CITY OF MOBILE
CALL FOR BIDS

200 Government Street – 3rd Floor Office Renovation
200 Government Street
Mobile, Alabama 36602
MX-068-22

Notice is hereby given that the City of Mobile will receive sealed bids for the above stated project on Wednesday, January 25, 2023, no later than 2:15 local time. Bidders shall insert sealed Bids into a receptacle, marked "City of Mobile Bids", located in the elevator lobby outside the office of the City Clerk Office, 9th Floor South Tower, Government Plaza, 205 Government Street, Mobile, Alabama 36602. The same will be publicly opened and read at 2:30 PM in the Atrium Lobby of Government Plaza. Additional bidding instructions are detailed in the project manual.

A pre-bid conference shall be held at the 200 Government Street building at 10:00 AM local time on Tuesday, January 10, 2023. We will meet outside the front lobby and work our way to the 3rd floor. A representative of the Bidder is encouraged to be present at the meeting. However, if no representative can be present in person, the Bidder shall contact the Project Manager at 251-208-7637, at least 24 hours prior to the meeting, in order to coordinate attendance of the meeting by conference call. Bidders are required to participate in the Pre-Bid Conference, visit the site prior to submitting a Bid, and include all costs associated with the project in their Bids.

Bid Documents are on file and may be examined and obtained from the following location:
www.cityofmobile.org/bids/

Disadvantaged Business Enterprise participation may be required. A Directory of DBE Vendors can be found at the following location:
https://workwith.cityofmobile.org/

200 Government Street
Third Floor Renovations
Mobile, Alabama

Project Number MX-068-22

Bid Specifications

Prepared for :

City of Mobile Architectural Engineering Department

Prepared by:

dakinstreet architects

70 N. Joachim Unit C Mobile|Alabama|36602

251|382|8317

Issued for Bid

December 16, 2022

INDEX TO DOCUMENTS

SECTION DOCUMENT NAME

DIVISION 1: **GENERAL REQUIREMENTS**

SECTION 001010 SUMMARY OF THE WORK
SECTION 001210 ALLOWANCES
SECTION 001330 SUBMITTAL PROCEDURES
SECTION 002411 SELECTIVE DEMO
SECTION 012300 ALTERNATES
SECTION 012500 SUBSTITUTION PROCEDURES
SECTION 017300 EXECUTION
SECTION 017700 CLOSEOUT PROCEDURES
SECTION 017823 OPERATION AND MAINTENANCE DATA
SECTION 017839 PROJECT RECORD DOCUMENTS
SECTION 017900 DEMONSTRATION AND TRAINING

DIVISION 2: **EXISTING CONDITIONS**

SECTION 024119 SELECTIVE DEMOLITION

DIVISION 3: **CONCRETE (N/A)**
DIVISION 4: **MASONRY (N/A)**
DIVISION 5: **METALS (N/A)**

DIVISION 6: **WOODS, PLASTICS & COMPOSITES**

SECTION 061000 ROUGH CARPENTRY
SECTION 062023 FINISH CARPENTRY

DIVISION 7: **THERMAL AND MOISTURE PROTECTION (N/A)**

DIVISION 8: **OPENINGS**

SECTION 081113 HOLLOW METAL FRAMES
SECTION 081416 FLUSH WOOD DOORS

DIVISION 9: **FINISHES**

SECTION 092900 GYPSUM BOARD
SECTION 096519 RESILIENT FLOORING
SECTION 096813 TILE CARPETING
SECTION 099123 INTERIOR PAINTING

DIVISION 10: **SPECIALTIES (N/A)**
DIVISION 11: **EQUIPMENT (N/A)**
DIVISION 12: **FURNISHINGS (N/A)**
DIVISION 13: **SPECIAL CONSTRUCTION (N/A)**
DIVISION 14: **CONVEYING EQUIPMENT (N/A)**
DIVISION 21: **FIRE SUPPRESSION (**SEE FP DRAWINGS**)**

DIVISION 22: **PLUMBING (N/A)**
DIVISION 23: **MECHANICAL**

SECTION 210000 FIRE PROTECTION GENERAL
SECTION 210010 CODES AND STANDARDS
SECTION 211313 WET PIPE SPRINKLER SYSTEM
SECTION 230000 HVAC GENERAL
SECTION 230010 CODES AND STANDARDS
SECTION 230020 HVAC RELATED WORK
SECTION 230513 MOTORS
SECTION 230517 SLEEVES AND SLEEVE SEALS
SECTION 230526 ACCESS DOORS
SECTION 230529 HANGERS AND SUPPORTS
SECTION 230548 VIBRATION ISOLATION
SECTION 230553 HVAC IDENTIFICATION
SECTION 230590 STARTUP REQUIREMENTS FOR HVAC SYSTEMS
SECTION 230593 TESTING, ADJUSTING, AND BALANCING
SECTION 230713 DUCT INSULATION
SECTION 233113 METAL DUCTWORK
SECTION 233400 FANS
SECTION 233713 DIFFUSERS, REGISTERS, AND GRILLES
SECTION 234100 AIR FILTRATION
SECTION 238126 SPLIT-SYSTEM AIR CONDITIONING UNITS

DIVISION 26: **ELECTRICAL** (SEE E DRAWINGS)
DIVISION 27: **COMMUNICATIONS (N/A)**
DIVISION 28: **ELECTRONIC SAFETY AND SECURITY (N/A)**
DIVISION 31: **EARTHWORK (N/A)**
DIVISION 32: **EXTERIOR IMPROVEMENTS (N/A)**
DIVISION 33: **UTILITIES (N/A)**

You are invited to submit a sealed bid for construction of the following facility:

PROJECT NAME:	200 Government Street – Third Floor Renovations
PROJECT LOCATION:	200 Government Street, Mobile, Alabama 36602
PROJECT NUMBER:	MX-068-22

1 BID DATE:

A. Sealed Bids will be received and clocked in until **2:15 PM** local time, **Wednesday, the 18th day of January 2022** in the office of the City Clerk, Government Plaza, 9th Floor South Administrative Tower, 205 Government Street, Mobile, Alabama 36602.

B. All Bids not clocked in at the City Clerk's Office prior to the time specified, or Bids received after the specified time, will be automatically rejected and returned immediately, unopened.

C. Bids will be publicly opened and read at **2:30 PM** local time, in the Atrium Lobby of Government Plaza.

2 SPECIFICATIONS AND DRAWINGS:

A. Specifications and Drawings are on file and may be examined at the following location:

a. City of Mobile, 5th Floor Architectural Engineering Department, Government Plaza, 205 Government Street, Mobile Alabama 36602.

B. Bidders shall use complete sets of Bid Documents in preparing their bid. Neither the Owner nor Architect/Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

C. A deposit of $50.00 per set, all of which is refundable in full on the first two sets to each prime contractor bidder if contract documents are returned in reusable condition within ten (10) calendar days of bid date.

a. Payments shall be made by check or money order to the City of Mobile. No cash or credit card payments will be accepted.

b. Bidders that request documents be sent by mail or another delivery service shall provide the cost of delivery by separate check or money order, which cost is non-refundable, in addition to the cost of Bid Documents.

c. Only bidders who have paid the deposit and have registered with the Project Manager may receive electronic (pdf) bid documents.

D. Bidders are requested to pick-up Bid Documents from Architectural Engineering Department between the hours of 8:00 AM to 12:00 PM and 1:00 PM to 3:00 PM.

E. Bidders receiving a minimum of one complete set of Bid Documents shall register with the Project Manager.

F. Addenda will be issued via e-mail to each bidder registered as having a complete set of Bid Documents and all Pre-Bid Conference attendees.

G. **This is a tax exempt project and shall be certified by the requirements of the Alabama Department of Revenue. Bidders shall NOT include sales and use taxes with their bid amounts. Bidders shall complete the Sales Tax Form C-3A and include it as an attachment to their Bid Form (see Section 004100).**

3 BID SURETY: Required on Bids $10,000.00 or more

A. A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond payable to Owner, City of Mobile, in the amount of 5% of the Base Bid, but in no event more than $10,000.00 is required to accompany Bid.

B. Bid Bond must be issued by a Surety licensed to do business in the State of Alabama. Bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

C. No Bid may be modified, withdrawn, or canceled for a period of sixty (60) days after the time designated above for receipt of bids.

D. The City of Mobile will have sixty (60) days from the bid opening date to award contract.

4 SURETY QUALIFICATIONS:

A. A Surety authorized to do business in the State of Alabama must issue Bonds.

B. If the Base Bid is $50,000 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

5 IRREGULARITIES AND REJECTION:

A. The City of Mobile reserves the right to waive irregularities in the Bid and in Bidding, and to reject any or all Bids.

6 BIDDER QUALIFICATIONS:

A. Bids for Work costing $50,000 or more must be licensed pursuant to current Alabama law and of classifications compliant with the State of Alabama Licensing Board for General Contractors. Note that if the contract amount is $10,000 or greater, both a Performance Bond and a Labor and Material Payment Bond shall be required. **Before Bidding, Contractor shall verify their license classification of their General Contractors license with the State of Alabama Licensing Board for General Contractors to verify classification is acceptable to perform 51% of the Scope of Work.**

B. In case of a joint venture of two or more Contractors, the amount for the bid shall be within the maximum bid limitations as set by the State of Alabama Licensing Board for General Contractors of at least one of the partners to the joint venture.

7 NON-RESIDENT CONTRACTORS:

A. Except for contracts funded in whole or part with funds received from a federal agency, preference shall be given to resident Contractors on the same basis as the nonresident

Contractor's state awards contracts to Alabama Contractors bidding in similar circumstances.

B. Nonresident Bidders shall, prior to submitting a bid, be registered with the Alabama Secretary of State and the Alabama Department of Revenue. Provide the Secretary of State Business "Entity ID Number" on the Bid Form in the space provided.

8 PRE-BID CONFERENCE:

A. A Pre-Bid Conference shall be held on **Tuesday, January 10, 2022**, **at 200 Government Street, Mobile, Alabama 36602** at 10:00 AM local time. The conference will include a walkthrough of the project stie. Conference shall commence at the corner of Government Street and S. Conception Street, outside the lobby.

B. Minutes of this conference will be made as an Addendum for the project.

9 BID SUBMITTAL:

A. Bids must be submitted on copies of the Bid Forms furnished in the bidding documents.

B. Bid, with Bid Security, Sales Tax Form C-3A and other supporting data specified, shall be contained in a sealed, opaque envelope, approximately 9x12 inches or larger and be marked on the outside with the words "**SEALED BID FOR 200 GOVERNMENT STREET – THIRD FLOOR RENOVATIONS - PROJECT NUMBER: MX-068-22".**

C. The Bid envelope shall be clearly addressed to the Owner as indicated on the Bid Form and include the bid date, the name, address and State License number and classification of the Bidder issued by the State of Alabama Licensing Board for General Contractors.

D. All Bids of $50,000 or more must include the bidder's State of Alabama General Contractor's License information written on the outside of the bid envelope. Any bid submitted without such license information may be rejected and returned to the bidder unopened.

E. In addition, in large letters on both front and back of envelope, write the following: **DO NOT OPEN UNTIL TWO-THIRTY PM, JANUARY 18, 2022**.

F. For a bid to be valid it shall be delivered at designated location prior to time and date for receipt of Bids indicated in INVITATION TO BID, or prior to any extension thereof issued to Bidders. After that time no Bid will be received or withdrawn.

G. When sent by mail, preferably special delivery, express service, or registered mail, the sealed Bid, marked as indicated above, shall be enclosed in another envelope for mailing such that the exterior mailing container or envelope may be opened without revealing the contents of the Bid. It is the Contractors responsibility to assure delivery of the bid to the City Clerk's Office prior the time and date established.

10 EQUAL OPPORTUNITY:

A. The City of Mobile, Alabama is an Equal Opportunity Employer and requires that all Contractors comply with the Equal Employment Opportunity laws and the provisions of the Bid Documents in this regard.

B. The City of Mobile also encourages and supports the utilization of Minority Business Enterprises on these and all other publicly solicited Bids, and shall be in compliance with the City of Mobile's Minority Utilization Plan as adopted by the City Council.

C. Contractor shall provide an appropriately completed copy of the "City of Mobile Subcontracting and Major Supplier Plan" in the envelope with their Bid Form. Form shall document DBE Subcontractors participating in the project and, should the total % of DBE participation not meet the 15% minimum, all efforts to obtain DBE Subcontractors shall be documented on or attached to the DBE Form when submitted. During construction, contractors are required to submit a "DBE Utilization Report" with every Pay Application.

D. Contractors should contact the City of Mobile, Supplier Diversity Manager for assistance with DBE Subcontractor information and any questions regarding the DBE Compliance Forms. Contact Archnique Kidd at 251-208-7967.

11 ADDITIONAL BIDDING PROCEDURES:

A. Refer to the complete information in the Bid Documents prior to submitting a bid. Additional Bidding Procedure information is contained therein, particularly in the specification Section 00 21 00 "Instructions to Bidders - AIA Document A701" and in the specification Section 00 22 00 "Supplementary Instructions to Bidders".

12. STATE OF ALABAMA IMMIGRATION ACT

"The State of Alabama, under the Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No. 2011-535, Alabama Code Section 31-13-1, et. Seq., requires:

A. That the Contractor shall be enrolled in the E-Verify Program, shall participate in that Program during the performance of the contract, and shall verify the immigration status of every employee who is required to be verified, according to the applicable federal rules and regulations; and

B. That it will attach to the contract the company's documentation of enrollment in E-Verify.

C. The subcontractor must also enroll in the E-Verify Program prior to performing any work on the contract and shall attach to its sworn affidavit documentation establishing that the subcontractor is enrolled in the E-Verify Program.

13. PUBLIC CONTRACTS WITH ENTITIES ENGAGING IN CERTAIN BOYCOTT ACTIVITIES

A. By signing this contract, Contractor further represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

END OF SECTION

SECTION 00200 - INSTRUCTIONS TO BIDDERS – AIA DOCUMENT A701

PART 1 GENERAL

A. This section includes the INSTRUCTIONS TO BIDDERS, AIA Document A701. The document has been electronically modified to meet the Owner's requirements and shall be used for the Project.

SECTION 00410 - BID FORM

The following Bid Form shall be used. Bids submitted on alternate forms may be rejected. Fill in all blank spaces with an appropriate entry. Bid Form must be signed by an officer of the company and notarized.

TO: City of Mobile, 205 Government St., P.O. Box l827, Mobile, AL, 36633

REF: PROJECT NAME: 200 Government Street Third Floor Renovations

PROJECT NO.: MX-068-22

PROJECT LOCATION: 200 Government Street, Mobile, AL 36633

In compliance with the Bid Documents and having carefully and thoroughly examined said documents for the subject Work prepared by dakinstreet architects and dated Dec. 16, 2022; and all Addendum(a) Number(s) _____, dated _____, 2022.

(CAUTION: before submitting any bid it is the Bidder's responsibility to check with the Architectural Engineering Department for all Addenda or special instructions that may impact the Bid) thereto, receipt of which is hereby acknowledged, the premises and all conditions affecting the Work prior to making this Proposal, the Undersigned Bidder,

COMPANY NAME: _____

ADDRESS: _____

_____

PHONE _____

ALABAMA GENERAL CONTRACTOR LICENSE NO. _____

CITY OF MOBILE BUSINESS LICENSE NO. _____

SECRETARY OF STATE OF ALABAMA ACCOUNT NO. _____

(Note: Secretary of State Account Number shall be filled in only by non-resident bidders)

(Check one) [ ] (A Corporation)

[ ] (A Partnership)

[ ] (An Individual Doing Business)

hereby proposes to furnish all labor, materials, tools, equipment, and supplies and to sustain all the expenses incurred in performing the Work on the above captioned Project in accordance with the terms of the Contract Documents, and all applicable laws and regulations for the sum listed below. The initial term of the Contract shall extend for one hundred twenty (120) days from the date of the Notice to Proceed.

Base Bid: **$**_____

Total Allowance: + **$ 10,000.00**

Total Base Bid: **$**_____
(Fill in here and in Total Base Bid below)

TOTAL BASE BID: _____

_____Dollars, ($ _____._____)
(Amount in Words) (Amount in Figures)

ALLOWANCES: $10,000 lump sum Allowance shall be included in the Total Base Bid for work related to unforeseen conditions as approved by the Owner.

BID SECURITY: The undersigned Bidder agrees that the attached Bid Security, as a Cashier's Check drawn on an Alabama bank or a Bid Bond, made payable to the City of Mobile, in the amount of 5% of the bid amount, but in no event more than $10,000, is the proper measure of liquidated damages which the City will sustain by the failure of the undersigned to execute the Contract. Said Bid Security shall become the property of the City of Mobile as liquidated damages as specified in the Contract Documents.

AMERICANS WITH DISABILITIES ACT (ADA): The undersigned Bidder agrees to fully comply with all requirements of the Americans with Disabilities Act of 1990 and the Amendment Act.

NONDISCRIMINATION: The undersigned Bidder certifies that he/she will comply with Federal, State and local laws concerning discrimination, including Section 14.1 and Section 14.2, Code of the City of Mobile, adopted December 10, 1991.

SIGNATURE: If the undersigned Bidder is incorporated, the entire legal title of the company followed by "a corporation" should be used. If Bidder is an individual, then that individual's full legal name followed by doing business as (d/b/a) and name of firm, if any, should be used. If Bidder is a partnership, then full name of each partner should be listed followed by "d/b/a" and name of firm, if any.

Ensure that name and exact arrangement thereof is the same on all forms submitted with this Bid. If a word is abbreviated in the official company name, such as "Co.", then use that abbreviation. If not abbreviated in the official name, spell out.

Bidder agrees not to revoke or withdraw this Bid until sixty (60) calendar days following the time and date for receipt of bids. If notified in writing of the acceptance of this Bid within this time period, Bidder agrees to execute a Contract based on this Bid on the proscribed form within ten (10) calendar days of said notification and to furnish Performance Bond and Materials and Payment Bond as specified.

COMPANY NAME:_____
(Printed or Typed)

BY:_____
(Signature of Company Officer)

COMPANY OFFICER:_____
(Printed or Typed)

TITLE_____ **DATE**_____**, 2023**
(Printed or Typed)

Sworn to and subscribed before me this _____ day of _____2023

_____
Notary Public

Attachments:
1. Bid Security, with Power of Attorney.
2. Secretary of State Authorization (Out of State Bidder only).

END OF SECTION 00410

SECTION 00600 - BONDS AND CERTIFICATES

PART 1 GENERAL

This section includes the Bond Forms and Certificates that are to be used on this Project. No other forms will be accepted. Forms may be obtained from the Architectural Engineering Department, City of Mobile, telephone number 251-208-7454.

1.1 FORMS

A. PERFORMANCE BOND. Owner's modified Performance Bond form.

B. LABOR AND MATERIAL PAYMENT BOND. Owner's modified Payment Bond form.

C. E-VERIFY DOCUMENTATION (SAMPLE)

D. CONTRACTOR INFORMATION REGARDING QUALIFIED MINORITY INDIVIDUALS

E. SUPPLEMENTAL ATTACHMENT FOR ACORD CERTIFICATE OF INSURANCE- AIA DOCUMENT G715

F. APPLICATION AND CERTIFICATION FOR PAYMENT. AIA Documents G702 and G703.

G. CERTIFICATE OF SUBSTANTIAL COMPLETION. AIA Document G704.

H. CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS. AIA Document G706.

I. CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS. AIA Document G706A.

J. CONSENT OF SURETY TO FINAL PAYMENT. AIA Document G707.

SECTION 00700 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION (AIA DOCUMENT A201 – 2007)

PART 1 GENERAL

This section includes the GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, AIA Document A-201 that are to be used on this Project.

SECTION 01010 -SUMMARY OF THE WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Summary of Work: Contract, Contractor use of premises, future work.
B. Contract Considerations: Contingency allowance, schedule of values, applications for payment, change procedures, alternates.
C. Coordination and Meetings: Coordination, field engineering, cutting and patching, meetings, progress meetings, examination, preparation, cutting and patching.
D. Submittals: submittal procedures, construction progress schedules, proposed products list, shop drawings, product data, samples, manufacturers' installation instruction, manufacturers' certificates.
E. Quality Control: Quality assurance-control of installation, Tolerances, References, Mock-ups, Manufacturers' field services and reports.
F. Construction Facilities and Temporary Controls: Electricity, temporary lighting for construction purposes, heat, telephone service, water service, temporary sanitary facilities, barriers and fencing, exterior enclosures, protection of installed work, security, access roads, parking, progress
G. Material and Equipment: Products, transportation, handling, storage, and protection, products options, substitutions.
H. Contract Closeout: Contract closeout procedures, final cleaning, adjusting, project record documents, operation and maintenance data, spare parts and maintenance materials, warranties.

1.2 CONTRACT:

A. Summary of Work: The Project includes furnishing of all materials and labor for the demolition and subsequent renovation of approximately 6,240 square feet of roughly the east half of the third floor of the 200 Government Street office building. The space previously served as a general office setup. The building is fully sprinklered and shall remain functional through construction.
B. Contract Description: Stipulated sum.

1.3 CONTRACTOR USE OF PREMISES:

A. Throughout construction, the building will remain in use as office space for several City of Mobile departments. Currently, the eastern half of the third floor and the entire first and second floors are occupied. The Contractor must make every effort to minimize disruptions to these building occupants and clientele.
B. Although 200 Government Street is a limited access facility, the Owner is willing to work with the Contractor to accommodate the construction process and thereby reduce construction cost. Construction activity outside the building occupants' normal working hours can be coordinated with the Owner and the building's security personnel.

When the building is in use by its occupants, typical open hours of operation are as follows:
Monday through Saturday: 7:00 AM – 7:00 PM;
Sunday: closed

C. The Contractor shall document with photographs the condition of the lobby, hallways, the elevator, the elevator pit, and the stairs, prior to and again after construction, in order to demonstrate that the building is being returned to the Owner in not less than its original condition.

D. Delivery of building materials and removal of construction debris via the elevator must occur prior to 7:00 a.m. or after 7:00 p.m., and at other times agreed to by the Owner in advance. At the conclusion of each period of usage and prior to the use of the elevator by building occupants and clientele, the elevator should be thoroughly cleaned. The stairs will be available for use at any time during the work schedule. All areas used by the public and staff shall be kept clean and free of construction materials and debris between the hours of 7:00 AM through 7:00 PM, Monday through Friday. Special care should be taken to avoid collection of debris in the elevator pit as a result of construction activities.

E. During the demolition phase, a dumpster may be placed on the sidewalk below the construction area on the third floor. The Contractor is to carefully remove (and subsequently re-install) the easternmost metal frame window in the proposed new Conference Room, and position a chute from this window into the dumpster below. The Contractor must provide protection as necessary to assure the safety of individuals entering and leaving the Probation Defendants Entrance at the southwest corner of the building, as well as the main entrance at the southeast corner of the building. While the dumpster is present, the sidewalk will be blocked to pedestrian traffic. For this reason the Contractor must plan and stage demolition activity to assure that the dumpster is on the sidewalk for no longer than two weeks. The Contractor shall take all precautions necessary to avoid damage to the sidewalk. If damage occurs, the Contractor shall replace the damaged concrete.

1.4 ALLOWANCES:

A. Include in the Contract the amount of $10,000.00 for work related to unforeseen conditions, as approved by the Owner.
B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit are included in Change or Field Orders authorizing expenditure of funds from this Allowance.

1.5 SCHEDULE OF VALUES:

A. Submit Schedule of Values on AIA Form G703 with G702 Form Application and Certification for Payment.

1.6 APPLICATION AND CERTIFICATION FOR PAYMENT:

A. Submit three (3) signed and notarized originals of each application on AIA Forms G702 and G703.
B. Content and Format: Utilize the format in the Schedule of Values for tabulation of amounts in the Application and Certification for Payment.
C. Payment Period: See General Conditions.

