor's option.

C. Cover reinforcing steel with water soaked burlap, so that steel temperature will not exceed the ambient air temperature immediately before concrete is placed.

D. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed when temperatures exceed 90° F.

E. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity or other adverse placing conditions.

3.7 CONCRETE CURING AND PROTECTION

A. Concrete shall be maintained above 50° F and in a moist condition for at least the first 7 days after placement.

B. Protect freshly placed exposed concrete slab surfaces from premature drying. Start moisture curing as soon as free water has disappeared from concrete surface after placing and finishing. Begin final curing by moisture curing or moisture-cover curing immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. If forms are removed before 7 days, cure formed concrete by methods specified below, as applicable. Cure other unformed surfaces by application of appropriate moisture curing method.

C. Moisture curing shall be performed by keeping concrete surface continuously wet by continuous water-fog spray, or by covering concrete surface with absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Absorptive cover shall be placed to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.

D. Provide moisture-cover curing by covering concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3-inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.8 PATCHING

A. Immediately after removal of forms, all concrete surfaces shall be inspected. All honey-comb voids, stone pickets and tie holes shall be patched before the concrete is thoroughly hardened.

B. Defective areas shall be chipped away to a depth of not less than 1-inch, with the edges perpendicular to the surface. The area to be patched and a space at least 6-inches wide entirely surrounding the area to be patched shall be wetted to prevent absorption of water from the patching mortar.

C. Patching mortar shall be made of the same material and in the same proportions as used for the concrete, except that the coarse aggregate shall be omitted. Non-shrink grout specified herein may be used for patching mortar.

D. The patching mortar shall be thoroughly compacted into place, all holes filled solid using an approved tamping device, and shall be screened off so as to leave patch slightly higher than surrounding area. It shall be then left undisturbed for a period of one or two hours, to permit initial shrinkage, before being finally finished. The patch shall be finished in such a manner as to match the surrounding surface.

E. Where defective work is excessive, secure approval to patch. Permission to patch does not relieve the Contractor of the responsibility of removing defective work if patching cannot be done satisfactorily.

3.9 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required levels and lines, details, and elevations.

B. Repair or replace concrete not properly placed or of the specified type as directed.

3.10 FIELD QUALITY CONTROL

A. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

3.11 PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperature, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

END OF SECTION

SECTION 03 3500

CONCRETE FINISHING

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Finish slabs on fill or grade.

B. Moisture curing materials, etc.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 03 3000 – Cast-In-Place Concrete

1.4 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ASTM Standards and Test Procedures as referenced herein.

C. Federal Specifications as referenced herein.

1.5 SUBMITTALS

A. Provide product data for specified products and applicable manufacturer's instructions.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials under provisions of Section 01 6000.

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 only. Products of other manufacturers, meeting the requirements specified herein, will be considered in accordance with Section 01 6000.

B. Like items of materials or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, some parts and manufacturer's service.

2.2 MATERIALS

A. For curing materials for moisture curing of interior slabs, see Section 03 3000.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify floor surfaces are acceptable for application of this work.

B. Ensure floor surfaces are depressed where required to accommodate finish materials, such as ceramic tile.

C. Beginning of installation means acceptance of surfaces.

3.2 INTERIOR FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301.

B. Uniformly spread, screed, tamp with a jitterbug and wood float concrete to a true, even plane.

C. Manually float and lightly rake surfaces which will receive ceramic tile with full bed setting system.

D. Steel trowel surfaces to receive resilient flooring.

E. Steel trowel surfaces which will be left exposed or painted.

F. The finishing tolerance for concrete slabs which receive resilient coverings shall be 1/8” maximum in 10 feet.

3.3 TOLERANCES

A. Maintain surface flatness with maximum variation of 1/8-inch in 10 feet.

B. In areas of floor drains, maintain floor level at walls and slope surface uniformly to drains at 1/4 inch per foot.

3.4 CURING

A. Cure slab surfaces in accordance with ACI 301. Do not use curing compounds on any interior floor slabs. Apply curing compound on exterior slabs only. Apply in accordance with manufacturer's instructions.

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, complete, the following:

A. Miscellaneous metal fabrications and castings.

B. Anchoring Systems.

C. Equipment Hangers and Supports as required.

D. The tabulation of items herein is not intended to be all-inclusive. It shall be the Contractor's responsibility to provide all 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 RELATED WORK

A. Section 09 9000 - Painting and Coating.

1.4 REFERENCES

A. ASTM Standards and Test Procedures.

B. AWS D1.1 - Structural Welding Code.

1.5 SUBMITTALS

A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories of miscellaneous metal fabrications and castings as specified herein.

B. Manufacturer's Mill Certificate: Submit certification that products meet or exceed specified requirements.

1.6 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall 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 only. Products of other manufacturers, meeting the requirements specified herein, will be considered.

B. Like items of material or equipment specified herein shall 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, coal-tar pitch based 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 all oil, grease, dirt, loose rust, mill scale and other foreign substances are removed from all surfaces.

B. Shop prime; Do not prime at welds, bolts and where embedded in concrete. Apply one (1) 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) shall conform to ASTM A123. Pipe, welded or seamless steel, shall 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. All welded areas shall be thoroughly cleaned prior to galvanizing to remove all slag or other material that would interfere with the adherence of the zinc coating. When it is necessary to straighten any sections after galvanizing, such work shall be performed without damage to the zinc coating.

C. Components of bolted assemblies shall be galvanized separately before assembly.

2.5 ANCHORING SYSTEMS

A. Wedge Anchors: Stainless steel, manufactured by ITT Phillips Drill Division or Hilti 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 shall not be used except in dry areas where future corrosion is not a problem. In wet or damp areas, use wedge anchors as specified above. 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 shall 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; unless specified otherwise in applicable Mechanical / Plumbing /Electrical Sections; sizes, quantities and configurations as detailed on the Drawings or as required to properly support items of equipment. Provide 1/2" - 3/4" - 1" diameter threaded rods depending on weight of equipment to be supported. Length as required.

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 all metal fabrications and castings specified under this Section shall be the highest grade and equal to the best practice of modern shops for the respective work. Provide all necessary rabbets, lugs and brackets so that the work can be assembled in a neat, 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 these Specifications. Perform field welding and erection work by skilled mechanics. The completed installations shall, in all cases, 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' printed instructions.

D. Touch-up Painting: Immediately 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 at any time after the application of the zinc coating shall be repaired by solvent cleaning followed by hand or power tool cleaning the damaged areas, removing all loose and cracked coating; after which the cleaned areas shall 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, complete, the following:

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 shall be used where in contact with concrete or CMU.

D. All pressure treated wood shall be arsenic-free.

1.2 RELATED REQUIREMENTS

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

1.3 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300.

1.4 RELATED WORK

A. Section 05 5000 - Metal Fabrications

B. Section 06 4100 – Architectural Wood Casework

1.5 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Immediately upon delivery to site, place materials in an area protected from weather.

C. 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.

D. 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 shall be in conformance with U.S. Product Standard PS 20 and the National Forest Products Association. The wood members shall 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 shall be stamped with the grade as determined by an approved grading association indicating conformance with U.S. Product Standard PS 20.

B. Moisture content shall not exceed 19 percent, unless otherwise specified.

C. Preservative and pressure treated material shall 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 shall 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: above ground application in contact with masonry or concrete. AWPB LP-22: 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 of any type allowed.

PART 3 - EXECUTION

3.1 GENERAL

A. Use only skilled workers and the highest 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 all rough carpentry items. Anchor sufficiently to ensure rigidity and permanence.

B. Install items accurate to dimension, true to line, level and square unless indicated otherwise on Drawings. Provide for installation and support of other work.

C. Provide pressure treated wood for all wood blocking, furring and nailing strips in contact with concrete and concrete masonry units.

END OF SECTION

SECTION 06 2000

FINISH CARPENTRY

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Miscellaneous wood trim.

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 SUBMITTALS

A. Submit Shop Drawings on all finish carpentry items, indicating materials, component profiles, fastening methods, jointing details, finishes and accessories.

1.5 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

1.6 QUALITY ASSURANCE

A. The "Quality Standards" of the Architectural Woodwork Institute (AWI) shall apply and by reference are hereby made a part of these Specifications. Any reference to Premium, Custom or Economy shall be as defined in the latest edition of the AWI "Quality Standards". Any item not given a specific quality grade shall be Custom grade.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials in dry and well-ventilated areas and do not subject to extreme changes of temperature or humidity.

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 herein, will be considered.

2.2 HARDWARE

A. Provide all fasteners and miscellaneous hardware required for assembling finish carpentry items.

PART 3 - EXECUTION

3.1 GENERAL

A. Use only skilled craftsmen and the highest standards of workmanship. Plan work in advance and perform in proper sequence to facilitate prompt and continuous progress of the work.

B. Verify that surfaces or openings are ready to receive work and field measurements are as shown on shop drawings.

C. Verify mechanical, electrical and building items affecting work of this section are placed and ready to receive this work.

3.2 PREPARATION

A. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.3 INSTALLATION OF FINISH CARPENTRY ITEMS

A. Install work in accordance with AWI Custom quality standard.

B. Set and secure materials and components in place, plumb and level.

END OF SECTION

SECTION 06 4100

ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

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.

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 herein.

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 shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Qualifications: Submit complete information regarding the subcontractor’s experience and past projects as outlined in this section.

B. Samples: Submit color and pattern samples of each finish to be applied by the millwork manufacturer for selection.

C. Manufacturers' Literature: Submit manufacturers' descriptive literature of specialty items, including but not limited to, plastic laminates and cabinet hardware as specified or referenced herein. Manufacturers' literature shall be clearly marked for each proposed item. Indiscriminate submittal of unmarked literature will not be accepted.

D. Shop Drawings: Prior to fabrication, shop drawings shall be submitted for review. Shop drawings shall completely describe and illustrate all features of the design, materials, fabrication, profiles and layout of all laminate clad cabinet items.

1.6 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the drawings and any discrepancies shall 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) shall apply as a minimum, and by reference are hereby made a part of these specifications. In the event of conflict between these specifications and AWI Section 1600, then these specifications shall take precedence.

1.8 WARRANTY

A. This Contractor shall fully guarantee all items furnished and installed under this section, including materials and workmanship for a period of one year from date of substantial completion.

B. Millwork shall be guaranteed against chipping, delamination, warping of doors and all 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 below, will be acceptable for the work of this section.

B. Submittals shall be accompanied by the following information:

1. List of at least ten similar installations of the same magnitude within the past three years with complete references, including contact name and telephone numbers of previous projects.
2. Complete construction details, technical literature/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. All millwork items specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance and spare parts.

D. All high pressure laminate shall be as manufactured by Wilsonart.

2.2 GENERAL INFORMATION AND DEFINITIONS

A. Construction: Details shall 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: All laminate clad cabinets shall be plant assembled. Where design, delivery or site conditions require, laminate clad cabinets shall be assembled in component units with provisions made for field connecting.

C. Colors of Plastic Laminate: Provide full range of all 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 shall be considered exposed surfaces. Visible interior surfaces, i.e. open shelving, shall be classified as an exposed surface and shall 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 shall be considered semi-exposed surfaces. Interior surfaces which are not visible when doors are closed and tops of cabinets 72" or more above finish floor shall be considered semi-exposed surfaces.

F. Concealed Surfaces: Surfaces not normally visible after installation i.e., stretchers, blocking and vertical partitions shall be considered concealed surfaces.

G. Exposed Edges: Edge of stiles, rail and partitions visible when a door is opened, all edges of door, edges of stiles, rails and partitions of cabinets, front and back edges of shelves shall be 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 shall have 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 shall 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 shall be eased to eliminate sharp 90 degree corners.
   4. Directions and matching of patterns or grains shall be as selected.

B. Cabinet Hardware: Manufacturer shall furnish and install cabinet hardware. Cabinet hardware items shall meet the following requirements:
   1. Hinges shall be concealed type equal to those as manufactured by Shield Casework. Color to be selected during construction submittals.
   2. Pulls shall be “Bend” type as manufactured by Shield Casework. Color to be selected during construction submittals.
   3. Catching devices shall be magnetic type, and shall be minimum 7-pound pull; catching devices for cabinets 72-inches and taller shall have minimum 15-pound pull. In addition, cabinets over 54-inches shall have minimum 2 catching devices per door.
   4. Hardware for adjustable shelves - manufacturer shall have the option of:
      a. Multiple holes with metal pins.
      b. Metal shelf standards with metal shelf supports.

5. Provide all special hardware as noted or as required to suit each condition.

C. Flatness of doors:

1. Maximum permitted deviation from flatness in door shall be 0.005 per lineal foot. Flatness shall 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 shall be 1" thick.

D. Thickness and materials for laminate clad cabinet components:

1. Continuous base frame base cabinets shall rest on standard continuous wood base frame. Particleboard or fiberboard products shall not be used. Continuous base frame shall be leveled at the front using a mechanical leveling device. Softwood shims or shakes shall not 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) shall 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 shall be assembled utilizing glue and pressure. The dado method shall 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 shall 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 all 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 all defects are corrected and blocking is in place.

B. Contractor shall 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. Carefully 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 shown or required for a complete and finished installation.

D. Vinyl base for toe space and ends of base cabinets shall 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 shall have equal margins. Doors shall 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 all millwork and hardware prior to substantial completion review.

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, complete, the following:

A. Water repellent coating for all new paint over existing stucco finish.

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 QUALITY ASSURANCE

A. Applicator: Minimum 2 years experience on projects of similar scope.

B. Test Area: Test a minimum 4 ft. x 4 ft. area. Use the manufacturer's application instructions. Let test area protective treatment cure before inspection.

1.5 SUBMITTALS: Submittals during construction shall be made. In addition, the following specific information shall be provided:

A. Include details of product description, limitations to coating, cautionary procedures required during application and chemical properties.

B. Submit manufacturer's printed application instructions.

C. Applicator's Qualification Affidavit: Submit water repellent coating applicator's affidavit of qualification compliance with shop drawing submittal.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment per manufacturer's recommendations.

B. Deliver materials in original sealed containers, clearly 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 will be considered provided they are equal to the product specified.

B. Acceptable Manufacturer: Prosoco, Inc., 3741 Greenway Circle, Lawrence, KS 66046. Phone: (800) 255-4255; E-mail: CustomerCare@prosoco.com

2.2 PENTRATING WATER REPELLENTS

A. Water repellent coating shall be equal to Weather Seal Siloxane PD Water Repellent.

2.3 PRODUCT DESCRIPTION

A. Sure Klean Weather Seal Siloxane PD (predilute) is a ready-to-use, water-based silane/siloxane water repellent for concrete, masonry and stucco surfaces

B. Form: Cloudy white liquid, odorless.

C. Specific Gravity: 0.996

D. Weight/Gallon: 8.29 pounds.

E. Active Content: 7 percent.

F. Total Solids: 4 percent ASTM D5095.

G. Flash Point: Greater than 212 degrees ASTM D3278.

H. Freeze Point: 32 degrees.

I. Shelf Life: 1 year in tightly sealed, unopened container.

J. VOC Content: Complies with all known national, state and district AIM VOC regulations.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect all 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 visqueen plastic. Remove immediately 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 stucco is clean and ready to receive coating.

3.4 APPLICATION

A. Perform a test area prior to full-scale application of waterproofing sealant.

B. Apply water repellent coating in strict accordance with manufacturer's directions.

C. For Vertical Applications: Spray: Saturate from the bottom up, creating a 4” to 8” rundown below the spray contact point. Let the first application penetrate for 5 to 10 minutes. Re-saturate. Less will be needed for the second application. Brush or Roller: Saturate uniformly. Let protective treatment penetrate for 5 to 10 minutes. Brush out heavy runs and drips that don’t penetrate.

D. Prohibit fumes from entering the building being treated.

3.5 DRYING TIME AND CLEANUP

A. Treated surfaces dry to touch in 1 hour. Protect surfaces from rainfall for 6 hours following treatment. Siloxane PD gains its water repellency properties in 72 hours.

B. Clean spillage and overspray from adjacent surfaces as recommended by coating manufacturer.

3.6 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 shall be provided be both the manufacturer as discussed above and by the applicator to cover the application.

END OF SECTION

SECTION 07 2100

THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Two-component closed-cell spray polyurethane foam insulation with an approved blowing agent designed for use as a construction insulation air barrier system.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

1.5 QUALITY ASSURANCE

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
      a. BASF Corporation.
      b. Dow Chemical Company (The).
      c. ERSystems, Inc.
   2. Minimum density of 1.5 lb/cu. ft. thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ensure the interior face of the decking is unfaced with any plastic, foil, other film before application.

B. Remove projections that interfere with placement.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

B. All personnel entering the work area must wear appropriate personal protective equipment.

C. Safety signage must be posted at all entrances.

D. A daily work sheet is required for each project.

E. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

F. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.

3.3 INSULATION APPLICATION

A. Ensure full adhesion of insulation and take whatever steps necessary to achieve full adhesion.

B. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.

C. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation.

D. Sprayed insulation sets almost immediately. Ensure framing and decking is square and true prior to spray application.

E. The insulation is applied in passes having a minimum thickness of ½ inch and a maximum thickness of 2 inches per pass, up to the total thickness for R-36.

3.4 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

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, complete, the following:

A. Batt insulation and related fasteners.

B. All batt insulation and any fire safing used on this project shall 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 herein.

B. Federal specifications as referenced herein.

1.5 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Manufacturer's literature: submit manufacturers' technical literature for each type of insulation specified herein.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Clearly identify manufacturer, contents, brand name, applicable standard and "R" value.

C. Store materials off ground and keep dry at all times. Protect against weather, condensation and damage. Immediately remove damaged material from site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Batt insulation and fasteners: Furnish and install 3'-1/2" or 6" thick 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 shall be as recommended by insulation manufacturer for each condition. Insulation shall 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 whose work or the required inspection of their work could be affected.

3.2 INSTALLATION

A. Batt insulation and fire safing: install in accordance with the manufacturer's instructions. At any fire rated walls or ceilings, install to achieve fire rating required.

3.3 CLEANUP

A. Remove all containers, wrappings and scrap insulation material from site weekly at a minimum. Leave floors broom clean.

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, complete, the following:

A. Under-slab 15 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 herein.

1.4 SUBMITTALS: Submittals during construction shall 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 thereon.

PART 2 - PRODUCTS

2.1 BARRIER

A. Barrier at slabs on grade shall be minimum 15-mil minimum, Class A installation, polyurethane material equal to Stego Wrap. All joints and penetration shall 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. Caution shall be maintained to provide a puncture-free barrier. Any tears or holes shall be repaired by removing defective sheet and replacing with a new sheet.

C. All penetrations in barrier shall be sealed with same material lapped 12" from edge of penetration and taped.

D. Barrier shall 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 resulting from this operation and dispose of such waste materials off the site.

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, complete, the following:

A. Sealants for all joints related to buildings and structures.

B. Firestop sealant at all joints in any fire rated walls, ceilings and other joints if fire rating called for on the drawings.

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. Federal Specifications as referenced herein.

1.5 ENVIRONMENTAL CONDITIONS

A. The ambient temperature shall be between 40 and 90 degrees F when sealant is applied.

B. Surfaces shall be dry to the touch.

1.6 QUALITY ASSURANCE

A. Applicator shall have a minimum of two years of experience installing sealants in projects of similar scope.

B. Color(s) of sealants selected shall be utilized throughout the project; the use of multiple colors on a given bead run shall not be accepted.

1.7 SUBMITTALS

A. Samples and Certificates: Submit small samples of each sealant type specified herein showing full color range. Samples shall be accompanied by a Certificate of Compliance with requirements specified herein for each sealant type.

B. Applicator's Affidavit: Submit applicator's affidavit of qualification compliance.

1.8 GUARANTEE

A. Installed sealants and accessories shall be guaranteed for a period of five years from date of Substantial Completion. Written guarantee shall 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.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver all sealants to the site in sealed containers, each bearing manufacturer's name and product designation.

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 all of the requirements specified herein, will only be considered upon submission of complete data in the form of a shop drawing with detailed information on proposed products.

2.2 SEALANTS

A. Sealants shall be self-leveling for horizontal and sloping joints with a maximum slope of 1 percent. Non-sag sealants shall be used for steeper sloped joints, vertical joints and overhead joints. Silicone sealants are not acceptable except at plumbing fixtures.

B. Plumbing Fixtures: Dow Corning 784 Silicone Sealant or approved equal. Color to be selected during construction submittals.

C. Firestop Sealant: Shall be equal in all respects to Dow Corning 2000, red in color. Sealant shall meet fire test data per ASTM E 814. Apply in accordance with manufacturer's detailed Specifications. Firestop sealant shall be used at all locations where fire rated walls, ceilings or other fire rated areas are called for on the Drawings. Apply prepare 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.

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 all 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. All surfaces to be sealed shall 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 all subsurfaces.

3.2 INSTALLATION

A. Apply all 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 (if required), sealant shall be installed with convex surface to shed water.

3.3 CLEANING

A. The surfaces next to the sealed joints shall 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. DOOR SHALL BE FLUSH WITH NO GLAZING. FRAME SHALL BE 3'-4" WIDE WITH 2" JAMB AND 7'-2" HIGH WITH 2" HEAD. REFER TO DRAWINGS SHEET LS-1 LIFE SAFETY PLAN FOR FIRE-RATED LOCATIONS.

2. POCKET DOORS AND FRAMING DETAILS SHALL BE MANUFACTURER'S STANDARD.

3. DOOR SHALL BE FLUSH WITH NO GLAZING. FRAME SHALL BE 3'-4" WIDE WITH 2" JAMBS AND 7'-2" HIGH WITH 2" HEAD.

4. DOOR OPENING IS A PAIR AND EACH DOOR SHALL HAVE AN APPROXIMATELY 10" X 30" NARROW GLAZING LITE. FRAME SHALL BE 6'-4" WIDE WITH 2" JAMB AND 7'-2" HIGH WITH 2" HEAD.

5. DOOR OPENING IS A PAIR AND EACH DOOR SHALL BE FLUSH WITH NO GLAZING. FRAME SHALL BE 6'-4" WIDE WITH 2" JAMB AND 7'-2" HIGH WITH 2" HEAD. REFER TO THE DRAWINGS SHEET LS-1 LIFE SAFETY PLAN FOR FIRE-RATED LOCATIONS.

6. REFER TO SECTION 08 3323 OVERHEAD COILING DOORS.

DOOR SCHEDULE

OPEN'G NO.	DOOR WIDTH	DOOR HT.	DOOR THK.	DOOR MAT'L.	FRAME MAT'L.	HEAD DET.	JAMB DET.	HDW	REMARKS
101A	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
102	3'-0"	7'-0"	MANUF.	MANUF.	MANUF.	MANULF.	MANUF.	2	2
103	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	3	1
104	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	4	3
106	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	5	4
107/1	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	5	5
107/2	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
108	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	6	3
109/1	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	6	1
109/2	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	6	3
110	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
111	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
112	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
113	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
114	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
115	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1

DOOR SCHEDULE

OPEN'G NO.	DOOR WIDTH	DOOR HT.	DOOR THK.	DOOR MAT'L.	FRAME MAT'L.	HEAD DET.	JAMB DET.	HDW	REMARKS
116	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
117	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
118	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
119	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
120	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
121	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
122/1	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	1	1
122/2	4'-0"	4'-4"	MANUF.	MANUF.	MANUF.	C/A-4	D/A-4	MANUF.	6
123	3'-0"	7'-0"	1 ¾"	SCWD	H.M.	A/A-1	B/A-1	6	1

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Rolled steel frames. Coordinate with Door Schedule in Section 08 1000 and Drawings.

B. Hollow metal frames shall be coated with bitumastic and grout filled.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 08 1416 – Flush Wood Doors

B. Section 08 7100 - Door Hardware

C. Section 09 9000 - Painting and Coating

1.4 REFERENCES

A. ASTM Standards and Test Procedures.

B. SDI-100 - Standard Steel Doors and Frames.

C. SDI-105 - Recommended Erection Instructions for Steel Frames.

1.5 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Shop Drawings: Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement and finish. No fabrication of frames shall be performed until the manufacturer has an approved copy of the Door Hardware Schedule. The Manufacturer shall coordinate fabrication of frames with approved Hardware Schedule. Location of each frame shall be noted with the same reference as used on Drawings.

B. Indicate elevations, fire rating if required, internal reinforcement, closure method and cut outs for glazing and louvers if required.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Deliver, store, and handle steel frames in a manner to prevent damage and deterioration. Provide packaging such as cardboard or other containers, separators, banding, spreaders and paper wrappings for protection.

C. Follow storage and handling requirements of manufacturer.

1.7 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceco Corporation.

B. Steelcraft Manufacturing Company.

C. Curries Company.

2.2 FRAMES

A. Interior Frames: 16 gauge galvanized.

B. Coordinate with the Door Schedule 08 1000.

2.3 ACCESSORIES

A. Furnish manufacturer's standard anchors, fasteners, etc. Minimum three anchors per jamb, each side.

B. Silencers.

2.4 FABRICATION

A. Fabricate all frames of welded assembly, fire-rated as/if required.

B. Fabricate frames with hardware reinforcement plates welded in place and then galvanized. Provide 12 gauge galvanized reinforcement plates at all door closer locations.

C. Prepare frame for silencers; provide three for single doors on strike side, and four on frame head at double doors without mullions. Delete where weather-stripping specified.

D. The hardware supplier shall furnish and forward accurate information to the manufacturer for proper location of door hinges and required overall type of doors that are to be installed in hollow metal frames for proper coordination and prepping of doors.

2.5 FINISH

A. After erection of frames, areas where prime coat has been damaged shall be sanded smooth and touched up with same primer as applied at shop. Remove rust and treat with field applied galvanizing before above specified touch-up is applied. Touch-up shall not be obvious.

B. All interior metal frames shall be phosphate treated for paint adhesion and receive one coat of baked-on rust-inhibiting prime coating compatible with finish coating.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install frames in accordance with SDI-105. Install doors in accordance with SDI 100.

B. Coordinate with existing stud wall construction for anchor placement.

3.2 ADJUSTING AND CLEANING

A. Adjust all hardware, including cylinders, for smooth and balanced door movement.

3.3 PROTECTION

A. Protect installed steel frames and related work against damage from other construction work.

END OF SECTION

SECTION 08 1416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Prefinished wood doors.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 08 1113 – Hollow Metal Doors and Frames

B. Section 08 7100 - Door Hardware

1.4 QUALITY ASSURANCE

A. The "Quality Standards" of the Architectural Woodwork Institute (AWI) shall apply and by reference are hereby made a part of these specifications. Any reference to premium, custom or economy shall be as defined in the latest edition of the AWI "Quality Standards".

1.5 SUBMITTALS

A. Shop Drawings: Indicate door elevations, fire rating if required for each door, stile and rail reinforcement, internal blocking for hardware and cutouts for glazing if required. Location of each door shall be noted with the same reference as used on drawings.

1.6 DELIVERY, STORAGE, AND PROTECTION

A. Deliver doors to project site after moisture-producing construction operations are complete and building has reached average prevailing relative humidity of locality. Do not drag doors across one another.

B. Stack flat on 2 x 4 lumber, laid 12-inches from ends and across center. Under bottom door and over top of stack provide plywood or corrugated cardboard to protect door surface and store doors in well ventilated enclosed area.

1.7 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

1.8 WARRANTY

A. Warranty: Provide written guarantee from door manufacturer stating that doors will not delaminate or warp from a true plane of more than 1/4-inch for a period of one year from the date of Substantial Completion. Doors failing these requirements will be replaced with matching finish at the Contractor's sole expense.

PART 2 - PRODUCTS

2.1 DOOR TYPES

A. Flush Interior Doors: 1-3/4 inches thick; solid core construction; prefinished wood veneer faces. Fire-rated as required per Drawings.

2.2 DOOR CONSTRUCTION (AWI QUALITY STANDARD)

A. Solid, fire-rated or non-rated Core as required: AWI Section 1300, PC5 hot pressed, with 1-1/2 inch minimum width top and bottom hardwood rails. Styles shall match face veneer, 5 ply hot pressed.

2.3 FLUSH DOOR FACING

A. Facing Quality: AWI premium grade. All wood doors shall be prefinished from the factory.

B. Flush Interior Door Veneer: Yellow birch "natural" species wood, rotary sliced with random matched grain, for transparent factory finish, pre-finished.

2.4 ACCESSORIES

A. Adhesives: Door manufacturer's standard for interior doors.

2.5 FABRICATION

A. Fabricate doors in accordance with AWI Quality Standards requirements.

B. Factory pre-machine doors for finish hardware.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that door frames are of type required for door and are installed as required for proper installation of doors. Do not install doors in frames which would hinder the operation of the doors.

3.2 INSTALLATION

A. Install doors in accordance with manufacturer's instructions. Installed door and frame assembly shall conform to A.W.I. specifications.

B. Trim door height by cutting equally on top and bottom edges to a maximum of 3/4 inch at non-fire separated areas. No trimming allowed where doors are fire-rated.

C. Finish all job site cut surfaces with specified door finish material provided by door supplier before final hanging of doors.

3.3 ADJUSTING AND CLEANING

A. Adjust for smooth and balanced door movement.

B. Replace or rehang doors which are hinge bound and do not swing or operate freely.

C. Replace doors damaged during installation at Contractor's sole expense.

END OF SECTION

SECTION 08 3113

ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

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 herein.

1.5 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Shop drawings:
   1. Prior to ordering or fabricating any doors, submit for review shop drawings and manufacturer's literature showing construction and installation details.
   2. Location of each door shall be noted with the same reference as used on Drawings.

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 or equipment under provisions of Section 01 6000.

B. Deliver, store and handle doors in a manner to prevent damage and deterioration.

1.7 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and lay out of work. The Contractor shall review the drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Like items of material or equipment specified herein shall 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 all locations where required for access to valves and other items as required to have access. Provided minimum 18" x 18". Review the Mechanical/Electrical portions of the documents for locations requiring access panels.

2.3 CEILING ACCESS PANEL

A. Bar-Co, Milcor or equal, for gypsum board ceilings, complete with frame and key operated cylinder locks. Provide minimum 24" x 24". Provide and install at all locations required for access to valves, dampers, electrical equipment and other items as to have access. Review particularly the Mechanical/Electrical portions of the documents for locations requiring access panels.

2.4 FIRE RATED ACCESS PANELS

A. Provide at all locations where located in a fire rated wall or ceiling. Carefully review Floor Plan, Life Safety Plan, Mechanical and Electrical plans for these locations.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install as shown in accordance with the manufacturers' recommendations and instructions. Adjust doors for smooth operation. Installation shall be by an experienced factory authorized installer.

3.2 PRIME COAT TOUCH-UP

A. After installation any areas where prime coat has been damaged shall be sanded smooth and touched up with same primer as applied at the shop. Remove rust before above specified touch-up is applied. Touch-up shall not be obvious.

3.3 PROTECTION

A. The Contractor shall protect installed panel against damage from other construction work.

B. Panels which are damaged beyond repair shall be replaced at no expense to the owner.

3.4 WARRANTY

A. All panels shall be warranted against defects in workmanship and materials for a period of twelve months from date of substantial completion.

END OF SECTION

SECTION 08 3323

OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Overhead Coiling Doors.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 05 5000 – Metal Fabrications

B. Section 06 1053 – Miscellaneous Rough Carpentry

C. Section 09 2116 – Gypsum Board Assemblies

D. Section 09 2216 – Nonstructural Metal Framing

1.4 REFERENCES

A. ASTM Standards and Test Procedures.

1.5 FIELD MEASUREMENTS

A. The Contractor shall field verify all opening dimensions, shall make any other field measurements necessary and shall be fully responsible for accuracy and lay out of work. The Contractor shall review the Drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

B. Refer to the Drawings for door dimensions.

1.6 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Shop Drawings:
   1. Prior to ordering or fabricating any overhead coiling doors, submit for review shop drawings and manufacturer's literature showing construction and installation details.
   2. Sizes of each door shall be noted.

B. Color Samples: Manufacturer's current color samples of factory finished coatings for color selections.

C. Provide two copies of Operation and Maintenance Manuals for the doors.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Deliver, store and handle overhead coiling doors in a manner to prevent damage and deterioration.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 OVERHEAD COILING DOORS

A. Furnish face-of-wall mounted type, manually operated, overhead coiling doors in sizes indicated, complete with aluminum curtain, barrel, brackets, hood, guides, operating mechanism, interior side locking device and features specified below, as manufactured by one of the following manufacturers:
   1. The Cookson Co.
   2. Cornell Ironworks
   3. American Roll-Up Doors, Inc.

B. Curtain: Composed of interlocking aluminum flat slats, size the standard of the manufacturer.

C. Side Guides: ASTM A-36 hot-rolled steel shapes as appropriate of conditions. Anchorage of jamb tracks shall be as required for daily use.

D. Provide all other features, factory finished hood, etc., as required for a complete, operating installation. Color of hood to be selected from the manufacturer’s standard colors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install overhead coiling doors as shown on the drawings and in accordance with the manufacturers' recommendations and instructions. Adjust doors for smooth, satisfactory operation. Installation shall be by an experienced factory authorized installer.

3.2 FINISH COAT TOUCH-UP

A. After erection of doors, where applicable, areas where finish coat on hood has been damaged shall be sanded smooth and touched up with same finish as applied at the shop. Remove any rust and prime before touch-up is applied. Touch-up shall not be obvious, or repainting of the entire hood will be required.

3.3 PROTECTION

A. The Contractor shall protect installed doors against damage from other construction work.

B. Doors which are damaged beyond repair in shall be replaced at no expense to the Owner.

3.4 WARRANTY

A. Overhead Coiling Doors shall be warranted against defects in workmanship and materials for a period of twelve months 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, complete, the following**:**

A. Exterior Storefront and Interior Aluminum storefront framing.

B. Sealant associated with the work of this section.

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 7100 – Door Hardware

C. 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 herein.

1.5 SUBMITTALS: Submittals during construction shall be made. In addition, the following specific information shall be provided:

A. Samples: Six-inch long samples of anodized extruded aluminum.

B. Shop Drawings:

1. Details of framing and double Bi-Parting sliding doors and anchorage to structure.
2. Location of storefront framing shall be noted with the same reference as to location as used on the Drawings.
3. Field measure existing conditions prior to preparation of Shop Drawings. Make dimensional adjustments as required on the Shop Drawings.
4. Provide information in conformance with ASCE 7-10 for exterior wind loading criteria for installation, anchorage design and related work at all exterior storefront framing and glass. Standard anchorage required at interior storefront installations.

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 shall field verify all dimensions and existing conditions and shall make any field measurements necessary. Contractor shall be fully responsible for accuracy and layout of work and shall make adjustments as required for a complete installation at no additional cost to the

Owner. The Contractor shall review the Drawings and any discrepancies shall be reported to the Architect for clarification prior to starting fabrication.

1.8 GUARANTEE

A. Provide a written Guarantee to make, at Contractor's sole expense, any repairs necessary because of faulty materials or workmanship for a period of two years from date of Final Completion of the Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. All components for the aluminum framing and storefronts as herein specified shall, for the purpose of establishing the standard of quality and general configuration desired, be as manufactured by OLDCASTLE ARCHITECTURAL PRODUCTS SERIES FG-3000 for exterior applications and FG-2000 for interior applications. Equal products as manufactured or supplied by other manufacturers, provided they can meet the impact requirements of these specifications will be considered.

2.2 STOREFRONT MATERIALS

A. The tabulation of items herein is not intended to be all inclusive, and it shall be the Contractor's responsibility to provide all components for aluminum storefronts shown on the Drawings, specified, or which can be reasonably inferred as necessary to complete this Project.

B. All aluminum framing and extrusions shall have a face dimension as specified herein for both the exterior and interior storefront systems. The framing shall be accurately assembled with unexposed fasteners utilizing extruded splines, clips and/or snap-in features. Glass shall be held in place by E.P.D.M. glazing gaskets on both sides. No applied stops shall be permitted.

C. Finish shall be selected during construction submittals, Class 1.

D. The framing shall be accurately assembled with unexposed fasteners utilizing extruded splines, clips and/or snap-in features. Refer to Section 08 8000 for glazing. Glass shall be set in the center of the section. Glass shall be held in place by E.P.D.M. glazing gaskets on both sides. All exposed surfaces shall be free of unsightly scratches and blemishes.

E. Storefront Framing:

1. Materials: All framing sections shall be of extruded aluminum alloy and tempered to meet or exceed finishing and structural criteria as specified. Framing shall be tubular and have 0.125" wall thickness. All weathering on exterior installations shall be hard-backed silicone treated polypropylene.
2. Finish: All exposed surfaces shall be free of unsightly scratches and blemishes.
3. Interior storefront shall have snap-in stops with bulb glazing vinyl on both sides of glass. No exposed screws shall be permitted. Transom or sidelight framing shall be accurately joined at corners with hairline joints, with concealed screws.

2.3 FABRICATION OF STOREFRONT

A. Reinforce exterior mullions as necessary to limit deflection to 1/175 of span per wind loading requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All items shall be set in their correct locations as shown on the Drawings and shall be level, square, plumb, and at proper elevations and in alignment with other work.

B. Seal all joints. Framing members shall be screwed in place using backing, anchor plugs, or straps as required. Where moldings are joined, they shall be accurately cut and fitted to result in a tightly closed hairline joint. No unfinished aluminum shall be visible.

3.2 CLEANING

A. After erection, the Contractor shall protect exposed portions from damage by machines, plaster, lime, paint, acid, cement, or other harmful compounds. The Contractor shall be responsible for removal of protective materials and cleaning per storefront framing manufacturer's printed instructions.

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work in this section includes furnishing all items of finish hardware as hereinafter specified or obviously necessary for all swinging doors.

B. Provide temporary cylinders as required for securing the building until the permanent cylinders are installed.

1.2 RELATED REQUIREMENTS

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

1.3 RELATED WORK

A. Section 08 1000 – Door Schedule

B. Section 08 1113 - Hollow Metal Doors and Frames

C. Section 08 1416 – Flush Wood Doors

1.4 REFERENCES

A. Standards
1. ANSI A156.1 – Butts and Hinges
2. ANSI A156.2 – Bored Locks and Latches
3. ANSI A156.4 – Door Controls – Door Closers
4. ANSI A156.5 – Auxiliary Locks and Associated Products
5. ANSI A156.6 – Architectural Door Trim
6. ANSI A156.7 – Template Hinge Dimensions
7. ANSI A156.13 – Mortise Locks and Latches
8. ANSI A156.16 – Auxiliary Hardware
9. ANSI A156.18 – Material and Finishes

B. Codes
1. NFPA 101 – Life Safety Code
2. ANSI A117.1 – Accessible and Usable Buildings and Facilities
3. ADA – Americans with Disabilities Act
4. Florida Building Code 6th Edition (2017)

1.5 SUBMITTALS

A. General Requirements
1. Submit copies of Door Hardware Schedule in accordance with the requirements of Section 01 3300.

B. Schedules and Product Data
1. Schedules shall list each door opening and be organized into hardware sets indicating complete designations of every item required for each door opening to function as

intended. Note any special mounting instructions or requirements with the hardware schedule. Schedules to include the following information:

a. Location of each hardware set to be cross-referenced to indications on the Drawings and in Door Schedule.
b. Handing and degree of swing of each door.
c. Door and frame sizes and materials.
d. Keying information.
e. Type, style, function, size and finish of each hardware item.
f. Name and manufacturer of each hardware item.
g. Fastenings and other pertinent information.
h. Explanation of all abbreviations, symbols and codes contained in schedule.
i. Mounting locations for hardware when varies from standard.

2. Submit catalog cuts and/or product data sheets for all scheduled finish hardware.
3. Submit separate detailed keying schedule for approval indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

C. Samples

1. Upon request, samples of each type of hardware in finish indicated shall be submitted. Samples are to remain undamaged and in working condition through submittal and review process. Items may be incorporated into the work within limitations of keying coordination requirements.

D. Templates

1. Furnish a complete list and suitable templates, together with finish hardware schedule to Contractor, for distribution to necessary trades supplying materials to be prepped for finish hardware.

E. Operation and Maintenance Manual

1. Upon completion of construction, furnish two complete maintenance manuals to the Owner. Manuals to include the following items:

a. Approved hardware schedule, catalog cuts and keying schedule.
b. Hardware installation and adjustment instructions.
c. Manufacturer's written warranty information.

1.6 QUALITY ASSURANCE

A. Supplier Qualifications

1. A recognized Architectural door hardware supplier who has maintained an office and has been furnishing hardware in the project's vicinity for a period of at least two years.
2. Hardware supplier shall have facilities to accommodate this project.
3. Hardware supplier shall have in his employment at lease one Architectural Hardware Consultant who is available for consultation about the project's hardware and requirements for the Owner and Contractor.
4. Hardware supplier must be an authorized factory distributor of products.

1.7 DELIVERY, STORAGE AND HANDLING

A. Marking and Packaging

1. Properly package and mark items according to the approved hardware schedule, complete with necessary screws and accessories and instructions and installation templates for spotting mortising tools. Contractor shall check deliveries against accepted list and provide receipt for them, after which he is responsible for storage and care. Any shortage or damaged good shall be made without cost to the Owner.

2. Packaging of door hardware is the responsibility of the supplier. As hardware supplier receives material from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set and door numbers to match the approved Hardware Schedule.

B. Delivery

1. The supplier shall deliver all hardware to the project site. Hardware supplier shall coordinate delivery times and schedules with the Contractor. Inventory door hardware jointly with representatives of hardware supplier and hardware Installer/Contractor until each is satisfied that count is correct.
2. No keys, other than construction master keys and/or temporary keys are to be packed in boxes with the locks.
3. At time of hardware delivery, door openings supplier, in conjunction with the Contractor, shall check in all hardware and set up a secure, lockable hardware location.

C. Storage

1. Provide secure lock-up for door hardware delivered to the project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

1.8 WARRANTY

A. All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the Owner.

1. Locksets: Five years
2. Door closers: Ten years

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers as listed below shall be acceptable. Obtain each type of finish hardware (hinges, latch and locksets, door closers, etc.) from a single manufacturer.

2.2 MATERIALS

A. Screws and Fasteners

1. All required screws shall be supplied as necessary for securing finish hardware in the appropriate manner. Thru-bolts shall be supplied for all door closers.

B. Hanging Devices

1. Hinges
   a. Hinges shall conform to ANSI A156.1 and have the number of knuckles as specified, oil-impregnated bearings as specified with non-removable pin feature where specified. Unless otherwise scheduled, supply one hinge for every 30” of door height. Hinges shall be a minimum of 4 1/2” high and 4 1/2” wide; heavy weight hinges (.180) shall be supplied at all doors where specified.

C. Cylinders and Keying

1. Keying

a. Shall be provided with temporary cylinders and keying. All locks and cylinders to be master-keyed and grandmaster-keyed at the end of construction as directed by the Owner.

b. Coordination with the Owner during the keying phase of the project shall be included in the bid, along with all necessary specific instructions required for a complete and operational locking system at the end of the project.

D. Locking Devices

1. Locksets – Grade 1 Cylindrical - Interior

a. All cylindrical locksets shall exceed ANSI/BHMA 156.2 Grade 1 Series. Levers shall be solid cast with 3-1/2" diameter rose.

E. Door Closers

1. Surface Mounted Closers

a. All door closers shall be ANSI 156.4, Grade 1 Certified. Closers shall not have pressure relief valves. All closers shall have aluminum alloy bodies, forged steel arms and separate valves for adjusting back-check, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall not be installed on exterior side of doors; where possible install closers on door for optimum aesthetics.

F. Door Trim and Protective Plates

1. Kick plates shall be .050 gauge and two inches less full width of door.

G. Silencers

1. Furnish rubber door silencers all hollow metal frames; two per pair and three per single door frame.

2.3 FINISHES

A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating, 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.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Contractor shall ensure that the building is secured and free from weather elements prior to installing interior door hardware. Examine hardware before installation to ensure it is free of defects.

3.2 INSTALLATION

A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with the governing regulations.

1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute (DHI.)

B. All hardware shall be applied and installed in accordance with best trade practice by an experienced hardware installer. Care shall be exercised not to mark or damage adjacent work.

C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protection with finishing work. Do not install surface-mounted items until finishes have been completed on the substrates involved.

D. 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.

3.3 FIELD QUALITY CONTROL

A. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the Contract Documents.

B. Prior to the installation of hardware, manufacturer's representatives for locksets, closers and any exit devices shall arrange and hold a jobsite meeting to instruct the installing Contractor's personnel on the proper installation of their respective products. A letter of compliance, indicating when this meeting is held and who is in attendance, shall be sent to the Owner.

C. The hardware supplier shall do a final inspection prior to building completion to ensure that all hardware was correctly installed and is in proper working order.

D. The manufacturer’s representative shall do a final inspection prior to building completion to ensure that all hardware was correctly installed and is in proper working order.

3.4 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and conduct a final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore to proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

3.5 PROTECTION

A. Contractor shall protect all hardware, as it is 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.

3.6 HARDWARE SCHEDULE

A. The following schedule is furnished for whatever assistance it may afford the Contractor; do not consider it as entirely inclusive. Should any particular door or item be omitted in any scheduled hardware heading, provide door or item with hardware same as required for similar purposes. Hardware supplier is responsible for handing and sizing all products as listed in the hardware heading. Quantities listed are for each pair of doors, or for each single door.

B. All lock functions, finishes, applications and keying shall be reviewed with the Owner’s Representative at a meeting before finish hardware schedules are submitted for final approval.

C. Finishes shall match existing. Contractor to field verify prior to bidding and submitting shop drawings.

HARDWARE SET NO. 1
DOOR: 101A, 107/2, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121 AND 122/1

3 EA.	HINGES	5BB1 4.5 X 4.5 NRP	IVES
1 EA.	OFFICE SET	MATCH EXISTING SYSTEM	
1 EA.	SURFACE CLOSER	SC81	FAL
3 EA.	SILENCERS	SR64	IVES
1 EA.	WALL STOP	WS407CVX	IVES

NOTE: PLEASE REVIEW DRAWING SHEET LS-1 FOR FIRE-RATED DOOR LOCATIONS

HARDWARE SET NO. 2
DOOR: 102

POCKET DOOR STANDARD HARDWARE BY MANUFACTURER

HARDWARE SET NO. 3
DOOR: 103

3 EA.	HINGES	5BB1 4.5 X 4.5 NRP	IVES
1 EA.	PASSAGE SET	MATCH EXISTING SYSTEM	
1 EA.	SURFACE CLOSER	SC81	FAL
1 EA.	KICK PLATE	8400 10” X 34”	IVES
3 EA.	SILENCERS	SR64	IVES
1 EA.	WALL STOP	WS407CVX	IVES

NOTE: PLEASE REVIEW DRAWING SHEET LS-1 FOR FIRE-RATED DOOR LOCATIONS

HARDWARE SET NO. 4
DOOR: 104

3 EA.	HINGES	5BB1 4.5 X 4.5 NRP	IVES
1 EA.	PUSH PLATE	8200 4” X 16”	IVES
1 EA.	PULL PLATE	8302 4” X 16”	IVES
1 EA.	SURFACE CLOSER	SC81	FAL
1 EA.	KICK PLATE	8400 10” X 34”	IVES
1 EA.	WALL STOP	WS407CVX	IVES
3 EA.	SILENCERS	SR64	IVES

HARDWARE SET NO. 5
DOOR: 106 AND 107/1

6 EA.	HINGES	5BB1 4.5 X 4.5 NRP	IVES
2 EA.	FLUSH BOLT	292D	HAG
1 EA.	DUST PROOF STRIKE	DP2	IVES
1 EA.	ENTRY SET	MATCH EXISTING SYSTEM	
2 EA.	SURFACE CLOSER	SC81	FAL
2 EA.	KICK PLATE	8400 10” X 34”	IVES
2 EA.	SILENCERS	SR64	IVES
2 EA.	WALL STOP	WS407CVX	IVES
1 EA.	DOOR GASKET	303CS HEAD AND JAMBS	PEM
1 EA.	ASGTRAL	BY DOOR MANUFACTURER	

NOTE: PLEASE REVIEW DRAWING SHEET LS-1 FOR FIRE-RATED DOOR LOCATIONS

HARDWARE SET NO. 6
DOOR: 108, 109/1, 109/2 AND 123

3 EA.	HINGES	5BB1 4.5 X 4.5 NRP	IVES
1 EA.	STOREROOM SET	MATCH EXISTING SYSTEM	
1 EA.	SURFACE CLOSER	SC81	FAL
1 EA.	KICK PLATE	8400 10” X 34”	IVES
3 EA.	SILENCERS	SR64	IVES
1 EA.	WALL STOP	WS407CVX	IVES

NOTE: PLEASE REVIEW DRAWING SHEET LS-1 FOR FIRE-RATED DOOR LOCATIONS

END OF SECTION

SECTION 08 8000

GLAZING

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. 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 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 herein.