1.7 CHANGE ORDER PROCEDURES:

A. All contract changes involving a change in scope, payment and/or time shall be made by Change Order.
B. The Change Order shall be in the form of a Stipulated Sum/Price Change Order, based upon a Proposal Request and Contractor's fixed price quotation, or upon Contractor's request for a Change Order as approved by Owner.
C. Change Order Forms: Submit form approved by Owner's Project Manager.
D. Changes to the Contract Time: Because the work of this Project is predominantly indoors, time extensions due to weather are not likely to be considered. Exterior (roof) work should be coordinated and scheduled around weather conditions.

1.9 COORDINATION:

A. Coordinate scheduling, submittals, and work in the various areas of the facility to ensure an efficient and orderly sequence of installation and to minimize disruption to surrounding occupied areas.
B. Remove and store outside the facility existing items not permanently installed in the area, in order to avoid damage to the items or if their presence would impede the construction process. Return the items to their original location immediately following installation of work in the specific area and acceptance of work by the Owner.

1.10 FIELD ENGINEERING:

A. Establish elevations, lines, and levels, and certify that elevations and locations of the Work conform to the Contract Documents. Verify the location of structural elements and confirm the coordination of mechanical and electrical systems with these locations, prior to installation. Bring any discrepancies to the attention of the Architect and the Owner.
B. Contractor shall field verify all measurements and quantities required for complete installation of all elements of the construction.

PART 2 PRODUCTS:

2.1 GENERAL REQUIREMENTS:

A. Products: The term Products refers to new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
B. Transport, handle, store, and protect Products in accordance with manufacturers' instructions.

C. When the Contract Documents name a single manufacturer "or equal", or when the Product of a single manufacturer is named as the "Basis of Design", the Contractor may propose equal alternate Products, to be approved by the Owner as substitutions. Submit the date describing the alternate Product as required in SUBSTITUTIONS.

2.2 SUBSTITUTIONS:

A. The Architect will consider requests for Substitutions only within ten (10) calendar days after date established in Notice to Proceed. For Pre-Bid approved Substitutions, submit request five (5) calendar days or more before bid date with adequate back up data to demonstrate that all characteristics of the originally specified Product are met with the substituted Product or material, and that it is equal to the specified Product.
B. Document each request with complete backup data substantiating compliance of proposed Substitutions with all characteristics of the material(s) specified in the Contract Documents.
C. Submit three (3) copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

PART 3 EXECUTION

3.1 MEETINGS:

A. The Owner will schedule a pre-construction meeting after contract award, in accordance with Section 00100 – Supplemental Instructions to Bidders.
B. The Contractor shall schedule and administer meetings throughout progress of the Work at pre-approved intervals.
C. The Contractor shall preside at meetings, record minutes, and distribute copies within two (2) days, to those affected by decisions made.

3.2 CONSTRUCTION PROGRESS SCHEDULES:

A. The Contractor shall submit, for the Owner's review, an initial progress schedule in duplicate within ten (10) days after date of Owner-Contractor Agreement.

B. The Contractor shall submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of the Work at each submission.

3.3 SHOP DRAWINGS:

A. Prior to fabrication or installation, submit samples and shop drawings for approval by the Architect when called for in the Specifications. The Architect shall review the shop drawings for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. **The Architect will be given five full business days, beginning with the day following receipt of the submittal, to review and return the submittal to the Contractor.** Submittals will be returned with one of the following Action instructions:

No Exception Taken - Proceed with work as submitted.
Furnish as Corrected - Proceed with work as corrected.
Revise and Resubmit – Do not proceed; make corrections and resubmit.
Rejected - Not approved or deemed acceptable.
Submit Specified Item – Data or sample is missing from the submittal. The Submittal will not be reviewed until the missing item is furnished
Not Reviewed – Item was not to be reviewed by the Architect.

B. Submit three (3) copies for use by the Architect and an additional copy for the Owner, plus the number of copies that Contractor requires. Electronic submittals may be acceptable with prior approval of the Architect. Closeout documents shall include hard copies of all submittals.

C. Present information in a clear and thorough manner. Identify details by reference to sheet and detail numbers or areas shown on the Drawings. Reproductions of details contained in the Contract Documents are not acceptable.

D. When called for in the specifications, submit samples of materials or workmanship for approval by the Architect as to quality, color design, or workmanship, prior to fabrication or installation of the item(s).

3.4 QUALITY ASSURANCE-CONTROL OF INSTALLATION:

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' written instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate that higher standards or more precise workmanship are called for.

D. Supply certification from manufacturer that the installed Work meets or exceeds all manufacturers' requirements.

3.4 EXAMINATION:

A. Confirm that existing site conditions and substrate surfaces are acceptable for subsequent work. The commencement of new work signifies acceptance by the Contractor of existing conditions.

B. Verify that utility services are available, and that they possess the correct characteristics and are in the correct locations.

3.5 PREPARATION:

A. Clean and prepare substrate surfaces prior to applying the next material or substance.

B. Apply the manufacturer's required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.6 TOLERANCES:

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce

acceptable work. Do not permit tolerances to accumulate. Comply fully with manufacturers' recommended tolerances.

3.7 REFERENCES:

A. Conform to reference standards by date of issue current as of date of Contract Documents.
B. Should specified reference standard conflict with Contract Documents, request clarification from the Architect before proceeding.

3.8 ELECTRICITY:

A. Unless otherwise provided for, Contractor shall be allowed to utilize power from the facility in moderate amounts.
B. Provide power outlets for construction operations, branch wiring, distribution boxes, and flexible power cords as required.
C. During construction, the Contractor shall condition the space as necessary to protect all work and materials against damage from dampness and temperature, until final acceptance of the Work. For a period of ten (10) days prior to placing interior wood finish work or other temperature-sensitive items and throughout the interior finishing process, maintain a temperature of not less than 70 degrees.

3.9 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES:

A. Provide and maintain temporary lighting for construction operations as required.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

3.10 TEMPORARY CONSTRUCTION AREA:

A. Provide a temporary area at the construction site accessible for use by the Architect or Owner during construction, with adequate lighting and ventilation, and with a table or shelf for spreading and reviewing plans. At all times, maintain one set of all Contract Documents, including all shop drawings, for use by the Architect or the Owner during site visits.

3.11 WATER SERVICE:

A. The Owner shall provide suitable potable water in moderate quantities, without cost to the Contractor.

3.12 FIRE PROTECTION SYSTEM:

A. The Contractor shall coordinate with the Fire Marshall and other regulatory authorities as necessary to accomplish all modifications to the sprinkler and alarm system in the construction area. The final installation in the Riser Room shall include a 2" check valve assembly, a control valve with tamper switch (tied to the alarm system), a flow switch, and a drain valve. The drain valve should be piped to a vertical leader from the roof

drainage system. One or more of these elements may already be in place, but likely will have to be relocated as a part of the total sprinkler service new configuration. During construction, it will be necessary to shut off water to the third floor and above – this cessation of sprinkler protection is to be coordinated with the building occupants and the Fire Marshall, and down time is to be kept to a minimum.

3.13 TEMPORARY SANITARY FACILITIES:

A. Contractor shall provide and maintain required sanitary facilities and enclosures, to be located at the edge of the sidewalk on the west side of Conception Street (or in an alternate location if suggested by the Contractor and agreed upon by the Owner). Maintain in clean and sanitary condition. The use by the construction personnel of toilet facilities within the building will not be permitted.

3.14 BARRIERS AND FENCING:

A. Provide barriers and fencing as needed to protect existing facilities and adjacent properties from dust, debris and damage, and to protect the public from construction-related activity at street level.

3.15 STORAGE OF MATERIALS:

A. The Contractor shall store for protection all materials that may be damaged, broken, or subject to decay or spoiling. Store all materials such as cement, lime, plaster, etc. under dry, weather-tight conditions.

3.16 PROTECTION OF INSTALLED WORK:

A. Protect installed Work and provide special protection where specified in individual specification sections. Prohibit traffic or storage upon paving surfaces unless specifically authorized by the Owner to do otherwise.

3.17 SECURITY:

A. Provide security and other measures as necessary to protect the Work and existing facilities unauthorized entry, vandalism, or theft.

3.18 ACCESS ROADS & HAULING:

A. Use of the adjacent Conception Street right-of-way during construction has been discussed with the City of Mobile Traffic Engineering Department, resulting in the following plan:

The parking meters on the east side of Conception Street will be bagged to prohibit the use of these parking spaces by the public. Northbound traffic on Conception Street will be re-directed with cones to this eastern half of the street. This will free up the west side of Conception Street for use by the Contractor for deliveries, a construction dumpster, and portable toilets (at the edge of the

sidewalk). A single parking space also will be provided in this area (see PARKING).

B. Provide appropriate protection to prevent damage to sidewalk and paving surfaces. After construction, restore the site to pre-construction condition.

3.19 PARKING:

A. The Contractor is responsible for making whatever arrangements he deems necessary for parking the vehicles of construction personnel.

B. The dumpster and the portable toilets on Conception Street are to be located in such a way as to leave a parking space (minimum length: 22') between the north end of the dumpster and the driveway into the building to the north. During construction, this parking space will be assigned to the staff of the Mobile 311 Department.

3.20 PROGRESS CLEANING AND WASTE REMOVAL:

A. Collect and maintain work areas free of waste materials, debris, and rubbish on a daily basis. Maintain site in a clean and orderly condition. Provide refuse containers and dispose of construction debris legally off site. The Owner may request load tickets from landfills permitted to accept construction debris.

3.21 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS:

A. Remove temporary utilities, equipment, facilities and materials, prior to Substantial Completion review.
B. Clean and repair damage caused by installation or use of temporary work.
C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

3.22 CONTRACT CLOSEOUT PROCEDURES:

A. Submit written certification that the Contract Documents have been reviewed, that the Work has been inspected, and that the Work is complete in accordance with Contract Documents and ready for the Architect's inspection.
B. Submit a final Application and Certification for Payment indentifying total adjusted Contract Sum/Price, previous payments, and amount remaining due. For final payment of retainage, submit invoice, consent of surety, certificates of no liens, proof of advertisement, and other documents required by the Owner and State law.
C. Submit a set of plans with all variations neatly noted for use as Record Drawings.

3.23 FINAL CLEANING:

A. Perform final cleaning prior to final inspection of each work area. The entire Project is to be ready for use by the User once all areas of the Work are completed.
B. Clean all surfaces exposed to view.

C. Clean debris from site and drainage systems.
D. Remove waste and surplus materials, rubbish, and construction facilities from the construction area and the site.

3.24 FINAL INSPECTION:

A. The Architect will make a preliminary final inspection and will subsequently furnish the Contractor with a punch list identifying all areas of non-conformance with the Contact Documents, along with items to be corrected. Upon notification that all deficiencies noted on the punch list have been corrected, the Architect will make a Final Inspection to verify the satisfactory execution of the punch list. After the Contractor has satisfied the requirements of the final punch list and met all of the requirements identified in PROJECT CLOSEOUT PROCEDURES, he may submit an Application and Certification for Payment on the retainage of the Contract Amount.

3.25 PROJECT RECORD DOCUMENTS:

A. Maintain on site one (1) set of Contract Documents to be utilized only for Record Documents.
B. Neatly record actual revisions to the Work. Record information concurrent with construction progress.
C. Specifications: Legibly mark and record at each Product section a description of actual Products installed.
D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.
E. Include copies of all guarantees, warranties, and bonds called for in the Contract Documents.
F. Include copies of all permits and other regulatory approvals, including the Certificate of Completion (signifying that the building is ready for occupancy by the User).
G. Submit documents to Project Manager with claim for final Application for Payment.

3.26 WARRANTIES:

A. All materials and labor to be warranted for minimum of one (1) year after Substantial Completion of the entire project. Contractor is to promptly repair all deficiencies within that time. The Owner shall schedule a warranty inspection, with the Contractor and the Architect, before the end of the warranty period to review the work and note deficiencies for the Contractor to correct. If no deficiencies are noted, this meeting may be waived.

END OF SECTION 01010

SECTION 01210 - ALLOWANCES

PART 1 GENERAL

1.1 As shown on the Bid Form, the Contractor shall include in the contract sum an allowance in the amount of $10,000.00.

A. The Allowance shall be used for unforeseen conditions; the need to perform the additional work and any associated increases in the Contract Amount shall be agreed upon by the Owner and the Contractor prior to ordering of the materials or undertaking of the work.

PART 2 PRODUCTS: NOT USED

PART 3 EXECUTION

3.1 The work shall not be undertaken until the Owner provides the contractor written authorization to perform the additional work.

3.2 Upon completion of the Work, any unused portion or the total amount of the Allowance shall be credited back to the Owner in the form of a Change Order.

END OF SECTION 01210

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Submittal procedures.
2. Submittal schedule.
3. Shop Drawings.
4. Product Data.
5. Samples.

1.3 SUBMITTAL PROCEDURES

A. Number each submittal with Project Manual specification Section number and a sequential number within each section. Number resubmittals with original number and an alphabetic suffix.

B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail numbers, and specification Section number, as appropriate.

C. Submit all submittals simultaneously for each Product or Specification Section. Where multiple Products function as an assembly, group submittals for all related Products into single submittal.

D. Architect will not review incomplete submittals.

E. Apply Contractor’s stamp, signed or initialed certifying that:
1. Submittal was reviewed.
2. Products, field dimensions, and adjacent construction have been verified.
3. Information has been coordinated with requirements of Work and Contract Documents.

F. Schedule submittals to expedite the Project, and deliver to Architect. Coordinate submittal of related items.

G. For each submittal, allow 10 days for Architect’s review, excluding delivery time to and from Contractor. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of completed Work.

H. Revise and resubmit submittals when required; identify all changes made since previous submittal.

I. Distribute copies of reviewed submittals to concerned parties and to Project Record Documents file. Instruct parties to promptly report any inability to comply with provisions.

1.4 SUBMITTAL SCHEDULE

A. Submit a submittal schedule showing all submittals proposed for project, including:
   1. Submittals for Review.
   2. Closeout Submittals.

B. Include for each submittal:
   1. Specification section number.
   2. Description of submittal.
   3. Type of submittal.
   4. Anticipated submittal date.

C. Submit three copies. Submittal may be made electronically in Adobe PDF format with prior approval of Project Manager.

1.5 SHOP DRAWINGS

A. Present information in clear and thorough manner.

B. Identify details by reference to sheet and detail numbers or areas shown on Drawings.

C. Reproductions of details contained in Contract Documents are not acceptable.

D. Submit 3 copies. Architect will return one copy to Contractor for printing and distribution.

1.6 PRODUCT DATA

A. Mark each copy to identify applicable products, models, options, and other data.

B. Supplement manufacturers' standard data to provide information unique to this Project.

C. Submit 3 copies. Architect will return one copy to Contractor for printing and distribution.

1.7 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Where so indicated, submit samples of finishes to match existing and for Project Manager selection.

C. Include identification on each sample, with full Project information.

D. Unless otherwise specified in individual specifications, submit three of each sample.

E. Architect will notify Contractor of approval or rejection of samples, or of selection of color, texture, or pattern if full range is submitted.

END OF SECTION 01330

SECTION 02411 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.5 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's **and other tenants'** on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.

3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Locations of proposed dust- and noise-control temporary partitions and means of egress**, including for other tenants affected by selective demolition operations**.
6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
7. Means of protection for items to remain and items in path of waste removal from building.

B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

1. Comply with requirements specified in Division 01 Section "Summary."

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the following items:

a. Miscellaneous Files and furniture

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. **Owner** will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
8. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.

2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area **on-site**
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition **and cleaned** and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS N/A

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be **recycled,** reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02411

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

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

B. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Renovations to existing Third Floor Restrooms, with scope defined per Bid Drawings. Refer to Sheet A1.5 of the Bid Drawings

B. Alternate No. 2: Renovations to existing elevator cab interior, with scope defined per Bid Drawings. Refer to Sheet A1.5 of the Bid Drawings.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 012300 "Alternates" for products selected under an alternate.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use standard company form on company letterhead.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from **applicable code organization** where required.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within **seven** days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than **15** days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within **30** days of **the Notice to Proceed**. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.

f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. **Operational elements include the following:**

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Plumbing piping systems.
    f. Mechanical systems piping and ducts.
    g. Control systems.
    h. Communication systems.
    i. Fire-detection and -alarm systems.
    j. Conveying systems.
    k. Electrical wiring systems.
    l. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. **Other construction elements include but are not limited to the following:**

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Exterior curtain-wall construction.
    d. Sprayed fire-resistive material.
    e. Equipment supports.
    f. Piping, ductwork, vessels, and equipment.
    g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to

confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.

1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to **minimize** interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. **Concrete and Masonry**: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by **Architect**. Label with manufacturer's name and model number.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain **Architect's** signature for receipt of submittals.

5. Submit testing, adjusting, and balancing records.
6. Submit sustainable design submittals not previously submitted.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."

6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit final completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   2. Include the following information at the top of each page:

      a. Project name.
      b. Date.
      c. Name of Architect.
      d. Name of Contractor.
      e. Page number.

   3. Submit list of incomplete items in the following format:
      a. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

   1. Submit **on digital media acceptable to Owner.**

D. Warranties in Paper Form:

   1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.

l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
q. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Product maintenance manuals.
5. Systems and equipment maintenance manuals.

1.2 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operations and maintenance submittals are acceptable.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

a. Name each indexed document file in composite electronic index with applicable item name.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.

B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.

3. Manual contents.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, **loose-leaf** binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, **and** subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.

4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

   1. Do not use original project record documents as part of operation and maintenance manuals.

F. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:

a. Final Submittal:
1) Submit PDF electronic files of scanned record prints and **three** set(s) of prints.
2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit **annotated PDF electronic files** of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it.
c. Record and check the markup before enclosing concealed installations.
2. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file.

3. Identification: As follows:

   a. Project name/Date.
   b. Name of Architect.
   c. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
   3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
   4. Note related Change Orders**,** and record Drawings where applicable.

B. Format: Submit record Specifications as **annotated PDF electronic file**

2.3 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as **PDF electronic file**

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner and **ready for reuse** where noted.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at **Project site**.

1.4 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.5 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.

D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.6 WARRANTY

A. Existing Warranties: Coordinate with Owner to remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Survey of Existing Conditions: Record existing conditions by use of **preconstruction photographs**.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."

B. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area **designated by Owner**.
5. Protect items from damage during transport and storage.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site **and legally dispose of them in an EPA-approved landfill**.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Wood furring

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

C. Timber: Lumber of 5 inches nominal (114 mm actual) or greater in least dimension.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: **19 percent**.

B. Interior Partitions: **Construction or No. 2** grade and the following species:
   1. Mixed southern pine; SPIB.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

   1. Blocking.
   2. Nailers.
   3. Furring.

B. For items of dimension lumber size, provide **Construction or No. 2** grade lumber with **19** percent maximum moisture content and the following species:
   1. Mixed southern pine; SPIB.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate **furring,** nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

   1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

C. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction, unless otherwise indicated.
   1. For interior partitions and walls, provide **2-by-4-inch nominal** size wood studs spaced **16 inches** o.c., unless otherwise indicated.
   2. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs**, except that two studs may be used for interior non-load-bearing partitions**.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

   1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not less than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.

END OF SECTION 06100

SECTION 06202 - INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior standing and running trim.

B. Related Sections include the following:
1. Division 06 Section "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view.
2. Division 09 Section "Interior Painting" for priming and back-priming of interior finish carpentry.

1.3 DEFINITIONS

A. MDF: Medium-density fiberboard.

B. MDO Plywood: Plywood with a medium-density overlay on the face.

1.4 SUBMITTALS

A. Samples for Initial Selection: Standard wood base trim

1. Provide an 12-18” section of the standard wood base, painted per the finish schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver interior finish carpentry materials only when environmental conditions meet requirements specified for installation areas. If interior finish carpentry materials must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install interior finish carpentry materials until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and

HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 STANDING AND RUNNING TRIM

A. Moldings for Opaque Finish (Painted): Made to patterns included in WMMPA WM 12.

1. Hardwood Moldings: WMMPA HWM 2, P-grade.

    a. Species: **Aspen, basswood, cottonwood, gum, magnolia, soft maple, tupelo, or yellow poplar**
    b. Maximum Moisture Content: 9 percent.
2. Finger Jointing: **Allowed**

2.2 MISCELLANEOUS MATERIALS

A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.

B. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.

1. Use adhesive that has a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 FABRICATION

A. Back out or kerf backs of the following members except those with ends exposed in finished work:

1. Interior standing and running trim except shoe and crown molds.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

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

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

3.3 STANDING AND RUNNING TRIM INSTALLATION

A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints where necessary for alignment.
   1. Install trim after gypsum board joint finishing operations are completed.

3.4 ADJUSTING

A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.5 CLEANING

A. Clean interior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 06202

SECTION 08121 - HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes hollow-metal frames.

B. Related Requirements:

1. Section 081416 "Flush Wood Doors" for wood doors installed in hollow-metal frames.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include elevations, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, **provide products by one of the following**:
1. Ceco Door Products; an Assa Abloy Group company.
2. Curries Company; an Assa Abloy Group company.
3. Republic Doors and Frames.
4. Steelcraft; an Ingersoll-Rand company.

2.2 INTERIOR FRAMES

A. Standard-Duty Frames: SDI A250.8, Level 1.

1. Physical Performance: Level C according to SDI A250.4.s

2. Materials: **Uncoated**, cold-rolled steel sheet, minimum thickness of 0.042 inch (1.0 mm).
3. Construction: **Face welded**.
4. Exposed Finish: **Prime**.

2.3 FRAME ANCHORS

A. Jamb Anchors:
1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.

2.4 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.

B. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

C. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.5 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
3. Jamb Anchors: Provide number and spacing of anchors as follows:
   a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c.

4. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.

C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce frames to receive nontemplated, mortised, and surface-mounted hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.6 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. Install frames with removable stops located on secure side of opening.
    b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    c. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
2. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
3. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

END OF SECTION 08121

SECTION 08141- FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid-core doors with **wood-veneer** faces.
2. **Factory finishing** flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 SUBMITTALS

A. Product Data: For each type of door indicated. Include details of core and edge construction. **Include factory-finishing specifications.**

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.

C. Samples for Initial Selection: For **factory-finished doors**.

D. Samples for Verification:

1. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
    a. Finish veneer-faced door samples with same materials proposed for factory-finished doors.

E. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors from single manufacturer.

B. Quality Standard: In addition to requirements specified, comply with **AWI's "Architectural Woodwork Quality Standards Illustrated."**

1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in **plastic bags or cardboard cartons**.

C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.
b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.

2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design to match species and stain on existing third floor flush wood doors. If there are multiple existing examples, contact the Architect and Owner for coordination and selection.

2.2 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with requirements in NFPA 80 for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.3 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames before hanging doors.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

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

3.2 INSTALLATION

A. Hardware: For installation, see Division 08 Section "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.

2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08141

SECTION 09290 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.

1.2 SUBMITTALS

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

PART 2 - PRODUCTS

2.1 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. G-P Gypsum.
b. Lafarge North America Inc.
c. USG Corporation.

B. Type X:

1. Thickness: 5/8 inch (15.9 mm).
2. Long Edges: **Tapered**.

2.2 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: **Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet**.
2. Shapes:

a. Corner bead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.

2.3 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use **setting-type taping** compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

2. Fill Coat: For second coat, use **setting-type, sandable topping** compound.
3. Finish Coat: For third coat, use **setting-type, sandable topping** compound.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

C. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members, or provide control joints to counteract wood shrinkage.

3.2 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:
1. Type X: **As indicated on Drawings**.

3.3 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners.
2. LC-Bead: Use **at exposed panel edges**.

3.4 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

C. Gypsum Board Finish Levels: Finish panels to levels indicated below:
   1. Level 4: **At panel surfaces that will be exposed to view, unless otherwise indicated**.

3.5 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09290

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
   1. Steel.
   2. Wood.
   3. Gypsum board.

1.3 SUBMITTALS

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

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

   1. Maintain containers in clean condition, free of foreign materials and residue.

1.5 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.6 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

   1. Quantity: Furnish an additional **5** percent, but not less than **1 gal. (3.8 L)** of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore & Co.
2. BLP Mobile Paint Manufacturing.
3. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

B. Colors: **As indicated on finish schedule**

2.3 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

1. VOC Content: E Range of **E1**.

2.4 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer: MPI #79.

1. VOC Content: E Range of **E1**.

2.5 WOOD PRIMERS

A. Interior Latex-Based Wood Primer: MPI #39.

1. VOC Content: E Range of **E1**.
2. Environmental Performance Rating: **EPR 1**.

2.6 LATEX PAINTS

A. Interior Latex (Flat): MPI #53 (Gloss Level 1).

1. VOC Content: E Range of **E1**.
2. Environmental Performance Rating: **EPR 0.5**.

B. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).

1. VOC Content: E Range of **E1**.
2. Environmental Performance Rating: **EPR 2**.

C. Interior Latex (Gloss): MPI #114 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).

1. VOC Content: E Range of **E1**.
2. Environmental Performance Rating: **EPR 2**.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Wood: 15 percent.
2. Gypsum Board: 12 percent.

3.2 PREPARATION

A. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

B. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

C. Wood Substrates:
1. Sand surfaces that will be exposed to view, and dust off.

D. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Quick-Drying Enamel System: MPI INT 5.1A.

    a. Prime Coat: Quick-drying alkyd metal primer.
    b. Intermediate Coat: Quick-drying enamel matching topcoat.
    c. Topcoat: Quick-drying enamel **semigloss**.

B. Dimension Lumber Substrates, Nontraffic Surfaces: Including **exposed beams**.

1. Latex System: MPI INT 6.2D.

    a. Prime Coat: Interior latex-based wood primer.
    b. Intermediate Coat: Interior latex matching topcoat.
    c. Topcoat: Interior latex.

C. Gypsum Board Substrates:

1. Latex System: MPI INT 9.2A.

    a. Prime Coat: Interior latex **primer/sealer**.
    b. Topcoat: Interior latex

END OF SECTION 09912

SECTION 210000 – FIRE PROTECTION GENERAL

PART 1 - GENERAL

1.1 The work covered by this division consists of providing all labor, equipment and materials and performing all operations necessary for the installation of the fire protection work as herein called for and shown on the drawings. The work shall include but shall not be limited to the following:

Provide all fire protection sprinkler system piping and associated fittings, valves, control devices, and accessories for the project. Fully coordinate all fire protection requirements with work by other divisions under this construction contract. All systems shall be complete and fully functional.

1.2 Related Documents:

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

B. Provisions of this section apply to work of all Division 21 sections.

C. Review all other contract documents to be aware of conditions affecting work herein.

1.3 Definitions:

A. Provide: Furnish and install, complete and ready for intended use.

B. Furnish: Supply and deliver to the project site, ready for subsequent requirements.

C. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

1.4 Permits and Fees: Contractor shall obtain all necessary permits, meters, and inspections required for his work and pay all fees and charges incidental thereto.

1.5 Verification of Owner's Survey Data: Prior to commencing any work, the Contractor shall satisfy himself as to the accuracy of all survey data as indicated in these plans and specifications and/or as provided by the Owner. Should the Contractor discover any inaccuracies, errors, or omissions in the data, he shall immediately notify the Architect/Engineer in order that proper adjustments can be anticipated and ordered. Commencement by the Contractor of work shall be held as an acceptance of the data by him after which time the Contractor has no claim against the Owner resulting from alleged errors, omissions or inaccuracies of the said data.

1.6 Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage.

1.7 Extent of work is indicated by the drawings, schedules, and the requirements of the specifications. Singular references shall not be construed as requiring only one device if multiple devices are shown on the drawings or are required for proper system operation.

1.8 Field Measurements and Coordination:

A. The intent of the drawings and specifications is to obtain a complete and satisfactory installation. Separate divisional drawings and specifications shall not relieve the Contractor or subcontractors from full compliance of work of his trade indicated on any of the drawings or in any section of the specifications. Report conflicts prior to start of work.

B. Verify all field dimensions and locations of equipment to ensure close, neat fit with other trades' work. Make use of all contract documents and approved shop drawings to verify exact dimension and locations.

C. Coordinate work in this division with all other trades in proper sequence to ensure that the total work is completed within contract time schedule and with minimum cutting and patching.

D. Locate all equipment, piping, and apparatus symmetrical with architectural elements. Install to exact height and locations when shown on architectural drawings. When locations are shown only on fire protection drawings, be guided by architectural details and conditions existing at job and correlate this work with that of others. Provide all required work clearances as defined by code and manufacturer’s recommendations.

E. Install work as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways. Cut no structural members without written approval from Engineer or Architect.

F. Carefully examine any existing conditions, piping, and premises. Compare drawings with existing conditions. Report any observed discrepancies. It shall be the Contractor’s responsibility to properly coordinate the work and to identify problems in a timely manner. Written instructions will be issued by the Engineer to resolve discrepancies.

G. Because of the small scale of the drawings, it is not possible to indicate all offsets and fittings or to locate every accessory. Drawings are essentially diagrammatic. Study carefully the sizes and locations of structural members, wall and partition locations, trusses, and room dimensions and take actual measurements on the job. Locate piping, equipment and accessories with sufficient space for installing and servicing. Contractor is responsible for accuracy of his measurements and for coordination with all trades. Contractor shall not order materials or perform work without verification. No extra compensation will be allowed because field measurements vary from the dimensions on the drawings. If field measurements show that equipment or material cannot be fitted, the Engineer shall be consulted. Remove and relocate, without additional compensation, any item that is installed and is later found to encroach on space assigned to another use.

1.9 Guarantee and Service:

A. The Contractor shall guarantee labor, materials and equipment for a period of one (1) year from Substantial Completion, or from Owner's occupancy, whichever is earlier. Contractor shall make good any defects and shall include all necessary adjustments to and replacement of defective items without expense to the Owner. Manufacturer warranties do not relieve the Contractor of this responsibility.

B. Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding Contractor's Guarantee Bond or relieving Contractor of his responsibilities during guarantee period.

C. Contractor shall provide service of all new equipment during the guarantee period without additional expense to the Owner.

1.10 Approval Submittals:

A. Shop drawings, product literature, and other approved submittals will only be reviewed if they are submitted in full accordance with the General and Supplementary Conditions and Division 1 Specification sections and the following:

1. Submittals shall not include items from more than one specification section in the same submittal package.

2. Submittals shall be properly identified by a cover sheet showing the project name, Architect and Engineer names, submittal control numbers, specification section, a list of products or item names with model numbers in the order they appear in the package, and spaces for approved stamps. A sample cover sheet is included at the end of this section.

3. Submittals shall have been reviewed and approved by the General Contractor (or Prime Contractor). Evidence of this review and approval shall be an “Approved” stamp with a signature and date on the cover sheet.

4. The electrical design shown on the drawings supports the fire protection equipment basis of design specifications at the time of design. If fire protection equipment is submitted with different electrical requirements, it is the responsibility of the fire protection contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the fire protection submittal with a written statement that this change will be provided at no additional cost. Fire protection submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.

B. Before ordering any materials or equipment, and within 30 days after the award of the contract, the Contractor shall submit to the Architect/Engineer one complete schedule showing the make, type, manufacturer's name and trade designation of all equipment.

1. This schedule shall be accompanied by the required number of copies of the manufacturer's printed specifications and shop drawings for each piece of equipment or

specialty and shall give dimensions, diagrams, descriptive literature, capacity or rating, kind of material, finish, guarantee, etc., and such other detailed information as the Architect/Engineer may require.

2. When approved, such schedule shall be an addition to these specifications, and shall be of equal force in that no deviation will be permitted except with the approval of the Architect/Engineer.

C. If the shop drawings show variation from the requirements of the contract documents, the Contractor shall make specific mention of such variation in his letter of transmittal. If acceptable, Contractor will not be relieved of the responsibility for executing the work in accordance with the contract.

D. Review of shop drawings, descriptive literature, catalog data, or schedules shall not relieve the Contractor from responsibility for deviations from contract drawings or specifications, unless he has in writing called to the attention of the Architect/Engineer such deviation at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, descriptive literature, catalog data, or schedules. Any feature or function specified but not mentioned in the submittal shall be assumed to be included per the specification.

E. Submit shop drawings and any other drawings called for in other sections. Shop drawings shall consist of plans, sections, elevations and details to scale (not smaller than 1/4" per foot), with dimensions clearly showing the installation. Direct copies of small-scale project drawings issued to the Contractor are not acceptable. Drawings shall take into account equipment furnished under other sections and shall show space allotted for it. Include construction details and materials.

F. Submit product data after award of the contract and before any equipment or materials are purchased. Product data are defined as manufacturer's printed literature specifically marked to indicate size and model and accompanied by rating sheets listing values showing that equipment meets scheduled or specified values. Properly coded stamp from the Engineer on returned submittal is required before ordering equipment.

G. Coordinate with other divisions supplying equipment prior to submitting shop drawings.

H. Shop drawings shall be submitted in one package unless approved otherwise by the Engineer. Provide an index of sections listing manufacturers and “as-specified” or not. Each specification section shall be tabbed with equipment inserted.

1.11 Test Reports and Verification Submittals: Submit test reports, certifications and verification letters as called for in other sections. Contractor shall coordinate the required testing and documentation of system performance such that sufficient time exists to prepare the reports, review the reports, and take corrective action within the scheduled contract time.

1.12 O&M Data Submittals: Submit Operations and Maintenance data as called for in other sections when a copy of approved submittals is included in the O&M Manual, only the final “Furnish as Submitted” or “Furnish as Corrected” copy shall be used. Contractor shall organize these later in the O&M Manuals tabbed by specification number. Prepare O&M Manuals as required by Division 1 and as described herein. Submit manuals at the Substantial Completion inspection.

PART 2 - PRODUCTS

2.1 All materials shall be new or Owner-supplied reused as shown on the drawings, the best of their respective kinds, suitable for the conditions and duties imposed on them. The description, characteristics, and requirements of materials to be used shall be in accordance with qualifying conditions established in the following sections.

2.2 Equipment and Materials:

A. Equipment and materials furnished under this division shall be the product of a manufacturer regularly engaged in the manufacture of such items for a period of three years. Where practical, all of the components shall be products of a single manufacturer in order to provide proper coordination and responsibility. Where required, Contractor shall furnish proof of installation of similar equipment or materials.

B. Each item of equipment shall bear a nameplate showing the manufacturer's name, trade name, model number, serial number, ratings and other information necessary to fully identify it. This plate shall be permanently mounted in a prominent location and shall not be concealed, insulated or painted.

C. The label of the approving agency, such as UL, ASME, or FM, by which a standard has been established for each particular item, shall be in full view.

D. The equipment shall be essentially the standard product of a manufacturer regularly engaged in the production of such equipment and shall be a product of the manufacturer’s latest design.

E. A service organization with personnel and spare parts shall be available within two hours for each type of equipment furnished.

F. Install in accordance with manufacturer's recommendations. Place in service by a factory trained representative where required.

G. Materials and equipment are specified herein by a single or by multiple manufacturers to indicate quality, material and type of construction desired. Manufacturer's products shown on the drawings have been used as basis for design; it shall be the Contractor's responsibility to ascertain that alternate manufacturer's products meet detailed specifications and that size and arrangement of the equipment are suitable for installation.

H. Model Numbers: Catalog numbers and model numbers indicated in the drawings and specifications are used as a guide in the selection of the equipment and are only listed for the Contractor's convenience. The Contractor shall determine the actual model numbers for ordering equipment and materials in accordance with the written description of each item and with the intent of the drawings and specifications.

2.3 Requests for Substitution:

A. Where a particular system, product or material is specified by name, consider it as standard

basis for bidding, and base proposal on the particular system, product or material specified. Other systems, products, equipment or materials may be accepted only if in the opinion of the Engineer, that they are equivalent in quality and workmanship and will perform satisfactorily its intended purpose. The Engineer shall approve all such substitutions in materials or equipment in writing. This shall occur prior to bidding.

B. In making requests for substitutions, the Contractor shall list the particular system, product, equipment or material he wishes to substitute and, at bid time, the Contractor shall state the amount he will add or deduct from his base bid if the substitution is approved by the Engineer. If the Contractor allows no deduction or addition to the base bid for such substitution, it shall be stated on the request.

C. Requests by the Contractor for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.

1. Required product cannot be supplied in time for compliance with Contract time requirements.
2. Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disabilities as certified by the Contractor.
3. Substantial cost advantage is offered to the Owner after deducting offsetting disadvantages including delays, additional compensation for redesign, investigation, evaluation and other necessary services and similar considerations.

D. All requests for substitution shall contain a “Comparison Schedule” and clearly and specifically indicate any and all differences and omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include, but not limited to, data as follows for both the specified and substituted products:

1. Principle of operation.
2. Materials of construction or finishes.
3. Thickness or gauge of materials.
4. Weight of item.
5. Deleted features or items.
6. Added features or items.
7. Changes in other work caused by the substitution.
8. Performance and rating data.

E. If the approved substitution contains differences or omissions not specifically called to the attention of the Engineer, the Owner reserves the right to require equal or similar features to be added to the substituted products at the Contractor’s expense.

2.4 Prior Approval: Prior Approval shall be required for any manufacturer other than those listed for all specified items in the drawings and specifications. Submit all requests for approval of the alternate manufacturer’s products two weeks prior to bid opening. Approval will be in the form of an Addendum to the drawings and specifications. Clearly indicate all differences between the specified and proposed product following the guidelines for substitution herein. This requirement may be waived if, in the opinion of the Engineer, it is in the best interest of the

Owner. Submittals received after award of the bid for equipment that has not be Prior Approved shall be subject to immediate rejection.

PART 3 - EXECUTION

3.1 Workmanship: All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the Architect/Engineer.

3.2 Coordination:

A. The Contractor shall be responsible for full coordination of the fire protection systems with shop drawings of the building construction so the proper openings and sleeves or supports are provided for piping or other equipment passing through slabs or walls.

B. Any additional steel supports required for the installation of any fire protection equipment or piping shall be furnished and installed under the section of the specifications requiring the additional supports.

C. It shall be the Contractor's responsibility to verify all equipment such as valves and such other apparatus or equipment that may require maintenance and operation are made easily accessible, regardless of the diagrammatic location shown on the drawings.

D. All connections to fixtures and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.

E. The Contractor shall protect equipment, material, and fixtures at all times during storage and construction. He shall replace all equipment, material, and fixtures which are damaged as a result of inadequate protection.

F. Prior to starting and during progress of work, examine work and materials installed by others as they apply to work in this division. Report conditions which will prevent satisfactory installation.

G. Start of work will be construed as acceptance of suitability of work of others.

3.3 Interruption of Service: Before any equipment is shut down for disconnection or tie-ins, arrangements shall be made with the Architect/Engineer and this work shall be done at the time best suited to the Owner. This will typically be on weekends and/or holidays and/or after normal working hours. Services shall be restored the same day unless prior arrangements are made. All overtime or premium costs associated with this work shall be included in the base bid.

3.4 Phasing: Provide all required temporary valves, piping, equipment and devices as required. Maintain temporary services to areas as required. Remove all temporary material and equipment on completion of work unless Engineer concurs that such material and equipment would be beneficial to the Owner on a permanent basis.

3.5 Cutting and Patching: Contractor shall be responsible for cutting and patching of all holes, chases, sleeves, and other openings required for installation of equipment furnished and installed under these Specifications. Utilize experienced trades for cutting and patching. Obtain permission from Architect/Engineer before cutting any structural items.

3.6 Painting: Touch-up factory finishes on equipment located inside and outside shall be done under Division 21. Obtain matched color coatings from the manufacturer and apply as directed. If corrosion is found during inspection on the surface of any equipment, clean, prime, and paint as required. If corrosion is found to be extensive by the Engineer, the equipment shall be removed and replaced with factory new at the expense of the Contractor.

3.7 Clean-up: Thoroughly clean all exposed parts of apparatus and equipment of cement, plaster, and other materials and remove all oil and grease spots. Repaint or touch up as required to look like new. During progress of work, Contractor is to carefully clean up and leave premises and all portions of building free from debris and in a clean and safe condition.

3.8 Record Drawings:

A. During the progress of the work, the Contractor shall record on his field set of drawings the exact location, as installed, of all piping, equipment, and other systems which are not installed exactly as shown on the contract drawings.

B. Upon completion of the work, record drawings shall be prepared as described in the General Conditions, Supplementary Conditions, and Division 1 sections.

3.9 Acceptance:

A. Request inspections as required under the Supplementary or General Conditions. Conceal no work until inspected.

B. Punch List: Submit written confirmation that all punch lists have been checked and the required work completed. The Contractor shall pay, at the Engineer's current billing rate, for additional field time required by the Engineer to report or check on previous punch list deficiencies.

C. Operation and Maintenance Manuals: Furnish four complete manuals bound in ring binders and organized by system or section. Manuals shall contain:

1. Routine maintenance operations.
2. Copies of approved submittals.
3. Copies of all manufacturers' warranties.
4. Copies of test reports and verification submittals.

D. Warranties: Submit copies of all manufacturers' warranties.

E. Record Drawings: Submit record drawings.

This is a sample cover sheet. Use one for each shop drawing.

PROJECT NAME
PROJECT NUMBER

SAMPLE

ARCHITECT/ENGINEER: Dell Consulting, LLC

CONTRACTOR: XYZ Construction

SUBCONTRACTOR: ABC Fire Protection Contractor

SUPPLIER: Supply Company

MANUFACTURER: Manufacturer

DATE: MM/DD/YYYY

Any standard heading is acceptable

SECTION: 21 XX XX / Section Name

1. Description: Manufacturer, Model

2. Description: Manufacturer, Model

3. Description: Manufacturer, Model

4. Description: Manufacturer, Model

5. Description: Manufacturer, Model

List each item separately; include manufacturer name and model number

General Contractor's APPROVAL stamp must be on this sheet.

END OF SECTION

SECTION 210010 – CODES AND STANDARDS

PART 1 - GENERAL

1.1 All work under Division 21 shall be constructed in accordance with the codes and standards listed herein. The design has been based on the requirements of these codes and standards. While it is not the responsibility of the Contractor to verify that all work called for complies with these codes and standards, he shall be responsible for calling to the Architect/Engineer's attention any details on the drawings or specifications that are not in conformance with these or other codes and standards.

1.2 Comply with regulations and codes of utility suppliers.

1.3 Where no specific method or form of construction is called for in the contract documents, the Contractor shall comply with code requirements when carrying out such work.

1.4 Where code conflict exists, the most stringent requirement applies. Comply with current code edition, unless noted.

PART 2 - CODES

2.1 The following codes shall govern all work:

1. International Building Code – 2015
2. International Existing Building Code – 2015
3. International Fire Code – 2015
4. Installation of Sprinkler Systems (NFPA 13) – 2013
5. National Electric Code (NFPA 70) – 2014
6. Fire Alarm and Signaling Code (NFPA 72) – 2013
7. Fire Code (NFPA 1) – 2015
8. Life Safety Code (NFPA 101) – 2015

PART 3 - STANDARDS

3.1 All fire protection materials, installation and systems shall meet the requirements of the following standards, including the latest addenda and amendments, to the extent referenced:

1. Underwriters' Laboratories (UL)
2. Factory Mutual Global (FM)
3. American National Standards Institute (ANSI)
4. American Society of Testing Materials (ASTM)
5. National Fire Protection Association (NFPA)
6. National Electrical Manufacturers Association (NEMA)

END OF SECTION

SECTION 211313 – WET PIPE SPRINKLER SYSTEM
PART 1 - GENERAL

1.1 Scope of Work: Design and modify an existing automatic wet pipe fire extinguishing sprinkler system for complete fire protection coverage throughout the renovation project area.

1.2 References:

A. NFPA 13 – Installation of Sprinkler Systems

B. FM – Factory Mutual Approval Guide

C. UL – Fire Resistance Directory

1.3 System Design: Contractor shall design an automatic wet pipe fire extinguishing sprinkler system, in strict accordance with the required and advisory provisions of NFPA 13 for uniform distribution of water over the design area. The system shall include materials, accessories, and equipment to provide a system complete and ready for use. Contractor shall design and provide the system to give full consideration to blind spaces, piping, electrical equipment, ducts, and other obstructions. Contractor shall locate the sprinkler heads in a consistent pattern with ceiling grid, lights, and air supply diffusers. Devices and equipment for fire protection service shall be UL listed or FM approved for use in wet pipe sprinkler systems. The system shall be hydraulically designed in accordance with the guidelines of NFPA 13 for the proper hazard classification. The proper outside hose stream allowances shall be included in the calculations.

1.4 Fire Protection Engineer: Fire extinguishing sprinkler system shall be designed by, or under the direct supervision of, a professional engineer registered in the state of Alabama. The Contractor shall be the Engineer of Record for the system design.

1.5 Basis for Calculations: The sprinkler contractor shall obtain independent water flow and pressure data to verify any data provided in the drawings. The design of the sprinkler system shall be based upon water flow and pressure data obtained by the sprinkler contractor and witnessed by the “Authority Having Jurisdiction”. Water supply shall be presumed available at the point of connection of the underground fire main to city water supply.

1.6 Submittals:

A. Submit computer generated hydraulic calculations in accordance with the guidelines of NFPA 13.

B. Submit working plans as required by NFPA 13. Drawings shall be prepared on minimum 24”x36” paper with a drawing scale of not less than 1/8” = 1’-0”. Drawings shall show all data essential for the proper installation of the system. Drawings shall show plan view, elevations, sections, and details of the system’s supply piping, devices, valves, accessories, and fittings.

C. Submit qualifications of the installer. Prior to installation, submit data showing that the contractor has successfully installed systems of the same type and design as specified herein. Data shall

include names and locations of at least three installations, the type of system installed, a short description of the work performed, and the approximate contract value. The contractor shall certify that each system has performed satisfactorily in the manner intended for not less than 18 months.

D. Submit the name and documentation of certification of the proposed Fire Protection Engineer as outlined in Section 1.4.

E. Submit the following product data. Annotate manufacturer's descriptive data to show specific model, type, and size of each item.

1. Pipe, fittings, and mechanical couplings
2. Valves
3. Sprinkler heads
4. Pipe hangers and supports

1.7 Submittals at Project Closeout:

A. Submit "as-built" drawings that record the actual locations of sprinklers and deviations in pipe routing from submitted shop drawings. Indicate locations of all drains and Inspector's tests.

B. Submit manufacturer's test certificates that certify the sprinkler system has been tested, and meets or exceeds all applicable codes. Use forms located in NFPA 13.

C. Submit three copies of operation and maintenance data for all sprinkler system components requiring servicing, in 3-ring binders.

D. Submit documentation of a 1-year warranty covering all parts and labor.

1.8 Quality Assurance:

A. Manufacturer shall be a company specializing in manufacturing the products specified in this section with a minimum of (3) years documented experience.

B. Installer shall be a company specializing in performing the work of this section with a minimum of (5) years documented experience.

1.9 Regulatory Requirements:

A. All work shall conform to UL and FM and be performed in accordance with NFPA 13 and all applicable codes. Equipment and components shall bear a UL or FM label or marking.