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 shall be regularly engaged in the installation of glass and glazing, and shall have previous experience within the last two years on project similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.6 SUBMITTALS: Submittals shall be made during construction. In addition, the following specific information shall 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.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment.

1.8 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the drawings and any discrepancies shall be reported for clarification prior to starting fabrication.

1.9 MANUFACTURERS' WARRANTY

A. Furnish manufacturers' warranty as called for herein.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Glass Manufacturers: PPG, Guardian and Pilkington.

B. Products of other manufacturers, meeting the requirements specified herein, 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 Types: Exterior: 9/16" laminated with low-e coating on surface 2, equal to Solarban 70.

C. Glass Types: Interior: ¼" clear tempered.

2.3 ANCILLARY ITEMS

A. Setting Blocks: Neoprene 70-90 Shore A durometer hardness, chemically compatible with sealant used.

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 permitted in damp, foggy or rainy weather, or 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 shall 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 shall be in accordance with applicable glass reference and glass manufacturers' instruction.

B. Provide hose test by flooding glazing from top to bottom. Any leaks disclosed shall be corrected by reglazing and restesting until leaks are eliminated.

3.3 CLEANING

A. Leave glass and glazing in undamaged condition and ready for final cleaning. On completion, there shall be no shifting or rattling of glass. Remove excess glazing compound from installed glass. Remove labels from glass surface as soon as installed. Wash and polish both faces of glass. Remove debris from project immediately upon completion.

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 COLOR SELECTIONS SHALL BE MADE (OR VERIFIED IF SPECIFIED) DURING CONSTRUCTION AFTER SHOP DRAWINGS AND SAMPLES ARE RECEIVED.

2. EXISTING AND NEW HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED THE SAME COLOR AS THE WALL THEY ARE IN, UNLESS NOTED OTHERWISE.

FINISH SCHEDULE

SPACE #	SPACE NAME	FLOOR	WALL FINISHES				BASE	CL'G.	CL'G. HT.	REMARKS
			NORTH	SOUTH	EAST	WEST				
101	ENTRY	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	10'-0"	1, 2
101A	GARDEN CLINIC	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
102	RECEPTION	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
103	VESTIBULE	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
104	FEMALE	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
105	MALE	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
106	CORRIDOR	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
107	MEETING ROOM	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
108	CUSTODIAL	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
109	STORAGE	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
110	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
111	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
112	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
113	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
114	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
115	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
116	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
117	VIDEO CONF. ROOM	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2

SPACE #	SPACE NAME	FLOOR	WALL FINISHES				BASE	CL'G.	CL'G. HT.	REMARKS
			NORTH	SOUTH	EAST	WEST				
118	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
119	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
120	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
121	OFFICE	CPT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
122	PANTRY	LVT.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	9'-0"	1, 2
123	MECHANICAL	EXIST.	PAINT	PAINT	PAINT	PAINT	VINYL	A.T.	8'-0"	1, 2

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 Section of these specifications.

1.3 RELATED SECTIONS

A. Section 07 9000 - Joint Protection

B. Section 09 2216 – Nonstructural Metal Framing

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. 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.

B. Verification Samples: For each finish product specified, two samples representing actual product, color and patterns.
   1. Board: Submit sample of each panel product specified, 6 inches square.
   2. Trim: Submit sample of each type of trim specified, 12 inches long.
   3. Texture: Submit sample 12 inches square of coated gypsum board.

C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

B. Installer Qualifications: Company specializing in performing work of this section with minimum three years documented experience.

C. Mock-Up: Provide a mock-up using approved gypsum products, including fasteners and related accessories per manufacturer's current printed instructions and recommendations.
   4. Locate in area designated by Owner.
   5. Mock-up size 6 feet by partition height.
   6. Mock-up Substrate: Match wall assembly construction.
   7. Mockup for each designated level of exposed gypsum board finish and each designated texture finish indicated.
   8. Do not proceed with remaining work until workmanship and finishes are approved by Owner.
   9. Refinish mock-up area as required to produce acceptable work.
   10. Mock-up may remain as part of the work.

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 absolute 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, regular type: Basis of Design Product: G-P Gypsum ToughRock Mold-Guard Type X Gypsum Board, 5/8" thick, with long edges tapered. Note One-Hour Fire-Rated walls as indicated on the Life Safety Plan.

B. Restrooms and Custodial Room: 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 all 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. Examine gypsum board in accordance with GA 231 for water damage.

C. 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 written instructions and 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. 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 the work of this section with minimum five years documented experience.

PART 2 - PRODUCTS

2.1 FRAMING MATERIALS

A. Fire Rated Assemblies: Comply with applicable code and as indicated on drawings.

B. 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. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
4. Steel Stud Framing Connectors:
5. Products:
    a. Simpson Strong Tie, Bridging Connectors; DBC Bridging Connector: www.strongtie.com.

C. 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 indicated on drawings.
4. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.

D. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.

E. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.

F. Fasteners: ASTM C1002 self-piercing tapping screws.

G. Sheet Metal Backing: 0.036 inch thick, galvanized.

H. Anchorage Devices: Powder actuated.

I. 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 in all locations.

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 5113

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

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 herein.

B. Federal Specifications as referenced herein.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Maintain humidity of 65 percent to 75 percent in areas where acoustical ceiling materials are installed for 24 hours before, during and after installation. Maintain a uniform temperature of 55 degrees F. to 80 degrees F. prior to and during installation of materials.

1.5 QUALITY ASSURANCE

A. Installer: Shall be regularly engaged in the installation of suspended acoustical ceilings and shall have previous experience within the last five years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.6 SUBMITTALS: Submittals shall be made in accordance with the Section 01 3300. In addition, the following specific information shall be provided:

A. Samples: Submit one 12-inch square sample of each acoustical ceiling panel type specified. Submit one full-size sample of suspension system main runners and edge molding. Samples shall be marked with the name of the manufacturer and specific design and technical data as called for herein.

B. Submit the grid manufacturer printed installation instructions.

C. Product Data: Submit manufacturer product data for acoustical ceiling panels, suspension system components and access panel specified herein.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of the specifications.

B. Deliver material to project site in manufacturer's original unopened containers with manufacturer's labels indicating brand name, pattern, size, thickness, legible and intact.

C. Store materials inside, under cover and in original protective packaging to prevent soiling, physical damage or wetting.

1.8 WARRANTY

A. Provide a written 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 shall 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 herein will be considered.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

C. All products shall have a Class A finish, have a .55 NRC rating and be zero emissions (VOC Class).

2.2 ACOUSTICAL CEILING PANEL TYPES

A. Ceiling panels shall be equal to Armstrong Cortega 2x2x5/8", tegular, white and with a one year limited warranty. See Reflected Ceiling Plan for locations.

B. Ceiling in Restrooms and Custodial Room shall 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.

2.3 SUSPENSION SYSTEMS

A. Ceiling System shall conform to ASTM C 635, intermediate duty, with all 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 shall be white. Main tees shall be 1 ½", cross tees shall be 1" and flange width shall be 15/16". For wet area ceiling panels, double web design, light duty aluminum, color white.
   2. Edge Molding: Minimum .02" steel; angle-shaped; minimum 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 registers and diffusers by the Mechanical Subcontractor.
   4. Wire Ties: Eighteen-gauge, galvanized, annealed steel wire.

PART 3 - EXECUTION

3.1 GENERAL

A. It is the intent that the suspension system and acoustical ceiling panels be installed to line and level with a maximum deflection of 1/300 of the span, symmetrical to rooms and spaces, and with due regard to appearance and structural stability. Refer to Reflected Ceiling Plan for layout. Adjust layout, soffits and heights as required to accommodate unforeseen 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, tested and approved.

B. Lay out grid as shown on Reflected Ceiling Plan. Coordinate with Mechanical and Electrical equipment in framing and cutting material around all ceiling penetrations, whether shown or not. Adjust Mechanical and Electrical layouts as required at no cost to the Owner.

3.3 CONDITION OF SURFACES

A. Examine surfaces scheduled to receive suspended acoustical ceilings for unevenness, irregularities and dampness that would affect quality and execution of work. The Contractor shall report any adverse conditions that will effect the installation.

3.4 INSTALLATION

A. Suspension System: Hang level directly from structure only 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 all light fixtures and mechanical registers/diffusers. 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 registers/diffusers shall be by those respective trades.

B. Attach supporting wires only to structural members, i.e. steel beams, bar joists, bridging, 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. Consult the Mechanical and Electrical Drawings for the type and extent of work and coordinate closely with other trades. Adjust as required at no additional cost, to accommodate ductwork, piping and other interferences as required.

E. Acoustical Ceiling Panels: Upon completion of suspension system and other concealed work and after the Above-Ceiling Review has been satisfactorily completed, install the acoustical ceiling panels. Place material to bear all around on suspension members. Provide clips at all vertical installations.

3.5 CLEANING

A. Clean soiled 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 necessary to furnish and install, complete, the following:

A. Vinyl base, 4” high, 1/8”.

B. Transition strips as required at new flooring and existing flooring to remain.

1.2 RELATED REQUIREMENTS

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

1.3 REFERENCES

A. Federal Specifications as referenced herein.

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: Shall be regularly engaged in the installation of vinyl wall base and shall have previous experience within the last three years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.6 SUBMITTALS: Submittals shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Product Data: Provide product data on specified products, describing physical and performance characteristics, sizes, patterns and full color range available.

B. Samples: Submit 2-1/2-inch wide strips of wall base material specified 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 or equipment under provisions of Section 01 6000.

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 written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

PART 2 - PRODUCTS

2.1 BASE MATERIALS

A. Acceptable Manufacturers: Johnsonite, Burke or approved 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 shall be as selected during submittals from provided samples.

C. Vinyl Base: Conforming to Federal Specification SS-W-40, Type II; all areas 4-inch-high; 1/8-inch thick.

2.2 TRANSITION STRIPS

A. Provide accessory transition strips between new resilient flooring and existing flooring to remain. Equal to “VT” Series as manufactured by Armstrong Commercial Flooring. Color shall 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 shall be dry and closed in. Installation shall not begin until all work which would cause damage, dirt, dust or interruption of normal installation pace in completed. Adequate ventilation shall be provided; and safety precautions shall 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. Promptly remove any spillage.

3.3 INSTALLATION OF BASE

A. General: Remove all defects in wall that would prevent level and true installation of the base material. Ensure wall material provides a sound backing for base all the way to floor. Install base around perimeter of room or space where scheduled, and at toe spaces of any millwork base units. Unroll base material and cut into accurate lengths as required for minimum number of joints. Match edges at all seams or double cut adjoining lengths to give continuous appearance. Install with tight butt joints with no joint widths greater than 1/64-inch.

B. Top-Set Base: Apply adhesive and firmly adhere to wall surfaces. Press down so that bottom edge follows floor profile. Top and bottom edges of base shall be in firm contact with walls and floors. Scribe base accurately to abutting materials.

END OF SECTION

SECTION 09 6519

RESILIENT TILE FLOORING

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 vinyl floor tile.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets and cutouts.

C. Show details of special patterns.

D. Samples: Full-size units of each color and pattern of floor tile required.

E. Product Schedule: For floor tile. Use same designations indicated on Drawings and Finish Schedule.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer with a minimum of 5 years commercial resilient flooring installation experience, and who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
   1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockups for floor tile including resilient base and accessories.

a. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Architect.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.9 FIELD CONDITIONS

A. HVAC system should be operational and running for a minimum of 7 days prior to resilient tile installation and remain running after resilient tile installation.

B. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F, in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. Permanently after installation.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic, all heavy rolling loads, and point loads for 48 to 72 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

1.10 WARRANTY

A. Special Warranty for Resilient Tile; Manufacturer agrees to repair or replace defective material within specified warranty period.

1. Warranty does not include installer's workmanship.
2. Resilient tile must be installed and maintained according to manufacturer's recommendations.
3. Warranty Period:
   a. Manufacturing Defects Warranty: 10 years.
   b. Limited Commercial Wear Warranty: 10 years.
   c. Underbed Warranty: 10 years.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Flooring products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.2 SOLID VINYL FLOOR TILE

A. Basis-of-Design Product: Subject to compliance with requirements, provide Shaw Contract or approved product equivalent.

B. Tile Standard: ASTM F 1700.
   1. Class: Class III, printed film vinyl tile.

C. Overall Thickness: 0.125 inch.

D. Wear Layer Thickness: 0.020 inch.

E. Size: 6 by 36 inches.

F. Colors and Patterns: As selected by Architect from full range of manufacturer's designations.

G. Test Data:
   1. Slip Resistance: ASTM D 2047, ADA Compliant.
   2. Residual Indentation, ASTM F 1914 minimum
   3. Flexibility, ASTM F 137: Passes.
   4. Static Load: ASTM F 970. 1500 psi
   5. Dimensional Stability: ASTM F 2199
   6. Resistance to Heat, ASTM F 1514: Passes.
   7. Resistance to Light, ASTM F 1515: Passes.
   8. Resistance to Chemicals, ASTM 925: Passes.
   9. Resistance to Fungi, ASTM G 21: Passes, Rate zero (Rate zero: Fungi Free).
   10. Antibacterial Activity, AATCC 147: Passes, resists the propagation of bacteria.
   11. Radiant Flux, ASTM E 648: greater than 0.45 watts/cm, NFPA Class I.
   12. Smoke Density, ASTM E 662: less than 450, Passes.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
   1. Adhesives shall have a VOC content of 50 g/L or less.
   2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Floor Polish: Provide protective, neutral pH liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
   1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.
   1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
   2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
   3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 7 or more than 10 pH.
   4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
      a. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates are below 90 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
   1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
   1. Lay tiles square with room axis.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
   1. Lay tiles with grain running in one direction.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.

B. Perform the following operations immediately after completing floor tile installation:
   1. Remove adhesive and other blemishes from exposed surfaces.
   2. Sweep and vacuum surfaces thoroughly.
   3. Damp-mop surfaces to remove marks and soil.

C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

E. Cover floor tile until Substantial Completion.

END OF SECTION

SECTION 09 6813

TILE CARPETING

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

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

1.2 SUMMARY

A. Section includes modular carpet tile.

B. Related Requirements:
   1. Section 02 4119 – Selective Structure Demolition
   2. Section 09 6500 – Resilient Flooring Accessories

1.3 PRE-INSTALLATION MEETINGS.

A. Pre-installation Conference: Conduct conference at project site.
   1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
      a. Review delivery, storage, and handling procedures.
      b. Review ambient conditions and ventilation procedures.
      c. Review subfloor preparation procedures.
      d. Follow manufacturer's modular carpet installation guidelines.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include manufacturer's written specifications and lab documents for any physical testing.
   2. Include manufacturer's written installation recommendations for each type of substrate as specified in carpet manufacturer's installation guidelines.
   3. Include carpet maintenance recommendations as outlined by the carpet manufacturer.

B. Shop Drawings: For carpet tile installation, plans showing the following:
   1. Columns, doorways, enclosing walls or partitions, built-in cabinets and locations where cutouts are required in carpet tiles.
   2. Carpet tile type, color and dye lot.
   3. Type of subfloor.
   4. Type of installation.
   5. Pattern of installation.
   6. Pattern type, location and direction.
   7. Installation method (monolithic, quarter turn, ashlar, brick random, interactive patterning).
   8. Type, color and location of insets and borders.
   9. Type, color and location of edge, transition, and other accessory strips.
   10. Transition details to other flooring materials.

C. Samples: For each of the following products and for each color and texture required. Label each sample with manufacturer's name, material description, color, pattern and designation indicated on Drawings and in schedules.

1. Carpet Tile: Full-size sample.
2. Exposed edge, Transition and Other Accessory Stripping: 12-inch long samples.

D. Samples for Initial Selection: For each type of carpet tile.
1. Include samples of exposed edge, transition and other accessory stripping involving color or finish selection.

E. Samples for Verification: For each of the following products and for each color and texture required. Label each sample with manufacturer's name, material description, color, pattern and designation indicated on Drawings and in schedules.
1. Carpet Tile: Full-size sample.
2. Exposed Edge, Transition and Other Accessory Stripping: 12-inch long samples.

F. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For carpet tile, for tests performed by a qualified independent testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10.67 sq. yd.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Carpet manufacturer shall have no less than 5 years experience of producing carpet tile.

B. Installer Qualifications: An installer with a minimum of 5 years commercial carpet installation experience.

C. Mockups: Build mockups to verify selections made under sample submittals, to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
1. Build mockups at locations and in sizes as selected by Architect.
2. Subject to compliance with requirements, approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE AND HANDLING

A. Comply with carpet manufacturer's installation recommendations.

1.10 FIELD CONDITIONS

A. Comply with carpet manufacturer's installation recommendations for temperature, humidity and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.

C. HVAC system should be operational and running prior to carpet installation and remain running after carpet installation.

D. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to allow bond between adhesive and concrete. Concrete slabs should have pH readings that are within the specified tolerance of the adhesive to be used.

E. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.11 WARRANTY

A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
   1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism or abuse.
   2. Failures include, but are not limited to, the following:
      a. More than 10 percent edge raveling or face fiber loss.
      b. Dimensional instability.
      c. Excess static discharge.
      d. Loss of tuft-bind strength.
      e. Delamination
      f. Where face fiber is 100 percent solution dyed, inability to remove acid based stains.
      g. Lack of colorfastness to atmospheric contaminants.
      h. Carpet must be manufactured and warranted by same manufacturer.
   3. Warranty Period: Limited Commercial Limited Warranty.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Basis-of-Design Product: Subject to compliance with requirements, provide Shaw Contract or approved product equivalent.

B. Source Limitations:
   1. Single Source Responsibility: Provide products that have components manufactured by a single source. Fiber and backing, as well as final carpet product, should be manufactured and warranted by same company.

C. Colors and Patterns: As selected by Architect from full range of manufacturer's designations.

D. Pile Characteristics: Multi-Level Pattern Loop pile.

E. Fiber Content: Nylon - 100 percent, minimum 24 denier per filament (DPF) nylon 6.

F. Fiber Name: Eco Solution Q Nylon

G. Dye Method: 100 percent Solution Dye
   1. Gauge: 1/10 inch.
   2. Stitches: 9.2 per inch.
   3. Pile Thickness: 0.161 inches for finished carpet tile according to ASTM D 6859.
   4. Surface Pile Weight: 28 oz./sq. yd.
   5. Density: Insert oz./cu. yd.
   6. Primary Backing: Nonwoven synthetic.
   7. Secondary Backing: High performance pre-coat laminated to a proprietary thermoplastic polyolefin compound with a fiberglass reinforced layer. Backing should be PVC free, free of 4-PCH, brominated flame retardants and phthalate plastizers.
      a. Total Backing Weight: Not to exceed 80 oz./sq yd.
   8. Backing System: EcoWorx.
   9. Applied Treatments:
      a. Soil-Resistance Treatment: SSP Shaw Soil Protection.
   10. Total Weight: 103.44 oz./sq. yd. for finished carpet tile.
   11. Size: 24 by 24 inches.
   12. Texture Appearance Retention Rating (T.A.R.R.):
      a. Texture Appearance Retention Rating (T.A.R.R.): Heavy traffic.
   13. Performance Characteristics:
      a. Critical Radiant Flux Classification, Flooring Radiant Panel ASTM E 648: Not less than 0.45 W/sq. cm according to NFPA 253.
      b. Smoke Density: Less than 450 per ASTM E662.
      c. Methanamine Pill Test CPSC FF1-70: Must pass pill test.
      d. Tuft Bind: Not less than 8 lbf according to ASTM D 1335.
      e. Delamination: Not less than 3.5 lbf/in according to ASTM D 3936.
      f. Dimensional Tolerance: Within 1/32 inch of specified size dimensions, as determined by physical measurement.
      g. Dimensional Stability: 0.119 percent or less according to ISO 2551 (Aachen Test).
      h. Colorfastness to Crocking: Not less than 4, wet and dry, according to AATCC 129 and AATCC 164.
         1). Colorfastness to Light: Not less than 4 after 60 AFU (AATCC fading units) according to AATCC 16, Option E.
         2). Electrostatic Propensity: Less than 3.5 kV according to AATCC 134.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Trowelable Adhesives: Water-resistant, mildew-resistant, non-staining, premium grade, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile and are recommended by carpet tile manufacturer for releasable installation such as Shaw 5000 or Shaw 5100 or available equivalent where slab moisture does not exceed 85 percent per ASTM F 2170 or 5 lbs. per ASTM F 1869. Where slab moisture does not exceed 85 percent and antimicrobial protection is needed to pass AATCC 174, use Shaw 5036. Where moisture exceeds 85 percent or 5 lbs. but does not exceed 90 percent or 10 lbs., use Shaw 5900 or available equivalent.
   1. Adhesives shall have a VOC content of 50 g/L or less.

C. Non-Trowelable Adhesive: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation such as LokDots where slab moisture does not exceed 95 percent per ASTM F 2170 or 10 lbs. per ASTM F 1869. Each carpet tile must be adhered to the subfloor.

D. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width required, of height required to protect exposed edge of carpet and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances and other conditions affecting carpet tile performance.

B. Examine carpet tile for type, color, pattern and potential defects prior to installation. See manufacturer's requirements for substrate conditions and ambient conditions.

C. Concrete Slabs: Verify that finishes comply with requirements specified in Section 03 3000 and that surfaces are free of cracks, ridges, depressions, scale and foreign deposits.
   1. Lightweight concrete and gypcrete subfloors may require a primer such as Shaw 9050 or equivalent to reduce surface porosity.
   2. Where previous surface treatments are unknown, or where other concerns exist as to the ability of the adhesive to bond to the substrate, a 24 hour bond test is recommended.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

B. Use trowelable leveling and patching compounds that contain a cementitious base with a latex additive, according to manufacturer's written instructions, to fill cracks, holes, depressions and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.

C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

A. General: Comply with carpet tile manufacturer's written installation instructions.

B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive, such as LokDots. Any non-spreadable adhesive system must adhere the carpet to the substrate.

C. Maintain dye-lot integrity. Do not mix dye lots in same area unless the specific carpet style in manufactured as a merge-able dye lot product.

D. Maintain pile-direction patterns indicated on Drawings.

E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures and built-in furniture including cabinets, pipes, outlets, edgings, thresholds and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves and similar openings.

G. Maintain reference markers, holes and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, non-staining marking device.

H. Install pattern parallel to walls and borders.

I. Roll the entire installation with a 75 lb. roller once installation is completed.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet tile:
   1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
   2. Remove yarns that protrude from carpet tile surface.
   3. Vacuum carpet tile using commercial machine with face-beater element.

B. When construction or move-in activities will continue where new carpet is installed, provide non-staining building material paper to protect carpet. Do not use plastic sheeting as it can trap moisture and self-sticking plastic sheeting can transfer adhesive residue to carpet that will attract soil.

C. When heavy objects are moved over carpet within 24 hours of installation, use plywood over carpet to prevent buckling and wrinkling.

D. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile 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 Contractor shall be responsible for painting or finishing of existing and new exposed gypsum board, concrete and masonry surfaces, **the stucco finished exterior and decorative metal of the Welcome Center Building as Base Bid, the stucco finished and decorative metal of the adjacent Library Building as an Additive Alternate Bid**, and above ceiling piping and ductwork that may be exposed to view, whether specifically mentioned or not, except where scheduled and/or specifically noted otherwise on the Drawings.

B. Any painting of mechanical piping and equipment shall be the responsibility of the Painting Contractor.

C. Shop painting of fabricated items shall 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, shall not 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 shall be brought to attention for determination of treatment to be used, if any, to correct the situation.

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 Specifications or on the Drawings, 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.

1.4 QUALITY ASSURANCE

A. Painting Contractor: Shall be regularly engaged in the application of paints and coatings specified and shall have previous experience within the last three years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.5 SUBMITTALS

A. Product Data: For each paint system used, obtain from paint manufacturer for submittal, paint or coating manufacturers' technical product data sheets, including application instructions and paint colors available for each product used. The required information shall be submitted on a system-by-system basis; indiscriminate submittal of paint or coating manufacturer's literature will not be accepted.

1.6 ENVIRONMENTAL CONDITIONS

A. Paints and coatings shall not 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. All materials shall be delivered to the project site in unopened containers that plainly show at the time of use the designated name, date of manufacture, color, and name of manufacturer. Paint and coating materials shall 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 shall be kept sealed when not in use.

C. Store paint materials at minimum ambient temperature of 45 degrees F. and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturers' instructions.

D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.8 SAFETY

A. Painting shall be performed in strict 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. The Contractor shall provide a written guarantee against defects in materials and workmanship for a period of two years from the date of Substantial Completion of the project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner. This guarantee shall include, but shall not be limited to, blistering, peeling, cracking, sagging, flaking, chalking or alligatoring.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products of Sherwin-Williams are approved with equal products acceptable.

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 shall not exceed the coating manufacturer's recommendations.

2.3 PAINT AND COATING MATERIALS

A. Accessory Materials: Shellac, turpentine, linseed oil, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, shall be commercial quality and as recommended by the manufacturer of the applicable paint or coating materials.

B. Masonry CMU – Existing: 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. Drywall - Walls: 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.

D. Drywall – Walls in Restrooms and Custodial Room: 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.

E. 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.

F. Provide two coat textured coating system as recommended by Sherwin Williams for the **existing exterior stucco painting as Base Bid at the Welcome Center Building and as Alternate Bid at the adjacent Library Building.**

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.

2.4 COLORS

A. Color selections will be made/verified under provisions of Section 01 3300.

B. Where more than one coat of paint or coating material is applied within a given system, color shall 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, Copper and Other Non-Ferrous Metal Surfaces: Remove surface contamination and oils and wash with solvent. No painting required of copper.

F. Unit Masonry Surfaces: Remove dirt, loose mortar, scale, salt or alkali powder and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

G. 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.

H. 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.

I. 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.

J. 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 has dried with wood putty approved by the paint material manufacturer; sand between coats.

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' printed instructions for applying each type of paint or coating shall be furnished prior to application. Apply all paints and coatings in strict accordance with the paint manufacturers' recommendations. Sufficient time shall be allowed between coats to assure thorough drying and/or curing of previously applied paint or coatings.

B. Damaged Coatings: Damaged coatings, pinholes or holidays shall 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 shall be cleaned and top coated with the specified paint material to obtain the specified color and coverage. Specific surface preparation information to be secured from the paint or coating manufacturer. Work shall be free of runs, bridges, shiners, laps or other imperfections. Evidence of these conditions shall be cause for rejection.

3.5 CLEANING

A. All cloths and waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each day.

B. Upon completion of the work, all staging, scaffolding and containers shall be removed from the project site. Paint spots, oil or stains upon adjacent surfaces and floors shall be completely removed and the entire job 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, complete, the following:

A. All fire extinguishers and mounting brackets shall be furnished and installed by the Contractor.

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 6th Edition.

C. Underwriters' Laboratories (UL): "Fire Protection Equipment List".

1.5 SUBMITTALS: Submittals during construction shall be made. In addition, the following specific information shall 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 written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall 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 herein, will be considered.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.2 GENERAL

A. Provide and install portable fire extinguishers where specifically scheduled and/or indicated on the Drawings. All fire extinguishers shall be tagged in the month of Substantial Completion.

2.3 PORTABLE FIRE EXTINGUISHERS

A. All fire extinguisher units and brackets for extinguishers shall be provided and installed by the Contractor.

B. Fire Extinguisher shall be 2A-10B:C (5 lbs.) bracket wall mounted as indicated on the Life Safety Plan.

2.4 ACCEPTABLE MANUFACTURERS: The following manufacturers are acceptable subject to providing products equal to that specified:

A. J.L. Industries.

B. Potter-Roemer, Inc.

C. Larsen's Fire Protection and Safety Equipment.

2.5 FASTENERS

A. Provide blocking in stud walls for anchorage. 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' printed instructions applicable references at locations shown on Drawings. Equipment shall 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, complete, the following:

A. Interior Signage.

1.2 RELATED REQUIREMENTS

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

1.3 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall 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 specified herein.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01 6000.

B. Deliver and store materials in manufacturers' original, unopened, undamaged containers. Handle materials in such a manner as to prevent damage to products or finishes.

1.5 WARRANTY

A. The Contractor shall provide a written guarantee of all items installed under this section 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 shall be repaired or replaced at no cost to the Owner.

B. In addition, provide the specific manufacturer's warranty on each item of equipment specified in this Section.

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 herein, will be considered.

1. Like items of material or equipment specified herein shall 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. Interior Restroom Signage: Signage for restroom doors shall be 7” x 9” single-sided, ¼” PVC backing with clear acrylic overlay. ADA standard raised copy and Braille in white with a 2” clear slide in slot. Color shall be standard ADA Blue. Theft resistant screws and adhesive.

B. Submit shop drawings for review prior to ordering any signs. Colors of signs and lettering to be verified during construction.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install signage in accordance with the manufacturers' recommendations and instructions. Prior to the installation, consult with the Owner so that minor adjustments in the locations can be decided, as required.

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 2116

TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Solid plastic toilet compartments and urinal screens.

1.2 REFERENCES

A. ASTM International (ASTM)
   1. A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
   2. B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   3. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

1.3 SYSTEM DESCRIPTION

A. Compartment Configurations:
   1. Toilet partitions and privacy screens: Floor mounted, overhead braced.
   2. Urinal screens: Floor mounted.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Include dimensioned layout, elevations, trim, closures, and accessories.
   2. Product Data: Manufacturer's descriptive data for panels, hardware, and accessories.
   3. Samples: 2 x 3 inch samples showing available colors.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 years experience in manufacture of solid plastic toilet compartments with products in satisfactory use under similar service conditions.

B. Installer Qualifications: Minimum 5 years experience in work of this Section.

1.6 WARRANTIES

A. Provide manufacturer’s 25 year warranty against breakage, corrosion, and delamination under normal conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on products by Scranton Products.

B. Substitutions: Permitted.

2.2 MATERIALS

A. Doors, Panels and Pilasters:
   1. High density polyethylene (HDPE), fabricated from polymer resins compounded under high pressure, forming single thickness panel.
   2. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
   3. 1 inch thick with edges rounded to 1/4 inch radius.
   4. Fire hazard classification: Class A flame spread/smoke developed rating, tested to ASTM E84.
   5. Color: To be selected from manufacturer's full color range.

B. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper.

C. Stainless Steel: ASTM A167, Type 304.

2.3 HARDWARE

A. Hinges:
   1. 8 inches long, fabricated from heavy-duty extruded aluminum with bright dip anodized finish, wrap-around flanges, adjustable on 30-degree increments, through bolted to doors and pilasters with stainless steel, Torx head sex bolts.
   2. Hinges operate on field-adjustable nylon cams, field adjustable in 30 degree increments.

B. Door Strike and Keeper:
   1. 6 inches long, fabricate from heavy-duty extruded aluminum with bright dip anodized finish, with wrap-around flanges secured to pilasters with stainless steel tamper resistant Torx head sex bolts.
   2. Bumper: Extruded black vinyl.

C. Latch and Housing:
   1. Heavy-duty extruded aluminum.
   2. Latch housing: Bright dip anodized finish.
   3. Slide bolt and button: Black anodized finish.

D. Coat Hook/Bumper:
   1. Combination type, chrome plated Zamak.
   2. Equip outswing handicapped doors with second door pull and door stop.

E. Door Pulls: Chrome plated Zamak.

2.4 COMPONENTS

A. Doors and Dividing Panels: 55 inches high, mounted 14 inches above finished floor, with aluminum heat-sinc fastened to bottom edges.

B. Pilasters: 82 inches high, fastened to pilaster sleeves with stainless steel tamper resistant Torx head sex bolt.

C. Pilaster Sleeves: 3 inches high, 20 gage stainless steel, secured to pilaster with stainless steel tamper resistant Torx head sex bolt.

D. Wall Brackets: 54 inches long, heavy-duty aluminum, bright dip anodized finish, fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts.

E. Headrail: Heavy-duty extruded aluminum, anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant Torx head sex bolt and at top of pilaster with stainless steel tamper resistant Torx head screws.

F. Headrail Brackets: 20 gage stainless steel, satin finish, secured to wall with stainless steel tamper resistant Torx head screws.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install compartments in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install rigid, straight, plumb, and level.

C. Locate bottom edge of doors and panels 14 inches above finished floor.

D. Provide uniform, maximum 3/8 inch vertical clearance at doors.

E. Not Acceptable: Evidence of cutting, drilling, or patching.

3.2 ADJUSTING

A. Adjust doors and latches to operate correctly.

END OF SECTION

SECTION 10 2800

TOILET, BATH AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED: This section covers the work necessary to furnish and install, complete, the following:

A. Toilet accessories as specified herein, and/or as shown on the drawings. Should there be a conflict between specifications and drawings, provide all accessories shown in either, to carry out the intent of the documents.

B. Wall blocking for accessories as required.

C. Attachment hardware.

1.2 RELATED REQUIREMENTS

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

1.3 REFERENCES

A. Accessibility requirements of the Florida Building Code 6th Edition (2017).

B. Americans with Disabilities Act (A.D.A.) - Specifications for making buildings and facilities accessible to and usable by physically handicapped people.

1.4 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Provide product data on accessories describing size, finish, details of function and attachment methods.

B. Submit manufacturer's installation instructions for accessories.

1.5 KEYING

A. Supply two keys for each lockable accessory to Owner.

1.6 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate the work with the placement of other items and finish materials.

1.7 DELIVERY, STORAGE AND HANDLING

A. Contractor to store and handle materials or equipment under provisions of Section 01 6000.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Accessories shall, for the purpose of establishing the standard of quality and general configuration desired, be as manufactured or supplied by Bobrick. Products of other manufacturers, meeting the requirements specified, will be considered. Like items of material or equipment specified shall 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 304, No. 4 satin luster.

B. Fasteners, Screws, and Bolts: Stainless steel, ASTM A 193, Type 304.

C. Anchors as recommended by the manufacturer for masonry application.

PART 3 - PREPARATION

3.1 EXAMINATION

A. Contractor shall 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, where applicable, to site at appropriate time for building-in.

B. Provide templates and rough-in measurements as required to accomplish the installation of the items. Verify exact location of accessories for installation with the Owner and Architect prior to installing and adjust locations as necessary.

3.3 INSTALLATION

A. Contractor shall provide and install fixtures, accessories and items 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, as applicable, whether or not shown on the drawings.

A. B-5806.99 x 36 Horizontal Grab Bar with Peened Grip. One in each ADA stall.

B. B-5806.99 x 42 Horizontal Grab Bar with Peened Grip. One in each ADA stall.

C. B-270 Surface-Mounted Sanitary Napkin Disposal. One in each Female stall.

D. B-4288 Surface-Mounted Multi Roll Toilet Tissue Dispenser. One in each stall.

E. B-4221 Surface-Mounted Toilet Seat Cover Dispenser. One in each stall.

F. B-2111 Surface-Mounted Soap Dispenser. One in each ADA stall and one at each countertop lavatory.

G. B-165 Series Mirror, 18” W x 36” H. One at each lavatory.

H. B-262 Paper Towel Dispenser. One in each ADA stall and one at each main restroom.

I. B-239 Shelf and Mop Holder, 34” long, stainless steel shelf, 3 mop holders and four rag holders. One in Custodial Room.

END OF SECTION

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Division 15 - MECHANICAL

COBURN & ASSOCIATES, INC.
CONSULTING ENGINEERS EB-0003687
P. O. Box 577 High Springs, Florida 32655-0577
(386) 454-3748

SECTION 15010

GENERAL MECHANICAL PROVISIONS

PART 1 – GENERAL

DIVISION OF WORK

A. Division 15 Specifications define the Mechanical and Plumbing Systems. Materials and labor to be performed and furnished as part of the General Construction Contract of which they are a part.

B. It is not the intent of Division 15 to define a contractual relationship between the General Contractor and Subcontractor ,

C. It is the responsibility of the General Contractor to provide all materials and labor to perform the work, and subcontractural relationships are his responsibility.

RELATED DOCUMENTS

A. The Work of this Division affects and is affected by the Work of other Divisions. Review each portion of the Contract Documents including General and Supplementary Conditions, Addenda, Drawings and Division 1 through Divisions 16 Specification Sections to determine the extent of the Work of this Division and the work of the various Division 15 Sections.

WORK INCLUDED

A. 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.

B. 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.

C. Minor items and accessories reasonably inferred as necessary for the 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.

DESCRIPTION OF WORK

A. The work to be performed under this division includes, but is not necessarily limited to, the following:
   1. Split System Heat Pumps as Scheduled
   2. Ventilating and exhaust fans and dampers.
   3. Ductwork and diffusers as shown on the drawings.
   4. Metal ductwork and insulation.
   5. Starters controllers.
   6. HVAC Controls

7. Access doors and Fire Dampers
8. Plumbing piping, fixtures, and equipment.
9. Water Heaters.
10. Performance tests, adjustments and balancing of all systems.

B. Work not included in this Division: The following work is specified in other sections of the specifications:
1. Finish painting except as specifically included herein.
2. Electric work except as specifically included herein.
3. Masonry and concrete foundations for equipment.
4. Flashings, but counter flashings shall be included herein.
5. Cutting and patching except as included herein.

CODES

A. All work shall be performed or installed in strict accordance with Florida Building Code 2017-Mechanical
1. Code requirements shall be considered as minimum allowable.
2. Where quantities, sizes, etc., shown on the Drawings or Specifications are in excess of code requirements, the Drawings or Specifications shall take precedence.
3. Any quantities, size, etc., shown less than code minimum shall be increased to meet code.

B. Applicable Codes:
1. Plumbing –Florida Building Code 2017 –Plumbing.
2 HVAC – Florida Building Code 2017- Mechanical
3. Other - Life Safety Code.
4. Florida Building Code –Energy Conservations 2017

TECHNICAL DEFINITIONS

A. Specific items of terminology, as used herein, shall have the following meanings:
1. "Work" includes all materials, labor, equipment and operation required for complete and proper installation.
2. "Piping" shall mean pipe, fittings, flanges, valves, controls, hangers, traps, drain, insulation, vents, and items customarily required in connection with the transfer of fluids.
3. "Concealed" shall mean embedded in masonry or other construction, installed behind wall furring, within double partitions or hung ceilings, in crawl spaces, in shafts.
4. "Exposed"' shall mean not concealed.
5. "By Other Trades" shall mean by persons or parties responsible for work at the project other than the party or parties who have been duly awarded the contract for the work of this trade. In the event that this document is used to acquire work as part of a general construction contract the words "by other

trades" shall mean by persons or parties who are not anticipated to be the subcontractor for this trade working together with the General Contractor. In this context the words "by other trades" shall not be interpreted to mean not included in the overall contract.

6. "Demolition" shall be the removal of any existing equipment, and the capping or plugging of any existing services to that equipment. Removal shall include the proper evacuation of all environmentally hazardous gases, refrigerants or liquids and proper disposal in accordance with all applicable codes and standards.
7. “OPCI” shall mean the Owner will purchase this equipment and have it delivered to the site. The Contractor is responsible for protection and installation.

INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

A. As used in the drawings and specifications, certain non-technical words shall be understood to have specific meanings as follows:
   1. "Furnish" shall mean purchase and deliver to the project site complete with every necessary appurtenance and support.
   2. "Install" shall mean unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project.
   3. "Provide" shall mean "furnish" and "install".

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. It shall be understood that the specifications and drawings are complementary and are to be taken together for a complete interpretation of the work. Exceptions are those notes on the drawings, which refer to an individual element of work, take precedence over the specifications where they conflict with same.

D. No exclusions from, or limitations in, the language used in the drawings or specifications shall be interpreted as meaning that the appurtenances or accessories necessary to complete any required system or items of equipment are to be omitted.

E. The drawings of necessity utilize symbols and schematic diagrams to indicate various items of work. Neither of these items have any dimensional significance nor do they delineate every item required for the intended installations. The work shall be installed, in accordance with the diagrammatic intent expressed on the electrical and mechanical drawings, and in conformity with the dimensions

indicated on final architectural and structural working drawings and on equipment shop drawings.

F. No interpretation shall be made from the limitations of symbols and diagrams that any elements necessary for complete work are excluded.

G. Certain details appear on the drawings that are specific with regard to the dimensioning and positioning of the work. These details are intended only for the purpose of establishing general feasibility. They do not obviate field coordination for the indicated work.

H. Information as to the general construction shall be derived from structural and architectural drawings and specifications only.

I. The use of the word in the singular shall not be considered as limiting where other indications denote that more than one item is referred to.

J. In the event that extra work is authorized, and performed by this trade, work shown on drawings depicting such work, and/or described by addendum is subject to the base building specification in all respects.

DRAWINGS AND SPECIFICATIONS

A. It is the intent of drawings and specifications to obtain a complete and satisfactory installation.

B. Separate divisional drawings and specification shall not relieve the contractor from full responsibility of compliance with the work indicated on any of the drawings or in any division of the specification.

C. Each subcontractor shall carefully examine the architectural, structural, electrical and mechanical drawings and specifications prior to submitting bid.

D. The subcontractor will be required to furnish, install and connect with appropriate services all items shown on any of the drawings without additional expense to the Owner.

E. The Architect/Engineer shall be notified of any discrepancies, omissions, conflicts or interferences which occur between drawings or between drawings and specifications. If such notification is received in adequate time additional data or changes will be issued by addendum to all bidders.

F. Architectural and structural drawings take precedence over mechanical drawings with reference to building construction.

G. Mechanical drawings are diagrammatic but shall be followed as closely as actual construction of the building and the work of other trades will permit.

APPROVED MATERIALS

A. Materials or products specified herein and/or indicated on drawings by trade name, manufacturer's name and/or catalog number shall be provided as specified. Substitutions will not be permitted except as described herein in Supplementary and General Conditions.

B. For approval of products other than those specified, bidders shall submit to the Engineer a request in writing at least ten (10) days prior to bid date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifications, drawings, cuts, and performance data list of references or other information necessary to completely describe the item. Approval will be in the form of an addendum to the specifications issued to all prospective prime contract bidders on record. The addendum will indicate the additional products that are approved for this project.

1. Approval submittal shall be for the exact model to be furnished in the form of a submittal including all relevant accessories.

C. A list of all materials and equipment that the Contractor proposes to furnish shall be submitted for approval within ten (10) days after the contract has been let. Data shall be complete in all respects.

D. Where such approved substitution or deviation requires different quantity or arrangement of foundations, supports, ductwork, piping, wiring, conduit, and any other equipment or accessories normal to this equipment, Contractor shall furnish said changes and additions and pay all costs for all changes and additions and pay all costs for the changes to the work and the work of others affected by this substitution or deviation.

E. Deviations mean the use of any listed Approved Manufacturer other than those on which the drawings are based.

REFERENCES

A. American Society for Testing and Materials (ASTM)
B. American Association of State Highway & Transportation (ASSHT)
C. American Water Works Association (AWWA)
D. American Society of Heating, Refrigeration, and Air Conditioning Engineers

(ASHRAE)

FEES

A. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.

IDENTIFICATION

A. All valves, air handling units, compressors, rooftop equipment, etc. shall be labeled with the same designation shown on the Drawings.
   1. Valves shall be tagged with embossed metal tags.
   2. Air Handlers and Compressors/Condensing Units shall be labeled with engraved phenolic name plates with letters ¼" high minimum. Plates shall be red with white lettering.

TESTS AND INSPECTIONS

A. All mechanical system shown on the Drawings.
B. Call for appropriate inspections during construction as required by local agencies having jurisdiction over mechanical construction.
C. Costs of inspections shall be paid by the Contractor.
D. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
E. Any repairs or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.

QUALITY ASSURANCE

Safety Tests

A. 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.

Code Tests

A. All work shall be installed in accordance with the appropriate codes and satisfy the local inspector having jurisdiction.

Operational Testing

A. 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.

As Built Information

A. 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 so the drawings will continuously show locations and routings of piping, ducts,

grilles, equipment, valves, and any equipment specified on the drawings or in these specifications.

Equipment and Materials

A. Meet or exceed specification requirements.
B. New, unused, of best quality and grade.
C. Current model for which replacement parts are available.

Catalog and Model Number

A. Intended for use as guidelines and are supplied to aid in equipment identification.
B. Because Catalog Numbers are subject to manufacturers change, it is the contractors responsibility to coordinate the equipment and material with specified capacity, duty rating, voltage, etc.
    1. Do not take precedence over specific ratings or duty or written specifications.
C. Are not intended to give priority of one manufacturer over another providing "or equal" requirements are met.

USE OF EQUIPMENT OTHER THAN BASIS OF DESIGN

A. The mechanical drawings indicate equipment in the schedules as basis of design. Other manufacturers are listed in the specification sections. All other manufacturers must be submitted to the Engineer for review prior to bid. Any proposed substitution must follow Div 1 requirements.
B. The drawings (electrical, structural, architectural, etc) are based upon the products listed in the mechanical schedules (basis of design). Any product provided other than the basis of design may impact the requirements of other disciplines. The mechanical contractor is responsible for (and shall include in the base bid price) any and all costs related to the substituted equipment. Coordinate with other sub contractors regarding impact of substituted equipment prior to bid.

C. The construction documents contain design intent that may or may not be immediately apparent. All other intended physical and aesthetic requirements (stated or not) of the construction documents shall apply to the equipment intended for use. This includes appearance, clearance, access, and concealment requirements.

UNACCEPTABLE EQUIPMENT

A. Equipment and material may be judged unacceptable for the following reasons.
    1. Equipment was not submitted for prior approval ten (10) days in advance of bid date.
    2. There is a history of poor performance, poor response to service and/or warranty issues on previous projects.

"Or Equal"

A. Equipment and material shall be judged "equal" or on the basis of the following:
   1. Meets or exceeds performance specifications for rating duty, etc.
   2. Is of comparable size to specified unit, (dimensions, weight, etc.).
   3. Has similar appearance and is aesthetically acceptable (not applicable to equipment which is concealed in mechanical rooms, etc.).
   4. Has exact voltage and phase characteristics as specified.
   5. Does not exceed power consumption of specified equipment by more than 5%.
   6. Is submitted and approved by Architects /Engineer.

B. Equipment may be judged "unequal" if:
   1. Installation of such equipment will cause excessive changes in associated equipment, wiring, structures, etc.
   2. Such equipment will require basic design changes with regard to system operation or performance.

MAJOR EQUIPMENT SUBSTITUTION COST

A. If equipment furnished or substituted differs in physical character from that specified and requires increased services and/or facilities of other trades, and such substitution is acceptable to the Architect, the Contractor shall bear the costs of any or all of the following charges caused by such substitution:
   1. Cost of modifying product to fit conditions.
   2. Cost of modifying building to receive product.
   3. Cost of increased services and/or facilities.
   4. Cost of additional Architectural and/or Engineering Services required to modify such services, facilities, building, etc.

B. Minor deviations:
   1. Dimensions and ratings of equipment herein specified or indicated on Drawings are intended to establish desired outlines and characteristics of such equipment. Minor deviations will be permitted or allow manufacturers specified to bid on their nearest stock equipment.

COORDINATION OF MECHANICAL WORK

A. Refer to Division 1 for general coordination requirements. The contract documents are diagrammatic in showing certain physical relationships of the mechanical work and the interface with other work, including utilities and electrical work. Final coordination is the responsibility of the Contractor.
   1. Arrange mechanical work in a neat, well-organized manner. Piping and services shall run parallel to primary lines of the building construction, at a minimum of 7'-0" clearance.
   2. Locate operating and control equipment for ease of access. Arrange mechanical work with required clearances for access for operation and maintenance.
   3. Advise other trades of openings required in their work.
   4. Give right-of-way to piping which requires a slope for drainage.

B. Coordination Drawings: Provide 1/4" drawings indicating mechanical equipment room showing the position of all equipment, valves, ductwork, piping, access panels, drives, etc.
1. Coordination drawing shall include two elevations or sections showing vertical clearance.
2. Engineer will make his AutoCADD drawing available as a basis to produce the coordination drawing.

C. NEC Required Clearances: The Contractor is responsible for all mechanical equipment with serviceable electrical components at 120v and greater (including but not limited to starters, disconnects, fuses, relays, etc.) to be installed with allowable NEC clearances. Refer to NEC for the required clearances (which are often greater than 36"). For cramped mechanical spaced with electrical panels, submit coordination drawings showing mechanical and electrical equipment and their respective service and NEC clearances.