B. Products requiring electrical connection shall be listed and classified by Underwriters Laboratories as suitable for the purpose specified and indicated.

1.10 Extra Materials: Provide extra sprinklers and suitable wrenches for each sprinkler type under the provisions of NFPA 13.

PART 2 - PRODUCTS

2.1 Aboveground Piping Components:

A. Pipe shall be black or galvanized steel as permitted by NFPA 13. Pipe, in which threads or grooves are cut, shall be Schedule 40 or shall be listed by Underwriters Laboratories to have a corrosion resistance ratio (CRR) of 1.0 or greater after threads or grooves are cut.

B. Fittings for non-grooved pipe shall be cast iron conforming to ASME B16.4, steel conforming to ASME B16.9 or ASME B16.11, or malleable iron conforming to ASME B16.3. Galvanized fittings shall be used for piping systems or portions of piping systems utilizing galvanized piping. Fittings, into which sprinklers, drop nipples, or riser nipples (sprigs) are screwed, shall be threaded type. Plain-end fittings with mechanical couplings, which utilize steel gripping devices to "bite" into the pipe, will not be permitted.

C. Grooved fittings shall be designed for not less than 175 psi service and shall be the product of the same manufacturer. Fitting and coupling houses shall be malleable iron conforming to ASTM A 47M, ASTM A 47, Grade 32510; ductile iron conforming to ASTM A 536, Grade 65-45-12.

2.2 Sprinkler Heads:

A. Sprinkler heads installed in suspended or hard ceilings shall be chrome plated, semi-recessed type with matching escutcheon plate. Temperature rating of head shall be contingent on the hazard area in which it is installed.

B. Sprinkler heads installed in exposed piping/construction shall be brass plated, upright type with temperature rated for specific hazard area.

2.3 Identification Signs: Attach properly lettered, approved metal identification signs, conforming to NFPA 13 to each valve and alarm device. Permanently affix Hydraulic Data Plates to the riser of each system for each area calculated.

2.4 Pipe Sleeves:

A. Provide pipe sleeves wherever piping passes entirely through walls and floors. Secure sleeves in position and location during construction. Provide sleeves of sufficient length to pass through entire thickness of walls and floors. Provide 1 inch minimum clearance between exterior of piping and interior of sleeve or core-drilled hole. Firmly pack space with mineral wool insulation. Seal space at both ends of the sleeve or core-drilled hole with plastic waterproof cement, which will dry to a firm but pliable mass, or provide a mechanically adjustable segmented elastomeric seal. In fire walls and fire floors, seal both ends of pipe sleeves or core-drilled holes with UL listed fill, void, or cavity material.

B. For masonry and concrete walls and floors, provide hot-dip galvanized steel, ductile-iron, or cast-iron sleeves. Core drilling of masonry and concrete may be provided in lieu of pipe sleeves when cavities in the core-drilled hole are completely grouted smooth.

C. For other than masonry and concrete walls, provide 26-gauge galvanized steel sheet pipe sleeve.

2.5 Escutcheon Plates: Provide one piece or split hinge type metal plates for piping passing through walls, floors, and ceilings in exposed spaces. Provide polished stainless steel plates or chromium-plated finish on copper alloy plates in finished spaces. Provide paint finish on metal plates in unfinished spaces.

PART 3 - EXECUTION

3.1 Installation:

A. Installation, workmanship, fabrication, assembly, erection, examination, inspection, and testing shall all be in strict accordance with NFPA 13.

B. Contractor shall install piping straight and true to bear evenly on hangers and supports. Piping shall not be hung from plaster or gypsum ceilings. Contractor shall keep the interior and ends of new piping and existing piping affected by the contractor's operations thoroughly cleaned of water and foreign matter. Contractor shall keep piping systems clean during installation by means of plugs or other approved methods. When work is not in progress, open ends of piping shall be securely closed to prevent entry of water and foreign matter. Contractor shall inspect all piping before placing into position. Piping shall be installed above ceilings where applicable. All piping routing and installation shall be coordinated with other trades.

C. All equipment shall be installed in accordance with manufacturer’s instructions.

D. All sprinkler heads in acoustical tile ceilings shall be installed in the center of the tile both ways.

3.2 Preliminary Tests: Hydrostatically test system at 200 psi for a period of at least 2 hours. Flush piping in accordance with NFPA 13. Piping above ceilings shall be tested, inspected, and approved before the installation of ceilings. Test the alarms and other devices. Test water flow alarms by flowing water through the inspector’s test connection. When tests have been completed and corrections made, submit a signed and dated test certificate, with a request for a formal inspection and test.

3.3 Formal Inspection and Test: Do not submit a request for a formal test until the preliminary test and corrections are completed and approved. The “Authority Having Jurisdiction” and a representative of the owner will witness the formal tests and approve the system before acceptance. Submit the request for formal inspection, at least 14 days prior to the date the tests are to take place. An experienced technician, regularly employed by the fire sprinkler contractor, shall be present during the inspection.

END OF SECTION

SECTION 230000 – HVAC GENERAL

PART 1 - GENERAL

1.1 The work covered by this division consists of providing all labor, equipment and materials and performing all operations necessary for the installation of the mechanical work as herein called for and shown on the drawings. The work shall include but shall not be limited to the following:

Provide all HVAC (Heating, Ventilating, and Air Conditioning) and associated controls systems for the project. Fully coordinate all mechanical requirements with work by other Divisions under this construction contract. All systems shall be complete and fully functional.

1.2 Related Documents:

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

B. Provisions of this section apply to work of all Division 23 sections.

C. Review all other contract documents to be aware of conditions affecting work herein.

1.3 Definitions:

A. Provide: Furnish and install, complete and ready for intended use.

B. Furnish: Supply and deliver to the project site, ready for subsequent requirements.

C. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

1.4 Permits and Fees: Contractor shall obtain all necessary permits, meters, and inspections required for Division 23 work and pay all fees and charges incidental thereto.

1.5 Verification of Owner's Survey Data: Prior to commencing any work, the Contractor shall verify the accuracy of all survey data as indicated in these plans and specifications and/or as provided by the Owner. Should the Contractor discover any inaccuracies, errors, or omissions in the data, such items shall immediately be notified to the Architect/Engineer so that proper adjustments can be anticipated and ordered. Commencement by the Contractor of work shall be held as an acceptance of the data after which time the Contractor has no claim against the Owner resulting from alleged errors, omissions or inaccuracies of the said data.

1.6 Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage,

unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage.

1.7 Extent of work is indicated by the drawings, schedules, and the requirements of the specifications. Singular references shall not be construed as requiring only one device if multiple devices are shown on the drawings or are required for proper system operation.

1.8 Field Measurements and Coordination:

A. The intent of the drawings and specifications is to obtain a complete and satisfactory installation. Separate divisional drawings and specifications shall not relieve the Contractor or subcontractors from full compliance of work of his trade indicated on any of the Drawings or in any Section of the Specifications. Report conflicts prior to start of work.

B. Verify all field dimensions and locations of equipment to ensure close, neat fit with other trades' work. Make use of all contract documents and approved shop drawings to verify exact dimension and locations.

C. Coordinate work in this division with all other trades in proper sequence to ensure that the total work is completed within contract time schedule and with minimum cutting and patching.

D. Locate all equipment, ductwork, piping, and apparatus symmetrical with architectural elements. Install to exact height and locations when shown on architectural drawings. When locations are shown only on mechanical drawings, be guided by architectural details and conditions existing at job and correlate this work with that of others. Provide all required work clearances as defined by code and manufacturer’s recommendations.

E. Install work as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways. Cut no structural members without written approval from Engineer or Architect.

F. Carefully examine any existing conditions, piping, ductwork, and premises. Compare drawings with existing conditions. Report any observed discrepancies. It shall be the Contractor’s responsibility to properly coordinate the work and to identify problems in a timely manner. Written instructions will be issued by the Engineer to resolve discrepancies.

G. Because of the small scale of the drawings, it is not possible to indicate all offsets and fittings or to locate every accessory. Drawings are essentially diagrammatic. Study carefully the sizes and locations of structural members, wall and partition locations, trusses, and room dimensions and take actual measurements on the job. Locate piping, ductwork, equipment and accessories with sufficient space for installing and servicing. Contractor is responsible for accuracy of his measurements and for coordination with all trades. Contractor shall not order materials or perform work without verification. No extra compensation will be allowed because field measurements vary from the dimensions on the drawings. If field measurements show that equipment or material cannot be fitted, the Engineer shall be consulted. Remove and relocate, without additional compensation, any item that is installed and is later found to encroach on space assigned to another use.

1.9 Guarantee and Service:

A. The Contractor shall guarantee labor, materials and equipment for a period of one (1) year from Substantial Completion, or from Owner's occupancy, whichever is earlier. Contractor shall make good any defects and shall include all necessary adjustments to and replacement of defective items without expense to the Owner. Manufacturer warranties do not relieve the Contractor of this responsibility.

B. Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding Contractor's Guarantee Bond or relieving Contractor of his responsibilities during guarantee period.

C. Contractor shall provide service of all new equipment during the guarantee period without additional expense to the Owner.

1.10 Approval Submittals:

A. Shop drawings, product literature, and other approved submittals will only be reviewed if they are submitted in full accordance with the General and Supplementary Conditions and Division 1 Specification sections and the following:

1. Submittals shall not include items from more than one specification section in the same submittal package.

2. Submittals shall be properly identified by a cover sheet showing the project name, Architect and Engineer names, submittal control numbers, specification section, a list of products or item names with model numbers in the order they appear in the package, and spaces for approved stamps. A sample cover sheet is included at the end of this section.

3. Submittals shall have been reviewed and approved by the General Contractor (or Prime Contractor). Evidence of this review and approval shall be an “Approved” stamp with a signature and date on the cover sheet.

4. The electrical design shown on the drawings supports the mechanical equipment basis of design specifications at the time of design. If mechanical equipment is submitted with different electrical requirements, it is the responsibility of the mechanical contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the mechanical submittal with a written statement that this change will be provided at no additional cost. Mechanical submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.

B. Before ordering any materials or equipment, and within 30 days after the award of the contract, the Contractor shall submit to the Architect/Engineer one complete schedule showing the make, type, manufacturer's name and trade designation of all equipment.

1. This schedule shall be accompanied by the required number of copies of the manufacturer's printed specifications and shop drawings for each piece of equipment or

specialty and shall give dimensions, diagrams, descriptive literature, capacity or rating, kind of material, finish, guarantee, etc., and such other detailed information as the Architect/Engineer may require.

2. When approved, such schedule shall be an addition to these specifications, and shall be of equal force in that no deviation will be permitted except with the approval of the Architect/Engineer.

C. If the shop drawings show variation from the requirements of the contract documents, the Contractor shall make specific mention of such variation in his letter of transmittal. If acceptable, Contractor will not be relieved of the responsibility for executing the work in accordance with the contract.

D. Review of shop drawings, descriptive literature, catalog data, or schedules shall not relieve the Contractor from responsibility for deviations from Contract Drawings or Specifications, unless he has in writing called to the attention of the Architect/Engineer such deviation at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, descriptive literature, catalog data, or schedules. Any feature or function specified but not mentioned in the submittal shall be assumed to be included per the specification.

E. Submit shop drawings and any other drawings called for in other sections. Shop drawings shall consist of plans, sections, elevations and details to scale (not smaller than 1/4" per foot), with dimensions clearly showing the installation. Direct copies of small-scale project drawings issued to the Contractor are not acceptable. Drawings shall take into account equipment furnished under other sections and shall show space allotted for it. Include construction details and materials.

F. Submit product data after award of the contract and before any equipment or materials are purchased. Product data are defined as manufacturer's printed literature specifically marked to indicate size and model and accompanied by rating sheets listing values showing that equipment meets scheduled or specified values. Properly coded stamp from the Engineer on returned submittal is required before ordering equipment.

G. Coordinate with other divisions supplying equipment prior to submitting shop drawings.

H. Shop drawings shall be submitted in one package unless approved otherwise by the Engineer. Provide an index of sections listing manufacturers and “as-specified” or not. Each specification section shall be tabbed with equipment inserted.

1.11 Test Reports and Verification Submittals: Submit test reports, certifications and verification letters as called for in other sections. Contractor shall coordinate the required testing and documentation of system performance such that sufficient time exists to prepare the reports, review the reports, and take corrective action within the scheduled contract time.

1.12 O&M Data Submittals: Submit Operations and Maintenance data as called for in other sections when a copy of approved submittals is included in the O&M Manual, only the final “Furnish as Submitted” or “Furnish as Corrected” copy shall be used. Contractor shall organize these later in the O&M Manuals tabbed by specification number. Prepare O&M Manuals as required by Division 1 and as described herein. Submit manuals at the Substantial Completion inspection.

PART 2 - PRODUCTS

2.1 All materials shall be new or Owner-supplied reused as shown on the Drawings, the best of their respective kinds, suitable for the conditions and duties imposed on them. The description, characteristics, and requirements of materials to be used shall be in accordance with qualifying conditions established in the following sections.

2.2 Equipment and Materials:

A. Equipment and materials furnished under this division shall be the product of a manufacturer regularly engaged in the manufacture of such items for a period of three years. Where practical, all of the components shall be products of a single manufacturer in order to provide proper coordination and responsibility. Where required, Contractor shall furnish proof of installation of similar equipment or materials.

B. Each item of equipment shall bear a nameplate showing the manufacturer's name, trade name, model number, serial number, ratings and other information necessary to fully identify it. This plate shall be permanently mounted in a prominent location and shall not be concealed, insulated or painted.

C. The label of the approving agency, such as UL, ASME, AHRI, or AMCA, by which a standard has been established for each particular item, shall be in full view.

D. The equipment shall be essentially the standard product of a manufacturer regularly engaged in the production of such equipment and shall be a product of the manufacturer’s latest design.

E. A service organization with personnel and spare parts shall be available within two hours for each type of equipment furnished.

F. Install in accordance with manufacturer's recommendations. Place in service by a factory trained representative where required.

G. Materials and equipment are specified herein by a single or by multiple manufacturers to indicate quality, material and type of construction desired. Manufacturer's products shown on the drawings have been used as basis for design; it shall be the Contractor's responsibility to ascertain that alternate manufacturer's products meet detailed specifications and that size and arrangement of the equipment are suitable for installation.

H. Model Numbers: Catalog numbers and model numbers indicated in the drawings and specifications are used as a guide in the selection of the equipment and are only listed for the Contractor's convenience. The Contractor shall determine the actual model numbers for ordering equipment and materials in accordance with the written description of each item and with the intent of the drawings and specifications.

2.3 Requests for Substitution:

A. Where a particular system, product or material is specified by name, consider it as standard

basis for bidding, and base proposal on the particular system, product or material specified. Other systems, products, equipment or materials may be accepted only if in the opinion of the Engineer, that they are equivalent in quality and workmanship and will perform satisfactorily its intended purpose. The Engineer shall approve all such substitutions in materials or equipment in writing. This shall occur prior to bidding.

B. In making requests for substitutions, the Contractor shall list the particular system, product, equipment or material he wishes to substitute and, at bid time, the Contractor shall state the amount he will add or deduct from his base bid if the substitution is approved by the Engineer. If the Contractor allows no deduction or addition to the base bid for such substitution, it shall be stated on the request.

C. Requests by the Contractor for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.

1. Required product cannot be supplied in time for compliance with Contract time requirements.
2. Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disabilities as certified by the Contractor.
3. Substantial cost advantage is offered to the Owner after deducting offsetting disadvantages including delays, additional compensation for redesign, investigation, evaluation and other necessary services and similar considerations.

D. All requests for substitution shall contain a “Comparison Schedule” and clearly and specifically indicate any and all differences and omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include, but not limited to, data as follows for both the specified and substituted products:

1. Principle of operation.
2. Materials of construction or finishes.
3. Thickness or gauge of materials.
4. Weight of item.
5. Deleted features or items.
6. Added features or items.
7. Changes in other work caused by the substitution.
8. Performance and rating data.

E. If the approved substitution contains differences or omissions not specifically called to the attention of the Engineer, the Owner reserves the right to require equal or similar features to be added to the substituted products at the Contractor’s expense.

2.4 Prior Approval: Prior Approval shall be required for any manufacturer other than those listed for all specified items in the Drawings and Specifications. Submit all requests for approval of the alternate manufacturer’s products two weeks prior to bid opening. Approval will be in the form of an Addendum to the Specifications and Drawings. Clearly indicate all differences between the specified and proposed product following the guidelines for substitution herein. This requirement may be waived if, in the opinion of the Engineer, it is in the best interest of the

Owner. Submittals received after award of the bid for equipment that has not be Prior Approved shall be subject to immediate rejection.

PART 3 - EXECUTION

3.1 Workmanship: All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the Architect/Engineer.

3.2 Coordination:

A. The Contractor shall be responsible for full coordination of the mechanical systems with shop drawings of the building construction so the proper openings and sleeves or supports are provided for piping, ductwork, or other equipment passing through slabs or walls.

B. Any additional steel supports required for the installation of any mechanical equipment, piping, or ductwork shall be furnished and installed under the section of the specifications requiring the additional supports.

C. It shall be the Contractor's responsibility to verify all equipment such as valves, dampers, filters and such other apparatus or equipment that may require maintenance and operation are made easily accessible, regardless of the diagrammatic location shown on the drawings.

D. All connections to devices and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.

E. The Contractor shall protect equipment, material, and fixtures at all times during storage and construction. The Contractor shall replace all equipment, material, and fixtures which are damaged as a result of inadequate protection.

F. Prior to starting and during progress of work, examine work and materials installed by others as they apply to work in this division. Report conditions which will prevent satisfactory installation.

G. Start of work will be construed as acceptance of suitability of work of others.

3.3 Interruption of Service: Before any equipment is shut down for disconnection or tie-ins, arrangements shall be made with the Architect/Engineer and this work shall be done at the time best suited to the Owner. This will typically be on weekends and/or holidays and/or after normal working hours. Services shall be restored the same day unless prior arrangements are made. All overtime or premium costs associated with this work shall be included in the base bid.

3.4 Phasing: Provide all required temporary valves, piping, ductwork, equipment and devices as required. Maintain temporary services to areas as required. Remove all temporary material and equipment on completion of work unless Engineer concurs that such material and equipment would be beneficial to the Owner on a permanent basis.

3.5 Cutting and Patching: Contractor shall be responsible for cutting and patching of all holes, chases, sleeves, and other openings required for installation of equipment furnished and installed under these Specifications. Utilize experienced trades for cutting and patching. Obtain permission from Architect/Engineer before cutting any structural items.

3.6 Equipment Setting: Bolt equipment directly to concrete pads or vibration isolators as required, using hot-dipped galvanized anchor bolts, nuts and washers. Level equipment.

3.7 Painting: Touch-up factory finishes on equipment located inside and outside shall be done under Division 23. Obtain matched color coatings from the manufacturer and apply as directed. If corrosion is found during inspection on the surface of any equipment, clean, prime, and paint as required. If corrosion is found to be extensive by the Engineer, the equipment shall be removed and replaced with factory new at the expense of the Contractor.

3.8 Cleanup: Thoroughly clean all exposed parts of apparatus and equipment of cement, plaster, and other materials and remove all oil and grease spots. Repaint or touch up as required to look like new. During progress of work, Contractor is to carefully clean up and leave premises and all portions of building free from debris and in a clean and safe condition.

3.9 Startup and Operational Test: Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, startup shall be done by a qualified representative of the manufacturer. Alignment, lubrication, safety, and operating control shall be included in startup check.

3.10 Climate Control: Operate heating and cooling systems as required after initial startup to maintain temperature and humidity conditions to avoid freeze damage and warping or sagging of ceilings and carpet. Operate ventilation systems as required after initial startup in coordination with interior building finishes. Provide and maintain temporary filter media at return air and exhaust air inlets as required to prevent circulation of construction dust / debris through ductwork, coils, and related system components; this filter media is in addition to construction filters protecting coils at air handling equipment. Contractor is responsible for internal cleaning of ductwork and air handling equipment if contaminated by construction dust and debris.

3.11 Record Drawings:

A. During the progress of the work, the Contractor shall record on his field set of drawings the exact location, as installed, of all piping, ductwork, equipment, and other systems which are not

installed exactly as shown on the contract drawings.

B. Upon completion of the work, record drawings shall be prepared as described in the General Conditions, Supplementary Conditions, and Division 1 sections.

3.12 Acceptance:

A. Request inspections as required under the Supplementary or General Conditions. Conceal no work until inspected.

B. Punch List: Submit written confirmation that all punch lists have been checked and the required work completed. The Contractor shall pay, at the Engineer's current billing rate, for additional field time required by the Engineer to report or check on previous punch list deficiencies.

C. Instructions: At completion of the work, provide a competent and experienced person who is thoroughly familiar with project, for a period deemed necessary by the Owner to instruct permanent operating personnel in the operation of equipment and control systems.

D. Operation and Maintenance Manuals: Furnish complete manuals electronically and organized by system or section. Manuals shall contain:

1. Detailed operating instructions and instructions for making minor adjustments.
2. Complete wiring and control diagrams.
3. Routine maintenance operations.
4. Manufacturer's catalog data, service instructions, and parts lists for each piece of operating equipment.
5. Copies of approved submittals.
6. Copies of all manufacturers' warranties.
7. Copies of test reports and verification submittals.

E. Control Diagrams: Frame under glass and mount on equipment room wall.

F. Test and Balance Report: Submit electronic copies. Report shall be submitted for review prior to Substantial Completion, unless otherwise required by Division 1.

G. Warranties: Submit copies of all manufacturers' warranties.

H. Record Drawings: Submit record drawings.

I. Acceptance will be made on the basis of tests and inspections of the work. A representative of firm that performed test and balance work shall be in attendance to assist. Contractor shall furnish necessary mechanics to operate system, make any necessary adjustments and assist with final inspection.

This is a sample cover sheet. Use one for each shop drawing.

PROJECT NAME
PROJECT NUMBER

SAMPLE

ARCHITECT/ENGINEER: Dell Consulting, LLC

CONTRACTOR: XYZ Construction

SUBCONTRACTOR: ABC Mechanical Contractor

SUPPLIER: Supply Company

MANUFACTURER: Manufacturer

DATE: MM/DD/YYYY

Any standard heading is acceptable

SECTION: 23 XX XX / Section Name

1. Description: Manufacturer, Model

2. Description: Manufacturer, Model

3. Description: Manufacturer, Model

4. Description: Manufacturer, Model

5. Description: Manufacturer, Model

List each item separately; include manufacturer name and model number

General Contractor's APPROVAL stamp must be on this sheet.

END OF SECTION

SECTION 230010 – CODES AND STANDARDS

PART 1 - GENERAL

1.1 All work under Division 23 shall be constructed in accordance with the codes and standards listed herein. The design has been based on the requirements of these codes and standards. While it is not the responsibility of the Contractor to verify that all work called for complies with these codes and standards, the Contractor shall be responsible for calling to the Architect/Engineer's attention any details on the drawings or specifications that are not in conformance with these or other codes and standards.

1.2 Comply with regulations and codes of utility suppliers.

1.3 Where no specific method or form of construction is called for in the contract documents, the Contractor shall comply with code requirements when carrying out such work.

1.4 Where code conflict exists, the most stringent requirement applies. Comply with current code edition, unless noted.

PART 2 - CODES

2.1 The following codes shall govern all work:

1. International Building Code – 2018
2. International Fire Code – 2018
3. International Plumbing Code – 2018
4. International Mechanical Code – 2018
5. International Energy Conservation Code – 2015
6. ANSI/ASHRAE/IESNA Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential – 2013
7. National Electric Code (NFPA 70) – 2014
8. Fire Alarm and Signaling Code (NFPA 72) – 2013
9. Standard for Air Conditioning and Ventilating Systems (NFPA 90A) – 2015
10. Standard for Commercial Cooking Operations (NFPA 96) – 2014
11. Fire Code (NFPA 1) – 2015
12. Life Safety Code (NFPA 101) – 2015

PART 3 - STANDARDS

3.1 All mechanical materials, installation and systems shall meet the requirements of the following standards, including the latest addenda and amendments, to the extent referenced:

1. Underwriters' Laboratories (UL)
2. American National Standards Institute (ANSI)
3. American Society of Testing Materials (ASTM)
4. National Fire Protection Association (NFPA)
5. National Electrical Manufacturers Association (NEMA)
6. Air Conditioning, Heating, and Refrigeration Institute (AHRI)
7. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
8. American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)
9. Air Movement and Control Association (AMCA)

END OF SECTION

SECTION 230020 – HVAC RELATED WORK

PART 1 - GENERAL

1.1 Related Documents:

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

B. This is a Common Work Results for HVAC section. Provisions of this section apply to work of all Division 23 sections.

C. Coordinate with the General Contractor for all cutting and patching. Contractors performing Division 23 work shall inform the General Contractor of all cutting and patching required prior to bidding and shall coordinate installation.

PART 2 - DIVISION 2 – SITE WORK

2.1 Specific requirements for excavation and backfill for underground piping are contained in Section 230550.

2.2 Refer to Division 2 – Site Work for:

A. Manholes and catch-basins.

B. Underground tanks and enclosures.

2.3 The following work is part of Division 23:

A. All site piping within five feet of building footprint.

B. Underground tanks and enclosures within five feet of building footprint.

PART 3 - DIVISION 3 – CONCRETE

3.1 Refer to Division 3 – Concrete for:

A. Rough grouting in and around mechanical work.

B. Cutting and patching concrete to accommodate mechanical work.

3.2 The following work is part of Division 23, complying with the requirements of Division 3:

A. Curbs, foundations and pads for mechanical equipment.

B. Basins, sumps, and vaults for mechanical work.

C. Underground structural concrete to accommodate mechanical work.

PART 4 - DIVISION 4 – MASONRY

4.1 Refer to Division 4 – Masonry for:

A. Installation of wall louvers.

B. Installation of access doors in walls.

PART 5 - DIVISION 5 – METALS

5.1 Refer to Division 5 – Metals for:

A. Framing openings for mechanical equipment.

5.2 The following work is part of Division 23:

A. Supports for mechanical work.

PART 6 - DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES

6.1 Refer to Division 6 – Wood, Plastics, and Composites for:

A. Framing openings for mechanical equipment.

PART 7 - DIVISION 7 – THERMAL AND MOISTURE PROTECTION

7.1 Refer to Division 7 – Thermal and Moisture Protection for:

A. Installation of all roof curbs and roof supports for mechanical work.

B. Caulking and waterproofing of all wall- and roof-mounted mechanical work.

C. Flashing of all roof curbs and roof vents.

7.2 The following work is part of Division 23, complying with the requirements of Division 7:

A. Fire barrier penetration seals.

PART 8 - DIVISION 8 – OPENINGS

8.1 Refer to Division 8 – Openings for:

A. Installation of all door grilles.

B. Providing all door undercuts.

PART 9 - DIVISION 9 – FINISHES

9.1 Refer to Division 9 – Finishes for:

A. Painting exposed ductwork, piping, and equipment.

B. Painting structural metal and concrete for mechanical work.

C. Painting door grilles and access panels.

D. Painting color-coded mechanical work indicated for continuous painting. See color schedule in Division 23 Section, "HVAC Identification".

E. Installation of access doors in gypsum drywall.

9.2 Colors shall be selected by the Architect for all painting of exposed mechanical work in occupied spaces, unless specified herein. Do not paint insulated or jacketed surfaces.

9.3 The following work is part of Division 23:

A. Touch-up painting of factory finishes.

B. Painting of all hangers.

PART 10 - DIVISION 11 – EQUIPMENT

10.1 Refer to Division 11 – Equipment for:

A. All food service equipment including ranges, ovens, dishwashers, and related food preparation equipment and accessories.

10.2 The following work is part of Division 23:

A. All ducts, fans, connections, and related devices to make kitchen hoods operational.

10.3 Refer to Division 11 – Equipment for:

A. All laboratory equipment including cabinets, casework, workstations, fume hoods, snorkel exhaust, canopy hoods, eyewash stations, and all related fixtures, fittings, and trim.

10.4 The following work is part of Division 23:

A. All ductwork, fans, related devices, and final connections necessary to make mechanical systems operational.

PART 11 - DIVISION 26 – ELECTRICAL

11.1 Mechanical contractor shall coordinate the exact electrical requirements of all mechanical

equipment being provided with the electrical contractor. Where approval submittals are required, this coordination shall be accomplished prior to making the submittals. The electrical design shown on the drawings supports the mechanical equipment basis of design. If mechanical equipment is submitted with different electrical requirements, it is the responsibility of the mechanical contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the mechanical submittal with a written statement that this design will be provided at no additional cost. Mechanical submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.

11.2 Mechanical contractor shall provide all HVAC control wiring including the Energy Management Control System sensors, alarms, and input/output signals and all relays, interlocks, warning lights, and control devices, complying with the requirements of Division 26. The intent is for the mechanical contractor to be responsible for the entire HVAC control system, including point-to-point wiring.

11.3 Electrical contractor shall provide disconnect switches, starters, and contactors for mechanical equipment unless specifically noted as being furnished as part of the mechanical equipment.

11.4 Electrical contractor shall provide all power wiring, raceway and devices, and make final electrical connections to all mechanical equipment, switches, starters, contactors, controllers, and similar equipment.

11.5 All duct-mounted smoke detectors shall be furnished and wired by the electrical contractor and installed by the mechanical contractor.

END OF SECTION

SECTION 230513 – MOTORS

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to motors specified herein.

C. Extent of motors required by this section is indicated on drawings and/or specified in other Division 23 sections.

D. Comply with the requirements of Division 26.

1.2 Compliance: Comply with applicable UL standards pertaining to motors.

1.3 Approval Submittals:

A. Product Data: When required by other Division 23 sections, submit manufacturers' standard product data sheets for each type of motor provided. Submit with Division 23 section using the motors, not as a separate submittal. Mark data sheet with arrows indicating product being supplied and list by unique descriptive name all motors to which each data sheet applies. Clearly indicate type, service factor, rpm, duty cycle, voltage, phase, nominal full load efficiency, power factor, and insulation class. Field verify and coordinate mounting and frame requirements for matching the drive.

1.4 O&M Data Submittals: Submit a copy of approval submittals. Submit operation and maintenance data for each type of motor. Include these data in O&M Manual. Submit two copies of nameplate data sheet for each motor. One copy shall be included with the O&M Manual and a second copy shall be inserted in a waterproof pouch or bag and attached to the motor. Nameplate data sheets shall be typed or neatly printed and shall include all data on the motor nameplate plus a unique motor description such as "AHU-3 Fan Motor", "Distribution Pump #1", or similar description.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide motors by General Electric, Baldor, US Electric, or approved equal.

2.2 General:

A. Motors shall conform to applicable portions of NEMA Standard MG-1, Motors and Generators.

B. Motors shall be sized for the application such that when the driven equipment is operated at rated capacity the motor current will not exceed the full-load nameplate current. Service factor shall not be used in normal operation.

2.3 Motor Design:

A. Integral Horsepower Motors:

1. Motors shall be open drip-proof or totally enclosed fan cooled as shown on the drawings or listed in the Division 23 section requiring motors.

2. Motors shall be three phase, 60 hertz, nominal 1800 rpm, rated at 200 volts for 208 volt systems, 230 volts for 240 volt systems, and 460 volts for 480 volt systems.

3. Motors shall be NEMA Design B and shall have 1.15 service factor or greater at 60 hertz.

4. Insulation Systems:

a. In fixed speed applications, motors shall have Class B insulation with 80°C rise over 40°C ambient.

b. For variable frequency drive (VFD) applications, motors shall have Class F insulation with 105°C rise over 40°C ambient. Motor manufacturer shall identify motors being used for VFD applications by marking the motor with a stainless steel name-plate “Inverter Duty”. Motors shall be provided with one set of thermostatic sensors.

c. Motor efficiencies shall be based on IEEE-112, 2004, Test Method B, as specified in NEMA Standard MG1-12.55. NEMA motor efficiency and power factor shall be clearly shown on the motor nameplate. Inverter duty motors shall have a CIV rating based on NEMA.

d. Motors shall be premium efficiency type and shall meet or exceed the following minimum nominal efficiencies at rated voltage.

230/460 VOLT, 3 PHASE

HORSEPOWER RANGE	MINIMUM NOMINAL EFFICIENCY	MINIMUM ACCEPTABLE POWER FACTOR
1 hp	85.5 pct.	75.0 pct
1.5 to 2 hp	86.5 pct.	77.0 pct
3 to 5 hp	89.5 pct.	77.0 pct
7.5 to 10 hp	91.7 pct.	80.0 pct
15 hp	92.4 pct.	80.0 pct
20 hp	93.0 pct.	82.0 pct
25 to 30 hp	93.6 pct.	82.0 pct
40 hp	94.1 pct.	82.0 pct
50 hp	94.5 pct.	85.0 pct
60 hp	95.0 pct.	85.0 pct
75 to 125 hp	95.4 pct.	85.0 pct
150 hp	95.8 pct.	87.0 pct
over 150 hp	96.2 pct.	87.0 pct

200 VOLT, 3 PHASE

HORSEPOWER RANGE	MINIMUM NOMINAL EFFICIENCY	MINIMUM ACCEPTABLE POWER FACTOR
1 hp	85.5 pct.	75.0 pct
1.5 to 2 hp	86.5 pct.	77.0 pct
3 to 5 hp	89.5 pct.	77.0 pct
7.5 to 10 hp	91.7 pct.	80.0 pct
15 hp	92.4 pct.	80.0 pct
20 hp	93.0 pct.	82.0 pct
25 hp	93.6 pct.	82.0 pct

e. Motors 25 hp and larger which are to be installed outdoors or in other high humidity areas shall be equipped with silicone rubber space heaters. Space heaters shall be energized when motor is de-energized.

B. Fractional Horsepower Motors one-half hp and above:

1. Motors shall be open drip-proof or totally enclosed fan cooled as shown on the drawings or listed in the Division 23 section requiring motors.

2. Motors shall be three phase, 60 hertz, nominal 1800 rpm, rated at 200, 230 or 460 volts as shown on the drawings.

3. Motors shall be NEMA Design B with class B insulation, unless used with variable frequency drives.

C. Fractional Horsepower Motors less than one-half hp:

1. Motors shall be single phase, 60 hertz, rated at 120 volts with integral thermal protection.

D. Overload Protection: Properly sized overload protection shall be provided for each motor. This protection may be an integral part of the motor or may be part of the motor controller and shall interrupt each ungrounded conductor.

PART 3 - EXECUTION

3.1 Motor Size and Location:

A. Size and location of motors shown on the drawings are based on a particular design and may change with a different manufacturer. Submittal of shop drawings or product literature indicating motor sizes or locations different from that designed indicates that Contractor has fully coordinated any required changes to the electrical system with other trades. Approval (if made) is on this basis and no additional cost will be allowed for any changes.

B. Contractor shall verify and make any necessary adjustments to electrical service, branch circuit wiring, branch circuit protection, overload protection, disconnect and controller (starter), or VFD based on actual nameplate data of the motors supplied prior to installation. Where applicable, connect motor winding thermostat to VFD.

C. Motor Voltages: Contractor shall field verify system voltage prior to ordering or installing any motors. Submittal of shop drawings or product literature indicating motor voltages indicates that Contractor has fully coordinated the motor with the electrical system and that any discrepancies have been resolved. Approval (if made) is on this basis and no additional cost will be allowed for any changes.

D. Motor Mounting: Adjust motor mounting as required to adjust the drive train for proper operation and to accommodate requirements of the test and balance work.

END OF SECTION

SECTION 230517 – SLEEVES AND SLEEVE SEALS

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to or requiring sleeves and sleeve seals specified herein.

PART 2 - PRODUCTS

2.1 General: Provide factory-fabricated sleeves and sleeve seals recommended by manufacturer for use in service indicated. Provide sleeves and sleeve seals of type indicated for each service, or if not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes as indicated, and connections, which properly mate with pipe, tube, and equipment connections. Where more than one type is indicated, selection is Installer's option.

2.2 Escutcheons:

A. General: Provide pipe escutcheons as specified herein with inside diameter closely fitting pipe outside diameter, or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, or ceilings; and pipe sleeve extension, if any. Furnish pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas.

B. Pipe Escutcheons for Moist Areas: For waterproof floors, and areas where water and condensation can be expected to accumulate, provide cast brass or sheet brass escutcheons, solid or split hinged.

C. Pipe Escutcheons for Dry Areas: Provide sheet steel escutcheons, solid or split hinged.

2.3 Fire Barrier Penetration Seals:

A. Provide seals for any opening through fire-rated walls, floors, or ceilings used as passage for mechanical components such as piping or ductwork in accordance with the requirements of Division 7.

2.4 Fabricated Piping Specialties:

A. Drip Pans: Provide drip pans fabricated from corrosion-resistant sheet metal with watertight joints, and with edges turned up 2-1/2". Reinforce top, either by structural angles or by rolling

top over 1/4" steel rod. Provide hole, gasket, and flange at low point for watertight joint and 1" drain line connection.

B. Pipe Sleeves: Provide pipe sleeves of one of the following:

1. Sheet-Metal: Fabricate from galvanized sheet metal, round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate from the following gauges: 3" and smaller, 20 gauge; 4" to 6" 16 gauge; over 6", 14 gauge.

2. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.

3. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs.

C. Sleeve Seals: Provide sleeve seals for sleeves located in foundation walls below grade, or in exterior walls, of one of the following:

1. Caulking and Sealant: Provide foam or caulking and sealant compatible with piping materials used.

PART 3 - EXECUTION

3.1 Pipe Escutcheons: Install pipe escutcheons on each pipe penetration through floors, walls, partitions, and ceilings where penetration is exposed to view; and on exterior of building. Secure escutcheon to pipe or insulation so escutcheon covers penetration hole, and is flush with adjoining surface.

3.2 Fire Barrier Penetration Seals: Provide pipe sleeve as required. Fill entire opening with sealing compound. Adhere to manufacturer's installation instructions. Refer to Division 7.

3.3 Drip Pans: Locate drip pans under piping passing over or within 3' horizontally of electrical equipment, and elsewhere as indicated. Hang from structure with rods and building attachments, weld rods to sides of drip pan. Brace to prevent sagging or swaying. Connect 1" drain line to drain connection, and run to nearest plumbing drain or elsewhere as indicated.

3.4 Pipe Sleeves: Install pipe sleeves of types indicated where piping passes through walls, floors, ceilings, and roofs. Do not install sleeves through structural members of work, except as detailed on drawings, or as reviewed by Architect/Engineer. Install sleeves accurately centered on pipe runs. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run. Where insulation includes vapor-barrier jacket, provide sleeve with sufficient clearance for installation. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves. Extend floor sleeves 1/4" above level floor finish, and 3/4" above floor finish sloped to drain. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.

A. Install sleeves in fire-rated assemblies in accordance with the listing of the assembly and the fire barrier sealant.

B. Install sheet-metal sleeves at interior partitions and ceilings other than suspended ceilings. Fill annular space with caulking or fire barrier sealant as required.

C. Install steel-pipe sleeves at floor penetrations. Fill annular space with caulking or fire barrier sealant as required.

D. Install iron-pipe sleeves at all foundation wall penetrations and at exterior penetrations, both above and below grade. Fill annular space with caulking or mechanical sleeve seals.

END OF SECTION

SECTION 230526 – ACCESS DOORS

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to or requiring access doors specified herein.

1.2 Approval Submittals:

A. Product Data: When required by other Division 23 sections, submit product data for access doors. Submit with Division 23 section using access doors, not as a separate submittal. Include rating data.

1.3 O&M Data Submittals: Submit a copy of approval submittals. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 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.

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide access doors by Milcor, Jay R. Smith, Zurn, BOICO, Elmdor, or approved equal.

2.3 Access Door Construction: Except as otherwise indicated, fabricate wall/ceiling door units of welded steel construction with welds ground smooth, 16-gauge frames and 14-gauge flush panel doors, 175° swing with concealed spring hinges, flush screw-driver-operated cam locks, factory-applied rust-inhibitive prime-coat paint finish.

2.4 Locks: Where indicated, provide flat pass key type, individually keyed unless otherwise indicated, 2 keys.

2.5 Fire Rated Access Doors: Where required furnish with 20-gauge 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 1-1/2 hour "B" label.

PART 3 - EXECUTION

3.1 Access doors shall be installed to operate and service all HVAC equipment including valves, dampers, duct access panels, and other items requiring maintenance that are concealed above or behind finished construction. Access doors shall be installed in walls, chase and floors as necessary, but 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.

3.2 Access doors shall be installed by the Division installing the substrate construction. However, responsibility for furnishing and determining location of access doors is part of this Division's work. The style of access door shall be suitable for construction into which installed.

3.3 Access doors shall be sized and located as required to provide proper maintenance and service access in accordance with the manufacturer's recommendations and code authority requirements for all devices and equipment.

END OF SECTION

SECTION 230529 – HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to or requiring hangers and supports specified herein.

C. Extent of hangers and supports required by this section is indicated on drawings and/or specified in other Division 23 sections.

1.2 Codes and Standards:

A. Code Compliance: Comply with applicable codes pertaining to product materials and installation of hangers and supports.

B. MSS Standard Compliance:

1. Provide pipe hangers and supports of which materials, design, and manufacture comply with ANSI/MSS SP-58.

2. Select and apply pipe hangers and supports, complying with MSS SP-69.

3. Terminology used in this section is defined in MSS SP-90.

C. UL Compliance: Provide products which are UL listed.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide supports and hangers by Grinnell, Michigan Hanger Company, B-Line Systems, or approved equal.

2.2 Horizontal-Piping Hangers and Supports: Except as otherwise indicated, provide factory-fabricated horizontal-piping hangers and supports complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper-piping systems.

A. Adjustable Steel Clevises: MSS Type 1.

B. Steel Double Bolt Pipe Clamps: MSS Type 3.

C. Adjustable Steel Band Hangers: MSS Type 7.

D. Steel Pipe Clamps: MSS Type 4.

E. Pipe Stanchion Saddles: MSS Type 37, including steel pipe base support and cast-iron floor flange.

2.3 Vertical-Piping Clamps: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper-piping systems.

A. Two-Bolt Riser Clamps: MSS Type 8.

B. Four-Bolt Riser Clamps: MSS Type 42.

2.4 Hanger-Rod Attachments: Except as otherwise indicated, provide factory-fabricated hanger-rod attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hanger-rod attachments to suit hanger rods. Provide copper-plated hanger-rod attachments for copper-piping systems.

A. Steel Turnbuckles: MSS Type 13.

B. Malleable Iron Sockets: MSS Type 16.

2.5 Building Attachments: Except as otherwise indicated, provide factory-fabricated building attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods.

A. Center Beam Clamps: MSS Type 21.

B. C-Clamps: MSS Type 23.

C. Malleable Beam Clamps: MSS Type 30.

D. Side Beam Brackets: MSS Type 34.

E. Concrete Inserts: MSS Type 18.

2.6 Saddles and Shields: Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for

exact fit to mate with pipe insulation.

A. Protection Shields: MSS Type 40, of length recommended by manufacturer to prevent crushing of insulation.

2.7 Roof Curbs: Furnish 12-inch high, roofed over type, pre-fabricated aluminum curbs with treated wood nailer and 1-1/2" fire resistant fiberglass insulation sized to match pipe or duct. For deck slopes of 1/4" per foot and more, fabricate curbs to form level top edge. Provide sloped, welded stainless steel cap where duct or pipe passes through.

2.8 Miscellaneous Materials:

A. Metal Framing: Provide products complying with NEMA STD ML 1.

B. Steel Plates, Shapes and Bars: Provide products complying with ANSI/ASTM A 36.

C. Cement Grout: Portland cement (ANSI/ASTM C 150, Type I or Type III) and clean uniformly graded, natural sand (ANSI/ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum amount of water required for placement and hydration.

D. Heavy-Duty Steel Trapezes: Fabricate from steel shapes or continuous channel struts selected for loads required; weld steel in accordance with AWS standards.

PART 3 - EXECUTION

3.1 Preparation:

A. Proceed with installation of hangers and supports only after required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including, but not limited to, proper placement of inserts, anchors and other building structural attachments.

B. Prior to installation of hangers, supports, and associated work, Installer shall meet at project site with Contractor, installer of each component of associated work, and installers of other work requiring coordination with work of this section for purpose of reviewing material selections and procedures to be followed in performing the work in compliance with requirements specified.

3.2 Installation of Building Attachments:

A. Install building attachments at required locations within concrete or on structural steel for proper piping support. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert securely to forms. Where concrete with compressive strength less than 2500 psi is indicated, install

reinforcing bars through openings at top of inserts.

3.3 Installation of Hangers and Supports:

A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure; comply with MSS SP-69. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Install supports with maximum spacing complying with MSS SP-69 or as listed herein, whichever is most limiting. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.

1. Horizontal steel pipe and copper tube 1-1/2" diameter and smaller: support on 6-foot centers.

2. Horizontal steel pipe and copper tube over 1-1/2" diameter: support on 10-foot centers.

3. Vertical steel pipe and copper tube: support at each floor.

4. Plastic pipe: support in accordance with manufacturer's recommendations.

B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories.

C. Paint all black steel hangers with black enamel. Galvanized steel and copper clad hangers do not require paint.

D. Prevent electrolysis in support of copper tubing by use of hangers and supports which are copper plated, or by other recognized industry methods.

E. Provision for Movement:

1. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

2. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes, and so that maximum pipe deflections allowed by ANSI B31 are not exceeded.

F. Insulated Piping: Comply with the following installation requirements:

1. Shields: Where low-compressive-strength insulation or vapor barriers are indicated, install coated protective shields. For pipe 8" and over, install wood insulation saddles.

2. Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ANSI B31.

3.4 Equipment Bases:

A. Concrete housekeeping bases will be provided as work of Division 3. Furnish to Contractor scaled layouts of all required bases, with dimensions of base, and location to column center lines. Furnish templates, anchor bolts, and accessories necessary for base construction.

B. Provide concrete housekeeping bases for all floor mounted equipment furnished as part of the work of Division 23. Size bases to extend minimum of 6" beyond equipment base in any direction, and 4" above finished floor elevation. Construct of reinforced concrete, roughen floor slab beneath base for bond, and provide steel rod anchors between floor and base. Locate anchor bolts using equipment manufacturer's templates. Chamfer top and edge corners.

3.5 Roof Curbs: Furnish roof curbs to roofing Installer for installation.

END OF SECTION

SECTION 230548 – VIBRATION ISOLATION

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to or requiring vibration isolation specified herein.

C. Extent of work required by this section is indicated on drawings and/or specified in other Division 23 sections. Types of vibration isolation specified in this section include equipment support isolators, equipment bases, and flexible pipe connectors.

1.2 Quality Assurance:

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of vibration isolation, of types and sizes required, whose products have been in satisfactorily used in similar service for not less than five years.

B. Comply with ASME B31 – Pressure Piping.

C. All equipment provided under Division 23 shall operate under all conditions of load, free of objectionable sound and vibration. Sound and vibration conditions considered objectionable by the Architect/Engineer shall be corrected in an approved manner.