D. Do not locate anything within the NEC required service areas required by existing electrical components.

QUALITY ASSURANCE, STANDARDS AND SYMBOLS, QUALIFICATIONS

Administration

Refer to Division 1 for administrative/procedural requirements to comply with codes and standards. For the mechanical work, standards are specified in individual sections.

Installation

For fabrication, installation and testing of work of Division 15, use trained, skilled mechanics and experienced workmen familiar with items required and manufacturer's recommended methods of installation. Perform work in the best workmanlike manner. In acceptance of installed work, the Architect/Engineer will make no allowance for lack of skill on the part of the workmen. A competent supervisor shall direct the proper and prompt execution of the work.

Testing

An independent testing company shall be contracted to witness and sign off on all mechanical pressure tests.

Code And Standard Compliance

Materials or equipment data sheets shall indicate compliance with industry standards, such as the American National Standards Institute (ANSI), Americans with Disabilities Act of 1990 (Public Law 101-336) (ADA), American Society for

Testing and Materials (ASTM), Florida Department of Community Affairs Accessibility Requirements Manual (DCAARM), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), Underwriters Laboratories (UL), Air Conditioning & Refrigeration Institute (ARI), American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), OSHA "Trench Safety Act" Chapter 90-96, and the Florida Building Code, latest edition, Florida Administrative Code (FAC). Symbols: Except as otherwise indicated, refer to the "ASHRAE Handbook of Fundamentals" for definitions of symbols used on the drawings to show mechanical work.

Minimum Qualifications and License

The Subcontracting Firm for the mechanical installation shall be licensed by the State of Florida and the local authorities, regularly engaged in the installation of mechanical systems and other related equipment. The Subcontracting Firm shall be familiar with all local conditions including interpretations, codes and Standards. Both the Firm and Foreman shall have at least 5 years of successful installation experience on at least 3 successful similar projects of the same or greater magnitude, scope, and monetary value. The Subcontracting Firm shall hold a Florida State Certified Air Conditioning Contractor or State Certified Mechanical Contractor license for this project.

SHOP AND ERECTION DRAWINGS AND SAMPLES

A. Submit required and/or requested shop drawings and erection drawings, and obtain written approval of same before ordering or installing any equipment or material. Equipment or material ordered or installed without written approval may not be accepted.

B. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature, which shall clearly indicate the construction, material, physical dimensions, and complete operating data clearly marked for each item. Data of general nature will not be accepted.

C. Submit samples requested for approval. The sample shall be properly tagged and will remain in the Architect's possession until final acceptance of the work.

D. Indication of “No Exceptions Taken” on the shop drawing review does not relieve the contractor of the responsibility to comply with all requirements of this specification.

SUBMITTAL REQUIREMENTS

A. Submittal data is required for each Division 15 section.

B. All data shall be submitted to the Engineer at one time; partial submittals will not be accepted. Submit electronically in pdf format.. The front page shall include the project name and the Coburn & Associates, Inc. job number from the drawings. Index each section using the format from the Project Specifications. Each section of the submittal shall begin with a "Submittal Identification Sheet" (last page of this specification section) with a complete list of all items in that section. Failure to follow this procedure shall result in rejection of the submittal by the Engineer. This list shall also contain the following information:

1. Model numbers and summary descriptions.
2. The number of pages submitted for each item.
3. Space for Engineer's review stamp for each item.
4. Names of Project, Contractor, Sub-Contractors and Suppliers of Equipment.

The submittal shall be formatted in this manner in order to facilitate timely review by the Engineer. Engineer shall review submittal data no more than two times. Additional submittal review time shall be paid by Contractor.

C. Refer to Division 1 for administration of submittals. For mechanical work, the following quantities are required for each category of submittal, unless otherwise indicated in Division 1 or individual work sections. Refer to architects submittal procedures for format and hard copies required. Submittal of hard copies shall be AFTER final approval of electronic submittals and shall be a minimum of two copies for maintenance manuals.

1. Shop Drawings: 2 for maintenance manuals.
2. Product Data: 2 for maintenance manuals.
3. Test and Balance Reports: including 2 for maintenance manuals.
4. Warranties (Guarantees): 2 for maintenance manuals.
5. Manuals: 2 final copies, including flow diagrams, maintenance instructions, operating instructions, parts listings, and copies of other submittals indicated for inclusion.

Maintenance Manuals

Thirty days prior to Substantial completion, furnish two operation and maintenance manuals with index and thumb-tab marker for each section of information; bind in 3-ring, vinyl-covered binder. Label binder with "OPERATION AND MAINTENANCE MANUAL," the name and location of the project, the name of the Contractor, and the contract number. Include the names, addresses, and telephone numbers of each subcontractor installing the equipment. Include a list of all equipment and the supplier with address and telephone number. Include a table of contents and assemble to conform to the Project Manual (specifications) with the tab sheets before instructions covering the subject. Instructions shall be legible and easily read, fold large sheets of drawings. The manual shall include: wiring and control diagrams, detailed explanation of operation and control of

each item of equipment; description of the function of each principal item of equipment; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range and frequency; safety precautions, diagrams and illustrations; test procedures; performance data; and parts lists. The manual shall be complete, including all equipment, controls, accessories and associated appurtenances.

RECORD DRAWINGS

A. Subcontractor is instructed to refer to section covering General Conditions of this specification.

B. During the course of construction the subcontractor shall keep an accurate record of all deviations and changes of the work as indicated on the drawings and its actual installation.

C. Prepare one set of "as-built" reproducible drawings indicating a record of construction revisions and changes from the contract drawings.

D. Upon completion of the work and within 30 days after acceptance by the Architect, the subcontractor shall furnish to the Owner a revised and final set of reproducibles and a set of electronic files in Auto Cadd format and prints showing all work as installed.

REGULATORY REQUIREMENTS

A. All work shall be performed in compliance with OSHA regulations.

CERTIFICATES

A. Upon completion of the work and before making the final request for payment, submit a “Final Certificate of Approval" or its equivalent stating that:
   1. All work has been inspected and approved.
   2. All work has been completed.
   3. No further inspections will be required.
   4. As built drawings are complete and on site.

PART 2 - PRODUCTS AND MATERIALS

GENERAL

When a specified or indicated item has been superseded or is no longer available, the manufacturer's latest equivalent type or model of material or equipment as approved by the Engineers shall be furnished and installed at no additional cost to the Owner.

MECHANICAL SYSTEM IDENTIFICATION

A. Provide a system of identification of all equipment, including dampers, and other appurtenances, to permit recognition of all components.

B. Piping System: Mark piping which is exposed, including concealed piping in accessible spaces i.e. lay-in ceilings, etc. Provide either pre-printed, color-coded plastic, self-sticking pipe markers; or color-coded stencil painted markers. Indicate each pipe system by its generic name (abbreviated) as shown/scheduled/specified.

C.

Duct System

Provide stencil-painted identification on ductwork, with lettering size sufficient for reading but not less than 3/4-inch and including arrows to show direction of flow. Indicate flow direction at fan housings, remote coils, fire and smoke dampers, control dampers, dehumidifiers, and VAV boxes. On access doors, indicate service and equipment being accessed. Where ducts are concealed behind access doors or removable ceilings, identification may be by plasticized tags in lieu of stencil-painted markers.

Manual Volume Dampers

Spray paint a continuous minimum 6" wide fluorescent orange band around entire perimeter of the outside surface of the duct or when externally insulated, on the surface of the duct insulation, at all locations where manual volume air dampers are installed.

1. Equipment: Provide tag identification with the equipment unit tag as indicated on the drawings for every piece of equipment. Tag identification shall be laminated phenolic plastic, chamfer edges, black front with white core, with lettering etched through the outer covering. White engraved ¼” letters on black background.

2. Operational Tags: Where needed for proper and adequate information on operation and maintenance of mechanical equipment, provide tags of plasticized cardstock, pre-printed to convey messages such as: "DO NOT CLOSE THIS VALVE EXCEPT WHEN BURNER IS OFF".

3. Nameplates: Each unit of equipment shall be identified by a permanently factory attached nameplate bearing information pertaining specifically to the unit installed.

4. Dampers: At each access door, provide a label with letters at least 1/2" high stating the damper number and purpose. Identify fire dampers with red letters on a white background. Identify all other dampers with black letters on a white background.

5. Miscellaneous: All switches, starters, pilot lights, remote gauges, and control panels shall have attached or mounted adjacent thereto a black surface, white core Bakelite nameplate indicating which equipment it controls. Nomenclature shall be in accordance with a schedule submitted to and approved by the Owner.

6. Ceiling Tags: Provide a ½" x 3" laminated phenolic coated plastic nameplate, black letters on white background for each VAV box, power ventilator, motorized damper, AHU or other equipment located in the ceiling space. If the equipment is located above a hard ceiling, locate nameplate on access door. If located above a ceiling, tile ceiling, locate on the T-bar next to the access tile.

EMERGENCY AND SERVICE ACCESS

A. General: Where floors, walls, ceilings or ductwork must be penetrated for emergency or service access to mechanical work, provide types of access doors indicated, including floor doors if any. Furnish sizes indicated or, where not otherwise indicated, furnish adequate size for intended and necessary access. Furnish manufacturer's complete units, of type recommended for application in indicated substrate construction, in each case, complete with anchorages and hardware. Access doors required in walls, ceilings, or other areas of the structure are furnished as a part of Division 15. Installation shall be by other divisions of the Contract Specifications.

B. Duct Access Doors: Access doors shall be complete with steel butt hinges window type sashlock and sheet metal reinforcing plate. Access door shall be insulated and have sheet metal on both sides.

C. Wall/Ceiling Access Door Construction: Fabricate wall/ceiling door unit of stainless steel Type 304 construction with welds ground smooth; 16-gauge frames and 14-gauge flush panel doors; 175° swing with concealed spring hinges; flush screwdriver-operated cam locks; factory applied rust-inhibitive prime-coat paint finish.

D. Removable Access Plates: Where valves, control devices, cleanouts and similar elements of mechanical work are located within or behind wall, ceiling or floor construction or finishes, or below grade, and are not (cannot be) provided with integral removable access plates as specified in other Division 15 sections, provide manufacturer's standard frameless round formed stainless steel plate cover, with single exposed flush screen anchor, with bright finish.

INSPECTION

A. Job conditions 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. How construction or work will affect the work of this Section.
   c. Nature and extent of work of other trades.

B. Failure to determine existing conditions or nature of construction will not be considered as a basis for granting additional compensation.

INSTALLATION

A. General:
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 as-built 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 by dimension if equipment approved by the Architect.
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 verified.
7. Mechanical reference symbols are given on the mechanical legend on the drawings.

B. Excavation and Backfill:
1. Contractor shall be responsible for trenching, excavation and backfill required to perform the Work specified herein.
2. Excavation for conduits shall be of sufficient width to allow for proper jointing and alignment of the type conduit used; minimum cover over piping shall be 24 inches; conduit shall be bedded on original ground; where conduit is in solid rock a 6-inch earth cushion must be provided.
3. The cost of solid rock excavation shall be included in the Lump Sum Bid with No Extra Pay Allowed.
4. Backfill shall be hand placed, loose granular earth for a height of 6 inches over the top of the largest pipe. This material shall be free of rocks over 1 1/2 inch in size.
5. Determine the route of the trenching to avoid interference with other underground utilities.

C. 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. Rough-in openings in masonry or stud walls shall be cut, not broken or chiseled.
      d. Sleeves shall be required at all points where piping passes through concrete walls, slabs or masonry walls.
      e. Sleeves installed below grade or where subject to high water conditions shall be installed watertight.

PART 3 - EXECUTION

CUTTING AND PATCHING

Comply with required Divisions of the Contract Specifications for the cutting and patching of other work to accommodate the installation of mechanical work. Except as individually authorized by the Architect/Engineer, cutting and patching of mechanical work to accommodate the installation of other work is not permitted, other than necessary penetrations of mechanical sheet metal work for electrical conduit and similar purposes.

COORDINATION WITH OTHER TRADES

A. This subcontractor shall coordinate his/her work with other trades to avoid interferences and delays. He/she shall assist in working out space requirements to make a satisfactory installation.

B. If the subcontractor installs his/her work before coordinating with other trades, or so as to cause any interference with work of other trades, he/she shall make the necessary changes in his/her work to correct the condition without extra charge.

C. This subcontractor shall furnish to other trades, as required, all necessary templates, patterns, settings plans, and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

PAINTING

A. Refer to individual sections for painting of mechanical work.

CLEANING

A. Ductwork and Equipment: Every possible precaution shall be taken to keep the interior of the duct system and equipment throughout free from dirt and rubbish and other foreign matter. All fan motors, switches, etc., shall also be protected from dirt, rubbish and other foreign matter during building construction. Thoroughly clean all components of the duct work and remove all dirt, scale, oil and other foreign substances which may have accumulated during the installation process. All ductwork openings shall be temporarily capped or sealed with Visqueen immediately after installation and shall be covered with Visqueen while it is stored on the jobsite.

B. Water Piping Systems: After the piping systems have been pressure tested and proved tight, thoroughly flush out and clean the various piping systems, using boiler cleaning compound so as to remove all dirt, scale, oil, grease and other foreign substances which may have accumulated during the installation process.

C. Equipment: All air handling units, power ventilators, pumps, boilers, plumbing equipment, and any and all other mechanical equipment provided shall be thoroughly cleaned of all dirt, oil concrete, etc. Any dents, scratches or other visible blemishes shall be corrected and the appearance of the equipment made "like new" and to the satisfaction of the Architect/Engineer.

D. Upon completion, and before final acceptance of the work, all debris, rubbish, leftover materials, tools and equipment shall be removed from the site.

DISCREPANCIES

A. In the event of discrepancy, work shall cease and the Architect/Engineer shall be notified immediately.

CLOSING-IN OF UNINSPECTED WORK

A. Do not allow or cause any of the work in this Section to be covered up or enclosed until it has been inspected, tested, and approved by the Architect/Engineer and by all authorities having jurisdiction.

MECHANICAL WORK CLOSEOUT

A. Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on mechanical equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption and similar information; submit copy to Owner.

B. Closeout Equipment/Systems Operations: Sequence operations properly so that work of project will not be damaged or endangered. Coordinate with seasonal

requirements. Operate each item of equipment and each system in a test run of appropriate duration (with the Architect/ Engineer and the Owner's operating personnel present) to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters excessively worn parts and similar expendable items of the work.

C. Operating Instructions: Conduct a walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, operational diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety, efficiency and similar features of the systems. Provide a copy of the written sequence of control of all mechanical equipment and review with Owner's personnel at time of walk-through.

D. Turn-Over of Operation: At the time of final completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel.

GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from leaks or defects. Any defective materials or workmanship as well as damage to the work of all trades resulting from same shall be replaced or repaired as directed for the duration of stipulated guarantee periods.

B. The duration of guarantee periods following the date of beneficial use of the system shall be one year, and five years warranty shall be on all compressors. Beneficial use is defined as operation of the system to obtain its intended use.

C. The date of acceptance shall be the date of final payment for the work or the date of a formal notice of acceptance, whichever is earlier.

D. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of heating and air conditioning equipment.

ENGINEER'S PRE-CONCEALMENT OBSERVATION

A. Contractor Preparation:

1. All equipment, ductwork, piping, controllers, conduit, wire, and accessories shall be installed in plain visible view without any walls, ceiling tiles, or ceilings installed. Stud walls with one exposed wall may be installed. Ceiling grids and ceiling light fixtures may not be installed. All ductwork and piping shall be non-insulated.

2. The Contractor shall contact the Architect/Engineer to schedule a pre-concealment site observation. The Engineer shall perform the observation within 72 hours of the notice of observation. It is the Contractor's sole responsibility to plan for and schedule this observation.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings.

MECHANICAL SUBSTANTIAL COMPLETION OBSERVATION

A. Mechanical Substantial Completion shall be done at the same time as the General contractors substantial completion inspection.
   1. **ALL** Mechanical work shall be completed including but not limited to Ductwork, Diffusers in place, All Electrical with respect to the Mechanical Work. Controls, Test and Balance. It is required that all systems are functioning and proper operation can be demonstrated.
   2 The General Contractor shall be represented as well as HVAC, Electrical, Controls Subcontractor, and ay other person(s) that the General Contractor or Engineer deems necessary to demonstrate proper operation of the equipment.
   3. Ceiling tile does not need to be in place.
   4. Test and Balance must be complete prior to substantial completion inspection.
   5. All Mechanical Systems will be operated and checked including, fans, motors, dampers, pumps, controls, cooling tower, safety devices, including Fire Alarm Shutdown.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. Documents: The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings. It is the Contractor's sole responsibility to plan for and schedule this observation.

E. Do not call for substantial completion if
1. Units, ducts, diffusers are not installed
2. Unit and controls are not installed and operating
3. Test and balance has not been done and TAB forms are not on job site.
4. All plumbing fixtures are not installed with water and drains.
5. Water heaters are not installed and operable

F. It is not the responsibility of the Engineer to provide the general contractors construction punch list items. If the Engineer punchlist exceeds 20 minor items Or One major item, the engineer will declare the project incomplete.

FINAL ACCEPTANCE OBSERVATION

A. Contractor shall carefully read all applicable sections of these specifications and prepare and assemble necessary test reports, maintenance manuals, certificates, guarantees, letters of instruction, etc. that are required.

B. These documents shall be delivered to the Architect's / Engineer's office at least 48 hours before requesting final acceptance observation for work covered under this division of the specifications.

C. Contractor's representatives responsible for work under this division shall be present at time of acceptance observations and shall furnish required mechanics, tools and ladders to assist in the inspection.

D. A list of items to be corrected as a result of acceptance observation will be furnished to the contractor. Notify Architect / Engineer in writing of any items appearing on list of correction that are disputed by Contractor. When ready, request in writing a re-observation of work.

PROTECTION

A. In addition to provisions and stipulations 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 equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.
3. Protect equipment and finished surfaces from paint droppings, insulation adhesive, etc., by use of drop cloths.

B. All pumps, motors, fans and other rotating equipment shall be stored at Site with

openings, bearing, etc., covered to exclude dust and moisture; all stockpiled conduit shall be placed on dunnage, and protected from weather, from entry of foreign materials.

END OF SECTION

SECTION 15041

CHLORINATION OF DOMESTIC WATER LINES

PART 1 - GENERAL

WORK INCLUDED

A. Disinfection of all water piping which shall carry potable water or any other piping connected thereto which is not separated by a backflow preventer.

PART 2 - PRODUCTS

MATERIALS

A. Disinfection shall be chlorine, either in the form of hypochlorite solution or in the form of compressed gas applied through an approved chlorinator.

PART 3 - EXECUTION

PREPARATION

A. After completion of all tests, replacement, and repairs, all water supply systems shall be thoroughly flushed with water to remove sediment and/or debris.
B. Begin disinfection only after flushing system.

INSTALLATION

A. The system shall be filled with a solution containing 50 parts per million available chlorine and allowed to stand for twenty-four hours, or as required by local authorities, whichever is greater.
B. During Chlorination all valves and equipment shall be operated to insure that chlorine reaches all parts of the system.
C. Following disinfection all treated water shall be flushed from the system through its extremities until the quality of water delivered is comparable with the quality of the water supply and satisfactory to the public health authority having jurisdiction.
D. Disinfection and flushing shall be repeated if samples taken daily over a period of three days show that water quality is not being maintained.
E. Samples shall be taken only from taps located and installed in such a manner that they will not contribute any contamination.
F. Samples shall not be drawn from hydrants or through unsterilized hose.

FIELD QUALITY CONTROL

A. If disinfection and flushing has been repeated three times and water quality cannot be maintained, the Architect shall have the authority to require disassembly of piping as he shall deem necessary to determine the cause of contamination.
    1. Any disassembly, cleaning or repair shall be at no additional expense to the Owner.
    2. Disinfection, flushing and testing shall be repeated upon reassembly

BIOLOGICAL TEST

A. Provide the results of Biological testing of the water system, performed by a State Licensed Testing Lab or the Health Dept.
   1. Draw sample from the most remote water outlet away from the incoming water supply.

END OF SECTION

SECTION 15043

BALANCING OF AIR SYSTEMS

PART 1- GENERAL

WORK INCLUDED

A. Balance and adjust each air distribution system shown on the Drawings.

DESCRIPTION

A. Work Includes:
   1. Testing, adjusting and balancing of all air systems.
   2. Duct leak test. Provide duct leak testing per SMACNA standards for both medium and low pressure systems per SMACNA standards
      a. Notify engineer when duct leak test will be performed.
      b. Leak testing shall be performed on uninsulated ductwork
   3. Leakage must be less than 3% for acceptance.

JOB CONDITIONS

A. Heating, ventilation, and air conditioning equipment shall be completely installed and in continuous operation to accomplish the testing, adjusting and balancing work specified. Complete air balancing prior to hydronic balancing.
B. Perform testing, adjusting and balancing when outside conditions approximate design conditions for heating and cooling functions or when the system is operating at design capacity..
C. Notify the Owner in writing when the testing and balancing work will begin. The Owner reserves the right to have an observer present during the times when the testing and balancing work is being performed.

QUALITY ASSURANCE

A. The Balancing Agency shall have been in business continually for a minimum of the previous five (5) years.
B. Only Qualified Personnel shall perform testing and balancing work. Qualified Personnel are defined as personnel who possess current, applicable certification(s) by at least one (1) of the following organizations:
   1. AABC - Associated Air Balance Council
   2. NEBB —National Environmental Balancing Bureau
C. The balancing agency shall have a minimum of one (I) qualified test and balance engineer having applicable certification referenced above. This certified test and balance engineer shall be responsible for on-site supervision of the work, and subsequent certification of the report specified herein. This individual shall have at least five (5) years applicable experience.
D. Submit a list of at least five (5) completed projects of similar type, size, and scope to this project successfully tested and balanced by the submitted Qualified Personnel for review by the Architect/Engineer, prior to performing the work.
E. Each Contractor shall perform all corrective measures caused by faulty installation. Retest, readjust and rebalance system(s) until satisfactory results are achieved.

F. The balancing agency shall perform the services specified herein in accordance with AABC or NEBB Standards. If the specifications herein are more stringent than those of AABC or NEBB, the more stringent specifications shall prevail.

SUBMITTALS

A. Submit in accord with 15010.

B. Prior to performing the work, submit all data necessary, for Architect/Engineer review, to establish that the qualifications and requirements indicated above in Paragraph 1.03 "Quality Assurance" are met by the Balancing Agency and its associated Qualified Personnel.

C. Prior to performing the work, submit Data Sheet on each item of testing equipment for Architect/Engineer review. Include name of device, manufacturer's name, model number, latest date of calibration and correction factors. Calibration of all testing equipment shall be within a period of six (6) months prior to their use on this project, in accordance with NEBB or AABC standards and the instrument manufacturers.

D. Submit a Certified Report containing all test data and other related information recorded during testing and balancing, placed on appropriate NEBB or AABC forms for Architect/Engineer review. This does not preclude computer generated forms that follow NEBB or AABC guidelines. All forms shall be modified as required to contain the information specified herein. Reports shall certify that the methods used and results achieved are as specified. Reports shall note all discrepancies from design and reasons for such discrepancies.

MECHANICAL CONTRACTOR'S RESPONSIBILITIES

A. The Mechanical Contractor has numerous responsibilities associated with the test and balance. It is imperative that the Test and Balance Contractor coordinate these responsibilities with them.

B. Allocate time in the construction schedule for test and balance procedure.

C. Place all systems and necessary allied devices required and only those required, for each working day of the testing and balancing procedures into maximum design condition operation. At the completion of the testing and balancing procedures of the day, the Mechanical Contractor shall return the systems to normal operation or shut them down.

D. Replace and/or install pulleys, belts, and dampers as required for the correct balance as directed by the Test and Balance Contractor.

E. Prepare the airside systems for testing and balancing as follows, (all new and existing devices are included).

1. Mechanically check all rotating air devices, to insure that the devices are capable of operation under normal design modes and have correct rotation and the related automatic controls are functional and calibrated.
2. All balancing, splitter, volume, fire and smoke control, and VAV dampers shall be in their respective neutral position or fully open. All locking devices shall be functional and secured.
3. All air distribution inlet and outlet devices (i.e., grilles, registers, diffusers, and etc.) shall be fully open. All locking devices shall be functional and secured.

4. All automatic controls (i.e., direct digital, electronic, electric, pneumatic, hydraulic and/or any combination thereof) shall be mechanically and electrically checked and be available to operate under design conditions.
5. Air control locking devices (i.e., control rods, quadrants, and etc.) shall be permanently marked to represent the true position of their respective control surfaces. The locking devices markings shall be inconspicuous in occupied areas.
6. Install new air filters before the start of testing and as directed by the Test and Balance Contractor in order to meet design conditions of the air handling devices.
7. Provide air control devices, such as balancing dampers, as per the drawings and specifications, and as directed by the Test and Balance Contractor in order to obtain the proper balance conditions.

REVERIFICATION

A. A percentage (not more than 5%) of the final recorded data will be subject to re-verification by the Architect/Engineer or Owner. This Contractor shall take instrument readings as directed. Test points will be in normally accessible locations and randomly selected by Architect/Engineer. If these random tests demonstrate a measured flow deviation of 10 percent or more from that data recorded in the certified test and balance report, all systems shall be retested and readjusted, and a new certified report submitted, at no additional cost.

PART 2- PRODUCTS

Not Applicable To This Section.

PART 3- EXECUTION

RTU -1

A. Test, adjust and balance systems in accord with the following requirements:
   1. Preliminary:
      a. Identify and list size, type and manufacturer of all equipment to be tested including air terminals. Inspect all system components for proper installation and operation.
      b. Use manufacturer's ratings for all equipment to make required calculations except where field test shows ratings to be impractical.
      c. Verify that all instruments are accurately calibrated and maintained.
      d. Install clean filters.
   2. Split Systems Performance
      a. Test, adjust and record fan RPM to design specification within the limits of mechanical equipment provided.
      b. Test and record motor voltage and running amperes including motor nameplate data and starter heater ratings.
      c. Make pitot tube traverse of main supply, and exhaust ducts, determine and record CFM at fans and adjust fans to design CFM.

d. Test and record system static pressure, suction and discharge.
e. Test and adjust system for design outside air, CFM, using pitot-tube traverse.
f. Test and adjust systems for design recirculated air, CFM, using pitot-tube traverse.
g. Test and record heating apparatus entering air temperatures, dry bulb.
h. Test and record cooling apparatus entering air temperatures, dry bulb and wet bulb.
i. Test and record heating apparatus leaving air temperatures, dry bulb.
j. Test and record cooling apparatus leaving air temperatures, dry bulb and wet bulb.
k. Test and record fan amps.
l. Measure and record compressor running load amps at balance point.
m. Measure and record compressor amps at full load on each compressor

3. Distribution: Adjust zones or branch ducts to proper design CFM, supply and return.
4. Air Terminals (Diffusers, Registers, Grilles, Central Dampers):
   a. Identify each air terminal from reports as to location and determine specified flow reading.
   b. Test and adjust each air terminal to within 5% of design requirement.
   c. Test procedure on air terminals shall include comparison of specified FPM velocity and observed velocity, adjustment of terminal, and comparison of specified CFM and observed CFM after adjustment.
   d. Adjust flow patterns from air terminal units to minimize drafts to extent design and equipment permits.
5. Heaters:
   a. Measure and record KW, volts and amps.
   b. Measure and record air temperature rise (°F).
6. Verification:
   a. Prepare summation of readings of observed CFM for each system, compare with required CFM and verify that duct losses are within specified allowable range. Determine coil and filter static pressure drops.
   b. Verify design CFM at fans as described in 3.01 .A.2.c. above.
7 Measure and Record Condensing Unit Data (Design and Actual)
   a. Manufacturer model number and serial number.
   b. Number of compressors/circuits.
   c. Ambient temperature, °F.
   d. Crankcase heater volts, amps.
   e. Compressor volts, amps.
   f. Condenser fans: number, HP, volts, amps, phase, RPM.
8. Measure and Record Heater Data
   a. Measure and record KW, volts and amps.
   b. Measure and record air temperature rise (°F).

ELECTRIC HEATING EQUIPMENT:

A. Test and record voltage and amperage readings at each electric heater while fully energized.

SYSTEM PERFORMANCE REPORT:

A. After the conclusion of balancing operations, make temporary installation of portable recorders and simultaneously record temperatures and humidity during summer and winter conditions at representative locations in each system outside and inside of building.
B. Architect/Engineer will direct test locations.
C. Make recordings during summer and winter for a seven-day period, continuous over a weekend and including at least one period of operation at outside conditions within 5 °F. wet bulb temperature of maximum summer design condition and within 10 °F. dry bulb temperature of minimum winter design condition.
D. Report of test results shall include original recording and two reproductions.

SUBMISSION OF REPORTS

A. Fill in test results on approved NEBB or AABC forms.
B. Submit three certified copies of specified test reports to the Architect/Engineer for review.
C. Include in report a list of instruments used and last date of calibration.

END OF SECTION

SECTION 15060

PIPING SYSTEMS

PART 1 - GENERAL

SYSTEM DESCRIPTION

A. SYSTEMS TO BE FURNISHED IN THIS PROJECT
   1. Domestic hot and cold water system
   2. Sanitary Piping and Vent System
   3. Condensate Removal System for HVAC

B. Piping Description
   1. Domestic cold water piping - CPVC - See section 15064
   2. Domestic hot water piping – CPVC – See section 15064
   3. Sanitary and safe waste Piping - PVC – See section 15064
   4. Vent Piping - PVC – See section 15064

QUALITY ASSURANCE

A. Domestic Water Drainage and Vent Piping (Plumbing)
   1. Install in accordance with applicable code.
   2. All installers shall be licensed or certified as required by the State or local government having jurisdiction over the work.
   3. All work shall be done under the supervision of a Master Plumber.

REFERENCES

A. American Society for Testing and Materials. (ASTM)

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Any manufacturer engaged in the production of pipe, fittings and associated materials and who test, inspect and certify that said materials meet or exceed the ASTM designation for that material shall be acceptable.

MATERIALS

A. Refer to individual specification section.
   1. 15061 Steel Pipe and Fittings
   2. 15063 Copper Pipe and Fittings
   3. 15064 Plastic Pipe and Fittings
   4. 15085 Traps
   5. 15087 Shock Absorbers
   6. 15094 Pipe Hangers and Supports

7.	15099	Unions
9.	15100	Valves, Cocks and Faucets
10.	15170	Access Panels
11.	15076	Steel Tanks
12.	15180	Insulation (Fiberglass)
13.	15423	Cleanouts and Access Covers
14.	15450	Plumbing Fixtures

PART 3 - EXECUTION

GENERAL PIPING INSTALLATION – ALL SYSTEMS

A. Underground Piping
   1. Examine areas to receive underground piping for:
      a. Complete excavation to elevations and slopes indicated.
      b. Obstructions which would interfere with drainage system installation.
   2. Begin work only when conditions are satisfactory.

   3. Excavation:
      a. Excavate trenches of sufficient width for proper installation of pipe.
      b. Sheet and brace trenches as necessary to protect workmen and adjacent structures.
      c. Comply with current OSHA standards.
   4. Final grading of trench:
      a. Perform final grading of trench bottoms by hand tools; carry machine excavation only to such depth that soil bearing for pipes will not be disturbed.
      b. Grade bottom of trenches evenly to insure uniform bearing for all piping.
      c. Cut holes as necessary for joint making.
      d. Keep trenches free from water while construction is in progress.
      e. Use surveyor's level to establish elevations and grades.
      f. Machine excavation shall be held a sufficient distance from foundations and footings.
      g. Provide and maintain barricades and temporary bridges around excavations as required for safety.
      h. Water lines may be benched above sanitary lines in same trench if 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 inch per foot minimum.
      k. Install same type material specified for the inside building to 8 feet outside building.
   5. Backfill:

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. The backfill below paved areas and walks shall be brought to within 6 inches of finished grade; the remaining six inches shall be backfilled with clean topsoil.
d. The backfill below sodded or seeded areas shall be brought to within 6 inches 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 may be required for backfill.

B. Above-Ground Piping:
1. Examine areas to receive piping for:
a. Obstructions.
b. Work to be done prior to other construction.
c. Work of other trades in other areas.
2. Begin work only when conditions are corrected satisfactorily.

C. General Preparation and installation
1. Ream pipes and tubes.
2. Clean off scale and dirt, inside and outside, before assembly.
3. Remove welding slag or other foreign matter from piping.
4. Keep piping capped while stored on site and during installation when piping will be open for more than 2 hours.

DOMESTIC HOT AND COLD WATER SYSTEMS

A. Hot and Cold Water Piping
1. Furnish and install cold water service from the meter or point of service as shown on the drawings.
2. All hot and cold water supply piping shall be supported on hangers and supports as specified in Section 15094.
3. Pipe shall be adequately supported during construction with blocking or slings to prevent injury to personnel or damage to equipment or materials.
4. Run exposed piping true and level except where slopes are specified.
5. Run vertical exposed piping plumb.
6. Run exposed piping with as few elbows and bends as possible.
7. Group piping wherever practical at common elevations.
8. Install concealed pipes close to building's structure to keep furring to a minimum.
9. Drawings are diagrammatic showing piping to be installed and systems to be run. Actual piping locations shall determined in the field to closely match the drawings, however, coordination with structure and other trades is the responsibility of the contractor.

10. Unless specifically noted otherwise, all piping in finished areas is to be concealed in walls or ceilings or run below slab.
    a. Note: Some piping may be graphically shown outside walls for clarity. Such piping shall be installed concealed unless noted otherwise.
11. Piping in utility rooms serving water heaters will by nature be exposed.
12. Slope water piping 1 inch in 40 feet and arrange to drain at low points.
    a. On closed systems, equip low points with 3/4 inch drain valves and hose nipples.
13. All water supply lines penetrating slabs shall be installed in sleeves and sealed to prevent the intrusion of insects and rodents.
14. All hot water below slab shall be installed in a PVC chase using long radius sweeps. Pipe chases shall be minimum radius of 1" larger than the radius from the center of the pipe to the exterior of the required insulation.
15. All branch piping shall have isolation valves where shown on the drawings and at the takeoffs from main supply lines or in the horizontal run just prior to the vertical drop.
16. All isolation valves shall be in an accessible location or have an access panel installed at the valve location.
17. Furnish and install shock absorbers in accordance with Section 15087 in locations shown on the drawings.
18. Furnish and install thermostatic mixing valves in accordance with Section 15130 at location shown on drawings.
19. Furnish and install pressure and temperature relief valve in accordance with Section 15122 at each water heater location shown on drawings.
20. Furnish and install steel expansion tanks on all cold water inlets to water heaters in accordance with Section 15176 and details shown on drawings.
21. Furnish and install unions in accordance with Section 15099 at location shown on drawings.
22. All wall penetrations to the final fixture connection shall have a nickel plated brass escutcheon plate.
23. All connections to fixtures shall have chrome plated brass valves with nickel plated brass supply tubes, except those fixtures which are supplied with integral stops.
24 The following items apply to the installation of CPVC piping specifically

a) Install product according to the manufacturer's installation instructions
b) Make certain that thread sealants, gasket lubricants and fire stop materials are compatible with CPVC pipe and fittings.
c) Use only latex-base paints if painting is desired.
d) Follow proper handling procedures.
e) Use tools designed for use with plastic pipe and fittings.
f) Use proper solvent cement and follow application instructions.
g) Cut pipe ends square.
h) Deburr and bevel pipe before solvent cementing.

i) Rotate the pipe 1/4 to 1/2 turn when bottoming pipe in fitting socket.
j) Avoid puddling of solvent cement in fittings and pipe.
k) Follow manufacturers recommended cure times prior to pressure testing.
l) Fill lines slowly and bleed the air from the system prior to pressure testing.
m) Allow for movement due to expansion and contraction.
n) Use plastic pipe straps that fully encircle the tube.· Drill holes 1/4" larger than the outside diameter of the tube when penetrating wood studs.
o) Use protective pipe isolators when penetrating steel studs.
p) Use metallic or tear drop hangers when suspending tube from all thread rod.
q) Verify that sleeving material is compatible with CPVC.
r) Securely tape the top of the sleeve to the pipe.
s) Extend sleeving material 12" above and below the slab.
t) Backfill and cover underground piping prior to spraying termiticide in preparation for concrete pour.

25. All CPVC piping installed below slab shall be installed in PVC sleeves with ends of the pipe sealed with fire caulk by 3m or equal. Do not use expansion type insulating foam.

SANITARY AND VENT SYSTEMS

1. Work includes all sanitary piping shown on the plans and schematic risers.
2. Furnish and install all traps in accordance with Section 15085
3. Furnish and install all floor and shower drains in accordance with Section 15421
4. Furnish and install all cleanouts and access covers in accordance with Section 15423
5. Contractor shall locate the invert of the low point of the system, i.e. sewer connection point as shown on the drawings, prior to beginning any layout, trenching, excavating and confirm that the system layout will have the proper slope as designed, based on minimum of 1/8”/foot slope.

6 All sanitary piping routes shall be field measured and check for developed length of run based on actual field conditions. Increase sanitary, vent or wet vent size as required if developed length of runs require it.

7. Coordinate the sanitary vents through roof with actual HVAC fresh air intake locations, maintain minimum of 10 feet separation.
8. Coordinate sanitary vents through roof with roof structure. Final locations of vents shall be a minimum of 24” from any roof drain, roofing valley, equipment curb, or flashing.
9. Contractor shall coordinate the actual field conditions for developed length of runs to assure code compliance. If field conditions indicate a major deviation from the proposed riser, i.e., major rerouting, major equipment

change in capacity, or major increase in developed length, the contractor shall sketch the proposed changes and forward to the architect/engineer for approval prior.

END OF SECTION

SECTION 15063

COPPER PIPE

PART 1 – GENERAL

SYSTEM DESCRIPTION

A. Domestic Water Supply Above Grade or Slab
   1. Type L, Hard copper
   2. Joints
      a. Solder using lead-free solder and non-corrosive flux
   3. Fittings
      a. Wrought copper or cast brass
      b. Steel fittings prohibited.

B. Water Supply Below Grade or Under Slab (Larger than 3/4")
   1. Type K hard drawn copper tubing.
   2. Joints
      a. Solder using Silver solder or "Sil-Fos."
   3. Fittings:
      a. Wrought copper or cast brass

END OF SECTION

SECTION 15064

PLASTIC PIPE AND FITTINGS

PART 1 - GENERAL

SYSTEM DESCRIPTION

A. Vent piping (Above grade).
   1. Piping shall be PVC
   2. Polyvinyl Chloride (PVC) - ASTM D-1784-60T
      a. Schedule 40
      b. Type 1, Grade 1, Solid Core – No foam / cellular core
      c. Pipe shall bear NSF seal and ASTM designation
   3. Joints
      a. Bonded joints using adhesive per manufacturer's recommendations
   4. Fittings
      a. PVC - ASTM D-2665-69.
      b. ABS - ASTM D-2661-69.

B. Sanitary piping (Below Grade).
   1. PVC
      a. Schedule 40.
      b. Type 1, Grade 1, Solid Core – No Foam / Cellular core
      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

C. Cold Hot and Tempered Water Piping
   1. Piping above grade – Chlorinated polyvinyl chloride (CPVC)
   2. Shedule 40
   3. ASTM class 23447 as defined in ASTM Spec D1784
   4. Socket weld type fittings, Schedule 40
   5. Bond pipe and fittings using approved solvents.
   6. See Section 15060 for specific instructioms regarding installation of CPVC.

D. Air Conditioning condensate drains
   1. PVC - ASTM D-1784-60T
      a. Schedule 40. Type 1, Grade 1- Solid Core – No foam / Cellular core
      2. Bonded joints using adhesive per manufacturer's recommendations
   3. Fittings
      a. PVC - ASTM D-2665-69

E. Roof Drains
1. PVC – ASTM D2665-89
2. Schedule 80
3. Type 1, Grade1, Solid core

END OF SECTION

SECTION 15085

TRAPS

PART 1 - GENERAL

WORK INCLUDED

A. All traps for plumbing fixtures shown on the Drawings which are not an integral part of the fixtures.

SYSTEM DESCRIPTION

A. General
   1. All fixtures shall be trapped according to the Florida Building Code 2017-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 trap.
   4. All traps above grade shall be cast brass with chrome finish.
   5. All traps below grade shall be cast iron.
   6. No trap below grade shall be less than 2 inches.
   7. No fixture shall be double trapped.

SHOP DRAWINGS AND PRODUCT DATA:

A. Submit Shop Drawings and Product Data on Any Traps Which are Specified Under Section 15450, Plumbing Fixtures and Trim.
B. Submittals are not required for cast iron traps.

END OF SECTION

SECTION 15087

SHOCK ABSORBERS

PART 1 - GENERAL

WORK INCLUDED
A. Installation of shock absorbers on domestic water system. Only where noted.

SYSTEM DESCRIPTION
A. Install shock absorbers on all domestic water piping as shown on the drawings, and/or specified in this section.

SHOP DRAWINGS AND PRODUCT DATA
A. Submit shop drawings and product data sheets in accordance with the General and Special Conditions.
B. Submit the recommended sizing guide for manufacturer submitted.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Souix Chief (SC)
B. Approved equal

MATERIALS
A. Description
   1. Barrel fabricated from Type K hard drawn copper
   2. Piston machined of free turning brass
   3. Normal operating pressure 35-250 psi
   4. Operating temperature -40 to 212 degrees F.
   5. O ring of Parco NSF61
   6. Seal Lubricant Dow-Corning Silicon Compound #111 listed for use in potable water systems

B. Model Numbers (PPP numbers used for reference only)

Pipe Size	Air preload	Model Number	Drawing Mark
½”	60psi	SC-500	SS-1
¾”	60psi	SC-750	SS-2
1”	60psi	SC-1000	SS-3
1-1/4”	60psi	SC-1250	SS-4
1-1/2”	60psi	SC-1500	SS-5
2”	60psi	SC-2000	SS-6
2-1/2”	40psi	SC-2500	SS-7
3”	40psi	SC-3000	SS-8
4”	40psi	SC-4000	SS-9

PART 3 - EXECUTION

A. Contractor shall install water hammer arrestors in accordance with the manufacturers' instructions and manual
   1. Water hammer arrestors shall be installed in accessible locations or have an access panel installed.
   2. Before installing any access panel not shown on the drawings, contact the architect or engineer for location instructions.

END OF SECTION

SECTION 15094

PIPE HANGERS AND SUPPORTS

PART 1 - GENERAL

WORK INCLUDED
A. All piping shall be supported by pipe hangers, clamps, clips or supports as specified in this Section.

SYSTEM DESCRIPTION
A. All clevis type hangers shall have a minimum of 1 1/2 inches of vertical adjustment by using turnbuckles and/or threaded rods.
B. All adjustments shall be positively secured by a locknut or setscrew.
C. Hangers shall support the pipe size for which they are manufactured.

SHOP DRAWINGS AND PRODUCT DATA
A. Submit Shop Drawings and/or product data sheets in accordance with the General Conditions for all pipe hangers to be used.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Grinell
B. Fee and Mason

MATERIALS
A. All clamps, hangers, clevis, etc. shall be steel.
B. Pipe hangers in direct contact with copper shall be copper or lead plated, or of an approved dielectric material.

PART 3 - EXECUTION

INSTALLATION
A. General:
    1. All piping shall be supported from structural building members, i.e. block, beams, columns, purlines, floor joists, etc.
    2. Piping shall not be supported from ceiling tile or grids, conduit, mechanical equipment, ductwork or non-structural steel.
    3. Perforated strapping may be used only for piping 3/4 in. or smaller and only when concealed in walls or ceilings.
    4. Hangers for piping run flush along the walls shall be stamped steel straps similar to conduit straps for pipe sizes two (2) inches and smaller.
    5. Hangers for piping run flush along the walls shall be steel wall brackets with steel clevis type hangers and threaded rod supports for pipe over two (2)

inches.

6. Hangers for piping not run along walls shall be clevis type hangers with threaded rod supports for all piping over 3/4 inches.

B. Spacing:

1. Vertical runs of piping not over 15 feet long shall be supported by hangers placed not over one foot from elbows 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 the maximum distances shown on the Table below

Pipe Size	Max. Span - Ft.
1/2 and 3/4	6
1 and 1-1/4	8
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 spacing.

C. 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. Pipe hangers or clamps shall be attached to walls by means of expansion bolts (shields).

D. Piping on Roof

1. Support on flashed blocking such as Pate Roof Supports.
2. Piping shall be attached using inverted "U" brackets.
3. Piping shall be secured such that its lateral movement is restricted to 1".
4. Piping shall be secured such that it longitudinal movement is unrestricted, for expansion.

END OF SECTION

SECTION 15099

UNIONS

PART 1 - GENERAL

SYSTEM DESCRIPTION

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 coolers
      d. Water closets and toilets

   2. Where final fixture connection is made by compression-type fitting, unions shall not be required.
      a. This exception does not apply to water heater.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Crane
B. Jenkins
C. Vogt

MATERIALS

A. Unions for 2-1/2 inches and smaller CPVC
   1. Ground joints, CPVC body
   2. 150# rated
   3. “Pipe cement” welded to threaded to match the system in which they are installed

PART 3 - EXECUTION

GENERAL

A. Install in locations where wrenches can be used on each half of the union with enough clearance for at least 180 degrees of rotation on a 6" pipe wrench.

END OF SECTION

SECTION 15100

VALVES, COCKS AND FAUCETS

PART 1 - GENERAL

WORK INCLUDED
A. Gate Valves
B. Check Valves
C. Plug Cocks
D. Drain Valves
E. Hose Bibbs

RELATED WORK
A. Section 15122 Pressure Relief Valve

SYSTEM DESCRIPTION
A. Use and Type
   1. Hot, Cold, and Tempered Water – 2" and smaller – ¼ turn ball valves.
   2. Hot, Cold, and Tempered Water – Larger than 2" – Brass Gate valves.

SHOP DRAWINGS AND PRODUCT DATA
A. Submit copies of valve ordering schedule for approval before ordering valves.
B. Submit detailed Shop Drawings in accordance with General and Special Conditions.
C. Clearly indicate make, model, location, type size and pressure rating.

PART 2 PRODUCTS

GENERAL
A. Provide valves of same manufacturer throughout where possible
B. Provide valves with manufacturer's name and pressure rating clearly marked on outside of body

ACCEPTABLE MANUFACTURERS
A. Crane
B. Vogt
C. Sterling
D. Nibco

MATERIALS
A. CPVC ball valves

1. Size ½" – thru 2"
2. 125 psi – WOG – non shock
3. Full port, ¼ turn
4 Soldered ends
5. CPVC Body

B. Bronze gate valves:
   1. 3 inch and smaller
      a. Non-Rising stem, wedge disc gate, bronze body
      b. 200 psi, water, oil, gas
      c. Stuffing, box and brass gland, screw-in bonnet
      d. Threaded ends
      e. Model equal to Jenkings #33

C. Bronze Globe Valve
   1. 3 inch and smaller
      a. Rising stem, bronze only
      b. 200 psi, water oil gas
      c. Stuffing box, brass gland, screw-in bonnet
      d. Threaded ends
      e. Jenkins #33

D. Check Valve
   1. 3" and Smaller
   2. Swing check valve
   3. Screwed ends and cap
   4. Bronze ground disc
   5. 200 lb WOG
   6. Jenkins #42

F. Hose Bibbs
   1. 3/4" Female thread inlet
   2. 3/4" Male thread hose outlet
   3. Rough chrome plated
   4. Loose-key type
   5. Provide with vacuum breaker
   6. Model
      a. Equal to Chicago No. 3877-E27, Nibco 763-LS or equal
   7. Provide with vacuum breaker.

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.
6. Provide with a union elbow, EP inlet option
7. Equal to a Woodford Model B74

END OF SECTION

SECTION 15122

PRESSURE - TEMPERATURE RELIEF VALVE

PART 1 - GENERAL

WORK INCLUDED

A. Supply a pressure relief valve on each hot water heater and hot water booster heater tank.

SYSTEM DESCRIPTION

A. Valve size, pressure, and temperature rating shall be as specified by the tank manufacturer, except that in no case shall the valve be smaller than 3/4 inches inlet and outlet.
B. Valve shall have a handle for manual operation and testing.

PART 2 - PRODUCTS

MATERIALS

A. Valve shall be cast brass or bronze.

PART 3 - EXECUTION

INSTALLATION

A. Pipe the outlet of the pressure-temperature relief valve to location shown or as required by code.

END OF SECTION

SECTION 15170

ACCESS PANELS

PART 1 – GENERAL

WORK INCLUDED

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

B This section is a Division-15 Basic Mechanical Materials and Methods section, and is part of each Division-I5 section making reference to or requiring access panels specified herein.

C Acceptable Producers: Milcor, Jay R. Smith, Zurn, BOICO, Elmdor, or approved equal.

D Submittals: Submit product data sheets for access doors.

PART 2 - PRODUCTS

A General: Where floors, walls and ceilings must be penetrated for access to mechanical work, provide types of access doors indicated. Furnish sizes indicated or, where not otherwise indicated, furnish adequate size for intended and necessary access. Furnish manufacturer's complete units, of type recommended for application in indicated substrate construction, in each case, complete with anchorages and hardware.

B Access Door Construction: Except as otherwise indicated, fabricate wall/ceiling door units of welded steel construction with welds ground smooth; 16-gage frames and 14-gage flush panel doors; 175 swing with concealed spring hinges; flush screw-driver-operated cam locks; factory-applied rust-inhibitive prime-coat paint finish.

C Locks: Where indicated, provide 5-pin or 5-disc type cylinder locks, individually keyed unless otherwise indicated, 2 keys.

D Fire Rated Access Doors: Where required furnish with 20-gage insulated sandwich panel, automatic closing mechanism, cylinder type lock (self-latching with inside release mechanism), and continuous concealed steel hinge pin. Access doors shall

carry the UL 1-112 hour 'B' label.

PART 3 - EXECUTION

A Access panels shall be installed to operate and service all mechanical equipment including valves, dampers, etc. and other items requiring maintenance that are concealed above or behind non-accessible construction to include walls, ceilings, etc. Access panels to be sized and located as required to provide proper service access in accordance with the manufacturer's recommendations for all devices and equipment. Access doors are not required in accessible suspended ceiling systems. Access doors shall have factory applied protective phosphate coating and baked enamel primer suitable for field painting.

B Access doors may be installed under another Division. However, responsibility for location is part of this Division's work. The style of access door shall be suitable for construction into which installed. Access doors shall be sized and located as required to provide proper service access in accordance with the equipment manufacturer's recommendations.

END OF SECTION

SECTION 15176

STEEL TANKS

PART 1 - GENERAL

WORK INCLUDED
A. Expansion Tank:

SYSTEM DESCRIPTION
A. Furnish and install expansion tank(s) as shown on the Drawings.

QUALITY ASSURANCE
A. Tank shall be permanently stamped as complying with all applicable sections of the ASME Boiler & Pressure Vessel Code.

SHOP DRAWINGS AND PRODUCTS DATA
A. Summit Shop Drawings and/or product data in accordance with the General Conditions for each tank to be furnished.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Tank:
   1. Carbon steel construction with two 1/2 gauge glass tappings
   2. Four 3/16 inch telltale holes.
   3. Maximum operation temperature 375 degrees F.
   4. Maximum working pressure 125 psig.
   5. Sight glass
   6. Drain valve
   7. Size per drawings.

END OF SECTION

SECTION 15180

INSULATION

PART 1 - GENERAL

WORK INCLUDED

A. Provide piping insulation on all piping designated below,
   1. Hot and Tempered Water – 1" Fiberglass above grade
   2. Hot and Tempered Water – 1" Rubber below grade
   3. Refrigerant Piping – 1" Rubber
   4. Condensate Drains – ¾" rubber.

SYSTEM DESCRIPTION

A. Refer to Piping Schedule.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Johns-Manville
B. Certainteed

MATERIALS

A. Fiberglass Insulation
   1. Rigid lightweight heavy density fiberglass with jacket, min R4 per inch.
   2. Temperature applications to 650 F.
   3. Insulation, jacket, and adhesive shall be tested under procedure ASTM E-84, NFPA 255, and UL 723, not exceeding
      a. Flame spread - 25.
      b. Smoke developed - 50.
   4. Equal to Johns-Manville Micro-Lok 650 AP-T.

B. Closed Cell Rubber Insulation
   1. Closed cell, elastomeric tubular pipe insulation, min R4 per inch.
   2. Tested under procedure ASTM E-84, NFPA 255, and UL 723 not exceeding
      a. Flame spread - 30.
      b. Smoke density - 100.
   3. Adhesive
      a. Air drying contact cement
      b. Equal to Johns-Manville "Aerotube Elastomeric Pipe Insulation."

PART 3 - EXECUTION

INSPECTION

A. Install insulation only after pipe has been thoroughly inspected and tested and accepted by the Architect, Engineer and State or local inspectors.

PREPARATION

A. All surfaces to receive insulation shall be cleaned of all dirt, grease, and moisture prior to installing any insulation.

INSTALLATION

A. Fiberglass Insulation:
   1. All insulation shall be continuous through wall and ceiling openings.
   2. Vapor barrier jackets shall be used on piping except domestic hot water.
   3. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation.
   4. Metal shields shall be applied between hangers or 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 a minimum of 9 inches long.
   6. Shields shall be 16 gauge aluminum.
   7. Fittings shall be covered equivalent density insulation and covered with preformed PVC insulation fitting covers.
      a. Wrap fittings with insulation.
      b. Pop the preformed cover in place, tape or tack.

B. Closed-Cell Rubber:
   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 in manufacturer's literature.
   7. Valves shall be insulated up to the packing nut.
   8. All insulation on exposed piping shall receive two (2) coats of paint, the same color as the wall against which it is mounted.
   9. Joints shall be sealed with adhesive as recommended by the manufacturer.
   10. Provide shields as described in part A above.

END OF SECTION

SECTION 15421

FLOOR DRAINS

PART 1 - GENERAL

WORK INCLUDED
A. Floor drains.
B. All shower drains not supplied as part of prefabricated showers.
C. Kitchen trench drains, if shown on drawings.

RELATED WORK
A. Section 15450: Plumbing Fixtures and Trim.

SHOP DRAWINGS AND PRODUCT DATA
A. Submit Shop Drawings in accordance with General Conditions for all floor and shower
drains to be supplied.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Wade
B. Josam
C. Zurn
D. Properly submitted & approved equal.

MATERIALS
A. Floor Drains:
1. Cast Iron floor drain with integral clamping collar.
2. Seepage openings.
3. Heavy duty grate, with vandal proof screws.
4. Square top, polished brass.
5. Adjustable top.
6. 4-inch outlet unless otherwise noted on Drawings.
7. Model - equal to Wade, Series W - 1390.

B. Hub Drains:
1. Cast iron floor drain with integral clamping collar.
2. Sized as noted on Drawings.

C. Floor Sink
1. Cast Iron with white acid resisting coating

2. 12” X 12” overall 8” X 8” X 6” deep 4” pipe connection unless otherwise noted.
3. PVC Anti-Splash dome strainer
4. Provide with ½ grate unless noted otherwise
5. Equal to Zurn FD2375-NH4.

PART 3 - EXECUTION

INSTALLATION

A. Floor drains shall be installed in the locations show on Plans.
B. Care shall be taken that rim of floor drain is not higher than finished floor in order to prevent "Puddling" of water around the drain.
C. Floor drain top shall be flush with finished floor.
D. Hub drains shall extend 1 inch above finished floor per details.

END OF SECTION

SECTION 15423

CLEANOUTS AND ACCESS COVERS

PART 1 - GENERAL

WORK INCLUDED
A. Floor cleanouts.
B. Crawl space or above ceiling cleanouts.

SYSTEM DESCRIPTION
A. Provide cleanouts as shown on the Drawings or as required by Standard Plumbing Code.

SHOP DRAWINGS AND PRODUCT DATA
A. Submit Shop Drawings and/or Product Data in accordance with General Conditions for each different type of cleanout shown on the Drawings.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Wade
B. Josan
C. Zurn
D. Properly submitted approved equal

MATERIALS
A. Floor Cleanouts:
    1. Same size as drain pipe through 4 inches.
    2. Adjustable housing to match finished floor.
    3. Heavy duty top.
    4. Nickel brass secured cover.
    5. Ferrule as required to match soil pipe.
    6. Cast iron.
    7. Cover shall be marked "C.O."
    8. Model Number:
        a. Synthetic floor covering:
            (1) Wade W-7030-D Series or equal
        b. Finished slab - no covering:
            (1) Equal to Wade W-7030 Series
        c. Terrazzo finish:
            (1) Wade W-7010-U Series, or equal.
B. Concealed Cleanouts:

1. Cleanouts in crawl space or in unfinished mechanical rooms.
2. Cast iron cleanout tee on T-wall with ferrule fitting and neoprene seal 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:
    a. Cleanout ferrule.
        (1) Wade W-8530-B Series or equal.

C. Exposed Wall Cleanouts
1. Identical installation as “B”.
2. Polished chrome cleanout cover over wall opening.

PART 3 - EXECUTION

INSTALLATION

A. Install all cleanouts and cover plates 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 reinstalled.

END OF SECTION

SECTION 15424

DOMESTIC WATER HEATERS - ELECTRIC

PART 1 - GENERAL

WORK INCLUDED
A. Water Heaters

REFERENCE STANDARDS
A. Water heaters shall be UL listed, ASME constructed, and meet ASHRAE 90.1-2013 energy efficiency standards.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. A.O. Smith
B. Lochinvar

TANK TYPE – EWH-1
A. 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. Three-year warranty
   7. 3/4" inlet, outlet, and relief opening
   8. Outer jacket of baked enamel finish
B. Model and Capacity
   1. EWH-1 is equal to an A.O. Smith DEL 30, 30 gallon, 208 volt, 1 ph, 3750 watts.

PART 3 – EXECUTION

INSTALLATION
A. Install per manufacturer's recommendations
B. Mount units on wall shelf where noted
C. Provide thermostatic relief valve on each unit.

END OF SECTION

SECTION 15452

FIXTURE CARRIERS

PART 1 - GENERAL

WORK INCLUDED

A. Carriers for wall-hung lavatories, toilets, urinals

SYSTEM DESCRIPTION

A. Supply a fixture carrier for each wall-hung toilet, urinal and lavatory shown on the Drawings or specified in this Section.
   1. A single carrier may be supplied for back-to-back fixtures where applicable.
B. Submit Shop Drawings and/or Product Data for each type fixture carrier to be specified.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Josam
B. Wade
C. Zurn
D. Properly submitted and approved equal

MATERIALS

A. Lavatory carrier:
   1. Designed to support lavatories independent of finished walls
   2. Floor mount, concealed arms
   3. 1-1/4 inch pipe uprights
   4. Block feet
   5. Provide carrier with arms appropriate for the lavatory type being used
   6. Model Number:
      a. Arm type - Equal to Josam 17105

PART 3 - EXECUTION

INSTALLATION:

A. Carriers shall be installed in walls or chases
B. Support pipes, feet, etc. shall be concealed
C. Only mounting bolts, sanitary connection, lavatory arms, or support plates shall be exposed through finished walls
D. Upon mounting fixture or carrier, only these portions of carriers designed to be exposed
shall be.

E. Carriers shall be installed during wall construction and plumbing rough-in.
F. Carriers shall be adjusted to proper heights for fixtures as specified in Section 15450.

END OF SECTION

SECTION 15455

DOMESTIC WATER COOLERS

PART 1 - GENERAL

WORK INCLUDED

A. Electric water coolers

SYSTEM DESCRIPTION

A. Surface mounted water coolers – Dual height, adult/child meeting ADA requirements and mounted per architect details.

SHOP DRAWINGS AND PRODUCT DATA

A. Submit Shop Drawings and/or Product Data in accordance with the General Conditions for each different type water cooler to be supplied.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Elkay
B. Halsey Taylor
C. Oasis

MATERIALS

A. Dual Height Model
    1. Wall mounted, barrier free, adult and child access
    2. Stainless steel top, sides and front
    3. Unit shall comply with ADA requirements
    4. Self closing controls on front and both sides.
    5. Flexi-Guard safety bubbler or equivalent of rubber or plastic
    6. Mounting height - 31" floor to top of adult basin unless detailed otherwise on architectural drawings
    7. Water delivery:
        a. 8 GPH of 50 degrees F water at 90 degrees F
    8. Model and Manufacturer:
        a. Equal to Elkay EZSTL8CSS, 120 V
    9. Accessories:
        a. Furnish with 1-1/4" ground joint tubular, 17 gauge, chrome-plated P-trap, deep flange with brass nuts; with clean out equal to Proflo PF8872
        b. Furnish with supply assembly equal to Brass Craft SCR19C with loosekey stop and flexible 3/8" tube risers, chrome plated.

10. Furnish with turn plate type fixture carrier equal to Z-1225

PART 3 - EXECUTION

INSTALLATION

A. Unit shall be installed on wall using fixture carrier bracket supplied by the contractor
B. Unit shall be blocked and supported per manufacturer recommendations.
C. Unit shall be installed per ANSI Standard 117.1-1980, Section 4.15.

END OF SECTION

SECTION 15772

SPLIT SYSTEM COOLING AND HEATING UNIT WITH REHEAT

1.01 GENERAL

A. Work Included
1. Split Systems HP-1 Thru HP-4

B. Related Work
1. Section 15841 - Ductwork and Accessories.
2. Section 15881 - Disposable Filters.
3. Section 15901 - Controls and Instrumentation.

C. Shop Drawings and Product Data
1. Submit Shop Drawings and Product Data sheets for General Conditions.

D. Warranty
1. Compressors shall have a five (5) year warranty
2. All other components shall carry one (1) year warranty.
3. Warranty period shall commence on day issuance of substantial completion.

2.01 PRODUCTS

A. Acceptable Manufacturers
1. Lennox

B. General
1. Packaged unit shall be designed for the moving and conditioning of air in air conditioning, and ventilation systems. The equipment shall consist of a heavy-gauge steel casing consisting of filter section, cooling coil section, and fan section including the fan, fan drive, and motor. The unit shall be equal to that shown on the drawings with capacity not less than that shown.

C. Cabinet
1. Cabinet shall be fabricated from heavy-gauge steel, braced to produce a rigid assembly composed of prefabricated sections.
2. All metals in the cabinet shall be given a rust-preventative treatment equal to galvanizing and a finish coat of baked enamel.
3. Corner posts and top pans shall be min. 18 Ga.
4. Base and corner posts – 16 Ga.
5. Access panels shall be min 20 Ga.

6. Cabinet finish shall meet 1000 hour salt spray test per ASTM B117.97.
7. The cabinet shall be supported on spring type isolators selected for the weight imposed on each support.

D. Base Pan
1. Galvanized Steel Coasted with ¼" mastic compound.

E. Paint Finish
1. Power coat or baked enamel, meeting 1000 hour salt spray test per ASTM B117.97.

F. Condenser Coil
1. Coil shall be aluminum plate, finned form on multiple rows of seam less copper tubing arranged in a staggered tube configuration.
2. The tubes are mechanically expanded firmly bonding the tube to the shoulder of each fin.

G. Condenser Fan and Fan Motor
1. Propeller fan with plated spider and aluminum blades.
2. Fan wheel(s) shall be statically and dynamically balanced.
3. Fan motor bearings shall be sealed ball bearings with shaft mounted rain shields.
4. Direct drive fan/blade coupling.
5. Internally thermally protected with auto-reset.
6. Vinyl coated fan guard.

H. Compressor Refrigerant Circuit(s)
1. Dual refrigeration circuits on dual compressor units.
2. Refrigerant lines stubbed out of cabinet.
3. Suction and refrigerant line shall have service ports.
4. Liquid line shall have a shutoff valve.
5. Provide hot gas bypass lead compressor only.
6. Low abient head pressure controls to 35 deg. F.
7. Fan motor control to 0 deg. F.
8. Sight glass/moisture indictor.

I. Compressor Protection
1. Provide suction accumulators, crankcase heaters, high and low pressure controls and filter dryers.
2. Semi-hermetic shall include suction and discharge line shut-off valves, solenoid valve and pump down circuits.
3. Scroll compressors and dual compressor models shall include anti-migration systems.
4. Provide oil pressure failure switch.

J. Evaporator Coil

1. The coil shall produce the conditions called for on the drawings.
2. Coil shall be aluminum plate, finned form on multiple rows of seamless copper tubing arranged in a staggered tube configuration.
3. The tubes are mechanically expanded firmly bonding the tube to the shoulder of each fin.

K. Refrigerant Circuit

1. Factory installed refrigerant piping including thermal expansion valve and hot gas bypass tee. Expansion valve shall have adjustable superheat and distributors to meter refrigerant evenly to the evaporator refrigerant circuits. Pump down solenoid shipped with condensing unit.

L. Drain Pan

1. Condensate drain pan sloped to comply with ASHRAE Standard 62-1089R fabricated from stainless steel and insulated with 1" fiberglass or closed cell rubber.
2. Furnish drain pan with dual outlet MPT fittings positioned on the exterior of the cabinet.

M. Fan

1. Fan section shall house the centrifugal fan(s) and scroll(s) required to produce the airflow required against the system static pressure existing in the system as shown on the drawings. Submit copy of the fan curve showing the operating point of the fan at design conditions called for. Selection point shall be as recommended by the manufacturer for stable operation.
2. Fan wheel(s) shall be forward-curved, statically and dynamically balanced.
3. Fan(s) shall be mounted on a large-diameter shaft which shall operate well below critical speed. Shaft may be enlarged in the center portion for rigidity and reduced in diameter on the ends for bearings and drive pulleys.
4. Fan bearings shall be sealed ball bearings for both fan and motor.
5. Blower wheel shall be fabricated from galvanized or galvalume steel.

N. Fan Drive

1. Fan shaft shall be driven by an adjustable belt drive sheave connected to a 1725 RPM motor with sealed ball bearings.
2. Provide belts and belt guards for connection of the fan to the motor. The driven pulley shall be fixed-diameter and the drive pulley shall be adjustable-pitch to allow variation in the fan speed, unless the motor is provided with modulating speed adjustment such as variable-frequency control equipment or variable-pitch equipment.

3. Belts shall be single or multiple as required for the power rating needed. Belts shall be selected for 150% of the maximum power draw of the fan. Multiple belts shall be "matched" from the same production run.

O. Fan Motor

1. The fan motor shall be selected for the power required to deliver the supply air quantity against a system static pressure of 150% of that shown on the drawings without overloading. Selection of motor shall not consider the overload rating of the motor.
2. Fan motors for air-handling units mounted in the condition space shall be provided with resilient mounting to reduce the motor noise.
3. Fan motor shall be Hi-Efficiency type motor complying with Florida Model Energy Code.
4. Motors 3 HP or less shall be internally thermally protected with Auto-Reset.
5. Motors larger than 3 HP shall be externally protected with thermal overloads with manual reset.

P. Filter Section

1. Filter section shall provide racks and access doors for the filters as specified in the section on filters.

Q. Filters

1. Provide unit with 2” aluminum metal mesh cleanable filters.

R. Control Panel

1. Internally wired controls, 5 minute anti-short cycle timer, fan contactor and compressor motor.
2. Provide phase / voltage monitor and shutdown protection.
3. Fan starter, relays, overload protection.

S. Electrical

1. Unit shall have a single-point electrical connection.
2. Unit shall have phase / voltage monitor.

T. Motorized Outdoor Air Damper

1. Furnish Unit with a motorized two position Outdoor Air Damper with adjustable positive positioning, 24 volt control, factory set for open / closed operation.

U. Hot Gas Reheat Coil and Control

1. Provide Hot Gas Reheat with modulating control.

V. Electric Heat

1. KW as listed.

2. Single point electrical connection.

3.01 EXECUTION

A. Installation

1. Mount the casing on the vibration mounts and assemble the unit as recommended by the manufacturer for an airtight assembly.
2. Connect the air ducts with fireproof fabric flexible connectors.
3. Make all required pipe connections using flexible connectors to prevent vibration transmission to the pipe.
4. Connect the required drain from the drain pan to the nearest acceptable open site drain. Provide a trap in the line and slope as much as possible.
5. Install the motor and drive; adjust the belts for proper tension. Check all bearings for proper lubrication before starting the unit. Adjust the variable-pitch pulley for the proper fan speed. Install the belt guards, filters, etc., for a complete installation.

END OF SECTION

SECTION 15829

EXHAUST FANS

PART 1 - GENERAL

WORK INCLUDED
A. All exhaust fans mounted in the ceiling inside the building and ducted to the outside.

SYSTEM DESCRIPTION
A. Exhaust fans shall be located as shown on the drawings.
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.

SHOP DRAWINGS AND/OR PRODUCT DATA
A. Submit Shop Drawings and/or Product Data for all exhaust fans listed on the Equipment Schedule.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS
A. Penn ventilator
B. Carnes
C. Properly submitted or approved equal

MATERIALS
A. General
    1. Acoustically insulated 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.

END OF SECTION

SECTION 15841

DUCTWORK AND ACCESSORIES

PART 1 GENERAL

SYSTEM DESCRIPTION AH-1,2,3,4,

A. All ductwork from Air Handlers 1 – 4 shall be low pressure sheet metal wrapped with R-6 duct wrap.
   1. Final connection to diffuser shall be flexible duct not exceeding 8 feet in length.
B. All general exhaust ductwork in both buildings shall be lowpressure sheet metal.
   1. Insulation not required
C. Outdoor air ductwork in both buildings shall be low-pressure metal.
   1. Insulation not required

REFERENCES

A. General
   1. Ductwork installation shall conform to latest publications of the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
   2. Ductwork shall be installed in accordance with all applicable codes.

RELATED WORK

A. 15848 - Duct Insulation
B. 15849 - Duct Hangers
C. 15860 - Duct Accessories

LOW - PRESSURE SHEETMETAL DUCTWORK

A. General:
   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. Duct systems shall be complete, including all duct fittings, turning vaness, transverse reinforcing hangers, suppoorts, 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 guadrant 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.
5. Dimensions shown are net inside dimensions (including insulation).
6. 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

B. These references shall be used by the Engineer for required sheet metal thicknesses and final acceeptance of methods of fabricating, hanging, accessories, etc. All equipment furnished by manufacturers shall be installed in strict accord with their recommended methods.

FLEXIBLE DUCT

A. General
1. Flexible metal with factory applied external insulation.
2. Thermal conductivity .25 @ 75 deg. F.
3. Meets NFPA 90A and 90B
4. Flame spread -25 / Smoke developed 50.
5. Meets UL 181 Class 1
6. Fasten with galvanized steel bands.

PLENUMS

A. Design, construct and test in accordance with SMACNA Standards

FLEXIBLE CONNECIONS

A. Provide between duct system and air moving equipment
B. Connection shall be made with not less than 4" wide flexible collar using "Ventglas" 30-ounce neoprene coated glass fabric.

PART 3 EXECUTION

INSTALLATION

A. Where construction methods for various items are not indicated on the Drawings or specified herein, all such work shall be fabricated and 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.

B. Install all ductwork generally as shown on the drawings and as required by SMACNA Manual.

C. Sheetmetal
   1. Low pressure ductwork and fittings shall be made tight for minimum air leakage.
   2. All ductwork joints shall be sealed with pressure tape and coated with mastic
   3. All ductwork, except in equipment rooms shall be concealed in construction spaces above ceilings, in partitions, chases, etc.
   4. Ducts shall be constructed to provide specified air through building without adding noises to the air stream by sudden contractions as sharp edges.
   5. Ducts shall be securely fastened to the structure with hangers..
   6. Connections:
      a. Ducts shall be air tight braced and reinforced to prevent vibration and breathing
      b. Seal supply, return, exhaust and outside air ductwork with adhesive sealing compound
      c. Exterior ductwork to be housed with metal cover, galvanized or aluminum, or weather proofed using felt and AB 20 and asphalt mastic (bull).
      d. Rectangular duct connections shall be made with pocket slip or Bar-s slip not more than 8 ft. apart up to 24 in. largest dimension and not more than 4 ft. apart above 24 in. largest dimension

D. 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 3% for low pressure duct construction.

END OF SECTION

SECTION 15848

EXTERIOR WRAP

INSULATION FOR DUCTWORK

GENERAL

A Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-15 Specification sections, apply to work of this section.

B Division-15 Basic Mechanical Materials and Methods Sections apply to work of this section.

C Acceptable Producers: Certainteed, Owens-Corning, Manville.

D Submittals: Producer's data sheet on each product.

E Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, coverings, sealers, mastics, and adhesive) with a flame-spread rating of 25 or less, and a smoke-developed rating of 50 or less, as tested by ANSI/ASTM E84.

PRODUCTS

A Flexible Fiberglass Insulation: ASTM *C553,* Type 100, Class B-3 (temperature less than 350 ^{0}F). Duct wrap shall be 1 pcf density with UL rated aluminum foil vapor barrier (FSK).
1. Minimum thickness = 2"
2. Minimum installed R value = 6.0
3. Equal to Johns-Manville Microlite Type 100

B Insulation Finish Cement: Manville No. 301 or Baldwin Ehert Hill No. 1.

C General Purpose Mastic: Benjamin Foster *35-00* Series, Insulcoustic VIAC Mastic or Childers CP-10.

D Vapor Barrier Sealant: Benjamin Foster 30-35, Insulcoustic IC-SOL, 3M EC-1378, or Childers CP-30.

E Adhesive: Benjamin Foster 85-20. Insulcoustic IC-205, 3M EC-35, or Childers CP-89.

F Fiber Glass Mesh: lOxlO mesh. Foster Mast-A-Fab.

EXECUTION

A Insulate the following ductwork with 2" thick fiberglass blanket insulation with vapor barrier.

1 Stackheads for grilles, registers, and ceiling outlets.
2 Supply, return, and fresh air ducts for air conditioning units.
3 Flexible joint connections at inlets and outlets of air handling units.

B Installation of Flexible Insulation:

1. Insulate round elbows and fittings with blanket secured in place with steel wire. Apply a smoothing coat of insulating cement and finish with a heavy coat of vapor barrier sealant. Thickness shall be equal to adjoining duct covering.

2. Clean and dry ductwork prior to insulating. Adhere insulation to ducts with 100 percent coverage using approved insulation adhesive. Lap all joints 2 inches and vapor seal with glass fiber mesh embedded with 2 coats of vapor barrier sealant. For ducts 30 inches wide and over, additionally support insulation on bottom of duct with rows of welded or adhered clips and washers on 18 inch centers.

3. Seal all punctures and breaks in aluminum vapor barrier with glass fiber mesch and vapor barrier sealant.

END OF SECTION

SECTION 15849

DUCT HANGERS AND SUPPORTS

PART 1 - GENERAL

WORK INCLUDED

A. All ductwork for air supply, return, fresh air or exhaust shall be supported by duct hangers, clamps, clips or supports.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Duct hangers may be a manufactured item or field fabricated as required.

MATERIALS

A. Galvanized steel straps
   1. Minimum 16 gauge and one inch wide
B. Trapeze hangers
   1. Ducts 20 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.

PART 3 - EXECUTION

INSTALLATION

A. Supports
   1. All ductwork shall be supported from structural building members, i.e. block, beams, columns, 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.
B. Hanger Bands
   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. Bands and spacing shall be at a maximum spacing of 10 feet on horizontal runs and at each elbow or branch takeoff.
   a. No nails shall be driven 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 so as not to penetrate duct liner completely.

C. 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.

D. Flexible Duct
1. Support flexible duct at intervals not exceeding five (5) feet in length and as required to not allow duct to sag more than ½" per foot of length.
2. Hanger bands shall be minimum of 1 – ½" in contact with flexible duct work.
3. Hanger bands must be galvanized sheet metal, flexible woven fabric is NOT ALLOWED.

END OF SECTION

SECTION 15855

DUCTWORK ACCESSORIES

PART 1 GENERAL

A Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-15 Specification sections, apply to work of this section.

B Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

C Extent of ductwork accessories work is indicated on drawings and in schedules, and by requirements of this section.

D Types of ductwork accessories required for project include the following:

1. Dampers.
   a. Low pressure manual dampers.
   b. Control dampers.
   c. Counterbalanced relief dampers.
2. Fire dampers.
3. Turning vanes.
4. Duct hardware.
5. Duct access doors.
6. Flexible connections.

E Refer to other Division-15 sections for testing, adjusting, and balancing of ductwork accessories; not work of this section.

F Codes and Standards:

1 SMACNA Compliance: Comply with applicable portions of both SMACNA "HVAC Duct Construction Standards, Metal and Flexible' and 'Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems."

2 UL Compliance: Construct, test, and label fire dampers in accordance with UL Standard *555* 'Fire Dampers and Ceiling Dampers'. Construct, test and

label smoke dampers in accordance with UL Standard *555S* "Leakage Rated Dampers for use in Smoke Control Systems".

3 NFPA Compliance: Comply with applicable provisions of NFPA 90A "Air Conditioning and Ventilating Systems', pertaining to installation of ductwork accessories.

G Submittals:

1 Product Data: Submit manufacturer's technical product data for each type of ductwork accessory, including dimensions, capacities, and materials of construction; and installation instructions.

2 Shop Drawings: Submit manufacturer's assembly-type shop drawings for each type of ductwork accessory showing interfacing requirements with ductwork, method of fastening or support, and methods of assembly of components.

3 Maintenance Date: Submit manufacturer's maintenance data including parts lists for each type of duct accessory. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Division 1.

H Acceptable Producers: As listed for each product.

PART 2 - PRODUCTS

A Dampers

1 Low Pressure Manual Dampers: Provide 16 gauge dampers of single-blade type (12" maximum blade width) or multi-blade type. Damper blades to be gang-operated from a single shaft with nylon or ball bearings on each end. Provide indexed locking quadrant. Parallel or opposed blade style is acceptable. Provide 2' standoff on locking quadrant for externally insulated duct.

2 Counterbalanced Relief Dampers: Provide dampers with parallel blades, counterbalanced and factory-set to relieve at indicated static pressure. Construct blades of 16-ga. aluminum, provide 1/2 diameter ball bearings, 1/2" diameter steel axles spaced on 9" centers. Construct frame of 2' x 1/2" x 1/8" steel channel for face areas 25 sq. *ft.* and under; 4' x 1-1/4" x 16-ga. channel for face areas over 25 sq. ft. Provide galvanized steel finish on frame with aluminum touch-up.

3 Acceptable Producers: Subject to compliance with requirements, provide dampers by Air Balance, American Warming & Ventilating, Arrow Louver and Damper, Penn Ventilator Co., or Ruskin Mfg. Co.

B Turning Vanes: Provide manufactured or fabricated single wall turning vanes and vane runners, constructed in accordance with SMACNA 'HVAC Duct Construction Standards'.

C Duct Access Doors:

1 General: Provide where indicated, duct access doors of size indicated, or as required for duty indicated.

2 Construction: Construct of same or greater gage as ductwork served, provide insulated doors for insulated ductwork. Provide flush frames for uninsulated ductwork, extended frames for externally insulated duct. Provide one side hinged, other side with one handle-type latch for doors 12" high and smaller, 2 handle-type latches for larger doors.

3 Acceptable Producers: Air Balance, Inc., Duro Dyne Corp., Ruskin Mfg. Co., or Ventfabrics, Inc.

D Flexible Connections:

1 General: Provide flexible duct connections wherever ductwork connects to vibration isolated equipment. Construct flexible connections of neoprene-coated flameproof fabric crimped into duct flanges for attachment to duct and equipment. Make airtight joint. Provide adequate joint flexibility to allow for thermal, axial, transverse, and torsional movement, and also capable of absorbing vibrations of connected equipment.

2 Acceptable Producers: Duro Dyne Corp., Flexaust (The) Co., or Ventfabrics, Inc.

PART 3 - EXECUTION

A Examine areas and conditions under which ductwork accessories will be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

B Installation of Ductwork Accessories:

1 Install ductwork accessories in accordance with manufacturer's installation instructions, with applicable portions of details of construction as shown in SMACNA standards, and in accordance with recognized industry practices to ensure that products serve intended function.

2 Install balancing dampers at all main ducts adjacent to units in return air, outside air and where indicated.

3 Install control dampers in the outside air duct for each air handler. Damper operator provided by control contractor.

4 Install turning vanes in square or rectangular 90 deg. elbows in supply, return, and exhaust air systems, and elsewhere as indicated.

5 Install access doors to open against system air pressure, with latches operable from either side, except outside only where duct is too small for person to enter. Install on entering air side of reheat coils and at fire dampers and smoke dampers. Opening size shall be per NFPA 90A for servicing fire and smoke dampers. Provide label with 1-1/2" letters to indicate location of fire protection devices.

6 Coordinate with other work, including ductwork, as necessary to interface installation of ductwork accessories properly with other work.

C Operate installed ductwork accessories to demonstrate compliance with requirements. Test for air leakage while system is operating. Repair or replace faulty accessories as required to obtain proper operation and leakproof performance.

D Adjusting and Cleaning:

1 Adjustjng: Adjust ductwork accessories for proper settings, install fusible links in fire dampers and adjust for proper action.

2 Final positioning of manual dampers is specified in Division-l5 section "Testing, Adjusting, and Balancing". However, the system shall be left functional with all dampers open or throttled.

3 Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

4 Furnish extra fusible links to Owner, one link for every 10 installed of each temperature range; obtain receipt.

END OF SECTION

SECTION 15868

DUCT ACCESS PANELS AND TEST HOLES

PART 1 - GENERAL

WORK INCLUDED

A. All access panels required for resetting and maintenance of fire and smoke dampers and inspection and cleaning of volume control dampers.
B. Test holes required for air measurement.

SYSTEM DESCRIPTION

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 any additional access panels as shown on the Drawings.
D. Provide test holes for measurement of air flow, on each branch duct and main trunk line or plenum.

SHOP DRAWINGS AND PRODUCT DATA

A. Submit Shop Drawings and/or product data sheets in accordance with the General Conditions for each type panels and access hole to be supplied.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. Penn Ventilator Co.
B. Properly submitted and approved equal

MATERIALS

A. 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.
8. Exception:
   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
9. 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.

B. Test Holes
1. Provide a capped access hole in each trunk line or branch duct for insertion of air-flow pitot for flow measurement.

END OF SECTION

SECTION 15870

GRILLES, REGISTERS AND CEILING DIFFUSERS

GENERAL

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

B Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

C Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.

D Refer to other Division-15 sections for ductwork and duct accessories required in conjunction with air outlets and inlets and for balancing of air outlets and inlets; not work of this section.

E Codes and Standards:

1 ADC Compliance: Test and rate air outlets and inlets in certified laboratories under requirements of ADC 1062 'Certification, Rating and Test Manual". Provide air outlets and inlets bearing ADC Certified Rating Seal.

2 NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

F Submittals:

1 Product Data: Submit manufacturer's technical product data for air outlets and inlets including the following:

Data sheet for each type of air outlet and inlet, and accessory furnished; indicating construction, finish, and mounting details.

Performance data for each type of air outlet and inlet furnished, including aspiration ability, temperature and velocity traverses, throw and drop, and noise criteria ratings. Indicate selections and data.

2 Maintenance Data: Submit maintenance data, including cleaning instructions for finishes, and spare parts lists. Include this data and product data in maintenance manuals; in accordance with requirements of Division 1.

G Acceptable Producers: Titus, Anemostat, Metal Aire, Krueger, Nailor or approved equal.

PRODUCTS

A General:

1 Except as otherwise indicated, provide manufacturer's standard grilles, registers, and ceiling diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

2 Performance: Provide grilles, registers and ceiling diffusers that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device equal to the basis of design.

3 Ceiling and Wall Compatibility: Provide grilles, registers and diffusers with border styles that are compatible with adjacent wall and ceiling systems, and that are specifically manufactured to fit into ceiling module or wall with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems and walls which will contain each type of ceiling diffuser, grille, or register.

4 Appearance: All grilles and registers shall be aluminum construction and all diffusers shall be aluminum construction, unless otherwise noted, with uniform matching appearance for each type of outlet. Ceiling mounted grilles and registers shall be set to be sight tight from the predominant exposure.

5 Finish: All ceiling mounted grilles, registers, and diffusers shall be finished with baked white enamel. Wall and door mounted grilles and registers shall be finished with clear anodized finish.

B Return or Exhaust Registers: Provide return and exhaust registers with one set of 30 degree, fixed louvers, spaced at ½", parallel to the long dimension. Provide opposed blade damper, screwdriver operated from the face. Provide mounting frame for all wall and plaster ceiling installations. Basis of design: Titus 4*L* with frame as required.

C Return. Exhaust or Transfer Grilles: Same as return and exhaust registers except no damper. Basis of design: Titus 4L with frame as required.

D Door Grilles: Provide steel door grilles with vee core, fixed louvers, spaced 1/2", flanged frame, and telescoping auxiliary flanged frame. Provide prime coat ready for field painting. Basis of design: Titus T 700L.

E Square Ceiling Diffusers Lay In Grid Type: Provide square face, adjustable, 360 degree pattern diffusers with one –piece stamped corner joints. Provide lay-in panel as required. If square neck diffusers are submitted, provide square-to-round adaptors as required. Basis of design: Titus TMS-AA

F Square Ceiling Diffusers With Flanged Border: Provide square face, adjustable, 360 degree pattern diffusers with one-piece stamped cones, no corner joints. If square neck diffusers are submitted, provide square-to-round adaptors as required. Basis of design: Titus TDC-AA

G Sidewall Supply Registers: Rectangular with two sets of adjustable louvers, rear horizontal, front vertical with front parallel to short dimension. Opposed blad damper, screw driver adjustable from face. Provide mounting frame for wall. Basis of design; Titus 272 RS.

H. Rectangular Ceiling Diffusers: Flanged mounted in ceiling gypsum board or tile. Provide with opposed blade damper screw driver adjustable from face. Multiple adjustable louvers parallel to long dimension. Basis of design; Titus 250L.

EXECUTION

A. Coordinate installation with ceiling and light fixture installation. Locate ceiling outlets as indicated n architectural "Reflected Ceiling Plans". Unless otherwise indicated, locate ceiling outlets in the center of acoustical ceiling modules with sides parallel to the grid.

B Install air outlets and inlets in accordance with manufacturer's written instructions and in accordance with recognized industry practices to insure that products serve intended functions.

C. Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of air outlets and inlets with other work.

D. Set air volumes to values shown on the drawings so that the system is functional. Leave ready for test and balance contractor.

E. Furnish to Owner, with receipt, 3 operating keys for each type of outlet and inlet that require them.

END OF SECTION

SECTION 15881

DISPOSABLE FILTERS

PART 1 - GENERAL

WORK INCLUDED

A Provide 2” pleated filters for AH-1,2,3,4.
B. Filters shall be minimum MERV 7

PART 2 - PRODUCTS

MATERIALS

A. Size as per manufacturer's specified size or per grille size
B. Two inch thick unless noted.

END OF SECTION

SECTION 15901

CONTROL SYSTEM

PART 1 - GENERAL

DESCRIPTION
A. All Units
1. Furnish and install all electrical controls and components for all mechanical systems as listed below.
a. Systems 11,2,3,4 shall be supplied per this Section.

SHOP DRAWINGS
A. Furnish shop drawings on all control components and wiring diagram if required for installation.

DIVISION OF WORK
A. The mechanical contractor is totally responsible for all controls including required conduit and wiring between thermostat, condensing unit and air handler.

PART 2 - PRODUCTS

THERMOSTATS Systems 1,2,3,4
A. A low voltage thermostat shall be included in each unit.
1. Thermostat shall be an Electronic Programmable Unit equal in all aspects to a Lennox Comfort Sense 7500, 7 day programmable, LCD color screen, humidity and temperature sensing, occupied control relay for fan and OA damper control and CO2 sensor.

FIRE STATS
A. Provide fire stats on each unit as required by code.
1. Firestat shall shut down all unit components including fans, compressors, etc.

PART 3 - SEQUENCE OF OPERATION

SPLIT SYSTEMS 1-4
A. Occupied Control
1. Compressor cycles to maintain room temperature if humidity is below set point
2. Humidity above set point, compressor runs continuously and hot gas reheat modulates to maintain room temperature, OA damper closes.
3. Fan runs continuously.
4. O.A. Damper opens unless humidity overrides.

B. Unoccupied controls
   1. Compressor and Fan cycle to maintain room temperature.
   2. O.A. Damper stays closed.
   3. If humidity above set point, fan runs continuous, compressor runs continuous, hot gas reheat energizes to maintain room temperature, O.A. remains closed

END OF SECTION

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Division 16 - ELECTRICAL

COBURN & ASSOCIATES, INC.
CONSULTING ENGINEERS EB-0003687
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(386) 454-3748

SECTION 16010

GENERAL PROVISIONS

PART 1 - GENERAL

DIVISION OF WORK

A. Division 16 Specifications define the Electrical Systems. Materials and labor to be performed and furnished as part of the General Construction Contract of which they are a part.

B. It is not the intent of Division 16 to define a contractual relationship between the General Contractor and Subcontractor ,

C. It is the responsibility of the General Contractor to provide all materials and labor to perform the work, and subcontractual relationships are his responsibility.

WORK INCLUDED

A. All labor, materials, fixtures, equipment, tools and service necessary for installation, testing and adjusting of all electrical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.

B. Drawings and Specification shall be understood to cover, according to their intent and meaning, complete electrical systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.

C. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contactor or subcontractor for such system whether or not they are specifically called for.

D. 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 throughout the project, including shanties, trailers, field offices, temporary toilet enclosures, and shall be extended as construction progresses.

ELECTRICAL CONTRACTOR QUALIFICATIONS

A. The Owner intends to award this contract to a Bidder whose subcontractors are competent to perform and complete the work in a satisfactory and timely manner. All Bidders and subcontractors must be qualified at the time of bid opening.

B. Electrical Contractor must have a current Florida Electrical Contractor’s license and been in business for a minimum of 5 years.

CODES

A. All work shall be performed or installed in strict accordance with all applicable rules, regulations and codes of local, state, and Federal Governments having lawful jurisdiction, and each contractor and subcontractor shall be responsible for such compliance.
   1. Code requirements shall be considered as minimum allowable.
   2. Were quantities, sizes, etc., shown on the Drawings or Specifications are in excess of code Requirements, the Drawings or Specifications shall take precedence.
   3. Any quantities, size, etc., shown less than code minimum shall be increased to meet code.

B. All work shall be in accordance with the National Electrical Code 2014

TECHNICAL DEFINITIONS

A. Specific items of terminology, as used herein, shall have the following meanings:
   1. "Work" includes all materials, labor, equipment and operation required for complete and proper installation.
   2. "Piping" shall mean pipe, fittings, flanges, valves, controls, hangers, traps, drain, insulation, vents, and items customarily required in connection with the transfer of fluids.
   3. "Concealed" shall mean embedded in masonry or other construction, installed behind wall furring, within double partitions or hung ceilings, in crawl spaces, in shafts.
   4. "Exposed"' shall mean not concealed.
   5. "By Other Trades" shall mean by persons or parties responsible for work at the project other than the party or parties who have been duly awarded the contract for the work of this trade. In the event that this document is used to acquire work as part of a general construction contract the words "by other trades" shall mean by persons or parties who are not anticipated to be the subcontractor for this trade working together with the General Contractor. In this context the words "by other trades" shall <u>not</u> be interpreted to mean not included in the overall contract.
   6. "Demolition" shall be the removal of any existing equipment, and the capping or plugging of any existing services to that equipment. Removal shall include the proper evacuation of all environmentally hazardous gases, refrigerants or liquids and proper disposal in accordance with all applicable codes and standards.
   7. “OPCI” shall mean the Owner will purchase this equipment and have it delivered to the site. The Contractor is responsible for protection and installation.

INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

A. As used in the drawings and specifications, certain non-technical words shall be understood to have specific meanings as follows:
   1. "Furnish" shall mean purchase and deliver to the project site complete with every necessary appurtenance and support.
   2. "Install" shall mean unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project.
   3. "Provide" shall mean "furnish" and "install".

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. It shall be understood that the specifications and drawings are complementary and are to be taken together for a complete interpretation of the work. Exceptions are those notes on the drawings, which refer to an individual element of work, take precedence over the specifications where they conflict with same.

D. No exclusions from, or limitations in, the language used in the drawings or specifications shall be interpreted as meaning that the appurtenances or accessories necessary to complete any required system or items of equipment are to be omitted.

E. The drawings of necessity utilize symbols and schematic diagrams to indicate various items of work. Neither of these items have any dimensional significance nor do they delineate every item required for the intended installations. The work shall be installed, in accordance with the diagrammatic intent expressed on the electrical and mechanical drawings, and in conformity with the dimensions indicated on final architectural and structural working drawings and on equipment shop drawings.

F. No interpretation shall be made from the limitations of symbols and diagrams that any elements necessary for complete work are excluded.

G. Certain details appear on the drawings that are specific with regard to the dimensioning and positioning of the work. These details are intended only for the purpose of establishing general feasibility. They do not obviate field coordination for the indicated work.

H. Information as to the general construction shall be derived from structural and architectural drawings and specifications only.

I. The use of the word in the singular shall not be considered as limiting where other indications denote that more than one item is referred to.

J. In the event that extra work is authorized, and performed by this trade, work shown on drawings depicting such work, and/or described by addendum is subject to the base building specification in all respects.

DRAWINGS AND SPECIFICATIONS

A. It is the intent of drawings and specifications to obtain a complete and satisfactory installation.

B. Separate divisional drawings and specification shall not relieve the contractor from full responsibility of compliance with the work indicated on any of the drawings or in any division of the specification.

C. Each subcontractor shall carefully examine the architectural, structural, electrical and mechanical drawings and specifications prior to submitting bid.

D. The subcontractor will be required to furnish, install and connect with appropriate services all items shown on any of the drawings without additional expense to the Owner.

E. The Architect/Engineer shall be notified of any discrepancies, omissions, conflicts or interferences which occur between drawings or between drawings and specifications. If such notification is received in adequate time additional data or changes will be issued by addendum to all bidders.

F. Architectural and structural drawings take precedence over mechanical drawings with reference to building construction.

G. Electrical drawings are diagrammatic but shall be followed as closely as actual construction of the building and the work of other trades will permit.

APPROVED MATERIALS

A. Materials or products specified herein and/or indicated on drawings by trade name, manufacturer's name and/or catalog number shall be provided as specified. Substitutions will not be permitted except as described herein in Supplementary and General Conditions.

B. For approval of products other than those specified, bidders shall submit to the architect a request in writing at least ten (10) days prior to bid date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifica-

tions, drawings, cuts, performance data list of references or other information necessary to completely describe the item. Approval will be in the form of an addendum to the specifications issued to all prospective prime contract bidders on record. The addendum will indicate the additional products that are approved for this project.

C. A list of all materials and equipment that the Contractor proposes to furnish shall be submitted for approval within ten (10) days after the contract has been let. Data shall be complete in all respects.

D. Where such approved substitution or deviation requires different quantity or arrangement of foundations, supports, ductwork, piping, wiring, conduit, and any other equipment or accessories normal to this equipment, Contractor shall furnish said changes and additions and pay all costs for all changes and additions and pay all costs for the changes to the work and the work of others affected by this substitution or deviation.

E. Deviations mean the use of any listed Approved Manufacturer other than those on which the drawings are based.

FEES - PERMITS

A. Fees for permits will be paid by the general contractor.

IDENTIFICATION

A. All panelboards, disconnects, relays, magnetic contractors and time clocks shall be labeled with the same designation shown on the Drawings.
B. Labels shall be laminated plastic engraved, with minimum 3/4 inch width, minimum letter size 3/8 inch.
C. Embossed labels shall not be acceptable.
D. Mount a typewritten directory behind glass or plastic on the inside of each panel door, showing circuit number and complete description of all outlets on each circuit.

TESTS AND INSPECTIONS

A. All electrical systems shown on the Drawings.
B. Call for appropriate inspections during construction as required by local agencies having jurisdiction over electrical construction.
C. Costs of inspections shall be paid by the Contractor.
D. Furnish all equipment and personnel and conduct all test required to secure approval of the installation.
E. Any repairs or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.

QUALITY ASSURANCE

A. Safety Tests

1. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects and shall show and insulation resistance between phase conductors and ground of of not less than that required by the National Electrical Code.
2. All systems shall show proper neutral connections.

CODE TESTS

A. All work shall be installed in accordance with the National Electrical Code and satisfy the local inspectors having jurisdiction.

OPERATIONAL TESTING

A. Upon completion of each part of the electrical 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.
B. Each switch, control circuit, etc., shall properly operate the device intended.

AS BUILT INFORMATION

A. A set of "red-lined" electrical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routings of cable trays, conduits, pull boxes, circuit numbers, and other information required by the Engineer.

EQUIPMENT AND MATERIALS

A. Meet or exceed specification requirements.
B. New, unused, of best quality and grade.
C. Current model for which replacement parts are available.