1.3 Approval Submittals:

A. Product Data: Where required by other Division 23 sections, submit product data sheets for each type of vibration isolation equipment including configuration and rating data. Submit with Division 23 Section using vibration isolation, not as a separate submittal. Provide calculations showing supported weight, deflection, and isolator size and type for each item of supported equipment. Submit for:

1. Equipment Mountings. Type EM.

2. Hangers. Type HA.

3. Bases and Frames. Type BF.

4. Pipe Flexible Connections. Type PF.

1.4 O&M Data Submittals: Submit a copy of approval submittals. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Provide factory-fabricated products recommended by manufacturer for use in service indicated. Provide products of types and deflections indicated; provide proper selection as determined by Installer to comply with specifications and installation requirements. Provide sizes which properly fit with equipment. All metal parts installed outside shall be hot-dipped galvanized after fabrication.

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide vibration isolation equipment of: Mason Industries, Keflex, Consolidated Kinetics, Vibration Mountings & Controls, Wheatley, or approved equal. All vibration isolators shall be supplied by a single approved manufacturer.

2.3 Equipment Mountings:

A. Select mountings with the required deflection and fastening means. Provide steel rails or bases as required to compensate for equipment rigidity and overhang.

B. Types of equipment mountings (EM):

1. Spring Mountings (EM1): Spring isolators shall be free-standing and laterally stable without any housing. All mounts shall have leveling bolts. Spring diameter shall be not less than 0.8 of the compressed height of the spring at rated load. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Springs shall be so designed that the ratio of horizontal stiffness to vertical stiffness is approximately one. Provide a nominal static deflection of at least 1.0". Basis of Design: Mason Industries SLFH.

2. Spring Mountings with Housings (EM2): Spring isolators shall consist of open, stable steel springs and include vertical travel limit stops to control extension when weight is removed. The housing of the spring unit shall serve as blocking during erection of equipment. Provide a nominal static deflection of at least 1.0". All mountings used outside shall be hot-dipped galvanized. Basis of Design: Mason Industries SLR.

3. Spring Mountings with Housings (EM3): Spring isolators shall consist of open, stable steel springs with neoprene inserts to limit movement between upper and lower housing on start and stop. Provide a nominal static deflection of at least 1.0". Mountings shall be specifically designed for critical areas on light-weight floors. Basis of Design: Mason Industries C.

4. Neoprene Mountings (EM4): Double deflection neoprene-in-shear mountings shall have a minimum static deflection of 0.35". All metal surfaces shall be neoprene covered. The top and bottom surfaces shall be neoprene ribbed and bolt holes shall be provided in the base. Basis of design: Mason Industries ND.

5. Pads (EM5): Waffle or ribbed pattern neoprene pads shall be fabricated from 40-50 durometer neoprene. Provide rigid steel plate and mounting angles as required. Basis of

design: Mason Industries Super W.

2.4 Hangers:

A. Select hangers with the required deflection. Provide all required hanger rods and fasteners.

B. Types of hangers (HA):

1. Hangers (HA1): Vibration hangers shall contain a steel spring set in a neoprene cup manufactured with a grommet to prevent short-circuiting of the hanger rod. The cup shall contain a steel washer designed to properly distribute the load on the neoprene and prevent its extrusion. Spring diameters and hanger box lower-hole sizes shall be large enough to permit the hanger rod to swing through a 30° arc before contacting the hole and short circuiting the spring. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Basis of Design: Mason Industries 30.

2. Hangers (HA2): Vibration hangers shall contain a laterally stable steel spring and 0.3" deflection neoprene or fiberglass element in series. A neoprene neck shall be provided where the hanger rod passes through the steel box supporting the isolator mount to prevent metal to metal contact. Spring diameters and hanger box lower hole sizes shall be large enough to permit the hanger rod to swing through a 30° arc before contacting the hole and short circuiting the spring. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection. Basis of Design: Mason Industries 30N.

3. Hangers (HA3): Double deflection neoprene-in-sheer or EPDM hangers. Units shall be complete with projected neoprene bushing to prevent steel-to-steel contact between hanger box and hanger rod. Average static deflection shall be not less than 0.4 inches. Basis of Design: Mason Industries HD.

2.5 Bases and Frames:

A. Select mounting bases and frames as required for equipment dimensions, service access and fastening means. Provide all fasteners. Coordinate and provide required vibration isolators to match mounting bases and frames.

B. Types of bases and frames (BF):

1. Steel Base Frame for Floor-Mounted Equipment (BF1): Provide frames consisting of structural steel sections sized, spaced and connected to form a rigid base which will not twist, rack, deform or deflect in any manner that will negatively affect the operation of the supported equipment or the performance of the vibration-isolation mounts. Frames shall be of adequate size and plan form to support basic equipment units and motors plus any associated pipe elbow or duct elbow supports and electrical control elements or other components closely related and requiring resilient support in order to prevent vibration transfer from equipment to the building structure. Frames shall include side mounting brackets for attachment to vibration isolation floor mounts. The clearance between the underside of any frame or mounted equipment unit and the top of the building structure below shall be at least 2 inches. Basis of Design: Mason Industries WFSL.

2. Concrete Inertia Block for Floor-Mounted Equipment (BF2): Provide concrete inertia blocks formed of stone-aggregate concrete (150 lbs./cu.ft.) cast between appropriate steel reinforcing perimeter structural steel channels. Inertia block thickness shall be not less than 1/12 the longest dimension of the mounted equipment or equipment assembly. Inertia blocks shall be built to form a rigid base which will not twist, rack, deform, deflect or crack in any manner that will negatively affect the operation of the supported equipment or the performance of the vibration-isolation mounts. Inertia blocks shall be of adequate size and plan form to support basic equipment units and motors plus any associated pipe or duct elbow supports, electrical control elements or other components closely related and requiring resilient support in order to prevent vibration transfer from equipment to the building structure. Inertia blocks shall include side mounting bracket pockets for spring mounting. The clearance between the underside of any inertia block and the top of the building structure below shall be at least 2 inches. The vibration isolator supplier may furnish the structural steel perimeter frame, including reinforcing and anchor bolts. Basis of Design: Mason Industries KSL/BMK.

3. Steel Rails (BF3): Provide steel rails of channels or angles with vibration isolators as required. Basis of Design: Mason Industries, RND or RC.

4. Vibration Isolation Base for Rooftop Equipment (BF4): Provide aluminum vibration isolation bases that fit over roof curb and under the equipment. Provide spring isolators having a 1" minimum static deflection, resilient snubbers for wind resistance, closed cell weather seal at top and bottom, and EDPM flexible connection around entire perimeter. The unit shall provide a water-tight system. Basis of Design: Mason Industries CMAB.

2.6 Pipe Flexible Connections:

A. Select pipe flexible connections suitable for duty indicated with ends to match piping system.

B. Types of pipe flexible connections (PF):

1. Pump Connections (PF1): Provide EPDM and dacron or neoprene and nylon flexible connectors rated at 200 psi and 250ºF. Connectors shall have the number of spheres required and ductile iron floating flanges with baked enamel finish. Provide control rods or cables as required for each application. Basis of Design: Mason Industries SFDEJ with reinforcing rings.

2. Chiller Connections (PF2): Provide EPDM and dacron or neoprene and nylon flexible connectors rated at 200 psi and 250ºF. Connectors shall have the number of spheres required and ductile iron floating flanges with baked enamel finish. Provide control rods or cables as required for each application. Basis of Design: Mason Industries SFEJ.

3. Coil Connections (PF3): Provide 300 psi working pressure flexible hoses with corrugated seamless hose body and braided cover. Basis of Design: Mason Industries BSS threaded or RF flanged, as required.

4. Stainless Steel Flexible Hoses (PF4): Provide 300 psi working pressure flexible hoses with corrugated seamless hose body and braided cover. Basis of Design: Mason Industries BSS threaded or RF flanged, as required.

5. Bronze Flexible Hoses (PF5): Provide 300 psi working pressure flexible hoses with corrugated bronze hose body and braided cover. Basis of Design: Mason Industries BBF with sweat ends.

PART 3 - EXECUTION

3.1 General:

A. Install vibration isolation devices for the duty indicated and for ease of inspection, adjustment, and proper operation. Install in accordance with the manufacturer's written instructions and coordinate with shop drawings of supported equipment.

B. All connections to devices and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.

C. Piping, ductwork and conduit shall not be suspended from one another or physically contact one another. Vibrating systems shall be kept free from non-vibrating systems.

3.2 Equipment Mountings:

A. Unless otherwise shown or specified, all floor-mounted equipment shall be set on housekeeping equipment bases. Refer to Division 23 section "Hangers and Supports".

B. No equipment unit shall bear directly on vibration isolators unless its own frame is suitably rigid to span between isolators, and such direct support is approved by the equipment manufacturer. All support frames shall be sufficiently stiff and rigid so as to prevent distortion and misalignment of components installed thereon.

C. Align equipment mountings for a free, plumb installation. Isolators that are binding, offset or fully compressed will not be accepted.

3.3 Hangers:

A. Position vibration isolation hangers so that hanger housing may rotate a full 360° without contacting any object.

B. Install steel angles, channels, rods and fasteners to level equipment, piping or ductwork and to evenly distribute the supported weight.

3.4 Bases and Frames:

A. Unless otherwise indicated, all equipment mounted on vibration-isolated bases shall have a minimum operating clearance of 2 inches between the structural steel frame and the concrete housekeeping pad or floor beneath the equipment. The clearance space shall be checked to ensure that no construction debris has been left to short-circuit or restrict the proper operation of

the vibration isolation system.

B. Coordinate vibration isolation bases for rooftop equipment with equipment suppliers, curb suppliers, and roofing contractor. Install unit to achieve a water-tight, wind-resistant system.

3.5 Pipe Flexible Connections:

A. Piping connected to vibration isolated equipment shall be installed so that it does not strain or force out of alignment the vibration isolators supporting the basic equipment, nor shall pipes restrict such equipment from "floating" freely on its respective vibration isolation system. Flexible connections shall be used to eliminate transferring vibration along piping.

B. Flexible connections and hoses shall not be used to compensate for pipe misalignment. Units shall be aligned so that the flexible connection is not distorted perpendicular to the axis of the piping.

C. Install flexible connections in pump suction and discharge, chiller inlet and outlet, water coil inlet and outlet, and where shown on the drawings or required by equipment specifications.

D. Install flexible hoses in all refrigerant piping where shown on the drawings, all air compressor outlets, all vacuum pump inlets and outlets, and where shown on the drawings or required by other equipment specifications. Select end types to match equipment and piping connections. Install on the equipment side of shutoff valves horizontally and parallel to the equipment shafts wherever possible.

3.6 Connections of Ducts: Ducts shall be connected to fan intakes and discharges by means of flexible connectors in accordance with Division 23 section "Ductwork Accessories" so that all vibrating equipment is fully isolated.

END OF SECTION

SECTION 230553 – HVAC IDENTIFICATION

PART 1 - GENERAL

1.1 Related Documents:

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

B. This section is a Division 23 Common Work Results for HVAC section, and is part of each Division 23 section making reference to or requiring identification devices specified herein.

C. Extent of HVAC identification work required by this section is indicated on drawings and/or specified in other Division 23 sections.

1.2 Codes and Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

PART 2 - PRODUCTS

2.1 General: Provide manufacturer's standard products of categories and types required for each application as referenced in other Division 23 sections. Where more than a single type is specified for application, selection is the Contractor’s option, but provide single selection for each product category.

2.2 Painted Identification Materials:

A. Stencils: Standard fiberboard stencils, prepared for required applications with letter sizes generally complying with recommendations of ANSI A13.1 for piping and similar applications, but not less than 1-1/4" high letters for ductwork and not less than 3/4" high letters for access door signs and similar operational instructions.

B. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

C. Identification Paint: Standard identification enamel.

2.3 Engraved Plastic-Laminate Signs:

A. General: Provide engraving stock melamine plastic laminate, in the sizes and thicknesses indicated, engraved with engraver's standard letter style a minimum of 3/4” tall and wording indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.

B. Thickness: 1/16" for units up to 20 square inches or 8" length; 1/8" for larger units.

C. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.

2.4 Stamped Nameplates: Provide equipment manufacturer's standard stamped nameplates for motors, AHUs, pumps, etc.

PART 3 - EXECUTION

3.1 Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.

3.2 Ductwork Identification:

A. General: Identify air supply, return, exhaust, intake, and relief ductwork with stenciled signs and arrows, showing ductwork service and direction of flow, in black or white.

B. Location: In each space where ductwork is exposed, or concealed only by removable ceiling system, locate signs near points where ductwork originates or continues into concealed enclosures, and at 50' spacing along exposed runs.

C. Access Doors: Provide stenciled signs on each access door in ductwork and housings, indicating purpose of access (to what equipment) and other maintenance and operating instructions and appropriate and procedural information.

3.3 Mechanical Equipment Identification:

A. General: Install engraved plastic laminate sign on or near each major item of mechanical equipment and each operational device. Label shall indicate type of system and area served. Provide signs for the following general categories of equipment and operational devices:

1. Fans, Air conditioning indoor and outdoor units.

Stamped Nameplates: Equipment manufacturers to provide standard stamped nameplates on all major equipment items such as motors, AHUs, etc. Where motors are hidden from view (within equipment casing, or otherwise not easily accessible, etc.), the equipment supplier shall furnish a duplicate motor data nameplate to be affixed to the equipment casing in an easily visible location, unless data is already included on the equipment nameplate.

END OF SECTION

SECTION 230590 – STARTUP REQUIREMENTS FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 Intent: It is the intent of this section to require that the startup requirements and report noted herein be performed prior to starting TAB work on each system. Work can be phased with permission of the Engineer.

1.2 Coordination:

A. The Contractor shall furnish to the TAB Contractor a complete set of plans, specifications, addenda, shop drawings, equipment performance data sheets, change orders, etc. as requested by the TAB Contractor.

B. The Contractor shall participate in a TAB coordination meeting to discuss interface requirements with the TAB Contractor and to establish a schedule for TAB work prior to start of TAB work.

1.3 Test Reports and Verification Submittals: Submit Startup Report as described herein for each system. Attach Factory Startup Report for equipment as required by other Division 23 sections.

PART 2 - PRODUCTS: None

PART 3 - EXECUTION

3.1 General:

A. The TAB work shall not commence until the Engineer has received written notice from the Contractor that HVAC systems are 100% complete and are fully operational. Submit Startup Report as described herein.

B. The Contractor shall place all HVAC systems and equipment into complete operation during each working day of TAB work.

C. The Contractor shall provide access to HVAC systems and equipment by supplying ladders and/or scaffolding, and opening access panels and equipment room doors.

D. The TAB Contractor will provide to the Contractor TAB punch lists of non-complying HVAC work as they are discovered. The Contractor shall replace or repair non-complying work as soon as possible in order not to delay completion of TAB work.

3.2 Airside Systems: The Contractor shall provide the following information to the Engineer to substantiate proper startup and preliminary adjustments of air handler units, fans, and duct systems.

A. Verify that air grilles (supply, return, exhaust, transfer, outdoor, etc.) are installed and connected to the duct system.

B. Verify that duct systems are clean of debris.

C. Verify that ducts attached with flexible connectors are aligned within 1/2" and have a uniform gap between ducts of 1"-1.5". Flexible connectors shall not leak and shall be insulated.

D. Verify that filters are clean and filter spacers are installed.

E. Verify that balancing dampers at grilles and branch ducts are operational and are fully opened.

F. Verify that fire and smoke dampers are correctly installed and are fully opened.

G. Coordinate testing of duct smoke detectors with fire alarm system contractor and authority having jurisdiction.

H. Verify that fan discharges are appropriate for the outlet ductwork with regards to the "system effect" per AMCA Publication 201. Inappropriate fan discharges will not be accepted.

I. Verify proper fan rotation.

J. Verify proper motor drive alignment.

K. Verify fan motor overload elements are correctly sized.

L. Adjust fan speed until CFM is at or above design CFM. Verify that motor is not overloaded.

M. Verify that HVAC control systems are fully operational.

N. Startup Report: The Contractor shall submit the startup information required by this section to the Engineer in a typed report organized as outlined herein. The Startup Report is required to meet the written notice described herein prior to starting TAB work. TAB work will not start until the Startup Report has been submitted and approved.

END OF SECTION

SECTION 230593 – TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 Scope of Work: Extent of testing, adjusting, and balancing work (TAB) is indicated by the requirements of this section, and also by drawings and schedules. TAB is defined to include, but is not necessarily limited to, air distribution systems, hydronic distribution systems and associated equipment and apparatus of mechanical work. The work consists of setting speed and volume (flow) adjusting facilities provided for systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to work as required.

1.2 Description of Work:

A. Components to be tested, adjusted, and balanced specified in this section shall include the following as applied to mechanical equipment:

1. Air handling units
2. Fans
3. Pumps
4. Ductwork systems
5. Coils

1.3 Tolerances: The intent of this specification to balance HVAC systems within the tolerances listed, maintaining the pressure relationships indicated, with a minimum of noise.

A. Airflow Tolerances:

1. Air Handling: Supply air, return air and outdoor air quantities shall be balanced within ±5% of design values.

2. Exhaust Fans: Exhaust fan quantities shall be set as required to maintain the design exhaust terminal flows within ±5% of design values. If no exhaust terminals exist, exhaust fan air quantities shall be balanced within ±10% of design values.

3. Ceiling Diffusers, Supply Registers, Return and Exhaust Inlets: Air quantities shall be balanced within ±10% of design values.

B. Temperature Tolerances:

1. Air Handling Temperatures: Controlled temperatures at AHUs shall be verified to be under control within ±1°F of design values.

2. Room Temperatures: Balance systems and controls within ±2°F of indicated settings.

C. Pressure Relationships: Where code or design indicates a specific pressure relationship, the pressure relationship shall take precedence over airflow tolerances. Airflow tolerances may

need to be held tighter than allowed tolerances to meet pressure relationships. Demonstrate the existence of positive or negative pressure to Engineer and authority having jurisdiction by making direct measurements of room relative pressure and/or flow direction.

1.4 Quality Assurance:

A. The TAB contractor shall meet one of the following:

1. A firm certified by National Environmental Balancing Bureau (NEBB) in those testing and balancing disciplines required for this project, which is not the installer of the system to be tested and is otherwise independent of project. Comply with NEBB's "Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems" as applicable to this work.
2. A firm certified by Associated Air Balance Council (AABC) in those testing and balancing disciplines required for this project. AABC-certified firms are independent by definition. Comply with AABC's Manual MN-1 "AABC National Standards", as applicable to this work.

B. Industry Standards: Comply with American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) recommendations pertaining to measurements, instruments, and testing, adjusting and balancing, except as otherwise indicated.

1.5 Job Conditions:

A. Do not proceed with testing, adjusting, and balancing work until HVAC work (including controls) has been completed and system is operable. Ensure that there is no residual work still to be completed.

B. Do not proceed until system scheduled for testing, adjusting, and balancing is clean and free from debris, dirt and discarded building materials.

C. Do not proceed until architectural work that would affect balancing (walls, ceiling, windows, doors, etc.) has been completed.

D. Testing may proceed system by system, but each HVAC system must be completed as described herein.

E. The mechanical contractor shall make any changes to fan speeds and dampers, and/or add dampers as required for correct balancing.

1.6 Approval Submittals:

A. Submit the name of the proposed test and balance company for the Engineer's approval within thirty (30) days after awarding of contract.

B. Submit copies of the dated test and balance report upon completion of TAB work. The report shall include a list of instruments used for the work. The report shall be signed by the supervisor who performed the TAB work, and certified by a professional engineer registered in

the state of Florida, who is a regular employee of the TAB firm.

PART 2 - PRODUCTS

2.1 Patching Materials: Except as otherwise indicated, use the same products as used by the original installer for patching holes in insulation, ductwork, and housings which have been cut or drilled for test purposes, including access for test instruments, attaching jigs, and similar purposes.

2.2 Test Instruments: Utilize test instruments and equipment of the type, precision, and capacity as recommended in the referenced standard. All instruments shall be in good condition and shall have been calibrated within the previous twelve (12) months, or more recently if required by standard.

PART 3 - EXECUTION

3.1 General:

A. Examine installed work and conditions under which testing is to be done to ensure that work has been completed, cleaned and is operable. Do not proceed with TAB work until unsatisfactory conditions have been corrected in manner acceptable to the tester.

B. Test, adjust and balance environmental systems and components, as indicated, in accordance with procedures outlined in applicable standards, and as modified or detailed herein.

C. Test, adjust and balance system during summer season for air conditioning systems and during winter season for heating systems, including at least a period of operation during outside conditions within 5ºF wet bulb temperature of maximum summer design condition and within 10ºF dry bulb temperature of minimum winter design condition. When seasonal operation does not permit measuring final temperatures, take final temperature readings when seasonal operation does permit. The Contractor shall return for a change of seasons test at no additional cost to the Owner and submit the revised TAB report.

D. Punch List: Prepare a deficiency (punch) list for the Contractor with a copy to the Engineer that lists all items that are incorrectly installed or are functioning improperly. Provide a retest after all items are corrected.

E. Prepare TAB Report of test results, including instrumentation calibration reports, in the format recommended by applicable standards, modified as required to include all data listed herein.

F. Patch holes in insulation, ductwork and housings, which have been cut or drilled for test purposes, in manner recommended by original Installer.

G. Mark equipment settings including damper control positions, valve indicators, fan speed control levers, and similar controls and devices, to show final settings at completion of TAB work. Provide markings with paint or other suitable permanent identification materials.

H. Include in the TAB Report recommendations for correcting unsatisfactory mechanical performances when system cannot be successfully balanced.

I. Include an extended warranty of ninety (90) days after completion of testing, adjusting, and balancing work, during which time the Engineer, at his discretion, may request a recheck, or resetting of any component as listed in test report. TAB contractor shall provide technicians and instruments and make any tests required by the Engineer during this time period.

3.2 Controls:

A. Check all temperature and humidity controllers for location and calibration.

B. Check operation of all controllers and controlled devices to verify proper action and connection. Check operation of all interlocks.

C. Check all motorized damper motors for leakage when in closed position. If leakage is more than 5%, the mechanical contractor shall reset damper linkages.

3.3 Air Balancing:

A. Leakage tests on ductwork must have been completed before air balancing can begin.

B. Set dampers, volume controls, and fan speeds to obtain specified air delivery with minimum noise level. Rebalance as required to accomplish this. Simulate fully loaded filters during test.

C. Set grille deflections as noted on drawings. Modify deflections if required to eliminate drafts or objectionable air movement.

D. Record air terminal velocity after completion of balance work.

E. Record final grille and register deflection settings if different from that specified on Contract Drawings.

F. Record all fan speeds.

3.4 Data Collection:

A. In addition to the data required for any specified performance tests, measure and record the temperatures, pressures, flow rates, and nameplate data for all components listed herein.

B. It is the intent of this section to record data on balanced systems, under normal operating or design conditions.

C. Temperatures:

1. Outside dry and wet bulb temperatures.
2. Dry bulb temperature in each room and at least one wet bulb temperature in each zone.

3. Refrigerant liquid and suction temperatures.
4. Inlet and outlet temperature of each heat exchange device – both fluids.

D. Pressures:

1. Suction and discharge static pressure of each fan.
2. Refrigerant suction and discharge pressures.

E. Flow rates:

1. Air flow rate through each fan.
2. Water flow rate through each pump.
3. Water flow rate through each coil or heat exchange device.

F. Nameplate Data:

1. Complete nameplate data for all other equipment.
2. Motor data to include horsepower, phase, voltage, RPM, full load nameplate current, fuse rating in disconnect switch, number or manufacturer's size designation, and ampere rating of overcurrent and low voltage protection devices in starters.