CATALOG AND MODEL NUMBER

A. Intended for use as guidelines.
B. Do not take precedence over specific ratings or duty.
C. Are not intended to give priority of one manufacturer over another providing "or equal" requirements are net.

UNACCEPTABLE EQUIPMENT

A. Equipment and material may be judged unacceptable for the following reasons.
   1. Equipment was not submitted for prior approval ten (10) days in advance of bid date.
   2. There is a history of poor performance, poor response to service and/or warranty issues on previous school projects.

"OR EQUAL"

A. Equipment and material shall be judged "equal" or on the basis of the following:

1. Meets or exceeds performance specifications for rating duty, etc.
2. Is comparable size to specified unit, (dimensions, weight, etc.).
3. Has similar appearance and is aesthetically acceptable (not applicable to equipment which is concealed in mechanical rooms, etc.).
4. Has exact voltage and phase characteristics as specified.
5. Does not exceed power consumption of specified equipment by more that 10%.
6. Is submitted and approved by Architects.

B. Equipment may be judged "unequal" if:
1. Installation of such equipment will cause excessive changes in associated equipment, wiring structures, etc.
2. Such equipment will require basic design changes with regard to system operation or performance.

COORDINATION OF ELECTRICAL WORK

A. Refer to Division 1 for general coordination requirements. The contract documents are diagrammatic in showing certain physical relationships of the mechanical work and the interface with other work, including utilities and electrical work. Final coordination is the responsibility of the Contractor.
1. Arrange Electrical work in a neat, well-organized manner. Piping and services shall run parallel to primary lines of the building construction, at a minimum of 7'-0" clearance.
2. Locate operating and control equipment for ease of access. Arrange Electrical work with required clearances for access for operation and maintenance.
3. Advise other trades of openings required in their work.
4. Give right-of-way to piping which requires a slope for drainage.

B. Coordination Drawings: Provide 1/4” drawings indicating electrical equipment and/or electrical work when positioned within close proximity.

C. NEC Required Clearances: The Contractor is responsible for all electrical equipment at 120v and greater (including but not limited to starters, disconnects, fuses, relays, etc.) to be installed with allowable NEC clearances. Refer to NEC for the required clearances (which are often greater than 36”). For cramped mechanical space with electrical panels, submit coordination drawings showing mechanical and electrical equipment and their respective service and NEC clearances.

D. Do not locate anything within the NEC required service areas required by existing electrical components.

SHOP AND ERECTION DRAWINGS AND SAMPLES

A. Submit required and/or requested shop drawings and erection drawings, and obtain written approval of same before ordering or installing any equipment or material. Equipment or material ordered or installed without written approval may not be accepted.

B. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature, which shall clearly indicate the construction, material, physical dimensions, and complete operating data clearly marked for each item. Data of general nature will not be accepted.

C. Indication of “No Exceptions Taken” on the shop drawing review does not relieve the contractor of the responsibility to comply with all requirements of this specification.

SUBMITTAL REQUIREMENTS

A. Submittal data is required for each Division 16section.

B. Submittals for this section:
   1. Firm qualifications for this project at time of bid.

C. All data shall be submitted to the Engineer at one time; partial submittals will not be accepted. Submit in individual vinyl-covered 3-ring binders. The front cover of the binder shall contain the project name and the Coburn & Associates, Inc. job number from the drawings. Index each section using the format from the Project Specifications. Each section of the submittal shall begin with a "Submittal Identification Sheet" (last page of this specification section) with a complete list of all items in that section. Failure to follow this procedure shall result in rejection of the submittal by the Engineer. This list shall also contain the following information:
   1. Model numbers and summary descriptions.
   2. The number of pages submitted for each item.
   3. Space for Engineer's review stamp for each item.
   4. Names of Project, Contractor, Sub-Contractors and Suppliers of Equipment.

   The submittal shall be formatted in this manner in order to facilitate timely review by the Engineer. Engineer shall review submittal data no more than two times. Additional submittal review time shall be paid by Contractor.

D. Refer to Division 1 for administration of submittals. For Electrical work, the following quantities are required for each category of submittal, unless otherwise indicated in Division 1 or individual work sections.
   1. Shop Drawings: 6 sets, including 2 for maintenance manuals.
   2. Product Data: 6 sets, including 2 for maintenance manuals.

3. Warranties (Guarantees): 6 copies, including 2 for maintenance manuals.
4. Manuals: 2 final copies, including flow diagrams, maintenance instructions, operating instructions, parts listings, and copies of other submittals indicated for inclusion.

MAINTENANCE MANUALS

Thirty days prior to Substantial completion, furnish two operation and maintenance manuals with index and thumb-tab marker for each section of information; bind in 3-ring, vinyl-covered binder. Label binder with "OPERATION AND MAINTENANCE MANUAL," the name and location of the project, the name of the Contractor, and the contract number. Include the names, addresses, and telephone numbers of each subcontractor installing the equipment. Include a list of all equipment and the supplier with address and telephone number. Include a table of contents and assemble to conform to the Project Manual (specifications) with the tab sheets before instructions covering the subject. Instructions shall be legible and easily read, fold large sheets of drawings. The manual shall include: wiring and control diagrams, detailed explanation of operation and control of each item of equipment; description of the function of each principal item of equipment; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range and frequency; safety precautions, diagrams and illustrations; test procedures; performance data; and parts lists. The manual shall be complete, including all equipment, controls, accessories and associated appurtenances.

RECORD DRAWINGS

A. Subcontractor is instructed to refer to section covering General Conditions of this specification.

B. During the course of construction the subcontractor shall keep an accurate record of all deviations and changes of the work as indicated on the drawings and its actual installation.

C. Prepare one set of "as-built" drawings in Auto CADD indicating a record of construction revisions and changes from the contract drawings.
   1. Engineer will upon request, provide AutoCADD drawing files for use in preparing the “as-builts”.

D. Upon completion of the work and within 30 days after acceptance by the Architect, the subcontractor shall furnish to the Owner a revised and final set of reproducibles and a set of CADD diskette and prints showing all work as installed.

REGULATORY REQUIREMENTS

A. Intended for use as guidelines and are supplied to aid in equipment identification.
B. Because Catalog Numbers are subject to manufacturers change, it is the contractors’ responsibility to coordinate the equipment and material with specified capacity, duty rating, voltage, etc.

1. Do not take precedence over specific ratings or duty or written specifications.

C. Are not intended to give priority of one manufacturer over another providing "or equal" requirements are met.

INSTALLATION

A. General
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 guarantee to be as-built 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 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 member, foundations etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
7. Electrical reference symbols are given on the electrical legend on the drawings.

FIELD QUALITY CONTROL

A. 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 field condition which interferes with the installation as drawn shall be handled as follows:
   a. Cease installation of that portion of the work which is in conflict as 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 Engineer and Architect immediately.
   d. Architects 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.

DISCREPANCIES

A. In the event of discrepancy, work shall cease and the Architect/Engineer shall be notified immediately.

CLOSING-IN OF UNINSPECTED WORK

A. Do not allow or cause any of the work in this Section to be covered up or enclosed until it has been inspected, tested, and approved by the Architect/Engineer and by all authorities having jurisdiction.

ADJUSTING AND CLEANING

A. Clear away all debris, surplus materials, etc. resulting from work on operations, leaving job and equipment in clean first-class condition.
B. Clean all panel board, switches, boxes, etc., and leave them in a ready-to-use condition.
C. Install with proper screws or bolts, all panelboard and junction box covers.
D. Where factory finish is provided on equipment, all marred or damaged surfaces shall be touched-up or refinished hereunder as approved.

GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from leaks or defects. Any defective materials or workmanship as well as damage to the work of all trades resulting from same shall be replaced or repaired as directed for the duration of stipulated guarantee periods.

B. The duration of guarantee periods following the date of beneficial use of the system shall be one year. Beneficial use is defined as operation of the system to obtain its intended use.

C. The date of acceptance shall be the date of final payment for the work or the date of a formal notice of acceptance, whichever is earlier.

D. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of heating and air conditioning equipment.

ENGINEER'S PRE-CONCEALMENT OBSERVATION

A. Contractor Preparation:
   1. All equipment, ductwork, piping, controllers, conduit, wire, and accessories shall be installed in plain visible view without any walls, ceiling tiles, or ceilings installed. Stud walls with one exposed wall may be installed. Ceiling grids and ceiling light fixtures may not be installed. All ductwork and piping shall be non-insulated.

2. The Contractor shall contact the Architect/Engineer to schedule a pre-concealment site observation. The Engineer shall perform the observation within 72 hours of the notice of observation. It is the Contractor's sole responsibility to plan for and schedule this observation.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings.

ENGINEER'S SUBSTANTIAL COMPLETION OBSERVATION

A. Electrical Substantial Completion shall be scheduled at least ten working days prior to General Contractor's request for substantial completion.

1. The Contractor shall request this one week in advance of the date requested.
2. **ALL** Electrical work shall be completed including but not limited to Panel boards active, lighting, light fixture controls, intercom, CATV, Fire Alarm, etc.It is required that all systems are functioning and proper operation can be demonstrated.
3. The General Contractor shall be represented as well as Electrical, Fire Alarm, and CATV Subcontractor, and ay other person(s) that the General Contractor or Engineer deems necessary to demonstrate proper operation of the equipment.
4. Ceiling tile does not need to be in place.
5. All Electrical Systems will be operated and checked including, fans, motors, pumps, lights, intercom, Fire Alarm and CATV.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. Documents: The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings. It is the Contractor's sole responsibility to plan for and schedule this observation.

E. Do not call for substantial completion if
1. Any panelboards are not terminated and all branch circuits are terminated
2. Power has not been turned on to the building

3. Electrical inspector has not passed system on final
4. Light fixtures are missing
5. Any mechanical equipment is not terminated and energized

F. It is not the responsibility of the Engineer to provide the general contractors construction punch list items. If the Engineer punchlist exceeds 20 minor items Or One major item, the engineer will declare the project incomplete.

FINAL ACCEPTANCE OBSERVATION

A. Contractor shall carefully read all applicable sections of these specifications and prepare and assemble necessary test reports, maintenance manuals, certificates, guarantees, letters of instruction, etc. that are required.

B. These documents shall be delivered to the Architect's / Engineer's office at least 48 hours before requesting final acceptance observation for work covered under this division of the specifications.

C. Contractor's representatives responsible for work under this division shall be present at time of acceptance observations and shall furnish required mechanics, tools and ladders to assist in the inspection.

D. A list of items to be corrected as a result of substantial completion acceptance observation will be furnished to the contractor. Notify Architect / Engineer in writing of any items appearing on list of correction that are disputed by Contractor. When ready, request in writing a re-observation of work.

E. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

F.. Documents: The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

G. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings. It is the Contractor's sole responsibility to plan for and schedule this observation.

PROTECTION

A. All equipment and materials stored at Site shall be covered to exclude dust and moisture; and protected from weather from entry of foreign materials.

END OF SECTION

SECTION 16100

BASIC MATERIALS & METHODS

PART 1 - GENERAL

SCOPE

A. Conduit for power, telephone, fire alarm, communication, control, and miscellaneous functions which are shown on the drawings or described in these specifications.
   1. All boxes for wiring and devices and special systems.
   2. Wiring for all power, communication, fire alarm and auxiliary equipment, controls and other devices.
   3. All panels for power, lighting, and distribution of electricity as shown on the Drawings and panel schedules.
   4. All circuit breakers shown on lighting, power, distribution and main distribution panels.
   5. All disconnects and starters as described herein.
   6. All fuses as shown and specified.

RELATED WORK SPECIFIED ELSEWHERE

A. Section 16140 - Wiring Devices
B. Section 16521 – Lighting Fixtures
C. Section 16112 – Fuses 600 volts and below
D. Section 16120 – Circuit breaker enclosures
E. Section 16125 – Circuit breakers, molded cases
F. Section 16145 – Motor starters
G. Section 16150 – Contractors
H. Section 16155 - Relays

DESCRIPTION

A. Conduit:
   1. All conduit and fittings shall be in new, unused condition free from rust, excessive dirt and moisture, kinks, flats, cuts, or other distortions of shape caused by impact, crushing or bending.
   2. Concealed conduit in building, above slab shall be EMT conduit with "set-screw" or compression fittings.
   3. Exposed conduit in building, above slab shall be EMT conduit with "set-screw" or compression fittings.
   4. Conduit embedded in or penetrating slab shall be PVC with waterproof joints.
   5. Exposed conduit outside building, larger than 2” above grade shall be rigid galvanized steel with threaded waterproof fittings.

6. Exposed conduit outside building and on the roof, 2” and smaller, shall be EMT with weatherproof compression couplings.

7. Underground conduit shall be Schedule 40 PVC with waterproof joints.
8. Final elbows through slab shall be rigid galvanized long radius elbows with bitumastic coating.
9. Fire Alarm conduit shall be painted red or factory finished red.

BOXES

A. All wiring devices shall be installed in metallic boxes. Provide outlet boxes, receptacle boxes, junction boxes, etc., where shown on the drawings and/or required by the National Electrical Code.

B. Provide pull boxes as shown on the Drawings, as required by code or as needed for ease of construction.

WIRES AND CABLES

A. All wiring shall be installed in conduit.
B. Conductors shall be sized according to the National Electrical Code or as shown on the drawings whichever is greater.
C. Minimum size for 20A receptacle and lighting circuits shall be No. 12 AWG-where distance from panelboard to load exceeds 65 feet, use No. 10 AWG minimum; over 100 feet, use No. 8 AWG.

PANELBOARDS – SEE ALSO SECTION 16420

A. Furnish and install electrical system as described on Drawings, panel schedules and electrical riser diagram.
B. Panels shall be surface mounted or recessed as specified on the panel schedule.
C. All panelboards shall be circuit breaker type unless noted otherwise.
D. Voltage, phase, wires as specified on schedules.
E. Solid neutral.
F. Panels rated at 10,000 AIC shall have stab-in breakers.
G. Panels rated greater than 10,000 AIC shall have bolt on breakers.
H. Breakers size and quantity as shown on Schedules.
I. Breakers listed as "spare" shall be furnished and installed.
J. Panel listed with "space" shall be provided with extra space for future breakers.
   1. Each "space" shall be on one single pole.
K. Panels rated 225 amp. or less shall be provided as full 42 space panels unless specifically noted otherwise

.

CIRCUIT BREAKERS – SEE ALSO SECTIONS 16120 AND 16125

A. Furnish and install all circuit breakers as described on the panel schedules and drawings.

PART 2 - PRODUCTS

CONDUIT

A. Rigid metal conduit shall be steel, hot dip galvanized. Minimum size shall be 3/4".
B. Electrical Metallic Tubing (EMT) shall be steel, electro or hot dip galvanized.
   1. Provide Red Conduit for all Fire Alarm Wiring.
C. Flexible Metallic Tubing shall be galvanized steel. Sealtite type UA or EF shall be used for all motor connections.
D. Rigid Non-metallic conduit shall be listed for use as electrical raceways. All PVC shall be high density Type I Schedule 40.

BOXES

A. Pullboxes inside buildings shall be code gauge and size, galvanized steel with screw type cover.
B. Pullboxes outside building above grade shall be code gauge and size, galvanized steel with enamel finish and screw type cover. Boxes shall be rainproof and waterproof
C. Pullboxes outside building in slab type gasket cover and completely weatherproof.
D. Switch and outlet boxes in standard stud wall thicknesses shall be galvanized steel, 2 1/2 inch deep.
E. Switch and receptacle boxes in fired wall or wall less than standard stud depth shall be galvanized steel, 1 1/2 inch deep.
F. Wall boxes in four inch block shall be galvanized steel 2 1/2 inch deep.
G. In walls larger than four inch block-galvanized steel 3 1/2 inch deep.
H. Boxes may be ganged as required for multiple switches, etc.
I. Through-wall boxes are prohibited.
J. Lighting outlet boxes and specified junction boxes shall be galvanized steel, 4" octagon with cover.
K. Floor boxes shall be standard depth-cast steel, flush mounted cover with brass. Furnish with threaded brass receptacle covers.
L. Telephone boxes shall be standard gauge galvanized steel, 4 inch square.

WIRE AND CABLES

A. All wire used throughout work shall be soft drawn copper of not less than 98% conductivity.
B. Wire and cable shall be new; and manufacturer's name permanently marked on the outer covering at regular intervals.
C. Conductors AWG No. 8 or smaller may be solid or stranded; larger sizes shall be stranded.

D. All conductors for general wiring shall be insulated with THWN insulation. Unless otherwise noted.
E. Conductor markings and color coding shall be in accordance with the latest edition of the N.E.C.
F. Green color coding is required by the N.E.C. for conductors used for grounding.

PART 3 - GENERAL

ROUGH-IN

A. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or under other divisions of Specifications or by Owner.
B. 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.
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 be smaller than the cover plate or box which fits over it.
F. Openings for recessed boxes shall not be larger than the cover plate which will cover the final opening
G. Sleeves shall be required at all points where exposed conduits pass through concrete walls, slabs or masonry walls. Sleeves installed below grade or where subject to high water conditions shall be installed water tight.

CONDUIT

A. All conduit shall be installed in a first-class workmanship manner.
B. All conductors shall be installed in conduit.
C. Fittings or symmetrical bends shall be required wherever right angle turns are made in exposed work.
D. Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending machine.
E. All conduit joints shall be cut square, reamed smooth and drawn up tight.

F. Conduit shall be installed in horizontal and vertical runs in such a manner as to insure against trouble from the collection of trapped condensation and shall be arranged so as to be devoid of traps.

G. Special care shall be used in insuring that exposed conduit runs are parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceiling.

H. During construction, all conduit work shall be protected to prevent lodgment of dirt, plaster or trash in conduits, fittings or boxes.

I. Conduits which have been plugged shall be entirely freed of accumulations or be replaced.

J. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled.

K. Conduit shall be properly supported as specified elsewhere in this Section.

L. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduits cross building expansion joints.

M. A flexible rounding strap shall bridge expansion joints and shall be bonded to conduit.

N. Conduit, boxes, devices, lights, etc., shall be located so that they will not interfere with intended use of eyebolts monorails, or other lifting equipment.

O. Conduit above slab shall be run concealed in the walls or ceilings unless specifically noted to be exposed.

P. Conduit under ground and\or slab shall be buried 24 inches minimum.

Q. 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 and\or panel schedule. Any deviation in this regard shall be done only with written approval of the Architect.
2. Conduits shall be run so as not to conflict with ductwork, diffusers, mechanical equipment and piping.
3. Conduit is not noted or detailed to be specifically run in a particular location.
4. Hangers and supports shall be attached to stud walls with wood screws.

R. Final connection to motors, etc., shall be made with either:
   1. The same type of conduit which leads up to the equipment or;
   2. Armored flexible conduit which shall be waterproof for any locations outside, in kitchens, or any inside area subject to water, heavy moisture, condensation, etc.

SUPPORTS AND HANGERS

A. All conduit shall be supported on structural building members, i.e. columns, beams, purlins, block, studs, etc.
B. Conduit shall be supported on galvanized or aluminum brackets, clamps, or straps.
C. Conduit hangers shall be attached to building steel by beam clamps or welding.
D. Hangers and supports shall be attached to stud walls with wood screws.
E. Hangers and supports shall be attached to masonry with expansion type anchors (shield).
F. Supports shall be channel type supports such as manufactured by Uni-Strut, Globe, Kindorf, or equal.

OUTLET BOXES

A. Outlet shall be installed in the location shown on the drawings.
B. Contractor shall study the general building plans in relation to the space surrounding each outlet, in order that his work may fit all other work required by these Specifications.
C. All steel supports for outlet boxes shall be furnished and installed.
D. Outlets 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.

OPENINGS IN ELECTRICAL BOXES

A. All openings in electrical equipment, enclosures, cabinet, outlet and junction boxes shall be by means of welded bosses, standard knockouts, or shall be

drilled, or punched with tools specially made for the purpose. The use of a cutting torch is prohibited.

CONNECTIONS TO ELECTRICAL BOXES

A. All conduit connections to electrical boxes shall be made with locknuts and nonmetallic bushings.
B. Locknuts shall be drawn down tight to make ground connection between the conduit and box.

CONDUCTORS

A. All wiring shall be fully polarized throughout

using white wires for neutral and making all switching connections in colored hot wires.
B. No conductors shall be drawn into conduits until all work which may cause damage is completed; only approved cable lubricants shall be used.
C. As far as practical, all feeder cables shall be continuous from origin to panel termination without running splices in intermediate pull boxes.
D. All cable terminals, taps and splices shall be made with solderless, pressure type connectors; connectors shall be Type QA-B or Q2A as manufactured by Burndy, Okonite, McJunkin or equal.
E. The minimum free length of conductor at each box for the connection of a fixture, switch or receptacle shall be 8".

END OF SECTION

SECTION 16140

WIRING DEVICES

PART 1 - GENERAL

SCOPE

A. Provide general purpose receptacles, special purpose receptacles, and switches as shown on the drawings.

QUALITY ASSURACE

A. All devices shall be UL listed.

PART 2 - PRODUCTS

GENERAL

A. Model or part number listed below are for reference and establishing quality.
B. In so far as practical, all wiring devices shall be of the same manufacturer.
C. All catalog numbers listed are Hubbell unless noted.
D. Acceptable manufacturers shall be Hubbell, Pass and Seymour, Leviton, or Arrow-Hart.
E. General Purpose Receptacles
    1. General purpose receptacles shall be specification grade, 120 volt AC, 15 amp, NEMA 5-15R, grounding type, ivory.
    2. Catalog numbers shall be:
        a. Single receptacle: 5261-I
        b. Duplex receptacle: 5262-I
F. Single appliance type
    1. Single appliance type receptacles shall be specification grade, 120 volt AC, NEMA 5-20r, 20 amp, grounding type, ivory.
    2. Catalog numbers shall be:
        a. Single receptacle: 5361-I
        b. Duplex receptacle: 5362-I

G. Special purpose receptacle
    1. Special purpose receptacles shall be installed as required and as shown to match equipment and appliance cord.
    2. Catalog numbers for special purpose receptacles shall be as follows, based on voltage and amperage:

VOLT	AMPS	NEMA	COLOR	CAT. NO.
125	30	5-30R	Black	9308
125	50	5-50R	Black	9360
250	30	6-30R	Black	9330
250	50	6-50R	Black	9367

H. Switches
1. General lights switches shall be specification grade,125-277 volt, 15 amp, heavy duty, ivory.
2. Catalog numbers shall be:
SPST 1101-I
DPST 1102-I
3-Way 1103-I
4-Way 1104-I
3. Motor rated switches shall be used for any switches controlling singles phase motors.
4. Motor rated switches shall be 120-277 volt and rated in accordance with the voltage and amperage of the motor.

I. Cover plates
1. All cover plates shall be stainless steel unless noted.
2. Catalog numbers:
a. Switches: Single gang--P1
Two gang-----P2
Three gang---P3
b. Single Receptacle 93091
c. Duplex Receptacle Single gang P8
Two gang P82
d. Telephone plate Single gang plate with rubber bushing
e. Television plate Single gang with coaxial connector for cable connection.
f. Special purpose outlets: Single gang P7882
Duplex 7423
g. Weatherproof covers: Weatherproof-in-use, Equal to:
1. Intermatic Model WP1100c.-single gang
2. Intermatic Model WP1220C-double gang

END OF SECTION

SECTION 16155

RELAYS

GENERAL

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

B This Section covers Power Relays for Equipment and Interlocks – ONLY – Room lighting and receptacle relays are specified in Section 16930.

C Submittals: Submit the producer's standard descriptive data sheets for each type of product being provided. Mark the data sheet for the product being provided with an identifying mark or arrow.

PRODUCTS

A Acceptable Manufacturers: Allen-Bradley, General Electric Co. and Square D.

B General: See electrical Drawings, Panelboard Schedules and Control Diagrams for numbers and types of relays required. Relays shall be electrically held, unless indicated otherwise on the Drawings.

C Enclosures: Relays may be mounted in panelboards or in NEMA type 1 enclosures adjacent to or above panelboard.

D Poles: Required by circuit controlled or as indicated on Drawings.

E Ratings: Rated for inductive and resistive load, or as indicated on Drawings.

EXECUTION

A Mounting: For relays outside panelboards, furnish relays in enclosures. The enclosures shall be mounted on walls to slotted angles or channels with required hardware. Combustible materials for mounting are not permitted.

B Controls: Install as indicated on Drawings.

C. Provide engraved laminated plastic identification plate mechanically fastened for each relay.

END OF SECTION

SECTION 16215

EMERGENCY LIGHTING- BATTERY INVERTER UNITS

GENERAL

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

EXECUTION

A Units shall be installed in accordance with manufacturer's recommendations.

B See Section "Lighting Fixture Schedule.

END OF SECTION

SECTION 16400

SERVICE ENTRANCE, METERING, GROUNDING AND GROUND FAULT PROTECTION

PART 1 - GENERAL

WORK INCLUDED

A. Underground or service entrance as shown on drawings.
B. All equipment and circuits shall be grounded in accordance with the National Electrical Code, Article 250.
C. Provide ground fault protection for all circuits noted on the drawings as GFI or in all receptacles in bathroom, and exterior location
D. Provide ground fault protection an all temporary construction circuits as required by OSHA or the Nation Electrical Code.

WORK INSTALLED BUT FURUNISHED BY OTHERS

A. Some components required for metering of service such as meter bases, current transformers, etc., may be supplied by the utility: coordination with utility will be required.

SYSTEM DESCRIPTION

A. Service Entrance
   1. Provide underground service from existing transformer to new distribution panel as shown on drawings.
   2. Coordinate connections and power outages as noted in Section 16100.
   3. Route new feeders through existing current transformer in existing transformer
B. System Ground
   1. All conduits shall contain a continuous "green" ground wore which shall be sized in accordance with Table 250-95 of the National Electrical Code.
   2. The ground conductor shall be bonded to the conduit as the ground conductor.
   3. Provide a driven ground rod as close as possible to the service entrance location, sized as shown on the drawings or in accordance with N.E.C.
   4. Bond ground to nearest cold water supply pipe and to footer or slab steel with same size conductor as required for driven ground.
   5. Provide ground wire #6 Minimum to the telephone board.
C. Mechanical Equipment
   1. All mechanical equipment motors shall have grounded cases.
   2. All equipment shall have a ground wire bonded thru equipment cabinet fame, etc, to the system ground.

D. Ground Fault Protection

1. Ground fault protection shall be provided for all receptacles labeled GFI or where required by of this section
2. The designation GFI on the drawings denotes a ground fault protected receptacle.
3. Ground fault protection maybe provided by a ground fault receptacles or ground fault breaker.
4. Standard receptacles shall be considered ground fault protected if in series with an upstream GFI receptacle.
5. Provide ground fault protection on Main Distribution Panel “M”

PART 2 - PRODUCTS
PART 3 - EXECUTION

END OF SECTION

SECTION 16420

PANELBOARDS

GENERAL PROVISIONS

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

B Division-16 Basic Electrical Materials and Methods Sections apply to work of this Section.

C Submittals: Submit the producer's standard descriptive data sheets for each type of product being provided. Mark the data sheet for the product being provided with an identifying mark or arrow.

D Depth Coordination: Provide panelboards with depths coordinated with wall thicknesses in locations shown on electrical drawings. Refer to architectural drawings for all dimensions. Include cost of any accommodations for dimensions of proposed panelboards in bid; no adjustments will be made in contract amount for lack of coordination.

PRODUCTS

A Acceptable Producers: General Electric Co., AIBB, Siemens/iTE, Cutler-Hammer,Westinghouse, Challenger, and Square D. Products shall be furnished by one producer.

B General: Panelboards shall be UL listed, bolt-in circuit breaker type, with copper bus and door-in-door covers. See panel schedules on Drawings for electrical characteristics.

C Bus Assembly and Temperature Rise: Panelboard bus structure and main lugs or main breaker shall have current ratings as shown on the panelboard schedule. Ratings shall be established by heat rise tests in accordance with Underwriters Laboratories Standard UL 67. Provide copper bus assembly and copper only lugs for copper conductors. Bus bars shall be copper.

D Circuit Breakers: Circuit breakers shall be full module, bolt-on type, equipped with individually insulated, braced and protected connectors. The front faces of all circuit breakers shall be flush with each other. Large permanent, individual

circuit numbers shall be affixed adjacent to each breaker in a uniform position. Trip indication shall be clearly shown by the breaker handle. Provisions for additional breakers shall be such that no additional connectors will be required to add circuit breakers.

E Equipment Short Circuit Rating: Each panelboard, as a complete unit, shall have a short circuit current rating equal to or greater than the equipment rating shown on the panelboard schedule on the Drawings, but under no circumstances less than 10,000 amperes. Panelboard and circuit breakers shall be fully rated for interrupting ratings indicated. Under no circumstances will series rated equipment be acceptable. Every overcurrent device provided shall be UL approved to individually interrupt its rated short circuit current and shall not depend upon operation of another overcurrent device to achieve its rating.

F Grounding Terminals: Provide each panelboard unit with a ground terminal bar and with lugs for equipment ground wires. Ampacity shall be the same as the full capacity of the main bus. Ground bar or lugs shall be copper.

G Neutral Terminals: Provide each panelboard unit with an insulated neutral terminal bar. Ampacity of neutral bar shall be the same as the full capacity of the main bus bars. Neutral bar shall be copper.

H Cabinet: Panelboard assembly shall be enclosed in a galvanized steel cabinet. The rigidity and gauge of steel shall be as specified in UL Standard 50 for cabinets. The size of wiring gutters shall be in accordance with UL Standard 67. Cabinet fronts shall be door-in-door type. Cabinets shall be equipped with latch and tumbler lock on door. Doors over 48” high shall be equipped with three point latch and vault lock. All locks shall be keyed alike. Minimum depth of cabinets shall be *5-3/4”* and minimum width shall be 20. Cabinet shall not have ventilating openings.

I Safety Barriers: The panelboard interior assembly shall be dead front with panelboard front removed. Main lugs or main breakers shall be barriered.

J UL Listing: Panelboards shall be listed by Underwriters Laboratories and shall bear the UL label. When indicated, panelboards shall be suitable for use as service equipment.

K Nameplates: Provide an engraved laminated phenolic identification plate 1 1” high by 3” wide with minimum 1/4” letters indicating the panelboard identification shown on the drawings. Nameplate shall be affixed to the exterior of the panelboard, visible with door closed.

In addition, panelboard shall bear a nameplate showing Manufacturer, Voltage,

Ampacity, Type of Panelboard, Manufacturer's Order No. and Date, Interrupting Rating - RMS Sym.

L Ground Fault Protection: Provide ground fault protection as indicated on the Drawings. Ground fault protection provisions shall comply with NEC Article *230-95.*

EXECUTION

A Provide circuit breakers with I.C. Ratings, amperes and number of poles as specified in the schedules on the Drawings.

B Circuit breakers shall be UL listed.

C Mount adjacent panelboards so that they are aligned and do not touch each other.

D Provide a typewritten circuit directory with a protective covering in a frame inside the door. Show load type (REC, LTG. AHU-1, etc.) and room number(s) served for every branch circuit breaker and panelboard served for every feeder circuit breaker.

E Mount panelboards so maximum height of circuit breakers above finished floor does not exceed 78 inches.

F Wiring Gutters: Feeder and Branch circuit conductors are sized for circuit than the allowable ampacities in Table 310-16 of the NEC. Contractor shall provide cabinets with gutters sized to accommodate the conductors andconnections actually being installed complying with Article 373-6 and Article 310.4.

END OF SECTION

SECTION 16521

LIGHTING FIXTURES

PART 1 GENERAL

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

B Division-16 Section 16100 Basic Materials and Methods Sections apply to work of this Section.

C Submittals:

1 Submit in brochure form, catalog sheet or cuts of all lighting fixtures. Mark each sheet to match "type" number as specified in Fixture Schedule on the Drawings. Fabricate no fixtures until approval of submittals and catalog cuts have been made.

2 Fixtures described do not include all stein hangers, frames and other necessary accessories. At each location, provide lighting fixture specified and all accessories necessary for proper installation and operation.

3 Provide lighting fixtures complete with lamps in accordance with the Fixture Schedule on the Drawings.

4 Where shown with dual switching, fluorescent fixtures shall be supplied with dual ballasts.

D Substitutions

1 Light fixture substitutions shall be submitted in complete submittal form at least 10 days prior to bid date and time. Provide three (3) sets of submittals.

PRODUCTS

A Acceptable Producers: See Lighting Fixture Schedule on the Drawings for producers of lighting fixtures.

B Ballasts:

1 Ballasts produced by Advance, MagneTek, Osram or approved equal are acceptable. Ballasts shall be electronic, high frequency (at least 20 KHz), rapid start type, and designed specifically for use with *265mA* T8 lamps.

2 Ballasts shall be UL listed (class P) with a class A sound rating, and they shall be CBM certified by ETh. Ballasts shall be the energy saving type and shall have a minimum starting temperature of *+50^{0}F.* Ballasts shall be serviceable while fixtures are in their normally installed position and shall not be mounted to removable reflectors or wireway covers.

3 Ballasts shall produce less than 20% current Total Harmonic Distortion (THD) and shall operate at a power factor of at least 90%.

4 Ballasts shall be capable of operating two, three, or four T8 lamps.

5 Qualifying manufacturers shall have been manufacturing electronic fluorescent ballasts for a minimum of five years with a satisfactory performance record. Ballasts shall be warranted by the manufacturer for a minimum of three years.

C Automatic Resetting Thermal Protectors: Furnish with each fluorescent ballast to provide protection against damage.

D Fixtures: See Lighting Fixture Schedule in the drawings.

E Fixture Wire: Type SF-i, SF-2, TF, TFF, TFN, TFFN or other approved wire.

F Gasket: Provide gaskets on all lenses to prevent light leaks. Provide gaskets on all fixtures located in damp and wet locations.

G Plaster Frames: Furnish with all fixtures installed in stucco or plaster surfaces.

H Plastic Accessories: Use 100% clear virgin methyl methacrylate. Lenses shall be male conical prismatic type, minimum .125 inch.

I Lamps: Fluorescent lamps shall be 4-foot, 32 watt, 265mA, T-8 Octron with 4100K color temperature and minimum Color Rendering Index (CR1) of *75,* unless otherwise noted in the Fixture Schedule on the Drawings. Lamps shall be Phillips, Sylvania, Osram, or approved equal. Lamps shall have a rated life of 15,000 hours with instant start ballast

J Fluorescent: Lampholder contacts shall be the biting edge type or phosphorous-bronze with silver flash contact surface type. Lampholders for bi-pin lamps shall be of the telescoping compression type, or the single slot entry type requiring a one-quarter turn of the lamp after insertion.

EXECUTION

A Where a fixture type is not designated on Electrical Drawings, install the fixture type used in a similar location.

B Locate fixtures to suit architectural detail of area involved. Where located in acoustic ceilings, coordinate placement with architectural reflected ceiling plan.

C Fixture Schedule on the Drawings shows type of fixture required. Determine modifications to make fixtures suitable for the ceilings in which they are installed and furnish fixtures adapted to ceiling.

1 Verify the types of ceiling construction before ordering fixture fabrication. Determine that suspension methods and flange arrangements for fixtures coordinate with ceiling types and their suspension systems.

D Determine exact inscription for exit signs.

E Interferences: In areas where industrial type fixtures are to be installed, such as equipment rooms, fixtures which are near obstructions such as ducts, large pipes, groups of pipes, etc., are to be suspended so that bottom of the fixture is not higher than bottom of duct, etc. Do not locate outlets until locations of these obstructions are determined. Install conduits and outlets exposed to insure accessibility.

F Protect all fixtures and lamps and replace broken parts including those for temporary lighting system.

G Clean all lenses and louvers after all other trades have completed their work in each area; or do not install lenses and louvers before that time.

END OF SECTION

SECTION 16551

LAMPS

PART 1 - GENERAL

WORK INCLUDED

A. Lamps shall be provided in all fixtures shown on the Drawings or listed in the Specifications

SYSTEM DESCRIPTION

A. The lamp size, voltage, and type is shown on the fixture schedule for each fixture to be installed.

SHOP DRAWINGS AND PRODUCTS DATA

A. Provide shop drawings and product data for each type of fluorescent and H.I.D. lamp shown on the Drawings.
   1. Submittals shall include photometric data.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

A. General Electric
B. Sylvania
C. Westinghouse

MATERIALS

A. Incandescent standard
   1. Medium base
   2. A-19 or A-21 configuration
   3. Watts as noted
B. Incandescent floods and spots
   1. Medium base
   2. R type or PAR type depending on wattage.
   3. Flood type to be supplied unless noted as spot.
C. Fluorescent lamps
   1. Medium bi-pin
   2. Deluxe cool white

3. 20 watt
    a. Starter required

    b. Initial lumens - 875
    c. Length - 24 inch
    d. Lamp No. F20T8/41K
4. 32 watt
    a. Rapid start (no starter required)
    b. Initial lumens - 3025
    c. Length - 48 inch.
    d. Lamp No. F32T8/41K
5. 64 watt
    a. Single pin
    b. Instant start
    c. Slim line
    d. Length - 96 inch
    e. Initial lumens - 4200
    f. Lamp No. F64T8CW

D. Metal Halide
1. 175 watt
    a. Mogul base
    b. Phosphor coated, horizontal burn
    c. Initial lumens - 15000
    d. Model Sylvania "Super-Metalarc" MS175/C/HOR.
2. 250 watt
    a. Mogul base
    b. Phosphor coated
    c. Base up to horizontal
    d. Initial lumens - 20500
    e. Model Sylvania "Metalarc" M250/C-BU-HOR
3. 400 watt
    a. Mogul base
    b. Phosphor coated
    c. Initial lumens - 40,000
    d. Model - Horizontal only - Sylvania MS400/C/HOR
        Base-Up Vertical - Sylvania MS400/C/BU

E. High pressure sodium
1. Clear high pressure lamps
2. Suitable for all operating positions
3. Lamp wattage / initial lumens
    a. 50/3300
    b. 70/5800
    c. 100/9500
    d. 150/16000

e. 200/27500
f. 250/27500
g. 400/50000
h. 1000/140000

F. LED Fixtures
1. All LED fixtures shall be 4000K with CRI-85 unless noted otherwise.
2. Refer to Fixture Schedule.

END OF SECTION

SECTION 16601

TELEPHONE/DATA

PART 1 - GENERAL

WORK INCLUDED

A. Contractor shall provide all conduit, wiring, data ports, telephone outlet jacks, CAT6 cabling, lightning arrestors, terminal strips, patch panels, cabinets and all auxiliary equipment required to provide a complete and working data cabling system.

B. Owner shall provide all headend equipment servers, routers, etc. and make final connections and programming.

SHOP DRAWINGS AND PRODUCTS DATA

A. Provide shop drawings and product data in accordance with the General Conditions for all devices to be furnished.

PART 2 PRODUCTS

A. Raceway
   1. Provide a conduit with plastic bushing stubbed above ceiling for Data including boxes and wiring as shown on drawings and the Data riser.
   2. Conduit and outlets shall be as shown on the drawings and the Data riser.
   3. Provide plywood backboard with 120v receptacle and #6 ground with ground bar on plywood as shown on drawings.

B. Cables and Wiring
   1. All data wiring from individual outlets to respective terminal cabinets shall be included and installed.
   2. All data able shall be CAT6 cable, non-plenum rated.
   3. All data wiring shall be connected to RJ 45 jack at outlet and free pull to data board with 10’ of “loop” at data board.

C. Lighting Protection
   1. Terminate all utility cables in lighting protection.

D. Data Outlets
   1. Provide dual data RJ45 jacks at each outlet location on the drawings.
   2. Data outlets shall be Panduit.
   3. Each outlet shall have four (4) RJ-45 jacks with two (2) wired and active and two (2) spares.

E. Provide copper ground buss in accordance with detail shown on drawings.

F. Provide ¾" plywood backboards on three sides or room, paint plywood with fire retardant paint, black of gray.

PART 3 FUNCTION

A. Coordination with Utility
   1. Consult local utility representative for any special requirements prior to staring the work.

B. 1. Wiring shall be "Free" pulled above the ceilings.
   2. All wiring shall be grouped together as much as practical suspended from the structure on J hooks spaced no greater then 5'-0" apart and bundled together with velcro straps at a distance of no greater than 4'-0" or be installed in cable tray as shown. No cabling shall rest on the acoustical ceiling.
   3. All wiring shall be marked on both ends with wrap around wire numbers.
   4. Termination is only required at Data Jack.

END OF SECTION

SECTION 16610

TRANSIENT-VOLTAGE SURGE SUPPRESSION

PART 1 – GENERAL

DESCRIPTION

WORK INCLUDED

A. Section includes TYPE 1 surge suppression devices and TYPE 2 transient voltage surge suppression equipment for low-voltage power distribution

RELATED WORK

A. ALL SECTIONS OF DIVISION 16

QUALITY ASSURANCE

Refer to Paragraph, QUALIFICATIONS, in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

SUBMITTALS

A. Include rated capacities, operating weights, electrical characteristics, furnished specialties, and accessories.
B. Operation and Maintenance Data: For TVSS devices to include in emergency, operation, and maintenance manuals.
C. Warranties: Sample of special warranties.
D. Certifications:
1.

APPLICABLE PUBLICATIONS

Publications listed below (including amendments, addenda, revisions, supplement and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

A. Institute of Engineering and Electronic Engineers (IEEE):
IEEE C62.41.2..... Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits

IEEE C62.45..... Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits

B. National Electrical Manufacturers Association (NEMA):

NEMA LS 1..... Low Voltage Surge Protective Devices

C. Underwriters Laboratories, Inc. (UL):

UL 1283..... Electromagnetic Interference Filters

UL 1449.....Surge Protective Devices

D. National Fire Protection Association (NFPA):

NFPA 70..... National Electrical Code (NEC)

PART 2 – PRODUCTS

TYPE 1 SURGE SUPPRESSOR

A. Surge Protection Devices:

1. MOV type suppression complying with UL 1449 3rd edition Type 1 listed
2. Internal fusing and listed for use without additional overcurrent protection
3. 200-kA interrupting capacity.
4. Nominal discharge current 20 KA; 10/350 microsecond wave
5. 80 KA MOV rating
6. 120/208 volt system L-L and L-N connections
7. UL protection rating 600V for 120/208 volt system
7. LED indicator lights for power and protection status.
8. Audible alarm, with silencing switch, to indicate when protection has failed.
9. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

B. Peak Single-Impulse Surge Current Rating: 320 kA per mode/640 kA per phase.

C. Minimum single impulse current ratings, using 10-by-320-mic.sec waveform described in IEEE C62.41.2
   1. Line to Neutral: 80,000 A.
   2. Line to Ground: 80,000 A.

D. Protection modes and UL 1449 SVR for grounded wye circuits shall be as follows:
   1. Line to Neutral: 800 V for 480Y/277 V, 400 V for 208Y/120 V.
   2. Line to Ground: 800 V for 480Y/277 V, 400 V for 208Y/120 V.
   3. Neutral to Ground: 800 V for 480Y/277 V, 400 V for 208Y/120 V.

E. Protection modes and UL 1449 SVR for 240/120 V, single-phase, 3-wire circuits shall be as follows:
   1. Line to Neutral: 400 V.
   2. Line to Ground: 400 V.
   3. Neutral to Ground: 400 V.

F. Protection modes and UL 1449 SVR for 240/120-V, 3-phase, 4-wire circuits with high leg shall be as follows:
   1. Line to Neutral: 400 V, 800 V from high leg.
   2. Line to Ground: 400 V.
   3. Neutral to Ground: 400 V.

G. Protection modes and UL 1449 SVR for 240 V or 480 V, 3-phase, 3-wire, delta circuits shall be as follows:
   1. Line to Line: 2000 V for 480 V, 1000 V for 240 V.
   2. Line to Ground: 2000 V for 480 V, 1000 V for 240 V.p

TYPE 2 TRANSIENT VOLTAGE SURGE SUPPRESSOR

A. Surge Protection Devices:
   1. MOV type suppression complying with UL 1449 4th edition Type 2 listed
   2. Secondary panel installation with circuit breaker protection per manufacturer

Recommendation.

3. 65000-kA interrupting capacity.
4. Nominal discharge current 20 KA
5. 50 KA MOV rating
6. 120/208 volt system L-L and L-N connections
7. UL protection rating 600V for 120/208 volt system
7. LED indicator lights for power and protection status.
8. Audible alarm, with silencing switch, to indicate when protection has failed.
9. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

B. Peak Single-Impulse Surge Current Rating: 320 kA per mode/640 kA per phase.

C. Minimum single impulse current ratings, using 8-by-20-mic.sec waveform described in IEEE C62.41.2
   1. Line to Neutral: 40,000 A.
   2. Line to Ground: 40,000 A.
D. Protection modes and UL 1449 SVR for grounded wye circuits shall be as follows:
   1. Line to Neutral: 800 V for 480Y/277 V, 400 V for 208Y/120 V.
   2. Line to Ground: 800 V for 480Y/277 V, 400 V for 208Y/120 V.
   3. Neutral to Ground: 800 V for 480Y/277 V, 400 V for 208Y/120 V.
E. Protection modes and UL 1449 SVR for 240/120 V, single-phase, 3-wire circuits shall be as follows:
   1. Line to Neutral: 400 V.
   2. Line to Ground: 400 V.
   3. Neutral to Ground: 400 V.

F. Protection modes and UL 1449 SVR for 240/120-V, 3-phase, 4-wire circuits with high leg shall be as follows:
   1. Line to Neutral: 400 V, 800 V from high leg.
   2. Line to Ground: 400 V.
   3. Neutral to Ground: 400 V.

G. Protection modes and UL 1449 SVR for 240 V or 480 V, 3-phase, 3-wire, delta circuits shall be as follows:
   1. Line to Line: 2000 V for 480 V, 1000 V for 240 V.
   2. Line to Ground: 2000 V for 480 V, 1000 V for 240 V.

ENCLOSURES

A. Indoor Enclosures: NEMA 250 Type 1.

B. Outdoor Enclosures: NEMA 250 Type 3R.

PART 3 - EXECUTION

INSTALLATION

A. Install TVSS devices at switchboard, switchgear, or panelboard on load side, with ground lead bonded to service entrance ground.

B. Install TVSS devices for panelboards and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
   1. Provide a circuit breaker, sized by manufacturer, as a dedicated disconnecting means for TVSS unless otherwise shown on drawings.

ACCEPTANCE CHECKS AND TESTS

A. Perform in accordance with the manufacturer's recommendations. Include the following visual and mechanical inspections and electrical tests:
   1. Visual and Mechanical Inspection
      a. Compare equipment nameplate data with specifications and approved shop drawings.
      b. Inspect physical, electrical, and mechanical condition.

c. Verify that disconnecting means and feeder size and maximum to TVSS unit correspond to approved shop drawings.
d. Verifying tightness of accessible bolted electrical connections by calibrated torque-wrench method.
e. Clean TVSS unit.
f. Complete startup checks according to manufacturer's written instructions.
g. Verify the correct operation of all sensing devices, alarms, and indicating devices.

STARTUP

A. Do not energize or connect switchgear, switchboards, or panelboards to their sources until TVSS devices are installed and connected.
B. Do not perform insulation resistance tests of the distribution wiring equipment with the TVSS installed. Disconnect before conducting insulation resistance tests, and reconnect immediately after the testing is over.

SPARE PARTS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Replaceable Protection Modules: One of each size and type installed.

INSTRUCTION

Provide factory certified technician to train Government maintenance personnel to maintain TVSS devices. Training shall be provided for a total period of 4 hours of normal working time and shall start after the system is functionally complete but prior to final acceptance test. Training shall cover all essential items contained in the operation and maintenance manual.

- - -END OF SECTION - - -

SECTION 16670

LIGHTNING PROTECTION SYSTEM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Lightning Protection System: Conductor System protecting the building in this project, consisting of air terminals on the metal roof system and membrane roof system, bonding of metal objects on the roof; grounding electrodes; and interconnecting conductors.

1. Contractor shall provide Shop Drawings for Permitting including details and terminal spacing to comply with NFPA 780-2011.

2. Bid Documents prepared to provide information required for bidding and to indicate roof changes in elevation. CADD files will be provided to the Lightning Protection Contractor on request for preparation of his Shop Drawing.

3. Contractor shall also refer to Architects elevations and roof plans.

B. Upon completion of the work of this section, including the successful test of the lightning protection system, this contractor shall provide a Master Label issued by U.L. Inc.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 075323 Rubbergard Platinum EPOM roofing system.

1.03 REFERENCES: The latest edition of the following Standards and Publications apply to the work of this Section:

A. NFPA 780-2011. “Standard for installation requirements for lighting protection systems”

B. UL Standard 96A, Installation requirements for lighting protection systems”

C. ANSI Standard C2.

D. Lighting institute standard of practice LP1-175

E. OSHA Requirements.

1.04 QUALITY ASSURANCE

A. All system components shall be, to the maximum extent possible, the product of a single manufacturer.

1.05 SUBMITTALS FOR REVIEW

A. Submittals during construction shall be made in accordance with SECTION 01300 - SUBMITTALS.

B. REVIEW ALL SUBMITTALS PRIOR TO TRANSMITTAL TO ARCHITECT; determine and verify field measurements, field construction criteria, manufacturers' catalog numbers and conformance of submittal with requirements of Contract Documents. Submittals without Contractor's review stamp indicating approval will NOT be processed by the Architect.

C. Shop Drawings: Indicate layout of air terminals, grounding electrodes, and bonding connections to structure and other metal objects on the roof. Include terminal, electrode, and conductor sizes, and connection and termination details.

D. Product Data: Provide manufacturer's printed data with dimensions and materials of each component, and include indication of listing in accordance with UL 96.

E. Deviations: The Contractor shall not be relieved of responsibility for compliance with requirements of the Contract Documents by the acceptance of Shop Drawings, product data, samples or similar submittals containing deviations unless the Contractor has specifically informed Engineer in writing of such deviation at the time of Submittal and Engineer has given written acceptance to the specific deviation.

1.06 SUBMITTALS FOR INFORMATION

A. Submit tabulation of results of grounding tests to Engineer. Include identification of electrode, date of reading, weather and soil conditions, and Ground Resistance Value in the test reports.

1.07 QUALIFICATIONS

A. Manufacturer: Company specializing in lightning protection equipment with a minimum five (5) years documented experience, and member of the Lightning Protection Institute.

B. Installer: Authorized installer of manufacture with minimum five (5) years

documented experience and certified by the Lightning Protection Institute.

1.08 PROJECT CLOSEOUT SUBMITTALS

A. Upon completion of the installation, **the Contractor shall provide to Owner through the Architect, the Master Label issued by Underwriters Laboratories, Inc. for the installation.**

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Thompson Lightning Protection Company.

B. Harger Lightning Protection, Inc.

C. Heary Bros. Lightning Security, Inc.

2.02 COMPONENTS

A. Material

1. Unless specifically shown otherwise, the Lighting Protection System shall be constructed of copper cable, aluminum air terminals, and copper components.

2. The Lightning Protection System, starting with the down conductors and transition to the ground termination system (ground conductors and associated ground rods) through a bimetallic connector shall be constructed of copper cable and copper compatible components.

B. Compatibility

1. All portion of the system shall be galvanically compatible to the material to which they are to be attached.

2. Connections between copper and aluminum portions of the system, if used, shall be made with appropriate bimetallic coupling devices.

3. In all areas, the conductor shall be supported to maintain clearance from all galvanically incompatible materials, or where not feasible, the conductor shall be changed to maintain compatibility.

C. Classification

1. Building(s) being protected, 1” shall be NFPA 780 Class I material and components.

D. Air Terminals

1. Air terminals shall be solid aluminum.

2. Air terminals shall be a minimum of 12" high and shall extend a minimum of 10" above the object to be protected.

3. Where it is necessary to arrange terminals where shown on the Drawings, or as modified by the approved Shop Drawings, adjustable bases shall be provided to permit up to 45° adjustment from vertical and away from the edge of the structure. However, the top of the rod must still be 10" above the object to which it is attached. Provide necessary rod length and support as required to accomplish this purpose.

4. Air terminals shall comply with OSHA requirements for impalement, using either a spring base or protective top.

E. Air Terminal Bases: Each air terminal shall be equipped with the correct type of base for the location in which it is mounted and the materials to which it is attached.

F. Conductors

1. Main and down conductors shall be copper, sized as required.

2. Conductors shall be free of excessive splices and sharp bends. No bend of a conductor shall form an included angle of less than 90° nor have a radius of less than 8".

3. Conductors shall be secured to the structure or metal roofing at intervals not exceeding 3'-0" O.C.

4. Down conductors exposed and located where subject to touching by students shall be provided with approved PVC Schedule 40 plastic or other non-conductive covering approved by the Engineer from grade to 8' above grade.

5. All conductors shall meet or exceed the requirements of NFPA 780 Tables 3-4 and 3-5.

G. Ground Terminations

1. Ground terminations shall be provided for each down conductor connection to ground and shall consist of a minimum of one (1) 5/8" x 10'-0" copper clad steel ground rod.

2. The tops of all ground rods shall be located 1'-6" below finish grade.

H. Underground Grounding Conductors

1. The structure shall be provided with a below-grade continuous grounding conductor that is 2/0 AWG in size.

2. This conductor shall be installed at a minimum depth of 1'-6" below finish grade and a minimum of 2'-0" from any exterior foundation face.

3. The conductor shall be copper and extend continuously.

4. As a minimum, the grounding conductor shall be connected to each of the following system components **utilizing exothermic welded connections:**

a. Each down conductor.

b. All counterpoise conductors installed on the building.

c. Building electrical, gas, and water service grounds.

d. All metallic water, fuel and gas services entering the building (after any meters or main valves).

e. Counterpoise conductor on adjacent buildings within 50’.

f. All metallic fence posts, safety railings, etc., or any other metallic item within ten feet of the project building.

I. Fasteners

1. Conductor fasteners shall be manufactured of a material that is compatible with the type of conductor being supported.

2. Fasteners and surface attachment bonding material shall be of sufficient strength to properly and securely support each conductor and shall be spaced not to exceed 3'-0" O.C.

J. Special Structures

1. Whenever the metallic element itself, such as guy wires, which is 3/16" thick or more, no air terminal or down conductor is required, and only bonding to the earth grounding system is required.

3. Grounding of these metallic elements shall be as follows:

   a. Down conductors and each bonding conductor from the base of a steel structure shall extend 1'-6" below grade to a 5/8" x 10' ground rod.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with NFPA 780, UL 96A. Note: The Lightning Protection Plan is diagrammatical only to indicate the basic intent of the requirements for the Lightning Protection System on this project and shall be revised as required to be in keeping with the requirements of UL 96 and NFPA 80. This Contractor shall arrange the Lightning Protection System as required to meet the requirements of U.L. 96 and NFPA 80, including additional grounds if required, and shall so indicate these revisions as required on his Shop Drawing submittal.

B. Connect conductors using exothermic welding process. Protect adjacent construction elements and finishes from damage.

C. Bond outside metallic raceways to the grounding system in accordance with the National Electric Code. Bond outdoor metallic expansion fittings. Bond metallic boxes and frames and fittings. Bond to metallic piping entering building and to the building grounding electrode system.

D. Where conductors are in contact with any exterior aluminum surfaces, suitable materials shall be utilized to prevent any electrolytic action as a result of dissimilar metals, if necessary, shall be made with approved bimetallic connections.

E. All connections below grade shall be exothermically welded. Improper application of weld shall be replaced at no additional cost to the Owner. **Exothermic weld fittings and material shall be Cadweld or equal.**

F. The Contractor shall coordinate his work with al trades, to insure the use of proper materials and procedures.

G. Coordinate installation and obtain written approval from the building roof

installer for methods of roof penetration and attachment of air terminals and supports. Submit approval with Shop Drawings.

H. The UL Certified Installers shall be on the project site at all times during installation of the systems and shall supervise all of the installation.

3.02 FIELD QUALITY CONTROL

A. Architect shall be given the opportunity to observe all underground or concealed installations before being covered up prior to backfill. Contractor shall notify Architect in writing as to when these inspections are scheduled to occur. **Allow a minimum of two (2) days for Engineer to make inspection after notification.**

B. Provide the Master Label covering the Building, issued by U.L., Inc., as called for in this Section.

C. Grounding System Requirements

1. Perform Fall-Of-Potential Method Ground Tests for each electrode system and complete system as a whole. Use the type of test instrument that compensates for potential and current rod resistance. Utilize the appropriate test method for the type and size of electrode system being tested to an accuracy of 90% or greater.

2. Test each ground rod, individual isolated rods, and each counterpoise system before interconnecting building to other grounded systems and after all interconnections are complete. Also measure ground resistance. If resistance of each ground electrode system is not 5 OHMS or less before interconnections with other ground system and 5 OHMS or less after all interconnections are complete, drive additional rods or add additional rod lengths to existing rods to obtain a resistance of 5 OHMS or less. Make all measurements in normally dry conditions and not less than 48 hours after a rainfall.

END OF SECTION

SECTION 16930

LIGHTING CONTROL EQUIPMENT

PART 1 - GENERAL

WORK INCLUDED

A. Lighting control of interior lighting shall be accomplished by occupancy sensors, and manual switches as shown on the drawing.
   1. Some Manual and occupancy sensors may be installed in series with Timeclock functions.

SYSTEM DESCRIPTION

A. Lighting shall be controlled by photocells, occupancy sensors and switched either directly or in combination with the lighting time clock.
   1. Detail of control is given on the Drawings.
B. Any light fixture designated to be photocell controlled shall be supplied as an integral part of the fixture.
C. Lights in individual offices shall be controlled by a motion sensor through a control relay "LR" controlling lights in that room as shown.
   1. Motion sensor shall also control a Power Relay "PR" which will control top half of designated outlets.
   2. "LR" and "CR" are equal to watt stopper BZ250.

SHOP DRAWINGS AND PRODUCT DATA

A. Submit shop drawings and product data in accordance with General and Special Conditions for all photocells and time clocks to be supplied.

PART 2 - PRODUCTS

TIME CLOCKS – SEE SECTION 16931

PHOTO CELLS

A. General Specifications
   1. SPST
   2. 120 Volt
   3. 200 watts or rated for fixture if integral part
   4. Temp range - 60 degrees F. to 150 degrees F.
B. Model number
   1. Per individual manufacturer if supplied as an integral part of fixture; equal to Tork Model 2100, if supplied separately.

LIGHTING CONTRACTOR (IF SHOWN)

A. General Specifications
   1. Convertible contacts with N.O. /N.C. indicators
   2. Silver alloy double break contacts-30 amp rated.
   3. Two to twelve poles as per Drawings
   4. NEMA 1 enclosure
   5. 120 volt control coil

B. Model number
   1. Square D Type LG Series

OCCUPANCY SENSOR – CEILING MOUNTED LOW VOLTAGE WITH RELAY W/ POWER PACK

A. General
   1. Ultrasonic sensing
   2. Low Voltage Control
   3. Timer setting 5 to 30 minutes – initial setting to be 5 minutes.
   4. Provide with Power Pack.
   5. Unless noted otherwise, provide a WATTSTOPPER DT WALL/CEILING Motion sensor.

B. Power Pack
   1. Low voltage power pack with line voltage relay.
   2. Line voltage 120/277, 20A,
   3. 24V DC low voltage
   54 Equal to a WATTSTOPPER BZ-250

OCCUPANCY SENSOR – CEILING MOUNTED LINE VOLTAGE

A. OCCUPANCY SENSOR ON-OFF
   1. Passive infrared technology through a segmented fresnel lens 525 sqft range On axis combined with ultrasonic
   2. 120V – 1500 watt rated
   3. Push button manual override
   4. 5-30 minute adjustable
   5. Equal to Legrand Wattstopper Model DT355

OCCUPANCY SENSOR – WALL MOUNTED

A. OCCUPANCY SENSOR ON-OFF
   1. Passive infrared technology through a segmented fresnel lens 525 sqft range On axis combined with ultrasonic
   2. 120V – 600 watt rated
   3. Push button manual override

4. 3-30 minute adjustable
5. Equal to Legrand Wattstopper Model RWDU500

B. OCCUPANCY SENSOR FAN CONTROL
1. Passive infrared technology through a segmented fresnel lens
2. Fan and light instant on when motion is sensed
3. Sensor turns light off but fan continues running for 10 minutes
4. Push button manual override
5. Manual on/off mode
6. Leviton Model ISSMD-FTW

C. OCCUPANCY SENSOR WITH INCANDESENT DIMMING
1. Passive infrared technology through a segmented fresnel lens 525 sqft range On axis combined with ultrasonic
2. 120V – 500 watt rated
3. Push button manual override
4. 3-30 minute adjustable
5. Equal to Legrand Wattstopper Model RD-250 PIR

D. OCCUPANCY SENSOR WITH 0-10V DIMMING
1. Passive infrared technology through a segmented fresnel lens 525 sqft range On axis combined with ultrasonic
2. 0 – 10V Dimming.
3. Push button manual override
4. 3-30 minute adjustable
5. Equal to Legrand Lutron.

E. Low Voltage Dimming – Multiple fixtures
1. 0 -10 Volt dimming control to multiple dimming ballasts.
2. Power Pack equal to Lutron PP-20 power pack.
3. 0 – 10Volt dimming ballast supplied with fixture.
4. SEE “0-10 V LED Dimming with on/off switching using Lutron “PP-20 power supply”

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, complete, the following:

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 shall comply with the requirements set forth in the Florida Building Code, Termite Protection Standards.

B. Soil treatment shall be performed by a pest control firm licensed and/or otherwise approved by the appropriate Federal, State or local health agency.

C. Pest control firm shall be a member of the Florida Pest Control Associates, Inc. Provide a copy of the membership prior to beginning application work.

1.5 SUBMITTALS: Submittals during construction shall be made in accordance with Section 01 3300. In addition, the following specific information shall be provided:

A. Applicator's compliance affidavit.

B. Applicator's written 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 final 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 in writing 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 shall 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 shall 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 shall 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

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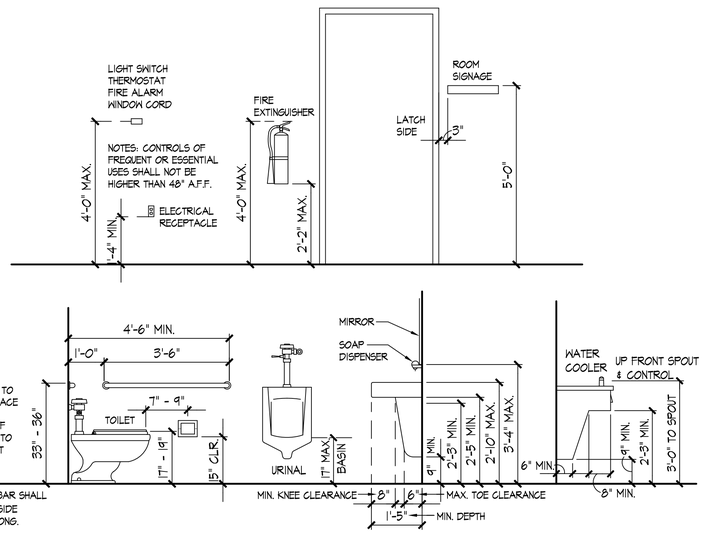
LAKE CITY, FLORIDA

STANDARD MOUNTING PER A.D.A. REQUIREMENTS



435 NW HALL OF FAME DR.
LAKE CITY, FLORIDA 32055

DESIGN CRITERIA

1. FLORIDA BUILDING CODE 6TH EDITION (2017)
2. FLORIDA FIRE PREVENTION CODE 6TH EDITION
3. EXISTING BUILDING AREA (CONDITIONED) = 5,346 SF
4. EXISTING BUILDING HEIGHT = ONE STORY
5. OCCUPANCY CLASSIFICATION = BUSINESS GROUP B
6. EXISTING AND NEW BUILDING CONSTRUCTION IS TYPE IIB
7. TOTAL EXITS REQUIRED = 2 WITH 4 EXITS PROVIDED
8. STRUCTURAL FIRE-RESISTANT RATING REQUIREMENTS = 0 HOURS
9. FIRE SPRINKLER SYSTEM IS NOT REQUIRED OR PROVIDED
10. EGRESS CALCULATIONS = 81 OCCUPANTS X 0.2" = 16.2" EGRESS WIDTH REQUIRED WITH 204" EGRESS WIDTH PROVIDED
11. MAXIMUM TRAVEL DISTANCE = 200'-0" AND MAXIMUM DISTANCE PROVIDED = 91'-1"

OCCUPANT LOAD CALCULATIONS

1. DEFINED MAXIMUM OCCUPANT LOAD = ROOM 107 = 49 OCCUPANTS
2. SPACES CALCULATED AT 100 SF PER OCCUPANT = ROOMS 101A, 102, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121 AND 122 = 29 OCCUPANTS
3. SPACES CALCULATED AT 300 SF PER OCCUPANT = ROOMS 108, 109 AND 123 = 3 OCCUPANTS
4. TOTAL MAXIMUM OCCUPANT LOAD = 49 + 29 + 3 = 81 OCCUPANTS
5. REFER TO THE LIFE SAFETY PLAN FOR ADDITIONAL INFORMATION

PLUMBING FIXTURE CALCULATIONS

1. TOTAL MAXIMUM OCCUPANT LOAD = 81 OCCUPANTS = 41 MALE AND 41 FEMALE
2. BUSINESS OCCUPANCY TOTAL WCS = 1 PER 25 FOR FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50 = 2 WCS REQUIRED FOR MALE AND FEMALE WITH 3 PROVIDED FOR EACH
3. BUSINESS OCCUPANCY TOTAL LAVS = 1 PER 40 FOR THE FIRST 80 AND 1 PER 80 FOR THE REMAINDER EXCEEDING 80 = 2 LAV REQUIRED FOR MALE AND FEMALE WITH 3 PROVIDED FOR MALE AND 2 PROVIDED FOR FEMALE
4. NO SHOWERS REQUIRED WITH NONE PROVIDED
5. SERVICE SINK = 1 REQUIRED WITH 1 PROVIDED
6. DRINKING FOUNTAINS = 1 PER 100 = ONE REQUIRED WITH 2 PROVIDED

SHEET INDEX

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA

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352-871-4825

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AA26002508

DATE
8/13/18

1801

G-1

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRIOR TO PERFORMING DEMOLITION - CONTRACTOR SHALL PERFORM DEMOLITION REQUIRED TO ACCOMPLISH THE RENOVATIONS - DISCREPANCIES SHALL BE REPORTED PRIOR TO DEMOLITION
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL OF MATERIALS

WALL LEGEND

EXISTING WALL TO REMAIN

EXISTING WALL TO REMOVE (1)

DOOR LEGEND

EXISTING DOOR TO REMAIN

EXISTING DOOR TO REMOVE (2)

DEMOLITION NOTES

(1) REMOVE EXIST'G. WALLS AS INDICATED - COORD. W/ THE RENOVATION PLAN

(2) REMOVE EXIST'G. DOOR AND FRAME

(3) REMOVE EXIST'G. CASEWORK AND SHELVING - TYPICAL NOTE THROUGHOUT

(4) REMOVE EXIST'G. WATER COOLER - COORD. W/ PLUMB'G.

(5) REMOVE EXIST'G. RESTROOM FIXTURES, PARTITIONS AND ACCESSORIES - COORD. W/ PLUMB'G.

(6) REMOVE EXIST'G. SERVICE SINK - COORD. W/ PLUMB'G.

(7) REMOVE EXIST'G. FLOORING AND WALL BASE

(8) REMOVE EXIST'G. TILE FLOORING AND TILE WAINSCOTING

(9) REMOVE EXIST'G. CEILING - COORD. W/ MECH. AND ELEC.

(10) PATCH, GRIND AND LEVEL EXIST'G. SURFACES AS REQ'D. TO PREP FOR NEW FINISHES - TYPICAL NOTE THROUGHOUT

(11) COORD. W/ MEP DOCUMENTS FOR ADDITIONAL DEMOLITION SCOPE OF WORK - TYPICAL NOTE THROUGHOUT

(12) SAWCUT EXIST'G. CONC. SLAB AS REQ'D. FOR NEW UNDERGROUND UTILITIES - COORD. W/ PLUMB'G. - TYPICAL NOTE THROUGHOUT

DEMOLITION PLAN

1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
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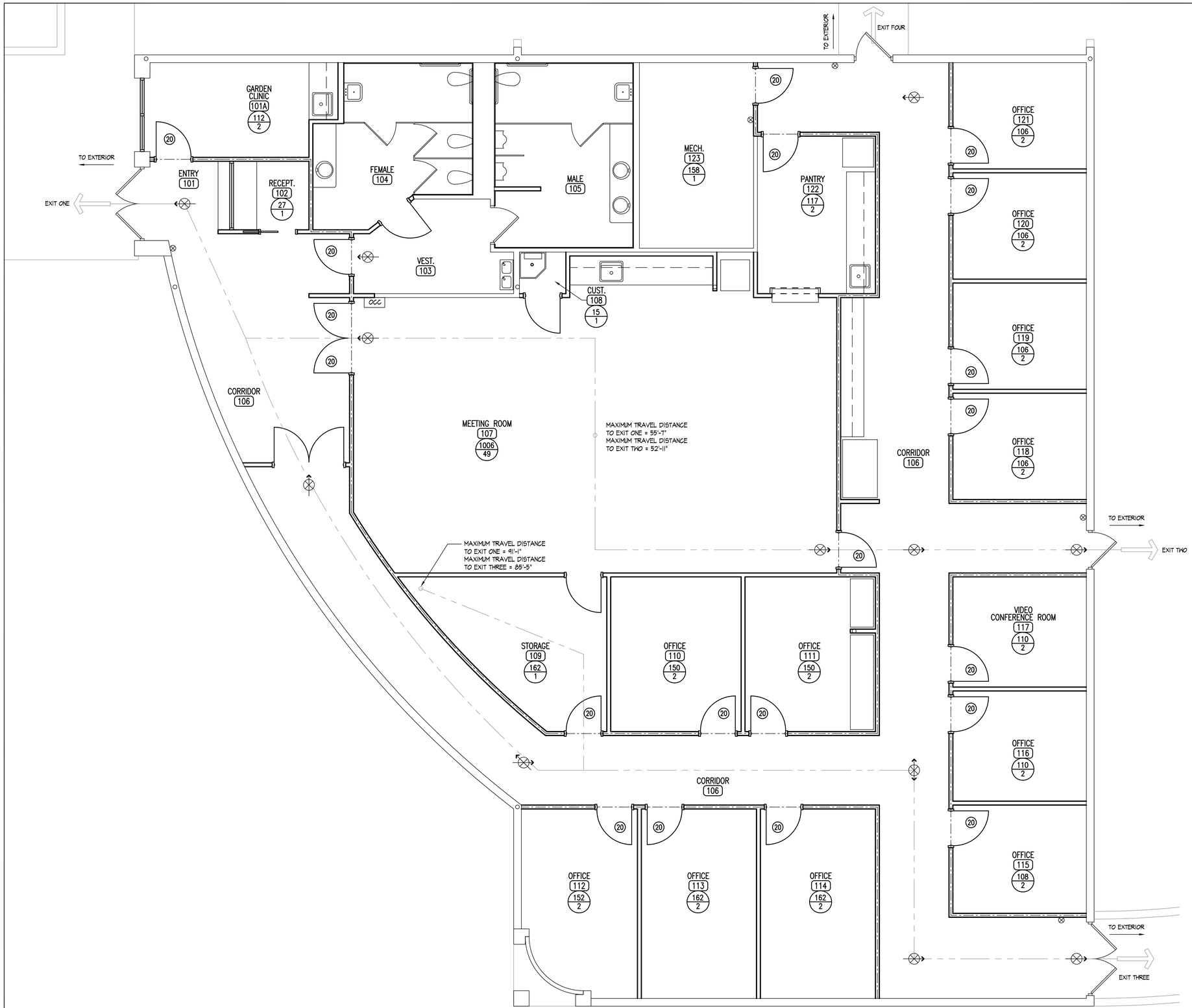

GENERAL NOTES

1. PROVIDE AND POST GRAPHIC DIAGRAM OF EMERGENCY EVACUATION ROUTES ADJACENT TO THE PRIMARY AND SECONDARY EXIT DOORS AS REQUIRED BY AHJ
2. AT FIRE RATED WALLS: PROVIDE SIGN OR STENCILING AT 30'-0" MAX. INTERVALS AND WITHIN 15'-0" OF END OF WALLS. MIN. 5" HIGH WITH 5/8" STROKE LETTERING - LOCATE IN CONCEALED ABOVE CEILING SPACE ON GYPSUM BOARD - SIGN OR STENCILING SHALL READ "FIRE BARRIER PROTECT ALL OPENINGS"

LIFE SAFETY LEGEND

- NEW ONE-HOUR FIRE-RATED WALL
- (20) NEW 20-MINUTE FIRE-RATED OPENING
- NEW EXIT LIGHT
- NEW WALL HUNG FIRE EXTINGUISHER
- ROOM SQUARE FOOTAGE / ROOM OCCUPANT LOAD
- OCC NEW MAXIMUM OCCUPANCY SIGNAGE

LIFE SAFETY PLAN

1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

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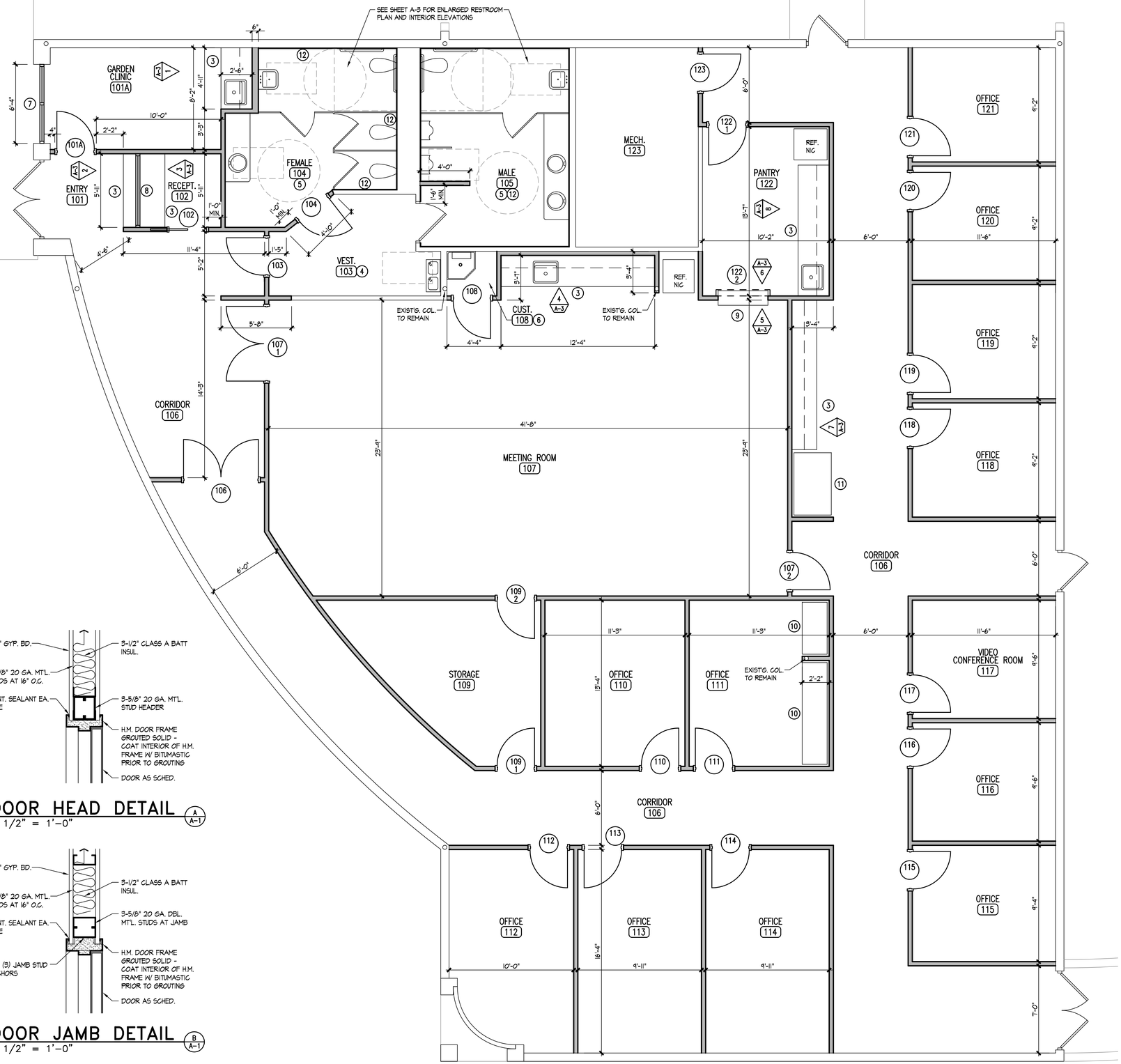


WALL LEGEND

EXISTING WALL TO REMAIN

NEW WALL (1)

DOOR LEGEND

EXISTING DOOR TO REMAIN

NEW DOOR (2)

RENOVATION NOTES

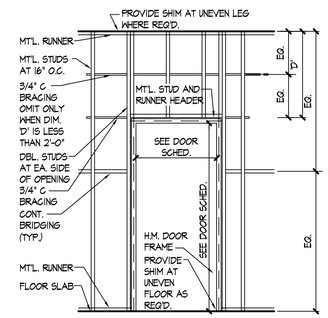
1. NEW 3-5/8" 20 GA. MT'L. STUD FRAM'G. AT 16" O.C. W/ FULL BATT INSUL. AND 5/8" GYP. BD. - EXTEND TO EXIST'G. ROOF DECK ABV.
2. NEW DOOR, FRAME AND DOOR HARDWARE - COORD. W/ DOOR SCHEDULE
3. NEW CASEWORK - COORD. W/ PLUMB'G. WHERE APPLICABLE
4. NEW ELECTRIC WATER COOLER W/ BOTTLE FILLER - COORD. W/ PLUMB'G.
5. NEW RESTROOM FIXTURES, PARTITIONS AND ACCESSORIES - COORD. W/ PLUMB'G.
6. NEW SERVICE SINK AND MOP RACK - COORD. W/ PLUMB'G.
7. NEW ALUM-FRAMED STOREFRONT FRAM'G. AND GLAZ'G. SYS. - COORD. W/ EXT. ELEV'S.
8. NEW ALUM-FRAMED STOREFRONT FRAM'G. AND GLAZ'G. SYS. OVER COUNTER
9. NEW ROLL-UP SERVICE DOOR OVER CASEWORK BELOW COUNTER
10. STORAGE EQUIPMENT PROVIDED AND INSTALLED BY TENANT
11. COPY MACHINE PROVIDED AND INSTALLED BY TENANT
12. NEW PAINTED 5/8" MOISTURE RESISTANT GYP. BD. FIN. OVER ALL EXIST'G. WALLS TO REMAIN IN THE RESTROOMS
13. REFER TO SECTION 09 1000 OF PROJECT MANUAL FOR FINISH SCHEDULE - TYPICAL NOTE THROUGHOUT
14. PATCH, GRIND AND LEVEL EXIST'G. SURFACES AS REQ'D. TO PREP FOR NEW FINISHES - TYPICAL NOTE THROUGHOUT
15. COORD. W/ MEP DOCUMENTS FOR ADDITIONAL RENOVATION SCOPE OF WORK - TYPICAL NOTE THROUGHOUT
16. NEW 4" CONC. SLAB ON GRADE OVER VAPOR BARRIER AND TREATED AND COMPACTED FILL WHERE REQ'D. AT RESTROOM UNDERGROUND TRENCHING FOR NEW PLUMB'G. - COORD. W/ PLUMB'G. - TYPICAL NOTE THROUGHOUT
17. REFER TO SECTION 07 2100 OF PROJECT MANUAL FOR SPRAY INSULATION AT UNDERSIDE OF EXIST'G. ROOF DECK - TYPICAL NOTE THROUGHOUT

DOOR HEAD DETAIL (A / A-1)

1 1/2" = 1'-0"

DOOR JAMB DETAIL (B / A-1)

1 1/2" = 1'-0"



NOTES:

1. ALL METAL STUDS AT FRAMES SHALL BE ANCHORED TOP AND BOTTOM
2. ADD THIRD STUD AT EACH SIDE OF DOOR FRAME FOR DOORS THAT EXCEED 80 LBS. AND/OR OPENINGS MORE THAN 3'-6" WIDE
3. STUD AND RUNNER AT DOOR HEAD SHALL BE CUT, BENT AND FASTENED TO JAMB STUDS

DOOR FRAMING DETAIL (C / A-1)

NTS

RENOVATION PLAN

1/4" = 1'-0"

NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
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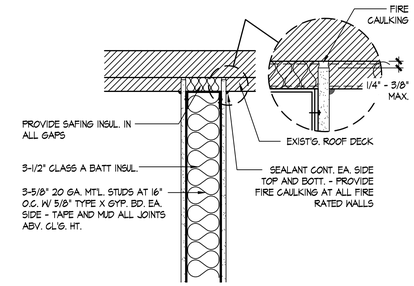
A-1

CEILING LEGEND

- SUSPENDED ACOUSTICAL TILE AND GRID CEILING SYSTEM - REFER TO PROJECT MANUAL SECTION 09 5113 FOR TYPE
- EXIT LIGHT - COORD. W/ ELEC. DOCUMENTS
- ONE-HOUR FIRE-RATED WALL (A / A-2)
- (1) MTL. STUD BOX BM. HEADER/SOFFIT AT 8'-0" A.F.F.
- LAY-IN LIGHT FIXTURE - COORD. W/ ELEC. DOCUMENTS
- LAY-IN SUPPLY DIFFUSER - COORD. W/ MECH. DOCUMENTS
- LAY-IN RETURN GRILLE - COORD. W/ MECH. DOCUMENTS
- LAY-IN EXHAUST FAN - COORD. W/ MECH. DOCUMENTS

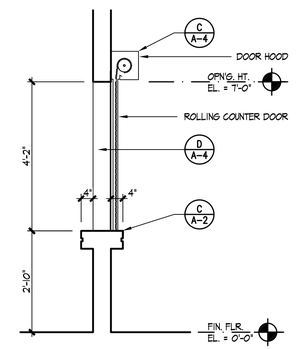
GENERAL NOTES

1. COORDINATE CLOSELY WITH MECHANICAL AND ELECTRICAL PLANS. REPORT ANY CONFLICTS PRIOR TO ANY INSTALLATION
2. REFER TO THE PROJECT MANUAL FINISH SCHEDULE FOR CEILING HEIGHTS
3. AT NEW SUSPENDED CEILINGS, SUSPENSION SYSTEMS, AND LIGHT FIXTURES, SHALL BE SUSPENDED FROM STRUCTURE ABOVE - LIGHT FIXTURES TO BE SUSPENDED SEPARATELY FROM GRID ON DIAGONAL CORNERS
4. SUPPLY DIFFUSERS AND RETURN GRILLES SHALL BE SUPPORTED BY THE SUSPENDED GRID WHICH SHALL BE SUPPORTED BY TIE WIRE AT DIAGONAL CORNERS AT EACH LOCATION
5. THE CEILING SUBCONTRACTOR SHALL PROVIDE AND INSTALL THE TIE WIRE FOR THE CEILING GRID. MECHANICAL ITEMS AND LIGHT FIXTURES - THE MECHANICAL AND ELECTRICAL SUBCONTRACTORS SHALL MAKE THE FINAL CONNECTIONS OF THEIR RESPECTIVE ITEMS TO THE TIE WIRE AND CEILING GRID
6. PROVIDE AND INSTALL SPRAY INSULATION AT UNDERSIDE OF EXISTING ROOF DECK THROUGHOUT - REFER TO SECTION 07 2100 OF THE PROJECT MANUAL



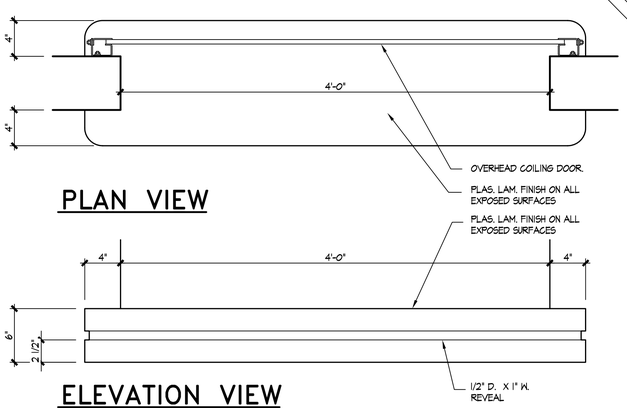
WALL CLOSURE DETAIL (A / A-2)

1 1/2" = 1'-0"



ROLLING DOOR SECTION (B / A-2)

1/2" = 1'-0"



PLAN VIEW

ELEVATION VIEW

MILLWORK APRON DETAIL (C / A-2)

1 1/2" = 1'-0"

REFLECTED CEILING PLAN

1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA

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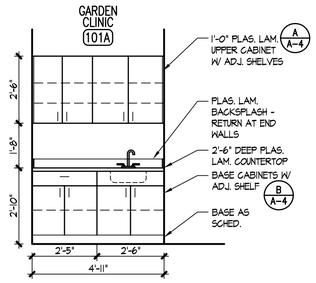
DATE
8/13/18

1801

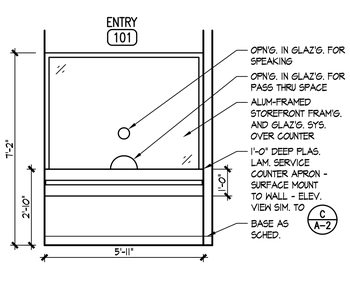
A-2

INTERIOR ELEVATIONS NOTES

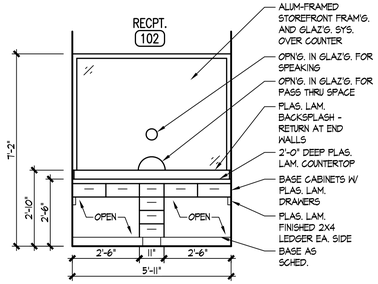
1. ALL CASEWORK DIMENSIONS TO BE FIELD VERIFIED
2. PROVIDE BLOCKING IN WALLS FOR ALL CASEWORK
3. PROVIDE GROMMETS AT ALL KNEE SPACES AND OPEN COUNTERS AT 1 PER 3'-0" LINEAR LENGTH OF COUNTER - FINAL LOCATION TO BE DETERMINED BY OWNER ONCE CASEWORK IS IN PLACE



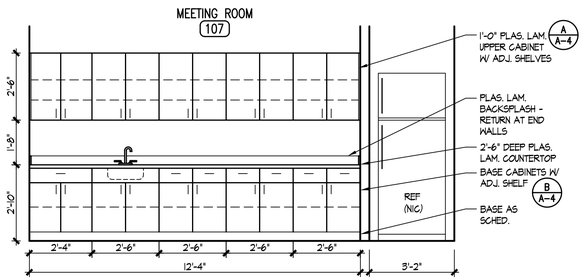
INTERIOR ELEVATION 1 A-3
3/8" = 1'-0"



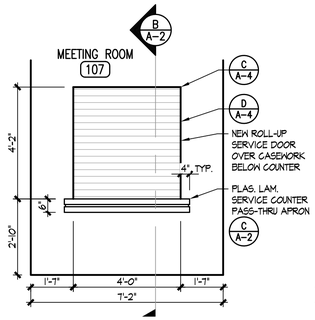
INTERIOR ELEVATION 2 A-3
3/8" = 1'-0"



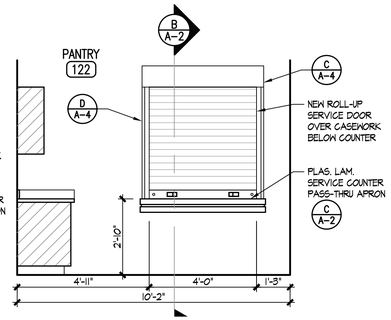
INTERIOR ELEVATION 3 A-3
3/8" = 1'-0"



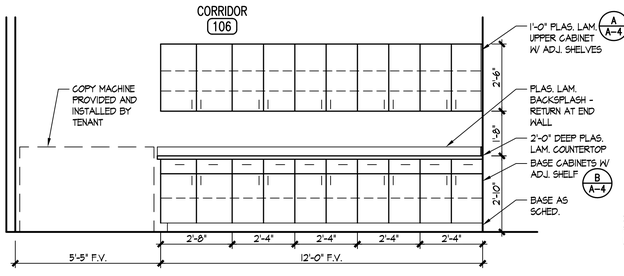
INTERIOR ELEVATION 4 A-3
3/8" = 1'-0"



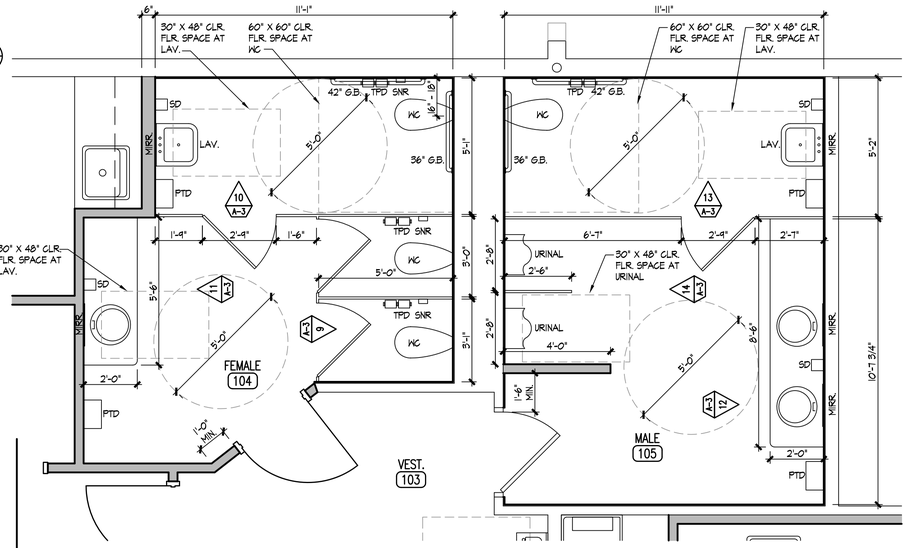
INTERIOR ELEVATION 5 A-3
3/8" = 1'-0"



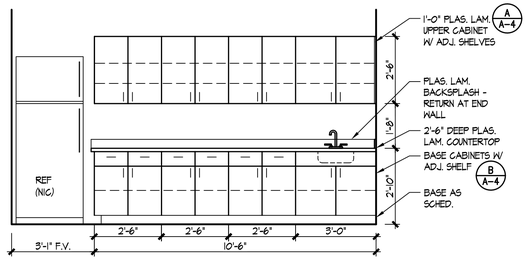
INTERIOR ELEVATION 6 A-3
3/8" = 1'-0"



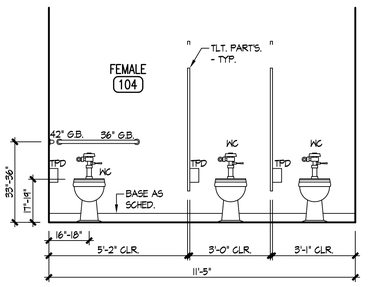
INTERIOR ELEVATION 7 A-3
3/8" = 1'-0"



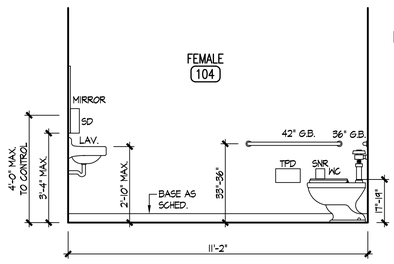
RESTROOM PLAN
3/8" = 1'-0"



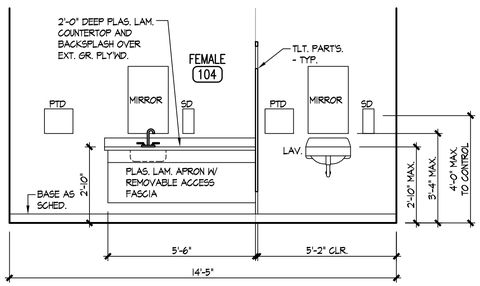
INTERIOR ELEVATION 8 A-3
3/8" = 1'-0"



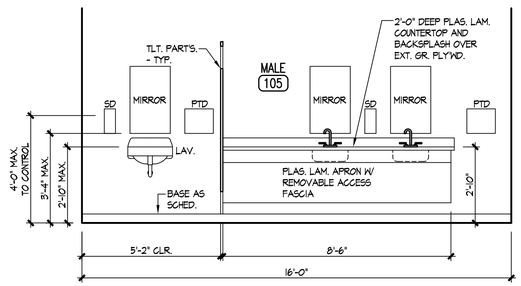
INTERIOR ELEVATION 9 A-3
3/8" = 1'-0"



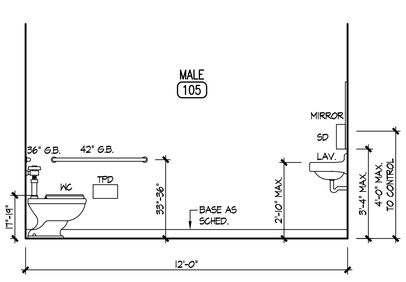
INTERIOR ELEVATION 10 A-3
3/8" = 1'-0"



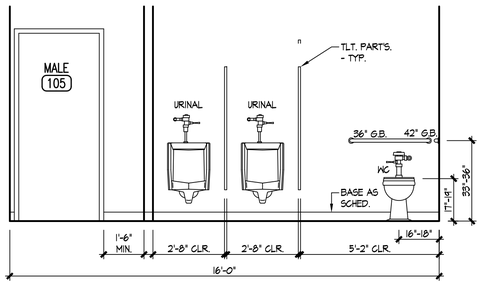
INTERIOR ELEVATION 11 A-3
3/8" = 1'-0"



INTERIOR ELEVATION 12 A-3
3/8" = 1'-0"



INTERIOR ELEVATION 13 A-3
3/8" = 1'-0"



INTERIOR ELEVATION 14 A-3
3/8" = 1'-0"

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA

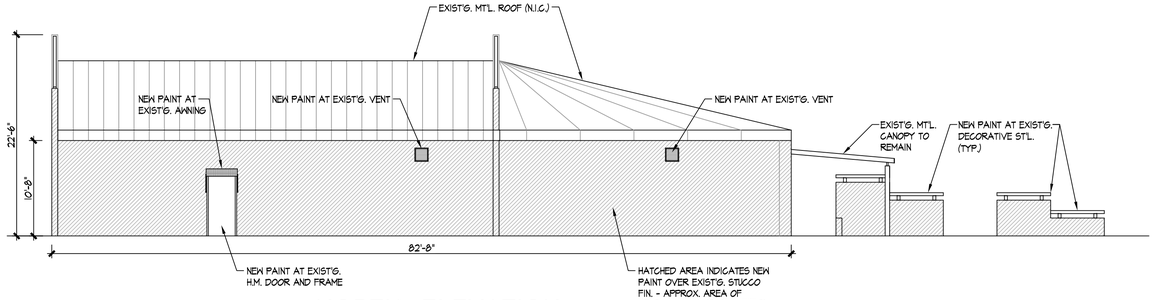
kail partners
ARCHITECTURE & INTERIORS
AA26002509
GAINESVILLE FLORIDA
352-871-4855

ROY DANIEL KAIL JR.
ARCHITECT
AR0017034
KAIL PARTNERS
AA26002508

DATE
8/13/18

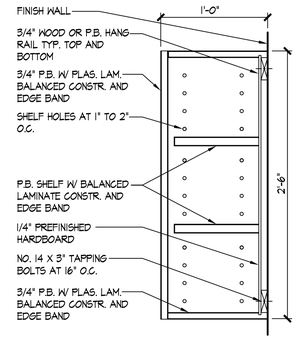
1801

A-3

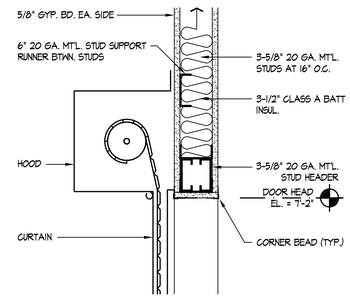


NORTH ELEVATION
1/8" = 1'-0"

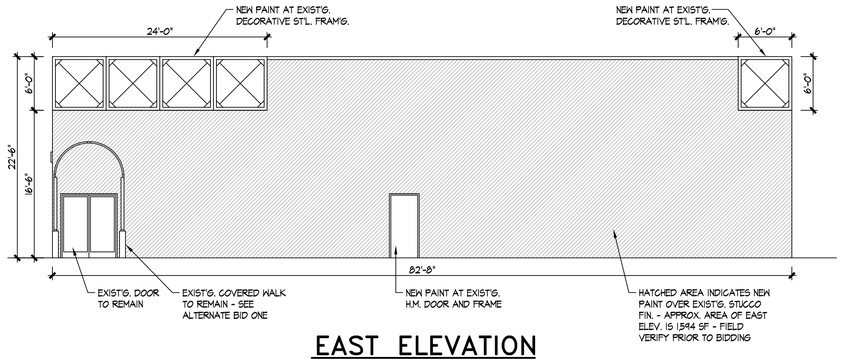
NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE



UPPER CABINET DETAIL
1 1/2" = 1'-0"
(A / A-4)

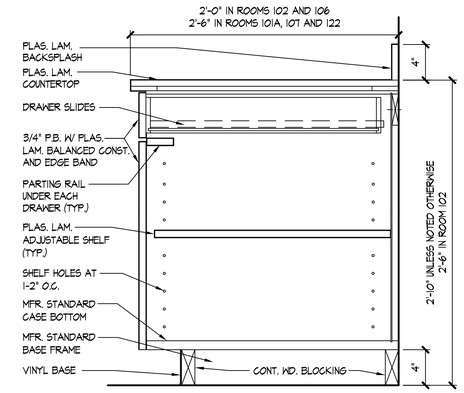


ROLLING DOOR HEAD DETAIL
1 1/2" = 1'-0"
(C / A-4)

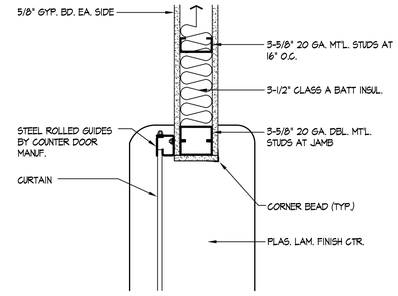


EAST ELEVATION
1/8" = 1'-0"

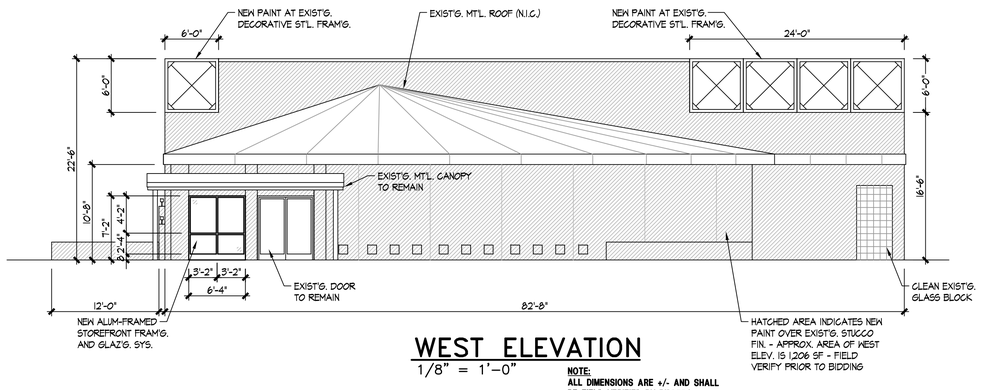
NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE



BASE CABINET DETAIL
1 1/2" = 1'-0"
(B / A-4)

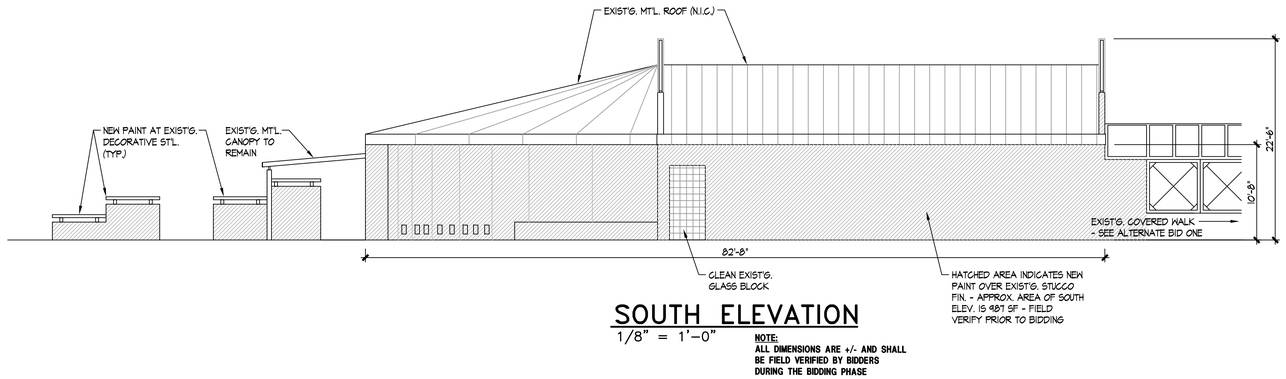


ROLLING DOOR JAMB DETAIL
1 1/2" = 1'-0"
(D / A-4)



WEST ELEVATION
1/8" = 1'-0"

NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE



SOUTH ELEVATION
1/8" = 1'-0"

NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE

CONSTRUCTION DOCUMENTS

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA

kail partners ARCHITECTURE & INTERIORS
AA26002509
GAINESVILLE FLORIDA
352-871-4195

ROY DANIEL KAIL, JR.
ARCHITECT
AR0017094
KAIL PARTNERS
AA26002508

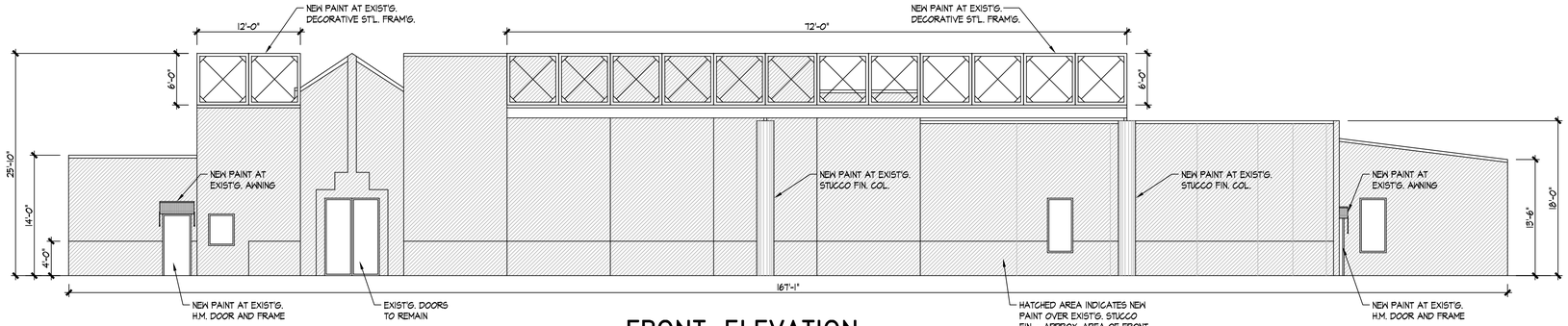
DATE
8/13/18

1801

A-4

COVERED WALK

REFER TO SHEET G-1 FOR LOCATION



FRONT ELEVATION

1/8" = 1'-0"

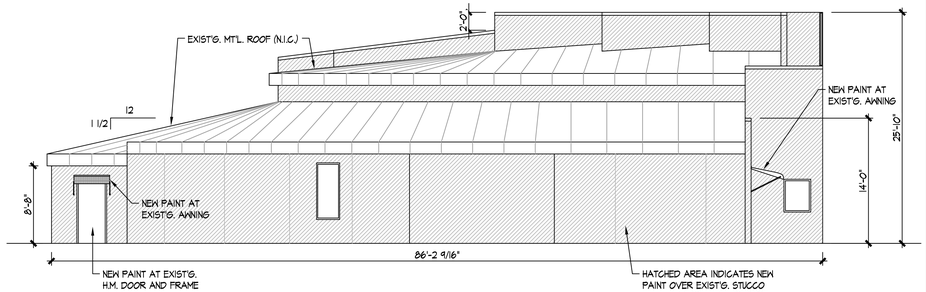
NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE

COVERED WALK

REFER TO SHEET G-1 FOR LOCATION

COVERED WALK

REFER TO SHEET G-1 FOR LOCATION



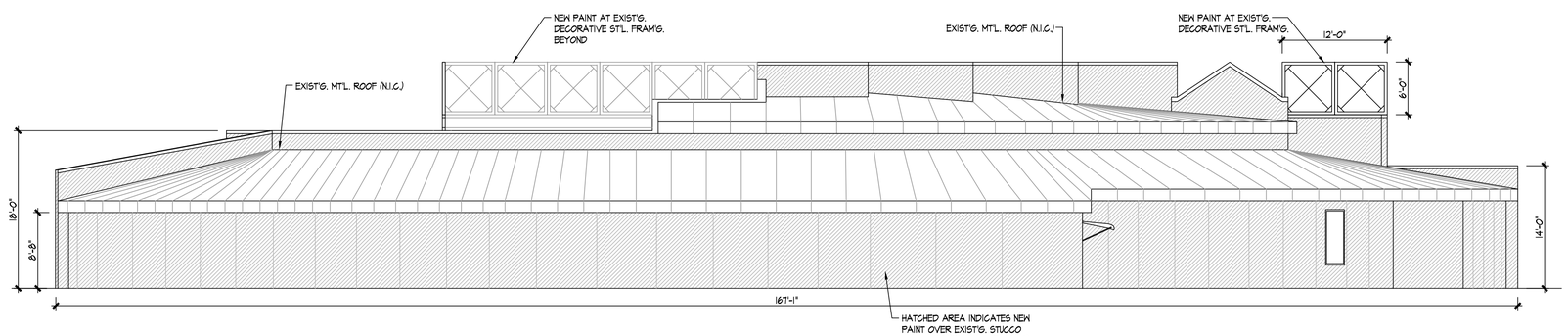
SIDE ELEVATION

1/8" = 1'-0"

NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE

FLAG POLES BASE

REFER TO SHEET G-1 FOR LOCATION



REAR ELEVATION

1/8" = 1'-0"

NOTE:
ALL DIMENSIONS ARE +/- AND SHALL BE FIELD VERIFIED BY BIDDERS DURING THE BIDDING PHASE

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
WELCOME CENTER RENOVATIONS
LAKE CITY, FLORIDA

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ROY DANIEL KAIL JR.
ARCHITECT
AR0017094
KAIL PARTNERS
AA26002508

DATE
8/13/18

1801

A-5

EXTERIOR PAINTING AT LIBRARY BUILDING ALTERNATE BID ONE CONSTRUCTION DOCUMENTS

MEP DEMOLITION NOTES

1. EXISTING HVAC UNIT TO BE DEMOLISHED. EVACUATE REFRIGERANT AND TURN USED REFRIGERANT OVER TO COLUMBIA CITY MAINTENANCE PERSONNEL; PROPERLY DISPOSE OF UNIT.
2. EXISTING AIR HANDLER TO BE DEMOLISHED. PROPERLY DISPOSE OF UNIT.
3. EXISTING O.A. LOUVER TO REMAIN.
4. EXISTING DUCT PLENUM TO REMAIN, TO BE REUSED FOR NEW OUTDOOR AIR DUCT.
5. ALL DUCTWORK, GRILLES, AND DIFFUSERS TO BE DEMOLISHED.

2" WATER

MECHANICAL DEMOLITION PLAN

SCALE 1/4"=1'0"

CONSTRUCTION DOCUMENTS

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
P.O. BOX 577 • HIGH SPRINGS, FLORIDA • PH 386-454-3748 • FAX 386-454-2652
CERTIFICATE OF AUTHORIZATION 3687

COLUMBIA COUNTY BOARD OF COUNTY COMMISIONERS
WELCOME CENTER RENOVATONS
LAKE CITY, FLORIDA

COBURN & ASSOCIATES
FLORIDA & VIRGINIA
ENGINEERS EB 0003687
HIGH SPRINGS, FLORIDA
32655-0277
PH 386-454-3748
RICHARD E COBURN PE
E-38201
CA ACP NO 1995

DATE 8/13/18
DRAWN CAS
APPROVED REC

M1

OF SHEETS

Lennox Industries Inc. - Product Submittal

System ID: AHU/HP-2	
Condenser Model: 14HPX-048-230	**Description:** HEAT PUMP/4TON/230-1 LVR
Evaporator Coil Model: CBA38MV-048	**Description:** FANCOIL/4TON/230-1

HEATING PERFORMANCE

Heat Source	Electric	HSPF (IV)	9.00
HP Output@Design	47500 (Btuh)	HP DesignTemp	47.0 (°F)
HP Output@47°	47500 (Btuh)	HP Output@17°	30860 (Btuh)
H/E HighOutput	20517 (Btuh)	Electric Heater	8.0 (kW)
		H/E DischargeDB	38.2 (°F)
		H/E Heat Rise	11.9 (°F)

COOLING PERFORMANCE

Refrigerant	R-410A	Number Compressors	1
ARI EER	12.5	Number of Cooling Stages	1
ARI SEER	15.0	Cooling OutdoorDB	95.0 (°F)
ARI NetTotalCool	49000 (Btuh)	Cooling CondenserDB	95.0 (°F)
Cond Liquid Line	3/8 (in.)	Cooling MixedDB	80.0 (°F)
Cond Suction Line	7/8 (in.)	Cooling MixedWB	67.0 (°F)
Coil Liquid Line	3/8 (in.)	EDA MoistRemoval	3.5 (L/kWh)
Coil Suction Line	7/8 (in.)	EDA MoistRemoval	250.0 (L/day)
		EDA S/T Ratio	0.44

SUPPLY FAN PERFORMANCE

Supply AirFlow	1670 (cfm)	TotalStaticPress	0.79 (in.WC)
Outdoor AirFlow	160 (cfm)	EDA Static Pressure	0.10 (in.WC)
ExtStaticPress Supply	0.69 (in.WC)		
SupplyFan Req'dPower	1.00 (hp)		
SupplyFan NomPower	1.00 (hp)		
Supply Fan Type	VAV Direct Drive		
SupplyDrive Speed	TAP 1+		

ELECTRICAL

Condenser Voltage	208V 1Ph	AirHandler MCA-1	45.0 (amp)
Air Handler Voltage	208V 1Ph	AirHandler MOCP-1	45 (amp)
Electric Heat Voltage	208V 1Ph	Single Point Power Source MOCP	45 (amp)
Frequency	60 (Hz)	Single Point Power Source MCA	45 (amp)
Condenser MCA	29.0 (amp)		
Condenser MOCP	50 (amp)		
Cond Oper Range-Nom Voltage	+/- 10%		
Unit Oper Range-Nom Voltage	+/- 10%		

DIMENSIONS

CondensingUnit Height	37.3 (in.)	CondensingUnit Weight	273 (lb)
CondensingUnit Width	32.3 (in.)	Coil/Coil Fan Weight	189 (lb)
CondensingUnit Length	32.3 (in.)	EDA Weight	47 (lb)
Coil/Coil Fan Height	58.5 (in.)		
Coil/Coil Fan Width	21.3 (in.)		
Coil/Coil Fan Length	24.6 (in.)		

SOUND

Outdoor Sound Rating	80 (db)

INCLUDED SYSTEM OPTIONS - FIELD INSTALLED

16V93	1	ECB38-8CB-P ELECTRIC HEATER
13H14	1	COMFORTSENSE 7500 - TSTAT - 7 DAY PROG
94M43	1	EDA-060D DEHUMIDIFICATION SYSTEM
94M44	1	LB-110562A INSULATION & PIPING KIT
X2658	1	LN THERMOSTAT OUTDOOR TEMP SENSOR

HP-1/AHU-1

Lennox Industries Inc. - Product Submittal

System ID: AHU/HP-1	
Condenser Model: 14HPX-042-230	**Description:** HEAT PUMP/3.5TON/230-1 LVR
Evaporator Coil Model: CBA38MV-042	**Description:** FANCOIL/3.5TON/230-1

HEATING PERFORMANCE

Heat Source	Electric	HSPF (IV)	8.50
HP Output@Design	42000 (Btuh)	HP DesignTemp	47.0 (°F)
HP Output@47°	42000 (Btuh)	HP Output@17°	27400 (Btuh)
H/E HighOutput	20517 (Btuh)	Electric Heater	8.0 (kW)
		H/E DischargeDB	41.4 (°F)
		H/E Heat Rise	13.6 (°F)

COOLING PERFORMANCE

Refrigerant	R-410A	Number Compressors	1
ARI EER	12.5	Number of Cooling Stages	1
ARI SEER	15.0	Cooling OutdoorDB	95.0 (°F)
ARI NetTotalCool	42500 (Btuh)	Cooling CondenserDB	95.0 (°F)
Coil GrossTotalCool	43500 (Btuh)	Cooling MixedDB	80.0 (°F)
Unit NetTotalCool	41117 (Btuh)	Cooling MixedWB	67.0 (°F)
Coil GrossSensCool	33930 (Btuh)	Coil DischargeDB	56.9 (°F)
Unit NetSensCool	31547 (Btuh)	Coil DischargeWB	56.7 (°F)
Cond Liquid Line	3/8 (in.)	Unit DischargeDB	58.6 (°F)
Cond Suction Line	7/8 (in.)	Unit DischargeWB	57.4 (°F)
Coil Liquid Line	3/8 (in.)	Coil MoistureRemoval	9.0 (lb/hr)
Coil Suction Line	7/8 (in.)	System MoistRemoval	9.0 (lb/hr)
		EDA MoistRemoval	3.5 (L/kWh)
		EDA MoistRemoval	218.0 (L/day)
		EDA S/T Ratio	0.39

SUPPLY FAN PERFORMANCE

Supply AirFlow	1400 (cfm)	TotalStaticPress	0.77 (in.WC)
Outdoor AirFlow	140 (cfm)	EDA Static Pressure	0.08 (in.WC)
ExtStaticPress Supply	0.69 (in.WC)		
SupplyFan Req'dPower	1.00 (hp)		
SupplyFan NomPower	1.00 (hp)		
Supply Fan Type	VAV Direct Drive		
SupplyDrive Speed	TAP 3		

ELECTRICAL

Condenser Voltage	208V 1Ph	AirHandler MCA-1	43.0 (amp)
Air Handler Voltage	208V 1Ph	AirHandler MOCP-1	45 (amp)
Electric Heat Voltage	208V 1Ph	Single Point Power Source MOCP	45 (amp)
Frequency	60 (Hz)	Single Point Power Source MCA	43 (amp)
Condenser MCA	24.2 (amp)		
Condenser MOCP	40 (amp)		
Cond Oper Range-Nom Voltage	+/- 10%		
Unit Oper Range-Nom Voltage	+/- 10%		

DIMENSIONS

CondensingUnit Height	37.3 (in.)	CondensingUnit Weight	272 (lb)
CondensingUnit Width	32.3 (in.)	Coil/Coil Fan Weight	189 (lb)
CondensingUnit Length	32.3 (in.)	EDA Weight	47 (lb)
Coil/Coil Fan Height	58.5 (in.)		
Coil/Coil Fan Width	21.3 (in.)		
Coil/Coil Fan Length	24.6 (in.)		

SOUND

Outdoor Sound Rating	79 (db)

INCLUDED SYSTEM OPTIONS - FIELD INSTALLED

16V93	1	ECB38-8CB-P ELECTRIC HEATER
13H14	1	COMFORTSENSE 7500 - TSTAT - 7 DAY PROG
94M43	1	EDA-060D DEHUMIDIFICATION SYSTEM
94M44	1	LB-110562A INSULATION & PIPING KIT
X2658	1	LN THERMOSTAT OUTDOOR TEMP SENSOR

HP-2,3,4/AHU-2,3,4

MECHANICAL LEGEND

- SUPPLY DUCT
- RETURN DUCT
- EXHAUST DUCT
- FRESH AIR DUCT
- FLEXIBLE DUCT
- SQ SUPPLY DIFFUSER, SEE DESINATION FOR TYPE
- ROUND SUPPLY DIFFUSER, SEE DESINATION FOR TYPE
- RETURN GRILLE, SEE DESINATION FOR TYPE
- EXHAUST GRILLE, SEE DESINATION FOR TYPE
- DUCT SCOOP TAKEOFF WITH BALANCING DAMPER
- (A) DIFFER/GRILLE TYPE SEE SCHEDULE
- TURNING VANES
- VD MANUAL VOLUME DAMPER
- M MOTORIZED VOLUME DAMPER
- CONDENSATE DRAIN LINES
- REFRIGERANT LINES
- D.W CONDENSATE DRYWELL, SEE DETAIL
- ROOF MTD EXHAUST FAN WITH CURB, SEE SECHEDULE
- ROOF MTD GRAVITY RELIEF OR INTAKE SEE SCHEDULE'
- CF CEILING MOUNTED EXHAUST FAN
- EF INLINE FAN WITH VIBRATION ISOLATION
- WALL LOUVER/ INTAKE OR EXHAUST BY ARROW DIRECTION
- T THERMOSTAT — T TEMP SENSOR DUCT MTD
- H HUMIDISTAT — H HUMIDITY SENSOR DUCT MTD
- DSD DUCT MTD SMOKE DETECTOR
- FD AP

FURNISH ALL FANS WITH INTEGRAL DISCONNECT, THERMALLY PROTECTED MOTOR, BACKDRAFT DAMPER, SPEED CONTROLLER

EXHAUST FAN SCHEDULE

MARK	MFGR.	MODEL	TYPE	WATTS	HP	RPM	CFM.	EXT. SP.	VOLT/Ø	COMMENTS
EF-1	GREENHECK	SP-B150	CEILING	128		1050	150	0.2	120/1	WALL CAP
EF-2	GREENHECK	SP-B150	CEILING	128		1050	150	0.2	120/1	WALL CAP
EF-3	GREENHECK	SP-B70	CEILING	16		675	50	0.2	120/1	WALL CAP

GRILLE & DIFFUSER SCHEDULE

MARK	TYPE	NECK	FACE SIZE	DESCRIPTION
(A)	000-60 61-110 111-240 241-420 421-620 621-750	6Ø 6Ø 8Ø 10Ø 12Ø 14Ø	12x12 24x24 24x24 24x24 24x24 24x24	SUPPLY DIFFUSER BASIS OF DESIGN: TITUS TMS COLOR: WHITE MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO
(B)	000-90 91-110 111-220 221-350 351-530 531-730 731-970 971-3900	6Ø 6Ø 8Ø 10Ø 12Ø 14Ø 16Ø 46x22	12x12 24x24 24x24 24x24 24x24 24x24 24x24 24x48	RETURN/EXHAUST GRILLE BASIS OF DESIGN: TITUS 50F COLOR: WHITE MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO
(C)	1500-1800 1801-2000 2001-2400 2401-4000	30x18 36x20 36x24 48x30	32.5x20.5 38.5x22.5 38.5x26.5 50.5x32.5	RETURN SIDEWALL GRILLE BASIS OF DESIGN: TITUS 56FL COLOR: WHITE MATERIAL: ALUMINUM MOUNTING: SIDEWALL OPPOSED BLADE DAMPERS: NO
(D)	00-60 61-110 111-240 241-420 421-620 621-750	6Ø 6Ø 8Ø 10Ø 12Ø 14Ø	12x12 24x24 24x24 24x24 24x24 24x24	SUPPLY DIFFUSER BASIS OF DESIGN: TITUS T3SQ-4 COLOR: WHITE MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO W/ CONTROLLER/THERMOSTAT

ASHRAE 62.1 STANDARD - OUTSIDE AIR REQUIREMENTS

AIR HANDLER NUMBER - AH-

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
101 ENTRY	296	0.06	18	30/1000	9	5	45	63
101A GARDEN CLINIC	125	0.06	8	30/1000	4	5	20	28
103 VEST	94	0.06	6	--/1000	--	--	--	6
105 MALE	192	50E/T	150	--/1000	--	--	--	150E
106 FEMALE	164	50E/T	150	--/1000	--	--	--	150E
TOTAL								97/300E

AIR HANDLER NUMBER - AH-

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
107 MEETING ROOM	1038	0.06	62	50/1000	52	5	260	322
108 CUST	15	50E	50	--/1000	--	--	--	50E
TOTAL								322/50E

AIR HANDLER NUMBER - AH-

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
109 STORAGE	160	0.12	19	--/1000	--	--	--	19
110 OFFICE	150	0.06	9	5/1000	1	5	5	14
111 OFFICE	150	0.06	9	5/1000	1	5	5	14
112 OFFICE	149	0.06	9	5/1000	1	5	5	14
113 OFFICE	162	0.06	10	5/1000	1	5	5	15
114 OFFICE	162	0.06	10	5/1000	1	5	5	15
106.1 CORRIDOR	295	0.06	18	--/1000	--	--	--	18
122 PANTRY	139	0.06	8	30/1000	5	5	25	33
TOTAL								142

AIR HANDLER NUMBER - AH-

ROOM NAME	AREA (SQ. FT.)	SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
		CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
115 OFFICE	108	0.06	7	5/1000	1	5	5	12
116 OFFICE	110	0.06	7	5/1000	1	5	5	12
117 OFFICE	110	0.06	7	5/1000	1	5	5	12
118 OFFICE	106	0.06	7	5/1000	1	5	5	12
119 OFFICE	106	0.06	7	5/1000	1	5	5	12
120 OFFICE	106	0.06	7	5/1000	1	5	5	12
121 OFFICE	106	0.06	7	5/1000	1	5	5	12
106.2 CORRIDOR	303	0.06	18	--/1000	--	--	--	18
106.3 CORRIDOR	476	0.06	29	--/1000	--	--	--	29
TOTAL								131

CONSTRUCTION DOCUMENTS

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RICHARD E COBURN PE
E-38820
CA. 38B AD 8846

DATE 8/13/18
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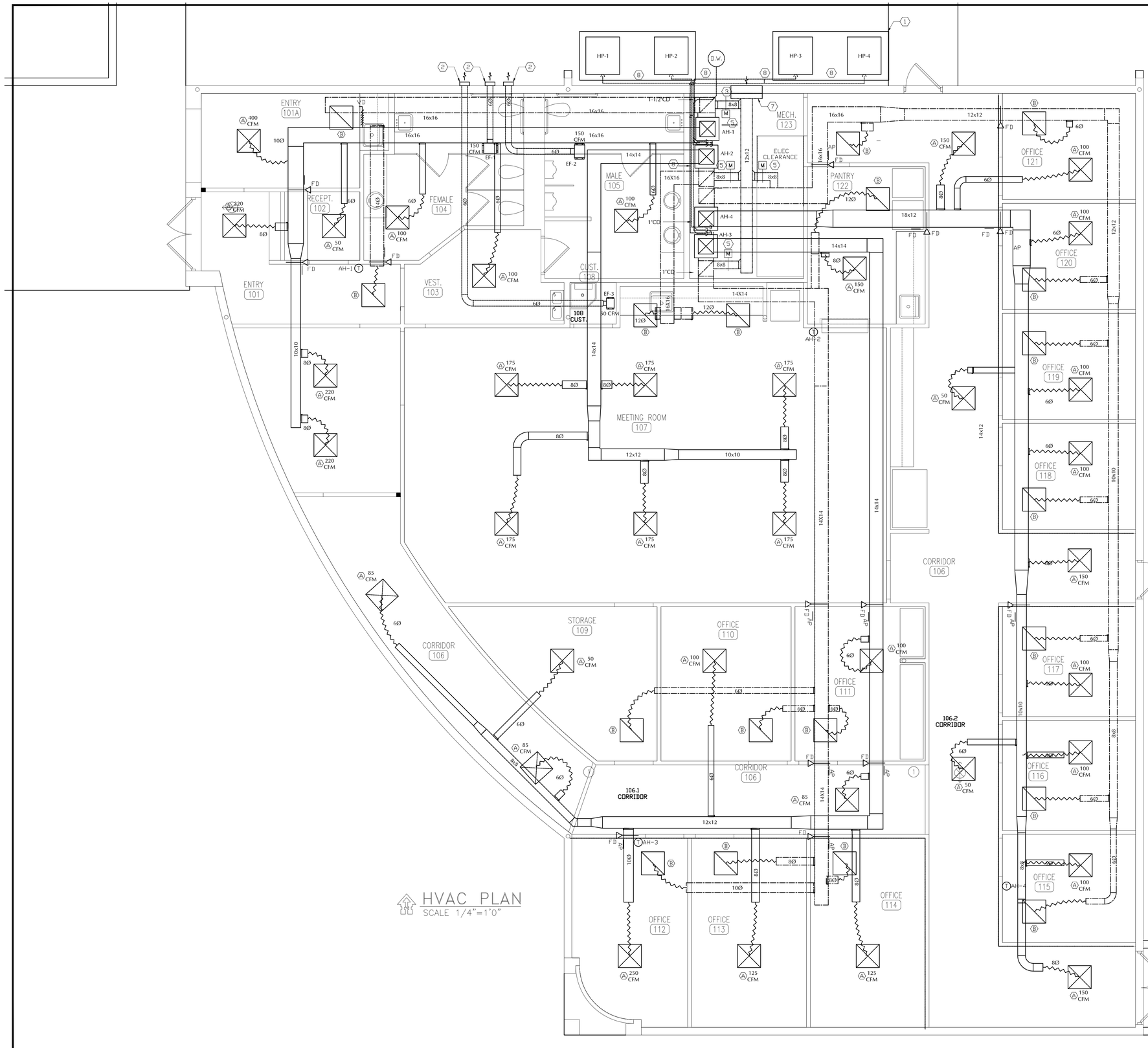
M2

OF SHEETS



KEY NOTES

1. PROVIDE 6" EQUIPMENT PAD.
2. WALL CAP.
3. AH-1 MOTORIZED OUTDOOR AIR DAMPER. BALANCE TO 100 CFM. DAMPER SHALL CLOSE UPON UNIT SHUTDOWN.
4. AH-2 MOTORIZED OUTDOOR AIR DAMPER. BALANCE TO 50/325 CFM. DAMPER SHALL CLOSE UPON UNIT SHUTDOWN. DAMPER IS ALSO CONTROLLED BY CO2 SENSOR SEE SPECS.
5. AH-3 MOTORIZED OUTDOOR AIR DAMPER. BALANCE TO 145 CFM. DAMPER SHALL CLOSE UPON UNIT SHUTDOWN.
6. AH-4 MOTORIZED OUTDOOR AIR DAMPER. BALANCE TO 135 CFM. DAMPER SHALL CLOSE UPON UNIT SHUTDOWN.
7. EXISTING OUTDOOR AIR LOUVER. PROVIDE NEW PLENUM BOX.
8. REFRIGERANT PIPING.

HVAC PLAN

SCALE 1/4"=1'0"

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M3

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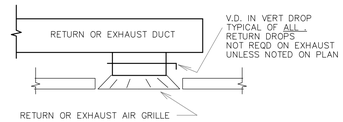
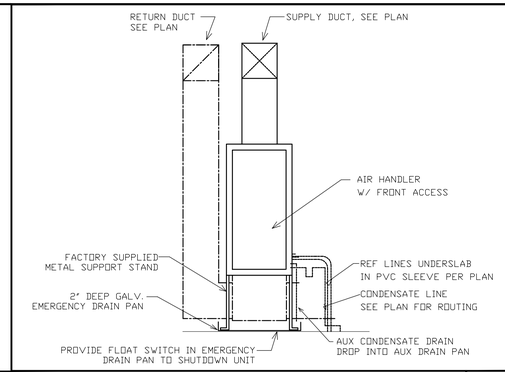


DETAIL OF RETURN OR EXHAUST DROP FROM BOTTOM OF DUCTWORK

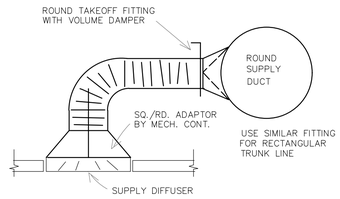
RET./ EXH. DROP DETAIL

NTS | 4 M004



TYPICAL AIR HANDLER DETAIL

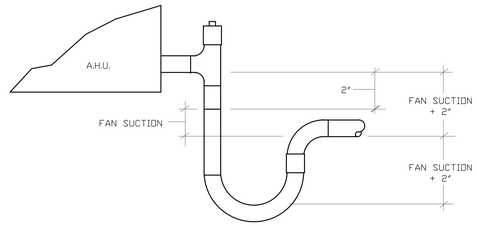
NTS | 1 M004



FINAL BRANCH CONNECTION TO DIFFUSER

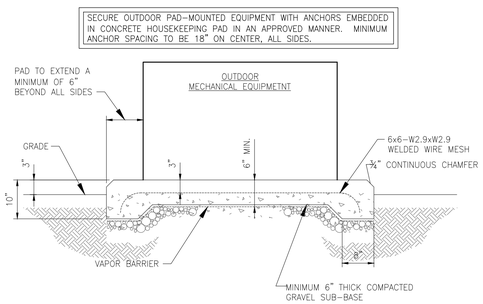
CONNECTION TO DIFFUSER

NTS | 5 M004



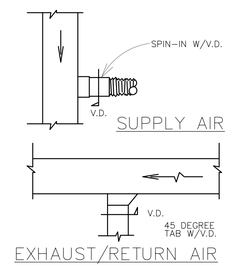
AHU CONDENSATE DRAIN DETAIL

NTS | 2 M004



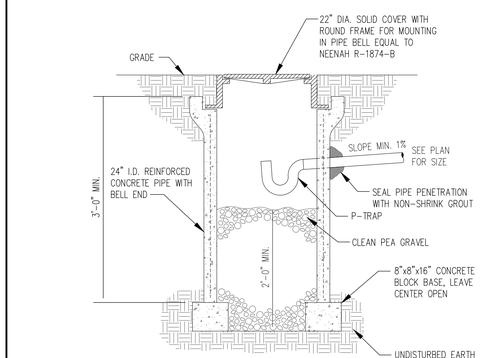
EQUIPMENT PAD DETAIL

NTS | 7 M004



AIR DUCT DETAILS

NTS | 6 M004



DRYWELL DETAIL

NTS | 3 M004

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RICHARD F. COBURN PE
FL-32820
CA JOB NO 1806

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M4

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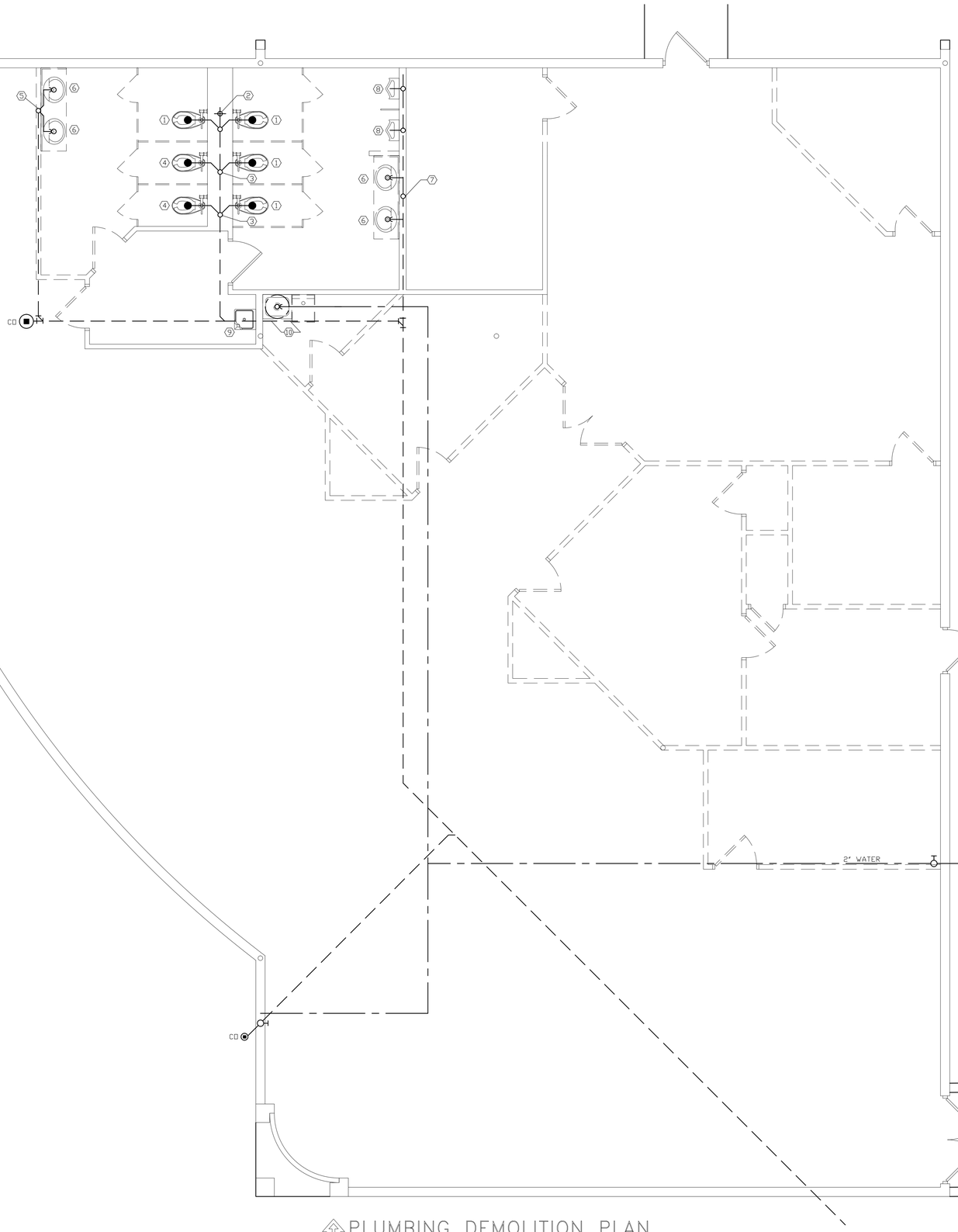

GENERAL DEMOLITION NOTES

1. ALL FIXTURES AND TRIM SHALL BE PROPERTY OF COLUMBIA COUNTY; STORE ON SITE FOR PICK UP BY COUNTY PERSONNEL.
2. PRIOR TO DEMOLITION THE CONTRACTOR SHALL SATISFY HIMSELF THAT THE EXISTING SANITARY AND SUPPLY PIPING IS IN THE LOCATIONS SHOWN OR REASONABLY CLOSE.
3. IF MAJOR DISCREPANCIES IN PIPING LOCATIONS ARE DISCOVERED; NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY.
4. ALL UNUSED PIPING SHALL BE DEMOLISHED AS CLOSE TO MAIN DRAINS AS POSSIBLE AND CAPPED TO PREVENT LEAKAGE OF WASTE, VENT GASSES OR WATER.
5. EXISTING SANITARY PIPING, WASTE ARMS AND SUPPLY PIPING SHALL BE REUSED; HOWEVER CONTRACTOR SHALL INSPECT PIPING AND REPORT ANY QUESTIONABLE PIPING TO ENGINEER.
6. NO SANITARY, VENT OR SUPPLY PIPING SHALL BE LEFT "OPEN" AT END OF WORK DAY. PIPING SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE BY ANY FOREIGN OBJECTS.

1. REMOVE EXISTING TOILET, PATCH AND CAP EXISTING PLUMBING, AS REQUIRED.
2. LOCATE EXISTING 4" SANITARY AND PREP FOR EXTENDING TO NEW TOILET LOCATION, SEE P2.
3. PREPARE EXISTING VENT TO RECEIVE NEW WASTE ARM FOR URINALS, SEE P2.
4. EXISTING TOILET TO BE REPLACED IN EXISTING LOCATION.
5. PREPARE EXISTING SANITARY TO BE EXTENDED TO NEW FIXTURES, SEE P2.
6. EXISTING LAVATORIES TO BE REMOVED.
7. EXISTING LAVATORY DRAIN TO BE REUSED. SEE NOTE 7, DWG. P2.
8. EXISTING URINALS TO BE REMOVED, REWORK PIPING TO ACCOMMODATE NEW LAVATORY P4, CAP, REMOVE UNUSED PIPING.
9. REMOVE EXISTING WATER COOLER AND PREP PIPING TO RECEIVE NEW WATER COOLER, FIXTURE P7, SEE SHT P2.
10. REMOVE EXISTING FIXTURES, PREP PIPING TO RECEIVE NEW JANITOR SINK, CAP AND/OR REMOVE EXISTING PIPING AS NECESSARY.

PLUMBING DEMOLITION PLAN

SCALE 1/4"=1'0"

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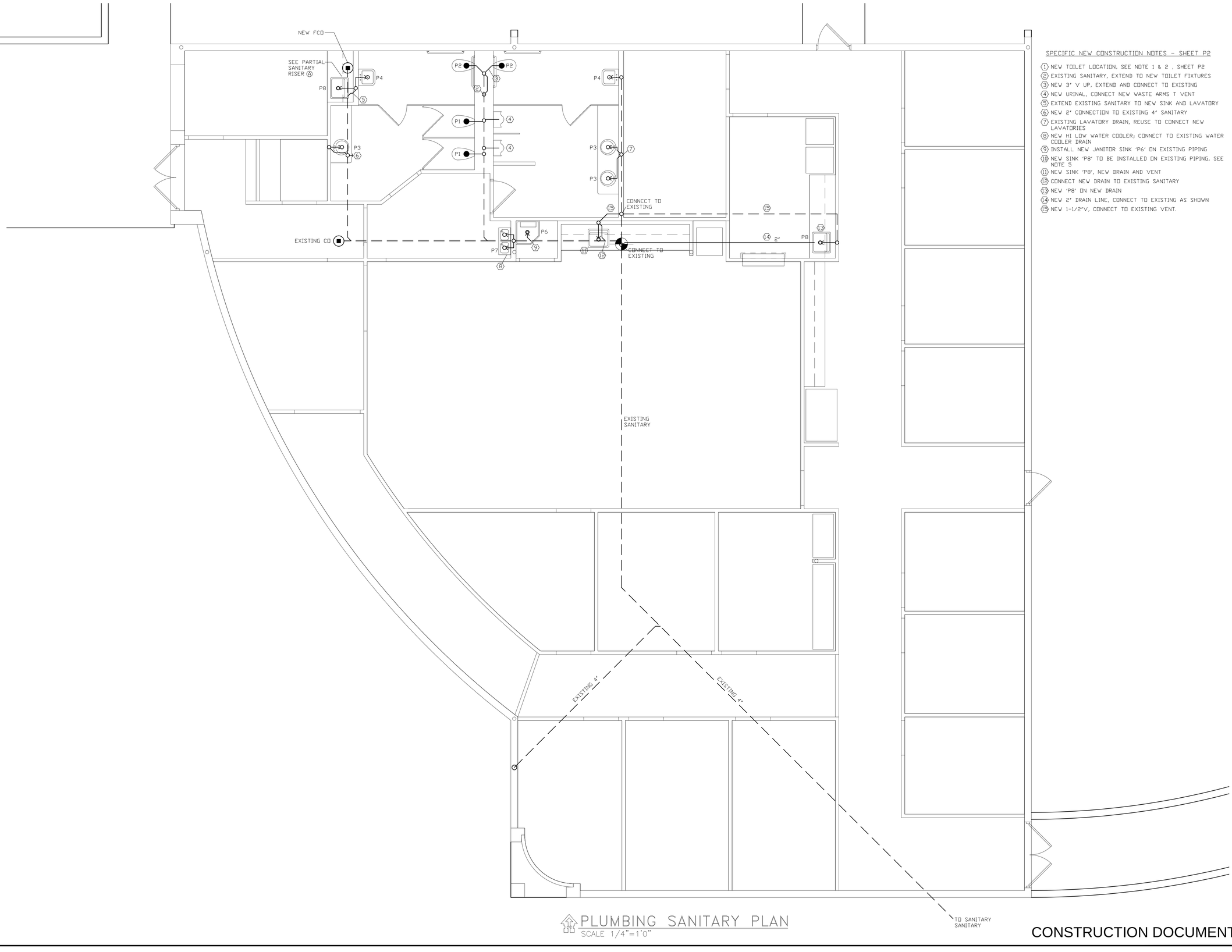
P1

OF SHEETS



PLUMBING SANITARY PLAN
SCALE 1/4"=1'0"

SPECIFIC NEW CONSTRUCTION NOTES - SHEET P2

1. NEW TOILET LOCATION, SEE NOTE 1 & 2 , SHEET P2
2. EXISTING SANITARY, EXTEND TO NEW TOILET FIXTURES
3. NEW 3" V UP, EXTEND AND CONNECT TO EXISTING
4. NEW URINAL, CONNECT NEW WASTE ARMS T VENT
5. EXTEND EXISTING SANITARY TO NEW SINK AND LAVATORY
6. NEW 2" CONNECTION TO EXISTING 4" SANITARY
7. EXISTING LAVATORY DRAIN, REUSE TO CONNECT NEW LAVATORIES
8. NEW HI LOW WATER COOLER; CONNECT TO EXISTING WATER COOLER DRAIN
9. INSTALL NEW JANITOR SINK 'P6' ON EXISTING PIPING
10. NEW SINK 'P8' TO BE INSTALLED ON EXISTING PIPING, SEE NOTE 5
11. NEW SINK 'P8', NEW DRAIN AND VENT
12. CONNECT NEW DRAIN TO EXISTING SANITARY
13. NEW 'P8' ON NEW DRAIN
14. NEW 2" DRAIN LINE, CONNECT TO EXISTING AS SHOWN
15. NEW 1-1/2"V, CONNECT TO EXISTING VENT.

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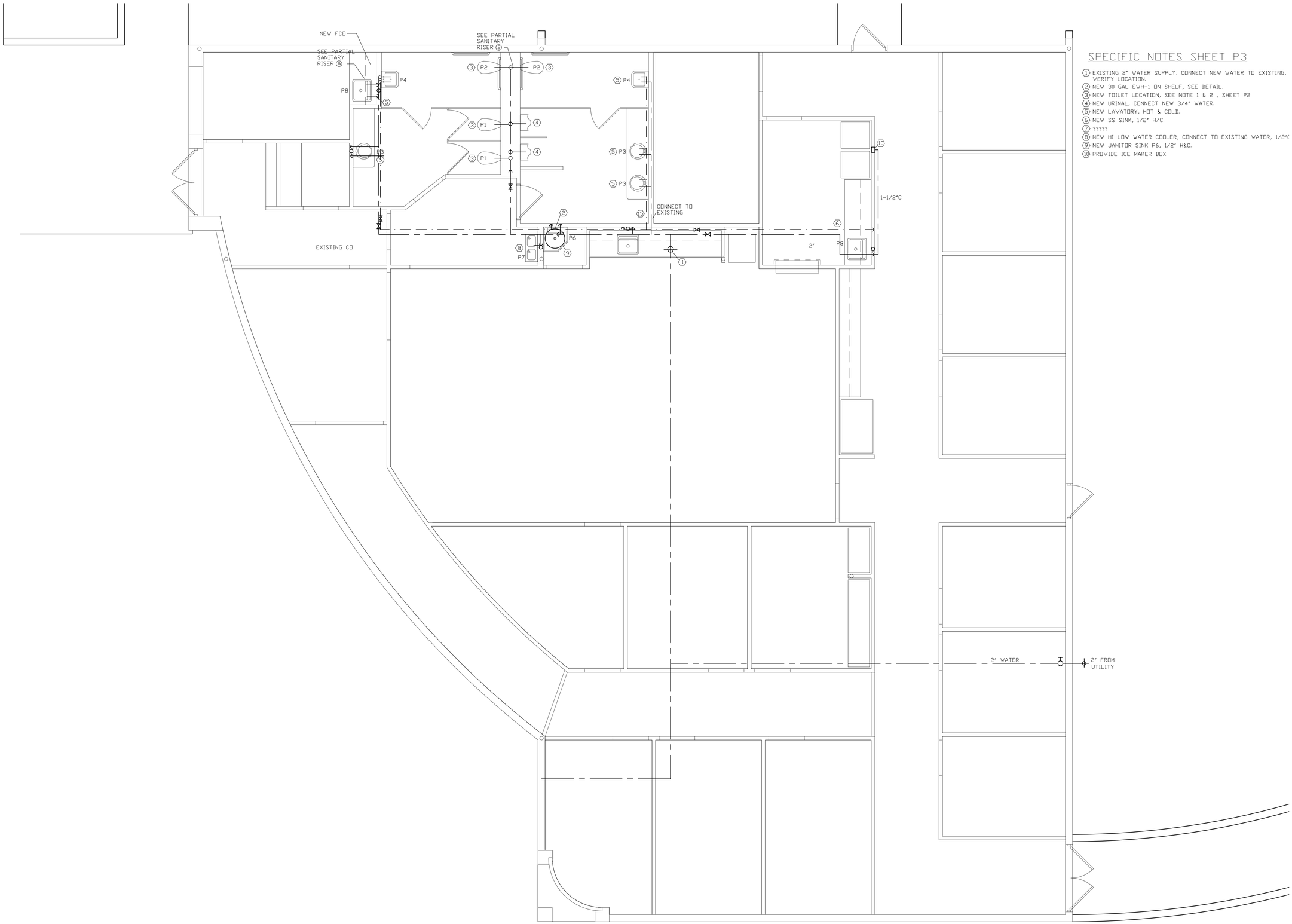
P2

OF SHEETS



SPECIFIC NOTES SHEET P3

1. EXISTING 2" WATER SUPPLY, CONNECT NEW WATER TO EXISTING, VERIFY LOCATION.
2. NEW 30 GAL EWH-1 ON SHELF, SEE DETAIL.
3. NEW TOILET LOCATION, SEE NOTE 1 & 2 , SHEET P2
4. NEW URINAL, CONNECT NEW 3/4" WATER.
5. NEW LAVATORY, HOT & COLD.
6. NEW SS SINK, 1/2" H/C.
7. ?????
8. NEW HI LOW WATER COOLER, CONNECT TO EXISTING WATER, 1/2"C
9. NEW JANITOR SINK P6, 1/2" H&C.
10. PROVIDE ICE MAKER BOX.