END OF SECTION

SECTION 230713 – DUCT INSULATION

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

1.2 Approval Submittals:

A. Product Data: Submit manufacturer's product data sheets and installation instruction on each insulation system including insulation, coverings, adhesives, sealers, protective finishes, and other material recommended by the manufacturer for applications indicated. Submit for:

1. Rigid duct insulation.
2. Flexible duct insulation.

1.3 O&M Data Submittals: Submit a copy of all approval submittals. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide insulation products by Knauf, Owens-Corning, Johns Manville, Certainteed, Pittsburgh Corning, or approved equal.

2.2 Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, coverings, sealers, mastic, 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.

2.3 Duct Insulation Materials:

A. Rigid Fiberglass Insulation Board: ASTM C612, Class 1 (non-load bearing). Boards shall be 3 pcf density with UL rated aluminum foil vapor barrier (FSK).

B. Flexible Fiberglass Insulation: ASTM C553, Type I, Class B-3 (temperature less than 350°F). Duct wrap shall be 1 pcf density with UL rated aluminum foil vapor barrier (FSK).

C. General Purpose Mastic: Benjamin Foster 35-00 Series, Insulcoustic VIAC Mastic, Childers CP-10, or approved equal. The final selection of this product for the specific application indicated is the responsibility of the insulation supplier. The insulation system must meet the specified application.

D. Vapor Barrier Sealant: Benjamin Foster 30-35, Insulcoustic IC-501, 3M EC-1378, Childers CP-30, or approved equal. Provide "Low Odor" type. The final selection of this product for the specific application indicated is the responsibility of the insulation supplier. The insulation system must meet the specified application.

E. Adhesive: Benjamin Foster 85-20, Insulcoustic IC-205, 3M EC-35, Childers CP-82, Childers CP-89, or approved equal. The final selection of this product for the specific application indicated is the responsibility of the insulation supplier. The insulation system must meet the specified application.

F. Fiber-Glas Mesh: 10x10 Mesh. Foster Mastafab or equal.

PART 3 - EXECUTION

3.1 Installation of Rigid Ductwork Insulation:

A. Insulate all supply, return and outside air ductwork exposed in mechanical rooms, mezzanines, fan lofts or in any finished spaces with 1-1/2" thick rigid fiberglass insulation with vapor barrier and a minimum *installed* R-value of 6.0. Do not field insulate exposed, double-wall round or flat oval supply air ductwork.

B. Clean and dry ductwork prior to insulating. Butt insulation firmly together to ensure complete and tight fit over surfaces to be covered. Install insulation materials with smooth and even surfaces. Maintain integrity of aluminum vapor barrier wherever possible. Extend insulation without interruption through walls, floors and similar ductwork penetrations except where otherwise indicated.

C. Adhere insulation to duct with 50% coverage using approved insulation adhesive applied in 6-inch wide swaths with 6-inch spaces between swaths. Additionally, secure insulation with perforated pins and Tuff-Bond or by self-sticking pins with a 3/8-inch self-tapping screw. Space on 12-inch centers and 3 inches from all edges. Ducts up through 24" width only require one row of pins. Ducts over 24" width shall have pins spaces as described herein.

D. Seal all joints, punctures and breaks in aluminum vapor barrier with 4-inch wide strip of open mesh glass fabric applied over one coat of vapor barrier mastic. When dry, apply second coat of general purpose mastic with aluminum grey color.

3.2 Installation of Flexible Ductwork Insulation:

A. Insulate all supply, return and outdoor air ductwork concealed above ceilings, in chases, or elsewhere, and the backs of all supply outlets with 2" thick fiberglass blanket insulation with vapor barrier and a minimum *installed* R-value of 6.0.

B. Insulate 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.

C. Clean and dry ductwork prior to insulating. Adhere insulation to duct with 100% coverage using approved insulation adhesive. Lap all joints 2 inches with 4-inch wide strips of open mesh glass fabric embedded in two coats of general purpose mastic.

D. Seal all punctures and breaks in vapor barrier with open mesh glass fabric and vapor barrier sealant.

END OF SECTION

SECTION 233113 – METAL DUCTWORK

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of HVAC metal ductwork is indicated by drawings and schedules, and by requirements of this section.

D. Refer to other Division 23 sections for exterior insulation of metal ductwork.

E. Refer to other Division 23 sections for ductwork accessories.

1.2 Codes and Standards:

A. SMACNA Standards: Comply with SMACNA's "HVAC Duct Construction Standards, Metal and Flexible" 2005 Edition for fabrication and installation of metal ductwork, unless otherwise noted.

B. NFPA 90A Compliance: Comply with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

C. NFPA 96 Compliance: Comply with NFPA 96 "Standard for Installation of Equipment for Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment".

1.3 Approval Submittals:

A. Product Data: Submit manufacturer's technical product data and installation instructions for the following:

1. Factory-fabricated ductwork
2. Sealants
3. Flexible duct

B. Shop Drawings: Submit scaled layout drawings of HVAC metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, and slopes of horizontal runs, wall and floor penetrations, and connections. Show interface and spatial relationship between ductwork and proximate equipment. Show modifications of indicated requirements, made to conform to local shop practice, and how those modifications ensure that free area, materials, and rigidity are not reduced.

PART 2 - PRODUCTS

2.1 Ductwork Materials:

A. Exposed Ductwork Materials: Where ductwork is indicated to be exposed to view in occupied spaces, provide materials which are free from visual imperfections including pitting, seam marks, roller marks, stains and discolorations, and other imperfections, including those which would impair painting.

B. Galvanized Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A527, lockforming quality, with G90 zinc coating in accordance with ASTM A525, and mill phosphatized for exposed locations. Stamp gauge and manufacturer's identification on each sheet. Break sheets so that identification is exposed.

C. Stainless Steel Ductwork: Where indicated, provide 18-gauge stainless steel complying with ASTM A 167, Type 304, 316, with No. 4 finish where exposed to view in occupied spaces. Provide No. 1 finish elsewhere. Protect finished surfaces with mill-applied adhesive protective paper, maintained through fabrication and installation.

D. Aluminum Sheet Metal: Where indicated, provide ASTM B 209 (ASTM B 209M), Alloy 3003, Temper H14 aluminum sheet form with standard, one-side bright finish for exposed ducts and mill finish for concealed ducts.

2.2 Miscellaneous Ductwork Materials:

A. General: Provide miscellaneous materials and products of types and sizes indicated and, where not otherwise indicated, provide type and size required to comply with ductwork system requirements including proper connection of ductwork and equipment.

B. Duct Sealant: Provide non-hardening, non-migrating mastic or liquid elastic sealant, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for sealing joints and seams in ductwork.

C. Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork. For exposed stainless steel ductwork, provide matching stainless steel support materials. For aluminum ductwork, provide matching supports unless materials are electrolytically separated from ductwork.

D. Flexible Ducts: Provide flexible ductwork with an R-value of R-6unless the ductwork is in a ceiling return plenum. R-4 is acceptable for flexible ductwork installed in ceiling return plenums. The use of flexible ductwork for connection of supply air and return air devices is acceptable only where shown on the drawings.

1. Construction: Provide reinforced metalized polyester jacket that is tear and puncture resistant, air tight inner core with no fiberglass erosion in the air stream and an encapsulated wire helix. Flexible ductwork shall have a recommended operating pressure of 6" w.g. for sizes 4" through 12" diameter and 4" w.g. for sizes 14" through 20" diameter. All diameters shall be suitable for a negative operating pressure of 0.75" w.g.

Flexible ductwork shall meet the requirements of UL-181, the InternationalFlorida Energy Conservation Code, SBCC, NFPA 90A and NFPA 90B.

2. Acceptable Manufacturers: Subject to compliance with requirements, provide R-6 flexible ductwork by: Atco 36, Flexmaster 6M-R6 or Thermaflex M-KE R6.

E. Fittings: Provide radius type fittings fabricated of multiple sections with maximum 15° change of direction per section. Unless specifically detailed otherwise, use 45° laterals and 45° elbows for branch takeoff connections. Where 90° branches are indicated, provide conical type tees.

2.3 Fabrication:

A. Shop fabricate ductwork in 4, 8, 10 or 12-ft lengths, unless otherwise indicated or required to complete runs. Preassemble work in shop to greatest extent possible, so as to minimize field assembly of systems. Disassemble systems only to extent necessary for shipping and handling. Match-mark sections for reassembly and coordinated installation.

B. Shop fabricate ductwork of gauges and reinforcement complying with SMACNA "HVAC Duct Construction Standards", except provide sealant at all joints. Supply duct between AHU discharge and terminal units shall be minimum 3" pressure class. Duct downstream of terminal units, supply duct from air conditioning units and all return and exhaust duct shall be minimum 2" pressure class unless otherwise noted.

C. Fabricate duct fittings to match adjoining ducts, and to comply with duct requirements as applicable to fittings. Except as otherwise indicated, fabricate elbows with center-line radius equal to 1-1/2 times associated duct width, and fabricate to include turning vanes in elbows where shorter radius is necessary. Limit angular tapers to 30° for contracting tapers and 20° for expanding tapers.

D. Fabricate ductwork with accessories installed during fabrication to the greatest extent possible. Refer to Division-23 section "Ductwork Accessories" for accessory requirements.

2.4 Factory-Fabricated Low Pressure Ductwork (Maximum 2” W.G.):

A. Material: Galvanized sheet steel complying with ASTM A527, lockforming quality, with ASTM A525, G90 zinc coating, mill phosphatized.

B. Gauge: 28-gauge minimum for round ducts and fittings, 4" through 14" diameter, unless penetrating fire-rated assemblies (26-gauge minimum). 26-gauge minimum 16" through 18", 24-gauge minimum 20" through 24".

C. Elbows: One piece construction for 90° and 45° elbows 14" and smaller. Provide multiple gore construction for larger diameters with standing seam circumferential joint.

D. Divided Flow Fittings: 90° tees, constructed with saddle tap spot welded and bonded to duct fitting body.

E. Acceptable Manufacturers: Subject to compliance with requirements, provide factory-fabricated ductwork by Semco Mfg., Inc., United Sheet Metal Div., United McGill Corp, or

approved equal.

F. Optional Ducts and Fittings: At Installer's option, provided that certified tests by Manufacturer show that rigidity and performance is equivalent to SMACNA standard gauge ductwork, provide ducts and fittings as follows:

1. Ducts: Construct of Manufacturer's standard gauge, with spiral lock seam and intermediate standing rib.

2. Fittings: Construct by fabricating with spot welding and bonding with neoprene-base cement in lieu of continuous weld seams.

3. Acceptable Manufacturers: Subject to compliance with requirements, provide factory-fabricated ductwork Semco Mfg., Inc. or United Sheet Metal Div., United McGill Corp., or approved equal

2.5 Kitchen Exhaust Ducts: Fabricate kitchen exhaust ducts and supports used for smoke and vapor removal from cooking equipment of 16-gauge minimum galvanized steel where concealed, and of 18-gauge minimum stainless steel where exposed. For duct construction, comply with SMACNA "HVAC Duct Construction Standards", and NFPA 96 "Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment". Continuously weld all seams and joints to be grease tight.

PART 3 - EXECUTION

3.1 General: Examine areas and conditions under which HVAC metal ductwork is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 Installation of Metal Ductwork:

A. General: Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight (5% leakage for systems rated 3" w.g. and under) and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8” misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling. Support vertical ducts at every floor.

B. Supports: Install concrete inserts for support of ductwork in coordination with formwork, as required to avoid delays in work. Install self-drilling screw anchors in prestressed concrete or existing work.

C. Field Fabrication: Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements. Seal joints in round ductwork with hard cast or shrink bands, and sheet metal screws, or by welding. High velocity rectangular ducts shall have approved joints and be made airtight with sealer or welding.

D. Routing: Locate ductwork runs, except as otherwise indicated, vertically and horizontally. Avoid diagonal runs wherever possible. Locate runs as indicated by diagrams, details and notations or, if not otherwise indicated, run ductwork in shortest route which does not obstruct useable space or block access for servicing building and its equipment. Hold ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building. Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for insulation thickness, if any. Where possible, locate insulated ductwork for 1" clearance outside of insulation. In finished and occupied spaces, conceal ductwork from view by locating in mechanical shafts, hollow wall construction or above suspended ceilings, unless specifically noted as "Exposed". Do not encase horizontal runs in solid partitions, except as specifically shown. Coordinate layout with suspended ceiling and lighting layouts and similar finished work.

E. Electrical Equipment Spaces: Do not route ductwork through transformer vaults or other electrical equipment spaces and enclosures.

F. Penetrations: Where ducts pass through interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gauge as duct. Overlap opening on 4 sides by at least 1-1/2". Fasten to duct and substrate. Where ducts pass through fire-rated floors, walls, or partitions, provide firestopping between duct and substrate.

G. Coordination: Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.

H. Installation: Install metal ductwork in accordance with SMACNA HVAC Duct Construction Standards. Fan discharge outlet ducts shall be installed correctly with regard to "system effect" per AMCA Publication 201.

3.3 Installation of Flexible Ducts:

A. Maximum Length: For any duct run using flexible ductwork, do not exceed 5'-0" extended length. Flexible duct shall only be allowed as detailed on the drawings.

B. Installation: Install in accordance with Section III of SMACNA's "HVAC Duct Construction Standards, Metal and Flexible". Support flexible ducts to eliminate pinching and kinking which would restrict flow.

C. Peel back insulation and slide the inner core over the spin-in or diffuser neck, seal with duct sealant and install Panduit strap tightly. Slide insulation back over the inner core and install another Panduit strap over the insulation outer jacket.

D. Seal all exposed edges of fiberglass insulation with glassfab and mastic or insulation tape.

3.4 Installation of Kitchen Exhaust Ducts: Fabricate joints and seams with continuous welds for watertight construction. Provide for thermal expansion of ductwork through 2000°F temperature range. Install without dips or traps which may collect residues, except where traps have continuous or automatic residue removal. Slope horizontal ducts at 1” per foot. Provide access openings at each change in direction and where required by the International Mechanical

Code, located on the sides of the duct 1-1/2" minimum from bottom. Provide access openings with grease-tight covers of same material as duct. Grease duct access door assemblies shall be installed in accordance with the terms of the listing and the manufacturer's instructions.

3.5 Leakage Tests: After each duct system is completed, test for duct leakage in accordance with Sections 3 and 5 of the SMACNA HVAC Air Duct Leakage Test Manual. Test pressure shall be equal to pressure class of duct, less 0.5" static pressure. Repair leaks and repeat tests until total leakage is less than 5% of system design airflow (less than 1% total leakage for chemical fume exhaust systems).Final leakage tests for each duct system shall be witnessed and approved by the Engineer and Owner's representative.

3.6 Equipment Connections: Connect metal ductwork to equipment as indicated. Provide flexible connection for each ductwork connection to equipment mounted on vibration isolators, and/or equipment containing rotating machinery. Provide access doors as indicated.

3.7 Clean ductwork internally until free of dust and debris. Clean external surfaces of foreign substances which might cause corrosive deterioration of metal or, where ductwork is to be painted, might interfere with painting or cause paint deterioration. Keep ducts closed with poly during construction to prevent contamination by construction dust and debris.

3.8 Balancing: Refer to Division 23 section "Testing, Adjusting, and Balancing" for air distribution balancing of metal ductwork (not work of this section). Seal any leaks in ductwork that become apparent in balancing process.

3.9 System Adjustment: Adjust the system to provide functional operation to the extent possible, and leave ready for testing and balancing work. It is not the intent of this section to provide final testing and balancing, but to leave the system operational with a minimum of noise.

END OF SECTION

SECTION 233300 – DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of ductwork accessories work is indicated by drawings and schedules, and by requirements of this section.

D. Refer to other Division 23 sections for testing, adjusting, and balancing of ductwork accessories (not work of this section).

1.2 Codes and Standards:

A. 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".

B. 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".

C. NFPA Compliance: Comply with applicable provisions of NFPA 90A "Air Conditioning and Ventilating Systems" pertaining to installation of ductwork accessories. Comply with applicable provisions of NFPA 96 “Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment”.

1.3 Approval Submittals:

A. Product Data: Submit manufacturer's technical product data each type of ductwork accessory, including dimensions, capacities, materials of construction, and installation instructions for the following:

1. Spin-in fittings
2. Side takeoff fittings
3. Low pressure manual dampers
4. Control dampers
5. Duct access doors
6. Grease duct access doors
7. Flexible connections

1.4 O&M Data Submittals: Submit manufacturer's maintenance data including parts lists for fire dampers and smoke dampers. Include this data, product data, and a copy of approval submittals in O&M Manual.

PART 2 - PRODUCTS

2.1 Duct Spin-in and Side Takeoff Fittings: Provide round branch duct run-outs as follows.

A. Supply air diffuser connections shall be conical with damper and one-inch high insulation stand-off equal to Crown 3200 DS or Flexmaster CBDE-BO.

B. VAV box inlet connections shall be conical with no damper equal to Crown 3200 or Flexmaster C.

C. Return air grille connections shall be straight-sided with damper and one-inch high insulation standoff equal to Crown 724-D5 or Flexmaster FLD-BO.

D. Exhaust air grille connections shall be straight-sided with damper equal to Crown 724 or Flexmaster FLD.

E. Where duct height does not permit the use of conical spin-in fittings, use low profile side take-off fittings equal to Crown 3300-DS or Flexmaster STOD-BO.

2.2 Dampers:

A. 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.

B. Control Dampers: Provide dampers with parallel blades for 2-position control or opposed blades for modulating control. Construct blades of 16-ga. steel. Provide heavy-duty molded self-lubricating nylon bearings and 1/2" diameter steel axles spaced on 9" centers. Provide sponge rubber or felt blade edges. 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 with aluminum touch-up. Actuators (motors) are provided by control contractor.

C. Acceptable Manufacturers: Subject to compliance with requirements, provide dampers by Arrow Louver and Damper, Greenheck, Penn Ventilator Co., Pottorff, or Ruskin Mfg. Co.

2.3 Turning Vanes: Provide manufactured or fabricated single wall turning vanes and vane runners, constructed in accordance with SMACNA "HVAC Duct Construction Standards".

2.4 Duct Access Doors:

A. General: Provide duct access doors of sizes indicated, or as required for duty indicated.

B. Construction: Construct of same or greater gauge 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, two handle-type latches for larger doors.

C. Acceptable Manufacturers: Subject to compliance with requirements, provide access doors by Ductmate, Duro Dyne Corp., Greenheck, Pottorff, or Ruskin Mfg. Co.

2.5 Grease Duct Access Doors:

A. General: Provide UL-listed grease duct access doors in accordance with International Mechanical Code and NFPA 96, suitable for grease exhaust ductwork.

B. Construction: Construct of same or greater material and thickness as the duct. Provide gasket or sealant that is rated for minimum 1500°F and greasetight. Fasteners (bolts, weld studs, latches, wing nuts) used to secure the access panels shall not penetrate duct.

C. Acceptable Manufacturers: Subject to compliance with requirements, provide grease duct access doors by Ductmate, Duro Dyne Corp., Greenheck, Pottorff, or Ruskin Mfg. Co.

2.6 Flexible Connections:

A. 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.

B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following: Duro Dyne Corp., Flexaust (The) Co., or Ventfabrics, Inc.

PART 3 - EXECUTION

3.1 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.

3.2 Installation of Ductwork Accessories:

A. 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.

B. Install balancing dampers at all main ducts adjacent to units in return air, outside air, and where indicated.

C. Install control dampers in the outside air duct and return air duct for each air handler, and elsewhere as indicated; coordinate with air handler manufacturer on whether dampers are integral to equipment. Damper motor provided by controls contractor.

D. Install turning vanes in square or rectangular 90° elbows in supply, return, and exhaust air systems, and elsewhere as indicated.

E. 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 at entering air side of reheat coils. Install at fire dampers and smoke dampers; opening size shall be per NFPA 90A for servicing fire and smoke dampers. Install at entering side of duct smoke detectors to permit access to sampling tubes for inspection and testing. Provide label with 1-1/2" letters to indicate location of fire protection devices.

F. Install grease duct access doors in kitchen exhaust ductwork at each change in direction and where required by the International Mechanical Code and NFPA 96. Listed grease duct access door assemblies shall be installed in accordance with the terms of the listing and the manufacturer’s instructions. Edges of the grease duct openings shall be at least 1-1/2” from all outside edges of the duct or welded seams.

G. Install flexible connections in ductwork such that the clear length of the connector is approximately two inches. Provide thrust restraints as required. Flexible material shall not be so slack as to take a definite concave or convex shape during fan operation.

H. Coordinate with other work, including ductwork, as necessary to interface installation of ductwork accessories properly with other work.

3.3 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.

3.4 Adjusting and Cleaning:

A. Adjust ductwork accessories for proper settings. Install fusible links in fire dampers and adjust for proper action.

B. Final positioning of manual dampers is specified in Division 23 section "Testing, Adjusting, and Balancing". However, the system shall be left functional with all dampers open or throttled.

C. Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

D. Furnish extra fusible links to Owner, one link for every 10 installed of each temperature range; obtain receipt.

END OF SECTION

SECTION 233400 – FANS

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of fan work required by this section is indicated by drawings and schedules, and requirements of this section.

D. Refer to Division 7 sections for installation of prefabricated roof curbs (not work of this section). Furnishing prefabricated roof curbs is part of this section's work.

E. Refer to Division 23 section "Testing, Adjusting, and Balancing" for balancing of fans.

F. Refer to Division 23 HVAC control systems sections for control work required in conjunction with fans.

G. Refer to Division 26 sections for power supply wiring from power source to power connection on fans. Division 26 work includes starters, disconnects, and required electrical devices, except where specified as furnished, or factory-installed, by manufacturer.

1.2 Codes and Standards: In addition to the codes and standards listed in Section 230010, comply with the following:

A. AMCA Compliance: Provide fans which have been tested and rated in accordance with AMCA standards, and bear AMCA Certified Ratings Seal.

B. UL Compliance: Provide fans which are listed by UL and have UL label affixed.

C. Comply with NFPA 96 "Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment" requirements.

1.3 Approval Submittals:

A. Product Data: Submit manufacturer's technical data for fans, including specifications, capacity ratings, dimensions, weights, materials, accessories furnished, and installation instructions. Submit assembly-type drawings showing unit dimensions, construction details, methods of assembly of components, and field connection details. Include statement that resin selection is suitable for chemical resistance to the specific application at 170ºF.

1. Fans
2. Vibration Control

1.4 O&M Data Submittals: Submit maintenance data and parts list for each type of fan, accessory, and control. Include these data, a copy of approved submittals, and wiring diagrams in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Except as otherwise indicated, provide standard prefabricated fans of type and size indicated, modified as necessary to comply with requirements, and as required for complete installation. Provide accessories as listed in the schedule on the Drawings and as described herein. Motors shall be high efficiency per Division 23 section "Motors".

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide fans manufactured by Acme, Greenheck, Loren Cook, PennBarry, Strobic Air, Twin City, or approved equal unless otherwise noted herein.

2.3 Centrifugal Roof Exhausters:

A. Housing: Provide heavy gauge aluminum hood, housing, and base with a galvanized steel frame.

B. Fan Wheels: Provide aluminum airfoil type, statically and dynamically balanced.

C. Drive: Provide direct or belt drive as scheduled with pre-lubricated, ball bearing, continuous duty type motors. Provide vibration isolation equipment for the entire drive.

D. Cooking Hood Upblast Fans: Where indicated, provide upblast discharge fans with integral grease trough and drain fitting. Motors shall be out of the air stream and cooling by clean, outside air only. Provide hinged access. The fans shall be AMCA approved and UL-listed for grease removal.

2.4 Centrifugal Ceiling Exhausters:

A. Fan Assembly: Provide steel housing, plastic or aluminum grille, backdraft damper, statically and dynamically balanced fan wheel, permanently lubricated motor with internal thermal overloads, vibration isolation, and all required mounting hardware and brackets. Provide acoustically-treated housing for all fans larger than 60 cfm. Mounting type shall be as indicated on the drawings or on the schedule.