PLUMBING SUPPLY PLAN

SCALE 1/4"=1'0"

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RICHARD E COBURN PE
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CA .059 MO 1896

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P3

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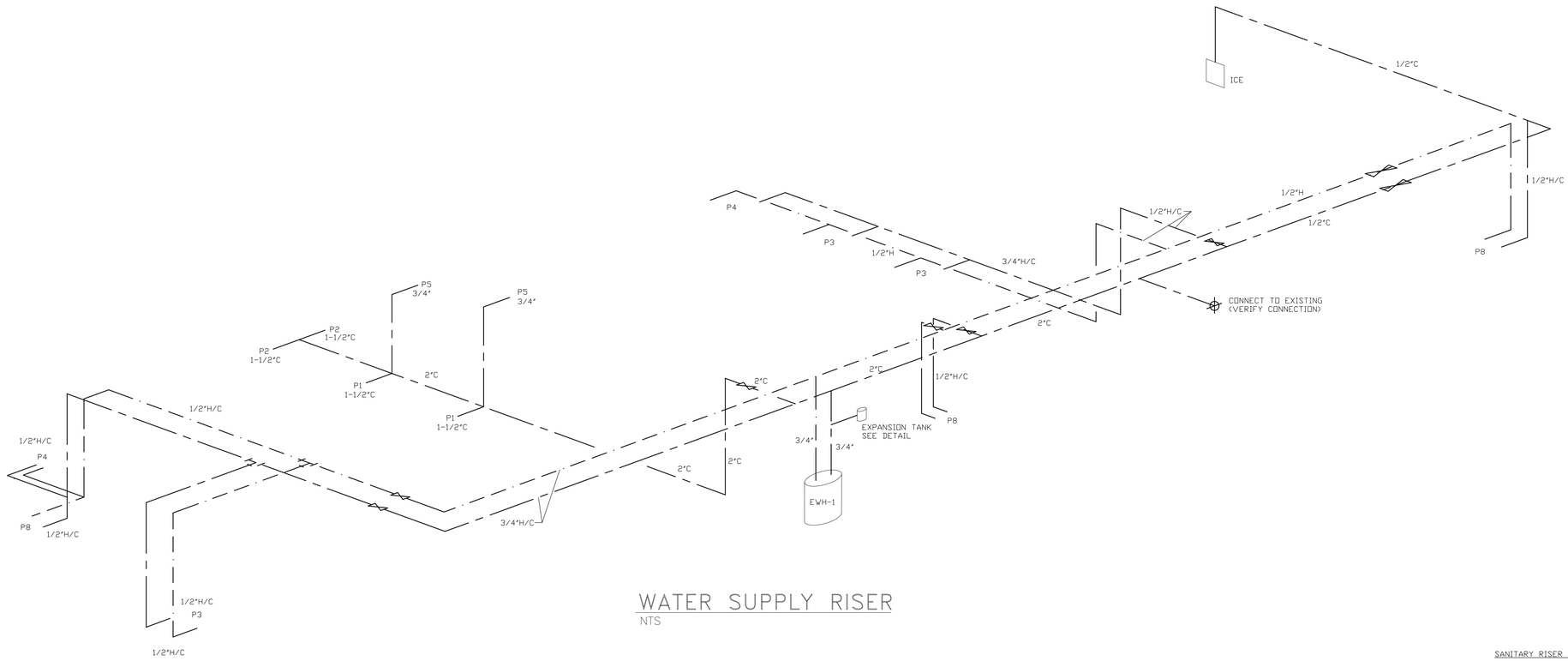
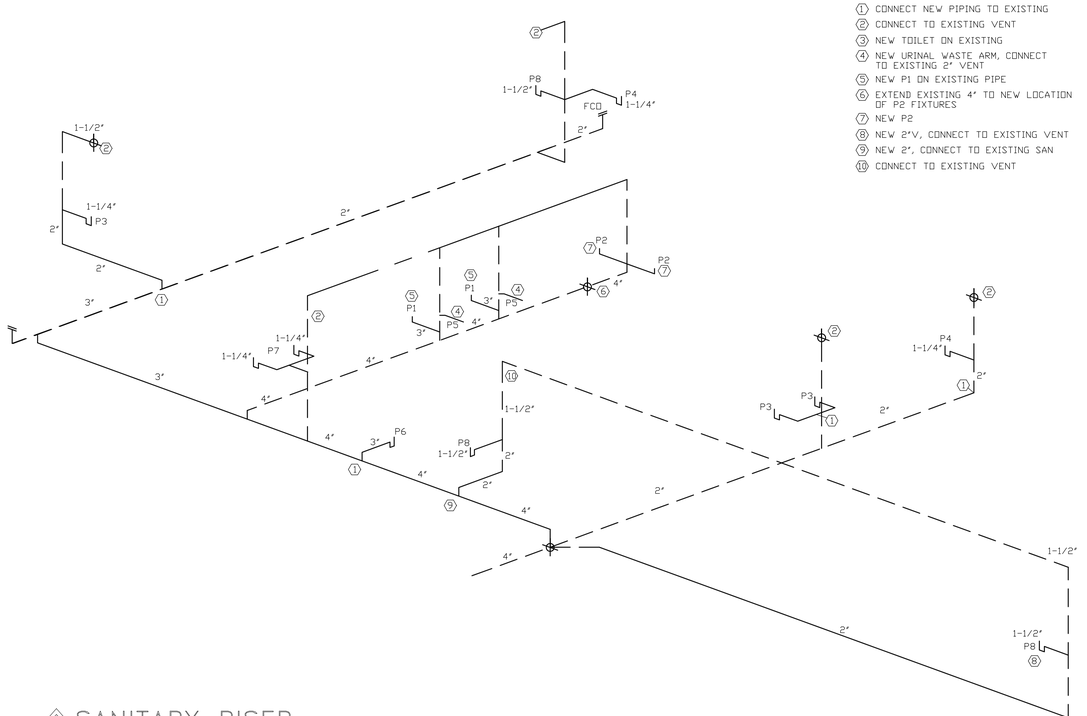


WATER SUPPLY RISER
NTS



SANITARY RISER NOTES

1. CONNECT NEW PIPING TO EXISTING
2. CONNECT TO EXISTING VENT
3. NEW TOILET ON EXISTING
4. NEW URINAL WASTE ARM, CONNECT TO EXISTING 2" VENT
5. NEW P1 ON EXISTING PIPE
6. EXTEND EXISTING 4" TO NEW LOCATION OF P2 FIXTURES
7. NEW P2
8. NEW 2"V, CONNECT TO EXISTING VENT
9. NEW 2", CONNECT TO EXISTING SAN
10. CONNECT TO EXISTING VENT

SANITARY RISER
NTS

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CA 26918 AR 18046

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P4

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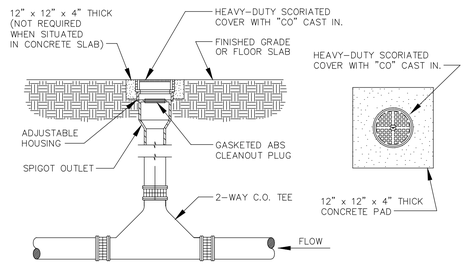
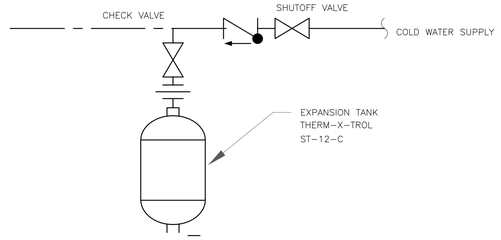


TWO-WAY CLEANOUT DETAIL

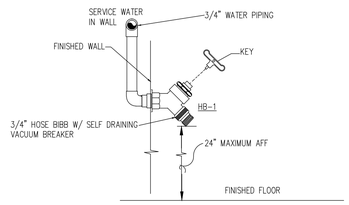
DET # 1
P5



EXPANSION TANK DETAIL

NTS

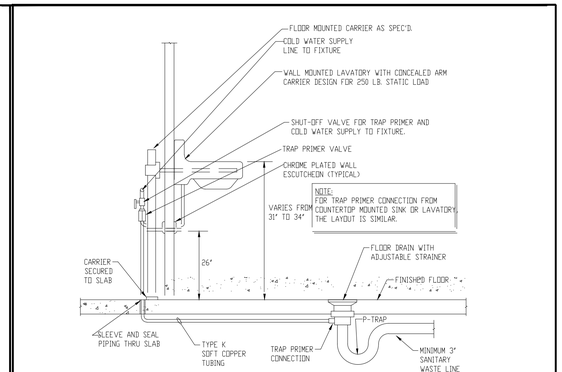
DET # 2
P5



HOSE BIBB DETAIL (HB-1)

NTS

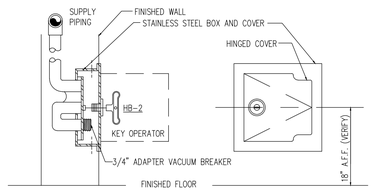
DET. #3
P5



PIPING ARRANGEMENTS

NTS

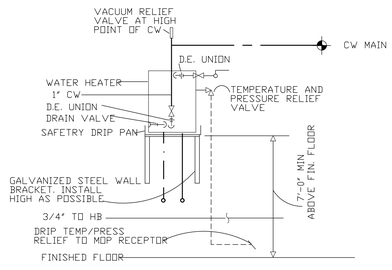
DET. #4
P5



WALL HYDRANT DETAIL

NTS

DET. #5
P5



WATER HEATER DETAIL

NTS

DET #6
P5

PLUMBING DETAILS
NTS

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OF
SHEETS

SPECIFIC DEMOLITION NOTES THIS SHEET

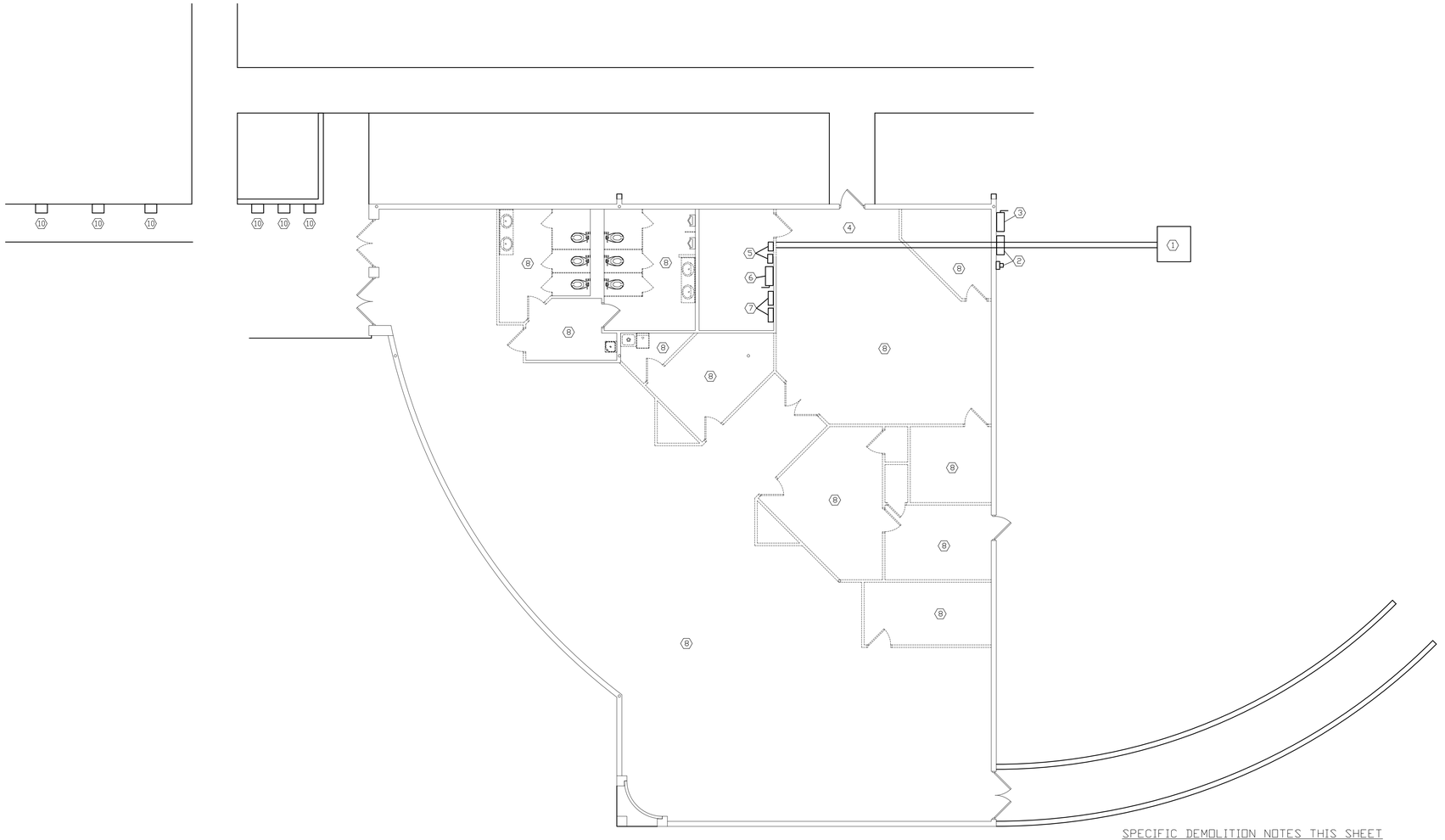
1 EXISTING ELECTRICAL SERVICE ENTRANCE SHALL REMAIN

2 BRANCH CIRCUIT WIRING AND CONDUITS MAY BE REUSED FOR NEW WORK PROVIDED IT IS IN GOOD CONDITION

3 ALL LIGHT FIXTURES SHALL BE PROPERTY OF COLUMBIA COUNTY AND SHALL BE NEATLY STACKED ON TRAILER SUPPLIED BY THE COUNTY

4 ALL MISC EQUIPMENT SHALL BE PROPERTY OF COUNTY AND SHALL BE NEATLY STACKED ON TRAILER, SEE NOTE 3

5 CONTRACTOR SHALL LOCATE EXISTING CIRCUITS FOR ALL EXTERIOR LIGHTS AND RECEPTACLES AND MAINTAIN THE CIRCUITS AS SHOWN ON THE EXISTING PANEL SCHEDULES



SPECIFIC DEMOLITION NOTES THIS SHEET

1 EXISTING PAD MOUNTED XFMR TO REMAIN

2 EXISTING CT CAB & METER TO REMAIN

3 EXISTING 600A/3P DISC. TO REMAIN

4 EXISTING FEEDERS TO REMAIN

5 EXISTING DISCONNECTS TO BE REMOVED

6 EXISTING DISCONNECT TO BE REPLACED WITH NEW PANEL M

7 EXISTING PANELS TO REMAIN

8 REMOVE ALL LIGHT FIXTURES, TURN LIGHT FIXTURES OVER TO THE OWNERCOLUMBIA COUNTY>

9 REMOVE EXISTING RECEPTACLES AND CONDUIT IN WALLS TO BE DEMOLISHED

10 EXISTING WALL MTD FIXTURES TO BE REMOVED AND REPLACED

ELECTRICAL DEMO PLAN

SCALE 1/8"=1'0"

CONSTRUCTION DOCUMENTS

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
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CERTIFICATE OF AUTHORIZATION 3687

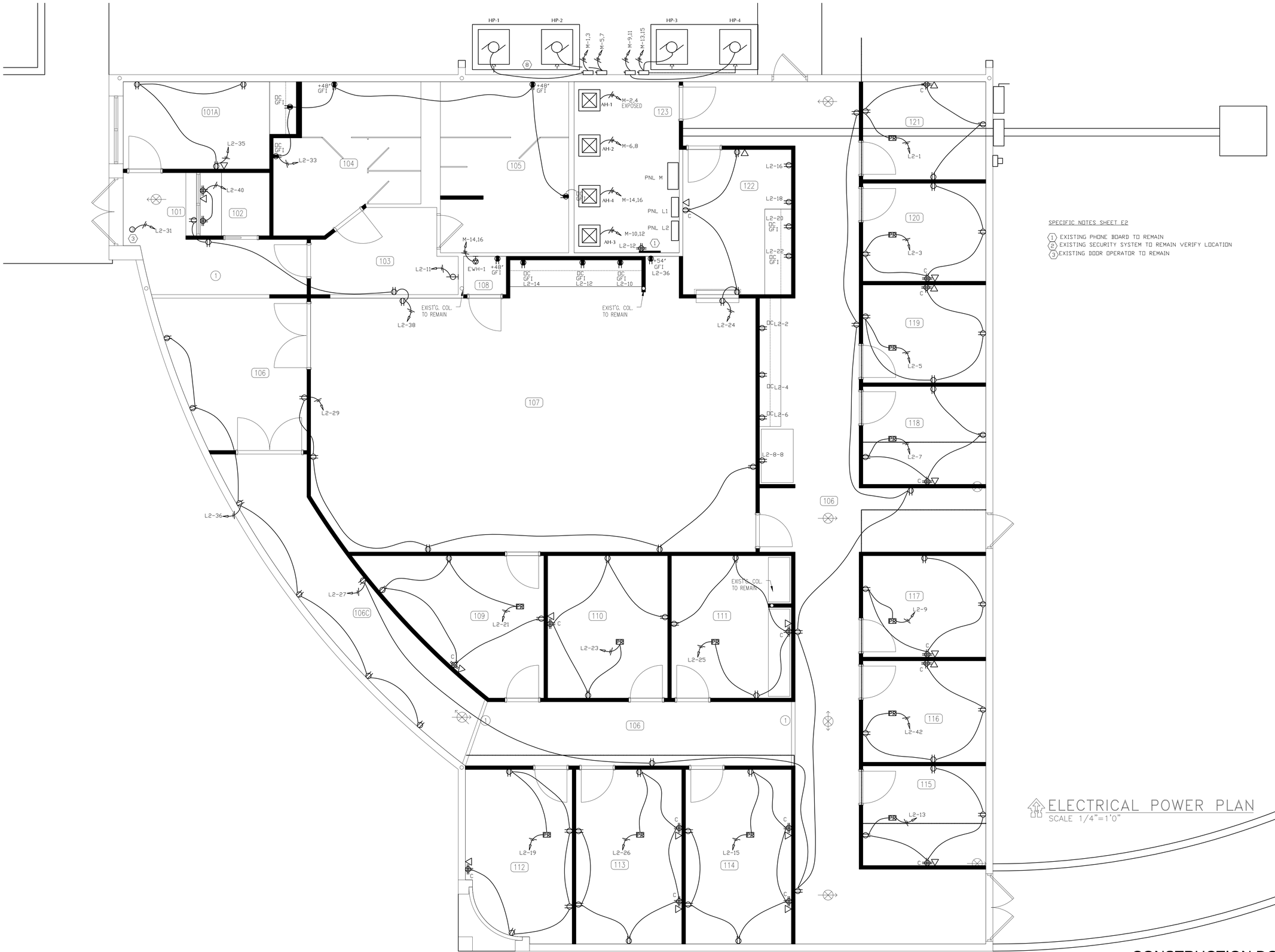
COLUMBIA COUNTY BOARD OF COUNTY COMMISIONERS
WELCOME CENTER RENOVATONS
LAKE CITY, FLORIDA

COBURN & ASSOCIATES
ENGINEERS, LLC
ENGINEERS, LLC LB 0003687
HIGH SPRINGS, FLORIDA
386/454-3748
RICHARD E COBURN PE
E-23820
CA JOB NO 1806

DATE 8/13/18
DRAWN CAS
APPROVED REC

E1

OF SHEETS



SPECIFIC NOTES SHEET E2

1. EXISTING PHONE BOARD TO REMAIN
2. EXISTING SECURITY SYSTEM TO REMAIN VERIFY LOCATION
3. EXISTING DOOR OPERATOR TO REMAIN

ELECTRICAL POWER PLAN

SCALE 1/4"=1'0"

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LAKE CITY, FLORIDA

COBURN & ASSOCIATES
ENGINEERS, P.A.
FLORIDA LICENSED
ENGINEERS EB 0003697
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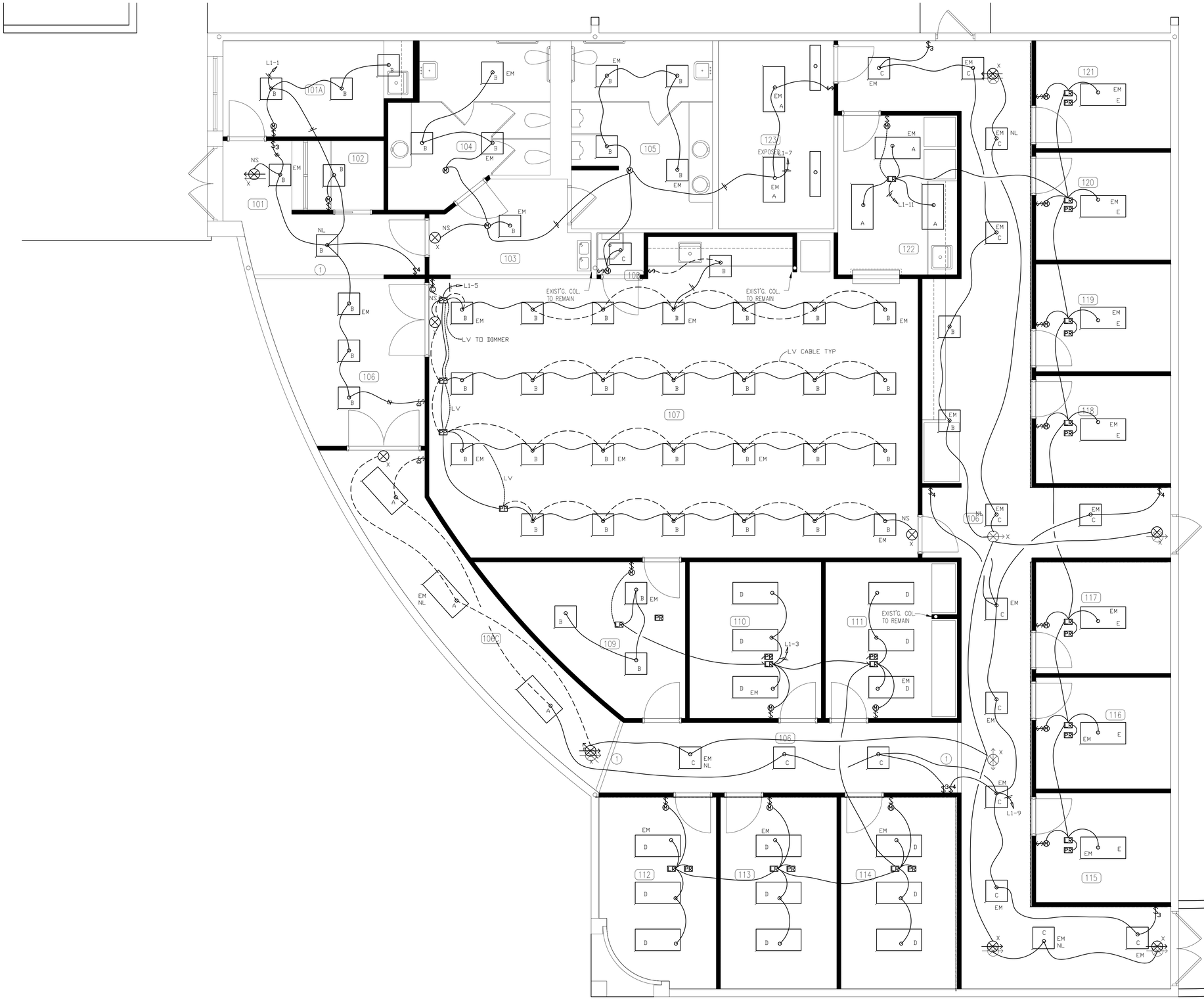
HIGH SPRINGS, FLORIDA
32655-0577
PH 386-454-3748
RICHARD E COBURN PE
E-32820
CA JOB NO 1806

DATE 8/13/18
DRAWN CAS
APPROVED REC

E2

OF SHEETS



ELECTRICAL LIGHTING PLAN
SCALE 1/4"=1'0"

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COBURN & ASSOCIATES
CERTIFICATE OF AUTHORIZATION
ENGINEERS EB 0003497
ARCHITECTS AA 0003187
HIGH SPRINGS, FLORIDA
32655-0577
PH 386-454-3748
RICHARD E COBURN PE
E-32820
CA .JOB NO 1806

DATE 8/13/18
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APPROVED REC

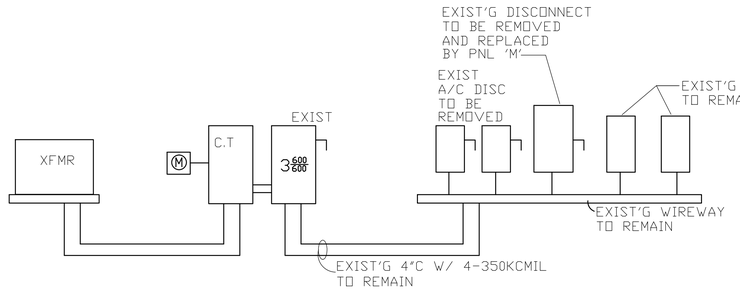
E3

OF SHEETS

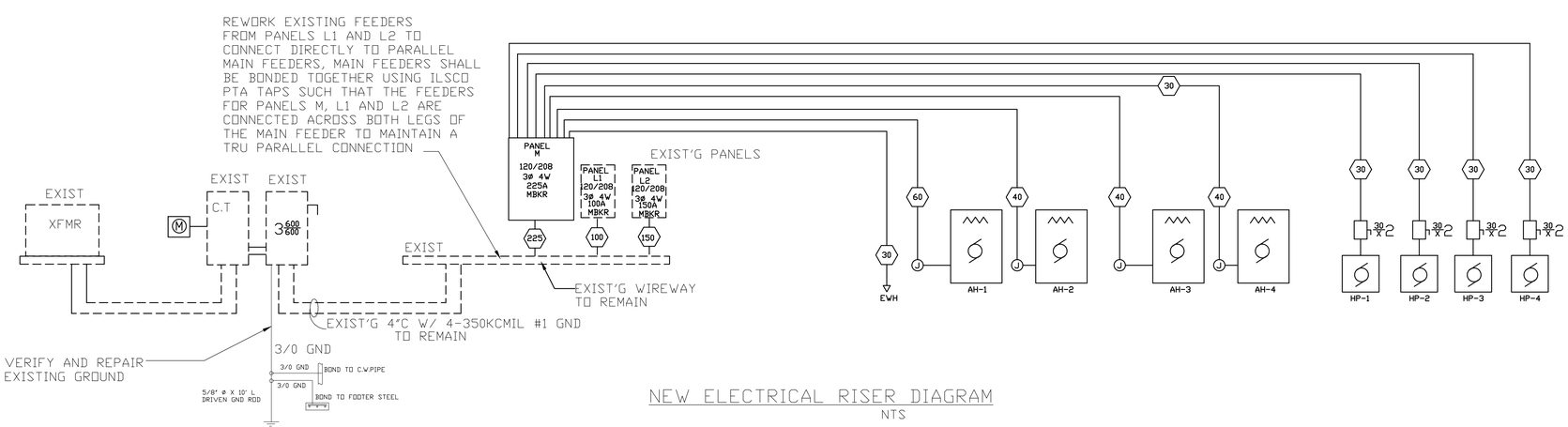
PANEL M				120/208 3PH 4 W 225A 10000 A.I.C. RATING			MBKR		MLO	XX	SURF RECESS
CKT NO	BKR	WIRE	LOAD DESCRIPTION	LIGHTS	RECEPTA	FIXED LO	COMPRESS	MOTORS	HEAT STRIP	MISC.	TOTAL CKT
1	40/2	#10	HP-1					4669	208	0	4867
3											0
5	40/2	#10	HP-2					3860	208		4068
7											0
9	40/2	#10	HP-3					3860	208		4068
11											0
13	40/2	#10	HP-4					3860	208		4068
15											0
17	30/2	#10	EWH			4500					4500
19											0
21	20/1	#12	SPARE								0
23	20/1		SPARE								0
25	20/1		SPARE								
27	20/1		SPARE								
29	20/1		SPARE								
31	20/1		SPARE								
33	20/1		SPARE								
35											
37											
39											
41											
2	45/2	#6	AH-1					1580	8000		9580
4											0
6	45/2	#6	AH-2					1580	8000		9580
8											0
10	45/2	#6	AH-3					1580	8000		9580
12											
14	45/2	#6	AH-4					1580	8000		9580
16											
18											0
20											
22											0
24											0
26			SPACE								0
28			SPACE								0
30			SPACE								0
32			SPACE								
34			SPACE								
36			SPACE								
38	30/3		10 TYPE 2 TVSS								
40											
42											
			LIGHTING @125%	0			CONDUIT	(1)-2"EMT			
			RECEPTACLES	0			FEEDER	#4/0	(230 AMPS)		
			FIXED LOADS	4500			FEEDS FRO	WIREWAY			
			COMPRESSORS	16239							
			25% LARGEST COMPRESSOR	2800							
			MOTORS	7152							
			HEAT STRIPS	32000							
			MISCELLANEOUS	0							
			SUB TOTAL LOAD	62691							
			NON-CONCURRENT LOAD								
			TOTAL CALCULATED LOAD	62691							
			AMPS @208V, 3PH	174.1417							

PANEL L2				120/208 3PH 4 W 10000 A.I.C. RATING			MBKR	150 A.		XX	SURF RECESS
	CKT NO	BKR	WIRE	LOAD DESCRIPTION	LIGHTS	RECEPTAC	FIXED LOAD	COMPRESSO	MOTORS	HEAT STRIP	MISC.	TOTAL CKT
EXIST	1	20/1	#12	RECEPTACLES		900						900
EXIST	3	20/1	#12	RECEPTACLES		900						900
EXIST	5	20/1	#12	EXISTING PUMP			900					900
EXIST	7	20/1	#12	RECEPTACLES		900						900
EXIST	9	20/1	#12	RECEPTACLES		900						1200
EXIST	11	20/1	#12	EWC EXISTING			1200					1200
EXIST	13	20/1	#12	RECEPTACLES		900						900
EXIST	15	20/1	#12	RECEPTACLES		900						900
EXIST	17	20/1	#12	SECURITY SYSTEM EXIST			500					500
EXIST	19	20/1	#12	RECEPTACLES		900						900
EXIST	21	20/1	#12	RECEPTACLES		900						900
EXIST	23	20/1	#12	RECEPTACLES		900						900
EXIST	25	20/1	#12	RECEPTACLES		900						900
EXIST	27	20/1	#12	RECEPTACLES		900						900
EXIST	29	20/1	#12	RECEPTACLES		900						900
EXIST	31	20/1	#12	RECEPTACLES		900						900
EXIST	33	20/1	#12	RECEPTACLES		900						900
EXIST	35	20/1	#12	RECEPTACLES		900						900
NEW	37	30/3	#10	TVSS								
	39											
	41											
EXIST	2	20/1	#12	APPLIANCE			1200					1200
EXIST	4	20/1	#12	APPLIANCE			1200					1200
EXIST	6	20/1	#12	APPLIANCE			1200					1200
EXIST	8	20/1	#12	COPIER			1200					1200
EXIST	10	20/1	#12	APPLIANCE			1200					1200
EXIST	12	20/1	#12	APPLIANCE			1200					1200
EXIST	14	20/1	#12	APPLIANCE			1200					1200
EXIST	16	20/1	#12	REFRIGERATOR			1200					1200
EXIST	18	20/1	#12	REFRIGERATOR			1200					1200
EXIST	20	20/1	#12	APPLIANCE			1200					1200
EXIST	22	20/1	#12	APPLIANCE			1200					1200
EXIST	24	20/1	#12	APPLIANCE		900						900
EXIST	26	20/1	#12	RECEPTACLES		900						900
EXIST	28	20/1	#12	HAND DRYER			2000					2000
EXIST	30	20/1	#12	HAND DRYER			2000					2000
EXIST	32	20/1	#12	HAND DRYER			2000					
EXIST	34	20/1	#12	HAND DRYER			2000					
EXIST	36	20/1	#12	REFRIGERATOR			1200					
EXIST	38	20/1	#12	COPIER								
EXIST	40	20/1	#12	SPARE								
	42	20/1	#12	SPACE								
				LIGHTING @125%	0			CONDUIT	(1) 2.5" PVC			
				RECEPTACLES	15300			FEEDER	#1/0	(150AMPS)		
				FIXED LOADS	26000			FEEDS FROM	WIREWAY			
				COMPRESSORS	0							
				25% LARGEST COMPRES	2800							
				MOTORS	0							
				HEAT STRIPS	0							
				MISCELLANEOUS	0							
				SUB TOTAL LOAD	43100							
				NON-CONCURRENT LOAD								
				TOTAL CALCULATED LO	43100							
				AMPS @208V, 3PH	119.722							

PANEL L1			EXISTING	120/208 3PH 4 W 10000 A.I.C. RATING				100 A	MBKR	XXX	SURF RECESS	
	CKT NO	BKR	WIRE	LOAD DESCRIPTION	LIGHTS	RECEPTACLES	FIXED LOAD	COMPRESSORS	MOTORS	HEAT STRIP	MISC	TOTAL CKT
NEW	1	20/1	12	LIGHTING	376							376
NEW	3	20/1	12	LIGHTING	981							981
EX	5	20/1	12	LIGHTING	918							918
NEW	7	20/1	12	LIGHTING	428							428
NEW	9	20/1	12	LIGHTING	395							395
EX	11	20/1	12	LIGHTING	781							781
NEW	13	20/1	12	CANOPY LIGHTS VERIFY		900						900
NEW	15	20/1	12	CANOPY LIGHTS VERIFY		900						900
EX	17	20/2	12	CANOPY LIGHTS VERIFY		900						900
NEW	19	20/1	12	SPARE								0
NEW	21	20/1	12	SPARE								0
NEW	23	20/1	12	SPARE								0
NEW	25	20/1	12	SPARE								0
NEW	27	20/1	12	SPARE								0
NEW	29	20/1	12	SPACE								0
EX	2	20/1	12	SPARE								0
EX	4	20/1	12	SPARE								0
EX	6	20/1	12	SPARE								0
EX	8	20/1	12	SPARE								0
EX	10	20/1	12	SPARE								0
EX	12	20/1	12	SPARE								0
EX	14	20/1	12	SITE LIGHTS			1200					1200
EX	16	20/1	12	SITE LIGHTS			1200					1200
EX	18	20/1	12	SIGN LIGHT			1200					1200
EX	20	20/2	12	SITE LIGHTS			1200					1200
EX	22		12	SITE LIGHTS			1200					1200
EX	24	20/1	12									0
EX	26	20/1	12									0
EX	28	20/1	12									0
EX	30	20/1	12									0
				LIGHTING @125%	3879			CONDUIT	2"			
				RECEPTACLES	2700			FEEDER	3/0			
				FIXED LOADS	6000			FEEDS FROM	MDP			
				COMPRESSORS	0							
				25% LARGEST COMPRESSOR								
				MOTORS	0							
				HEAT STRIPS	0							
				MISC	0							
					PANEL							
				SUB TOTAL LOAD	12579							
				NON-CONCURRENT LOAD	0							
				TOTAL CALCULATED LOAD	12579							
				AMPS @208V, 3PH	35							



EXISTING RISER DIAGRAM
NTS



NEW ELECTRICAL RISER DIAGRAM
NTS

TOTAL LOAD ON THE SERVICE

PANEL M	62691
PANEL L1	63100
PANEL L2	12579
TOTAL	384 AMPS

FEEDER SCHEDULE
EXCEPT FOR SEPARATELY DERIVED GROUND

NO.	CONDUCTORS THWN/THHN COPPER	CONDUIT	CONDUIT W.O NEUTRAL
(20)	4#12, 1#12G	1/2"	1/2"
(30)	4#10, 1#10G	1/2"	1/2"
(40)	4#8, 1#10G	3/4"	3/4"
(50)	4#6, 1#10G	3/4"	3/4"
(60)	4#6, 1#10G	1"	1"
(70)	4#4, 1#8G	1"	1"
(80)	4#4, 1#8G	1"	1"
(100)	4#3, 1#8G	1 1/4"	1"
(125)	4#1, 1#6G	1 1/2"	1 1/2"
(150)	4#1/0, 1#6G	2"	2"
(175)	4#2/0, 1#6G	2"	2"
(200)	4#3/0, 1#4G	2"	2"
(225)	4#4/0, 1#4G	2 1/2"	2 1/2"
(250)	4#250MCM, 1#4G	3"	2 1/2"
(400)	4#500MCM, 1#1/0G	3"	3"
(500)	(2 SETS) 4#250,CM, #4G, 2-1/2"C	3"	3"
(600)	(2 SETS) 4#350MCM, 1#2G	3"	3"
(800)	(2 SETS) 4#600MCM, 1#1/0G	4"	4"
(1200)	(3 SETS) 4#600MCM, 1#1/0G	4"	4"
(1600)	(4 SETS) 4#600MCM, 1#1/0G	4"	4"
(2000)	(5 SETS) 4#600MCM, 1#1/0G	4"	4"

NOTES:

1. WHERE THE FEEDER SYMBOL IS SHOWN WITH THE SUBSCRIPT 'N' THE NEUTRAL CONDUCTOR SHALL BE DELETED FROM THE CONDUCTORS SHOWN IN THE FEEDER SCHEDULE SUBSCRIPT 'G' WITH NO GROUND CONDUCTOR
2. MECHANICAL UNITS SHALL BE 3 PHASE CONDUCTORS FOR POWER WITH NO NEUTRAL. USE CONDUIT WITHOUT NEUTRAL COLUMN

CONSTRUCTION DOCUMENTS

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E4

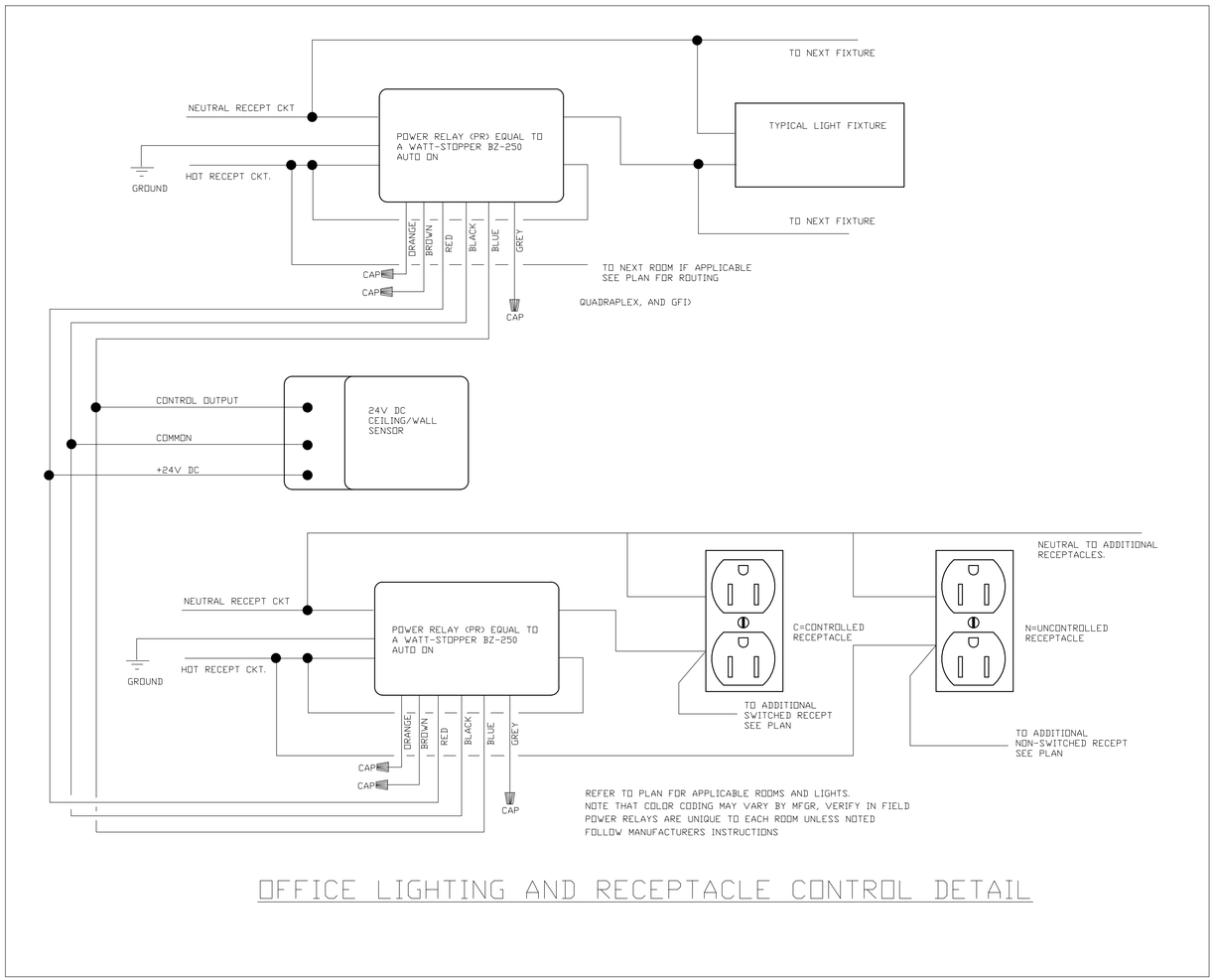
OF SHEETS

LIGHTING FIXTURE SCHEDULE

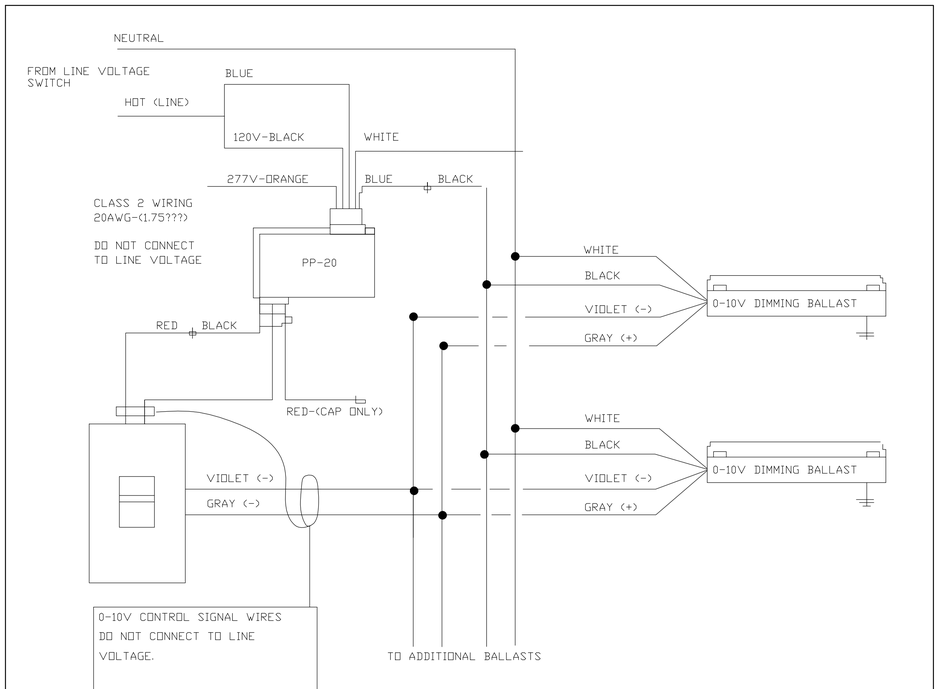
	SYMBOL	TYPE			MANUFACTURER		MOUNTING			LAMPS	VOLTS	REMARKS
		FLOUR.	INCAN.	OTHER	TITLE	CATALOG NO.	REC.	SUR.	OTHER			
	B			LED	HE WILLIAMS	50GS22-L41/840-S AF12125-DIM-120	X			47 WATT LED	120	2X2X LAY-IN TROFFER PROVIDE 0-10V DIMMING 4100 LUMEN
N/A	C			LED	HE WILLIAMS	50GS22-L20/840-S AF12125 DIM-120	X			17 WATT	120	2X2X LAY-IN TROFFER 2000 LUMEN
	D			LED	HE WILLIAMS	50GS24-L60/835 A12125 DRV-120	X			76 WATT LED	120	2X4 LAY-IN TROFFER PROVIDE EM-10W DRIVER WHERE NOTED 'EM'
	E	X		LED	HE WILLIAMS	50GS24-L90/835 A12125 DRV-120		X		26W LED	120	2X4 LAY-IN TROFFER PROVIDE EM-10W DRIVER WHERE NOTED 'EM'
	F			LED	HE WILLIAMS	75-4 L85/840 EM/10W-LP		X		73 WATT LED	120	WITH WIRE GUARD
	G			LED	FC LIGHTING	FCSL201-120-LED 4K-780-BX-OPC				17 WATT	120	RECESSED WALL LIGHT VERIFY EX OPENING
	X			LED	BEGHELLI	PCHRAT		X		LED	120/12	SURFACE EXIT W/ DIRECTION KNOCKOUTS & TWIN EM HEADS

INTERIOR LIGHTING COMPLIANCE
PER R067 FBC- ENERGY
TABLE C405.2(2) SPACE BY SPACE METHOD

SPACE	CLASSIFICATION	ALLOW. W/SQFT.	AREA	ALLOW. WATTS	INSTALLED
101	RECEPTION	.9	125	113	94
101A	ENCLOSED OFFICE	1.11	128	142	
102	OFFICE	1.11	44	49	47
103	CORRIDOR	.66	99	65	47
104	W. RESTROOM	.98	178	174	141
105	M. RESTROOM	.98	198	194	188
106	LOBBY	.9	176	158	141
106A	CORRIDOR	.66	186	123	51
106B	CORRIDOR	.66	787	519	303
106C	STORAGE	.63	204	128	
107	MULTI PURPOSE	1.23	1060	1304	1269
108	JAN				
109	OFFICE (ENCLOSED)	1.11	175	194	141
110	ENCLOSED OFFICE	1.11	158	175	168
111	ENCLOSED OFFICE	1.11	160	178	168
112	ENCLOSED OFFICE	1.11	156	174	168
113	ENCLOSED OFFICE	1.11	169	188	168
114	ENCLOSED OFFICE	1.11	168	188	168
115	ENCLOSED OFFICE	1.11	114	126	97
116	ENCLOSED OFFICE	1.11	114	126	97
117	ENCLOSED OFFICE	1.11	114	126	97
118	ENCLOSED OFFICE	1.11	109	121	97
119	ENCLOSED OFFICE	1.11	112	124	97
120	ENCLOSED OFFICE	1.11	112	124	97
121	ENCLOSED OFFICE	1.11	112	124	97
122	BREAKROOM	.73	145	106	
123	MECH/ELEC	.95	166		



OFFICE LIGHTING AND RECEPTACLE CONTROL DETAIL



WHEN WIRING FOR 120V-CAP OFF ORANGE WIRE. WHENWIRING FOR 277V, CAP OFF BLACK WIRE.
DUE TO VARIANCES IN MANUFACTURERS, ELECTRICIAN SHALL VERIFY THE WIRING WITH THE DIMMER BEING SUPPLIED.

0-10V LED DIMMING WITH ON-OFF SWITCHING USING LUTRON PP20 POWER SUPPLY

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