B. Connectors: Provide adaptors, connectors, and eave elbows as required to connect fan discharges to outlets.

C. Outlets: Provide where shown on the drawings (or required by the installation) wall caps, vent caps, or roof jacks, each with birdscreen, to match fans and surrounding construction.

2.5 Filtered Supply Fans:

A. Housing: Provide heavy gauge galvanized steel head and housing with quick-release cover latches for access to internal components. Provide insulated cover.

B. Fan: Provide DWDI blowers, statically and dynamically balanced.

C. Drive: Provide belt drives with pre-lubricated, ball bearing, continuous duty type, 1750 rpm, open. Provide vibration isolation equipment for the entire drive.

D. Filters: Provide 1-inch thick, aluminum, washable filters.

2.6 Inline Centrifugal Fans:

A. Housing: Provide round aluminum or square weather tight housing constructed of steel and painted inside and out with an epoxy finish. Provide venturi type inlet.

B. Fan Wheels: Provide aluminum airfoil type, backward curved, statically and dynamically balanced.

C. Drive: Provide direct or belt drive as scheduled with pre-lubricated, ball bearing, continuous duty type motors. Provide vibration isolation equipment for the entire drive.

D. Isolation and Support: Provide spring type vibration isolators and fan support brackets.

2.7 Belt Driven Tubeaxial Fans:

A. Housing: Provide round, reinforced steel housing painted inside and out. Provide Eisenheiss or Heresite special coating.

B. Fan Wheels: Provide aluminum, non-sparking propeller, keyed to the shaft, statically and dynamically balanced.

C. Drive: Provide belt drive as scheduled with pre-lubricated, ball bearing, continuous duty type motors. Provide vibration isolation equipment for the entire drive.

2.8 Upblast Fume Exhaust Utility Sets:

A. Housing: Provide AMCA B construction. Provide welded steel fan housing with Eisenheiss coating on all surfaces exposed to the air stream. Provide flanged discharge. Fan configuration shall be as scheduled. Provide scroll drain and plug. Provide shaft seal. Provide companion flange for discharge duct.

B. Fan Wheel: Provide aluminum, non-sparking air foil type, statically and dynamically balanced.

C. Drive: Provide belt drive as scheduled, with pre-lubricated ball bearing explosion proof motor. Provide non-sparking belts. Provide weatherproof drive enclosure. Provide vibration isolation equipment to mount entire fan assembly.

2.9 Utility Sets:

A. Housing: Provide welded steel fan housing with epoxy coating inside and out. Provide flanged discharge in the configuration shown on the Drawings or indicated in the schedule. Provide companion flange for discharge duct. Provide shaft seal and scroll drain with plug.

B. Fan Wheel: Provide aluminum, airfoil type, statically and dynamically balanced.

C. Drive: Provide direct or belt drive as scheduled, with pre-lubricated ball bearing, continuous duty, open drip proof motor. Provide weatherproof enclosure. Provide vibration isolation equipment to mount entire fan assembly.

Fan Accessories and Features: Where indicated on the schedule or drawings, provide accessories and features listed herein.

A. Belt drive: Belt drives shall include cast iron, variable pitch sheaves, heavy duty belts, and 1750 rpm motors. The drive shall be adjustable to plus or minus 20% of scheduled flow. Provide fixed sheaves after balancing is complete.

B. Direct drive: Direct drives shall have multispeed motors or speed controllers to achieve scheduled flow.

C. Curbs: Furnish minimum 12-inch high, roofed over type, prefabricated aluminum curbs with treated wood nailer and 1-1/2" fire resistant fiberglass insulation sized to match the fans. Coordinate curb height with architectural drawings such that curbs extend a minimum of 8 inches above the roof surface. For deck slopes of 1/4" per foot and more, fabricate curbs to form level top edge.

D. Bird Screens: Provide bird screens of 1/2" mesh aluminum or galvanized steel hardware cloth.

E. Backdraft Dampers: Where indicated, provide aluminum louvered dampers with felt-edged blades and nylon bearings.

F. Disconnect Switches: Provide factory installed local disconnecting means.

G. Thermal Overloads: Provide internal thermal overloads.

H. Speed Controller: Where indicated, provide speed controller.

I. Motorized Dampers: Where indicated, provide aluminum louvered dampers with felt-edged blades and nylon bearings with 120 volt motors wired to operate with the fan. Provide limit switch to prevent fan starting until damper is at least half open.

J. Vibration Isolation: Mount fans on vibration isolators in accordance with the requirements of Division 23 Section "Vibration Isolation" and the following list.

1. Equipment Mountings: Type EM1, EM4.
2. Hangers: Type HA1, HA2, HA3.
3. Bases and Frames: Type BF3.

PART 3 - EXECUTION

3.1 General: Except as otherwise indicated or specified, install fans in accordance with manufacturer's installation instructions and recognized industry practices to ensure that fans serve their intended function.

3.2 Coordinate fan work with work of roofing, walls, and ceilings as necessary for proper interfacing. Framing of openings, caulking, and curb installation is not work of this section.

3.3 Ductwork: Refer to Division 23 section "Metal Ductwork". Connect ducts to fans in accordance with manufacturer's installation instructions. Provide flexible connections in ductwork at fans.

3.4 Install fans on vibration isolation equipment as required. Set level and plumb.

3.5 Roof Curbs: Furnish roof curbs to roofing Installer for installation.

3.6 Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to electrical Installer. Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division 26 sections. Verify proper rotation direction of fan wheels. Do not proceed with equipment startup until wiring installation is acceptable to equipment installer.

3.7 Remove shipping bolts and temporary supports within fans. Adjust dampers for free operation.

3.8 Testing: After installation of fans has been completed, test each fan to demonstrate proper operation of units at performance requirements specified. When possible, field correct malfunctioning units, and then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

3.9 Cleaning: Clean factory-finished surfaces. Remove all tar and soil. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION

SECTION 233713 – DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of diffusers, registers, and grilles work is indicated by drawings and schedules, and by requirements of this section.

D. Refer to other Division 23 sections for ductwork and duct accessories required in conjunction with diffusers, registers, and grilles and for air balancing.

1.2 Codes and Standards:

A. ADC Compliance: Test and rate diffusers, registers, and grilles in certified laboratories under requirements of ADC 1062 “Certification, Rating and Test Manual”. Provide diffusers, registers, and grilles bearing ADC Certified Rating Seal.

B. NFPA Compliance: Install diffusers, registers, and grilles in accordance with NFPA 90A “Standard for the Installation of Air Conditioning and Ventilating Systems”.

1.3 Approval Submittals:

A. Product Data: Submit manufacturer's technical product data for diffusers, registers, and grilles indicating construction, finish, and mounting details.

B. Performance Data: For each type of diffuser, register, and grille furnished, provide aspiration ability, temperature and velocity traverses, throw and drop, and noise criteria ratings. Indicate selections and data as required.

1.4 O&M Data Submittals: Submit cleaning instructions for finishes and spare parts lists. Include this data and a copy of approval submittals in O&M Manual.

PART 2 - PRODUCTS

2.1 General:

A. Except as otherwise indicated, provide manufacturer's standard diffusers, registers, and grilles where shown, of size, shape, capacity and type indicated. Construct of materials and components as indicated, and as required for complete installation.

B. Manufacturers not listed in the following specification will not be considered for approval unless accepted by addendum prior to bid.

C. Performance: Provide diffusers, registers, and grilles 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.

D. Ceiling and Wall Compatibility: Provide diffusers, registers, and grilles 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 diffuser, grille, or register.

E. Appearance: All grilles and registers shall be aluminum construction and all diffusers shall be steel or 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.

F. Finish: All ceiling-mounted diffusers, registers, and grilles shall be finished with baked white enamel. Wall- and door-mounted grilles and registers shall be finished with clear anodized or baked white enamel as specified by Architect.

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products by Titus, Price, or Metalaire.

2.3 Diffusers, Registers, and Grilles:

A. Return Registers (RR-1): Provide return registers with one set of 45° fixed louvers, parallel to the long dimension. Provide opposed blade damper, screwdriver operated from the face. Provide mounting frame for all wall and plaster ceiling installations. Titus 350 FL or Metalaire RHE.

B. Sidewall Supply Registers (SR): Provide supply registers with two sets of individually adjustable airfoil registers, spaced at 3/4", with the front set parallel to the long dimension. Provide opposed blade damper, screwdriver operated from the face. Provide mounting frame. Titus 250-AA or Metalaire 4004.

PART 3 - EXECUTION

3.1 Coordinate installation with ceiling and light fixture installation. Locate ceiling outlets as indicated on architectural Reflected Ceiling Plans. Unless otherwise indicated, locate ceiling outlets in the center of acoustical ceiling modules with sides parallel to the grid.

3.2 Install diffusers, registers, and grilles in accordance with manufacturer's written instructions and in accordance with recognized industry practices to ensure that products serve intended

functions.

3.3 Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of diffusers, registers, and grilles with other work.

3.4 Set air volumes to values shown on the drawings so that the system is functional. Leave ready for Test and Balance Contractor.

3.5 Furnish to Owner three operating keys for each type of diffuser, register, and grille that require them; obtain receipt.

END OF SECTION

SECTION 234100 – AIR FILTRATION

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of air filtration work required by this section is indicated by drawings and schedules, and requirements of this section.

D. Refer to other Division 23 air handling units section for filter boxes associated with air handling units (not work of this section).

E. Refer to other Division 23 ductwork accessories section for duct access door work required in conjunction with air filters (not work of this section).

1.2 Codes and Standards:

A. NFPA Compliance: Comply with applicable portions of NFPA 90A pertaining to installation of air filters.

B. UL Compliance: Comply with UL Standards pertaining to safety and performance of air filter units.

C. ASHRAE Compliance: Comply with provisions of ASHRAE Standard 52 for method of testing, and for recording and calculating air flow rates.

1.3 O&M Data Submittals:

A. Maintenance Data: Submit maintenance data and spare parts lists for each type of filter and rack required. Include with a copy of approval submittals in O&M Manual.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide air filtration by: American Air Filter, Continental Air Filter, Cambridge Filter, Farr, or approved equal.

2.2 Replaceable Panel Filters (Throwaway Pre-filters) : Provide factory-fabricated, viscous-coated, flat panel type replaceable air filters with holding frames of sizes indicated, with 2" thick UL Class 2 throwaway media material; construct media of interlaced glass fibers, spray with non-

flammable adhesive, frame in throwaway fiberboard casings, and sandwich between perforated metal grilles. Construct ductwork-holding frames of 20-gauge galvanized steel, capable of holding media and media frame in place, and gasketed to prevent unfiltered air by-passing between media frames and holding members. Provide filters with rated face velocity of 500 fpm, initial resistance of not greater than 0.20" w.g., final rated resistance of 0.50" w.g., and average arrestance of 80%. Basis of design: American Air Filter 5700.

PART 3 - EXECUTION

3.1 General: Comply with installation requirements as specified elsewhere in these specifications pertaining to air filters housing/casings, and associated supporting devices.

3.2 Install air filters and holding devices of types indicated, and where shown; in accordance with air filter manufacturer's written instructions and with recognized industry practices; to ensure that filters comply with requirements and serve intended purposes.

3.3 Locate each filter unit accurately in position indicated, in relation to other work. Position unit with sufficient clearances for normal service and maintenance. Anchor filter holding frames securely to substrate.

3.4 Coordinate with other work including ductwork and air handling unit work as necessary to interface installation of filters properly with other work.

3.5 Install filters in proper position to prevent passage of unfiltered air.

3.6 Construction Filters: No systems that include filters shall be operated at any time unless the complete specified pre-filters and final filters are installed. Provide filter media over all return air inlets (grilles, registers, open ductwork) whenever HVAC systems are operated during construction; replace once visibly impacted with dust / debris. Maintain all filters during construction. Remove temporary filter media and install clean pre-filters and final filters just prior to test and balance work.

3.7 Extra Filters: Provide a complete spare set of filters for each system where filters are installed. Where the design includes pre-filters and final filters, provide only pre-filters. Obtain receipt from Owner that spare filters have been received.

END OF SECTION

SECTION 238126 – SPLIT-SYSTEM AIR CONDITIONING UNITS

PART 1 - GENERAL

1.1 Related Documents:

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

B. Division 23 Common Work Results for HVAC sections apply to work of this section.

C. Extent of split-system air conditioning unit work is indicated by drawings and schedules, and requirements of this section.

D. Refer to other Division 23 sections for piping, ductwork, and testing, adjusting, and balancing of split-system air conditioning units (not work of this section).

1.2 Quality Assurance:

A. Provide units tested by UL, ARL or ETL.

B. Construct refrigeration system in accordance with ASHRAE 15 (ANSI B 9.1) "Safety Code for Mechanical Refrigeration".

C. Test and rate units in accordance with the applicable AHRI standards and provide certified rating seal. Sound test and rate units in accordance with AHRI 270.

D. Furnaces shall be tested and certified by AGA.

E. Provide units with system efficiency ratings that meet or exceed the International Energy Conservation Code and schedules on the drawings.

1.3 Approval Submittals:

A. Product Data: Submit manufacturer's technical product data, including dimensions, ratings, electrical characteristics, weight, capacities, materials of construction, and installation instructions.

1. Split-system air conditioning units.
2. Vibration isolation.

1.4 O&M Data Submittals: Submit manufacturer’s maintenance data including parts list. Include with a copy of approval submittals and wiring diagrams in O&M Manual.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide split-system air conditioning units by: Aaon, Carrier, Daikin, Lennox, Trane, York, or approved equal.

2.2 General:

A. Units shall be factory-assembled, wired and tested. All controls shall be factory-adjusted and preset to the design conditions.

B. Casings: Construct of heavy gauge steel (or aluminum) formed panels rigidly reinforced and braced. Each unit shall be provided with removable panels to permit the unit (including fans and compressors) to be properly maintained and serviced. Entire casing shall be painted with factory-applied finish. Casing for outdoor units shall be provided with weatherproof construction with all seams bolted. Provide stainless steel hardware.

C. Supports: Provide concrete pad 4" larger than the unit on all sides.

2.3 Condensing Unit:

A. Condenser Fans and Drives: Fan shall be of rustproof construction: hot-dipped galvanized steel, stainless steel or aluminum. Unit shall have a variable speed motor suitable for the duty indicated. Provide a close fretwork galvanized steel or non-ferrous fan and guard. Motors shall be the permanently lubricated type, resiliently mounted.

B. Condenser Coil: Construct of copper tubes and copper or aluminum fins. Provide inlet guard to protect condenser fins. Provide seacoast or heresite coating on condenser coil.

C. Compressor: Shall be scroll design for R-410A refrigerant with vibration isolation. Each compressor shall have separate refrigerant circuit. Motors shall be ball bearing, high starting torque, low starting current type for compressor service. Compressors shall not produce objectionable noise or vibration inside the building. Compressors shall have five (5) year warranty. Provide dual compressor machines if scheduled.

D. Service Valves: Provide for high and low pressure readings.

2.4 Evaporator Unit:

A. Interior of unit shall be thermally and acoustically insulated with minimum R-4.2 insulation. Provide aluminum inner liner. Provide removable panels to permit the unit to be properly serviced and maintained.

B. The evaporator shall include centrifugal fan, fan motor, direct drive or vee belt drive, cast-iron sheaves, vari-pitch fan motor sheave, and lubricated bearings. Motors shall be high efficiency type as per Division 23 section "Motors". Provide cooling coils constructed of copper tubes and copper or aluminum fins. Provide seacoast or heresite coating on the coils. Filters and coils shall be selected for a maximum face velocity of 500 fpm. Provide thermal expansion valve, sight glass, refrigerant drier, strainer, controls and other necessary devices for a completely automatic

unit.

C. Each unit shall be equipped with sloped IAQ drain pans under the entire evaporator coil to prevent condensate carry-over.

2.5 Electric Heater Section:

A. Provide electric heating coils controlled by one or more magnetic contactors. Three phase coils shall be wired for balanced current in each wire, if possible. Furnish and install necessary overheating and airflow controls to meet the requirements of the National Electric Code. Provide built-in airflow switch and heater interlock relay.

B. Heaters shall be factory-mounted and wired with all required fuses and contactors to provide single point connection.

2.6 Unit Controls:

A. All safety and operational controls shall be factory wired.

B. Safety and Operational Control Features:

Internal compressor overtemperature protection.
Crankcase heaters.
Individual motor overcurrent protection.
High pressure cutout.
Low pressure cutout.
Anti-recycle timer (5-minute).
Timer-type defrost control.
Phase failure and low voltage protection.
Liquid line solenoid.
Hot gas bypass.

C. Room thermostat shall be low voltage, remote-mounted with sub-base and thermometer for controlling heating and cooling cycles. The fan selector shall include "AUTO-ON" controls. The system selector shall include "OFF-COOL-HEAT-EM HT" controls. Provide automatic changeover thermostats with fan that runs continuously. The room thermostats shall be manually adjustable by occupants and shall indicate setting and temperature in degrees Fahrenheit. Provide two heating stages.

D. Outdoor air thermostat shall energize electric heat below 35° F on call for heating by second stage of room thermostat.

E. Emergency heat switch shall allow operation of all electric heat.

2.7 Refrigerant Piping:

A. Copper tubing 3/4" and smaller: Type ACR, soft annealed temper with cast copper-alloy fittings for flared copper tubes and flared joints.

B. Copper tubing 3/4" and larger: Type ACR, hard-drawn temper tubing with wrought-copper, solder-joint fittings and brazed joints.

C. Silver solder material: Silver solder bearing at least 15% silver; Sil Fos.

2.8 Basic Vibration Isolation: Provide vibration isolation products complying with Division 23 section "Vibration Isolation" and the following list:

A. Equipment Mounting: Type EM 1 or EM5.

PART 3 - EXECUTION

3.1 Installation: Install in accordance with producer's printed instructions.

3.2 Support: Mount units on concrete pads with manufacturer’s recommended service and operating clearance.

3.3 Hang air handling units level and plumb from structure using threaded rods and vibration isolators. Where units are above ceilings, provide secondary drain pans. Mount units on vibration isolation and concrete pads.

3.4 Brush out fins on all coils.

3.5 Refrigerant Piping: Comply with ANSI B31.5, “Refrigerant Piping,” (except lower pressure limits below 15 psig), and ASHRAE 15 (ANSI B9.1). Make all joints carefully and neatly. Clean pipe and fittings before fluxing. Remove burrs. Braze by the sweat method using Sil Fos. Install field installed refrigerant devices and valves as required.

3.6 Testing: After job erection, or modification of factory installed piping, pressure test for leaks at 150 psig using a nominal amount of a suitable tracer refrigerant and dry nitrogen or a suitable refrigerant. Perform leak tests with an electronic halide leak detector having a sensitivity of at least 1/2 ounce R-410A per year. Refrigeration piping will not be accepted unless it is gas tight.

3.7 Evacuation: After completing the successful pressure test, multiple-evacuate the system. Leave the compressor isolation valves shut and connect the vacuum pump to both the high and low sides. Evacuate the system to an absolute pressure of 1,500 microns. Then break vacuum to 2 psig with dry nitrogen. Repeat this process. Install the proper biflow drier in the liquid line and evacuate the system to 500 microns. Leave vacuum pump running for at least two hours without interruption. Break vacuum with the refrigerant to be used and raise pressure to 2 psig. Do not operate compressors during the evacuation procedure.

3.8 Charging: After completing the successful evacuation procedure, charge refrigerant directly to

the system from the original containers through a filter drier. Charge to the manufacturer's stated conditions of pressure for required temperature. Weigh the refrigerant added and record on the startup report.

3.9 Coordinate connection to gas supply and verify proper gas pressure to unit. Install gas vents in accordance with manufacturer's recommendations.

3.10 Construction Filters: Provide 1" thick filters in all units during construction. After construction (but prior to the test and balance being performed) install clean final filters.

3.11 Condensate Drain: Pipe trapped copper condensate drain (full size of unit outlet) to nearest floor/roof drain or as shown on the drawings. Refer to Division 23 section "HVAC Piping Insulation" for pipe insulation.

3.12 Startup: Check entire assembly for correctness of installation, alignment, and control sequencing. Start all component parts in proper sequence. Make all adjustments required to insure proper smooth quiet operation.

END OF SECTION

200 GOVERNMENT STREET

THIRD FLOOR WEST RENOVATIONS

PROJECT NUMBER MX-068-22

MOBILE, ALABAMA

GENERAL NOTES

I. THE CONTRACTOR SHALL EXAMINE THE PROJECT DRAWIINGS AND PROJECT MANUAL (IF APPLICABLE) AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES FOUND BEFORE PROCEEDING WITH THE WORK.

2. THE CONTRACTOR SHALL VERIFY CONDITIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AND OPERATIONS OF ALL TRADES AND DISCIPLINES.
THE CONTRACTOR SHALL:
A) SCHEDULE CONSTRUCTION OPERATION IN SEQUENCE REQUIRED TO OBTAIN THE BEST RESULTS WHERE INSTALLATION OF ONE PART OF THE WORK DEPENDS ON INSTALLATION OF OTHER COMPONENTS, BEFORE OR AFTER ITS INSTALLATION.
B) COORDINATE INSTALLATION OF DIFFERENT COMPONENTS WITH OTHER CONTRACTORS TO ENSURE MAXIMUM ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE AND REPAIR.
C) MAKE ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION

4.THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF ALL MANUFACTURED EQUIPMENT AND BUILDING COMPONENTS WHICH INCLUDES BUT IS NOT LIMITED TO: MECHANICAL AND FOOD SERVICE EQUIPMENT AND FIXTURES, PLUMBING FIXTURES, MANUFACTURED TRUSSES, SHOP FABRICATED ITEMS, CASEWORK AND OWNER SUPPLIED ITEMS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REVIEW SHOP DRAWINGS AND VERIFY AND COORDINATE ALL DIMENSIONS PRIOR TO FABRICATION.

5. FLOOR AND WALL OPENINGS, SLEEVES, VARIATIONS IN THE STRUCTURAL SLAB ELEVATIONS, DEPRESSED AREAS, AND ALL OTHER ARCHITECTURAL, MECHANICAL, ELECTRICAL AND/OR CIVIL REQUIREMENTS MUST BE COORDINATED BY THE CONTRACTOR BEFORE THE CONTRACTOR PROCEEDS WITH CONSTRUCTION.

6. ACCESS DOORS AND PANELS SHALL BE PROVIDED BY THE MECHANICAL, FIRE SPRINKLER AND PLUMBING CONTRACTORS AT ALL VALVES, DUCTWORK, FIRE DAMPERS ETC. AS REQUIRED BY CODE. MAINTAIN REQUIRED CLEARANCES IN ATTICS FOR ACCESSWAYS TO ALL VALVES AND DAMPERS ABOVE CEILINGS.
IT SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE OPENING SIZES AND LOCATIONS ON SITE WITH SUBCONTRACTORS.

7. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES BELOW GRADE AND RELATED SERVICE CONNECTIONS WITH THE RESPECTIVE UTILITY COMPANY.

8. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT PRIOR TO ANY EXCAVATION.

9. THE CONTRACTOR SHALL COORDINATE THE REMOVAL, ABANDONMENT AND/OR RELOCATION OF EXISTING UTILITIES ABOVE OR BELOW GRADE WITH THE RESPECTIVE UTILITY COMPANY.

10. THE CONTRACTOR SHALL PERFORM ALL WORK WITHIN STREET RIGHT-OFWAYS ACCORDING TO THE APPROVED CITY STANDARD PLANS AND SPECIFICATIONS.

II. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACES, AND SHORES AND GUYS REQUIRED TO SUPPORT ALL LOADS TO WHICH THE BUILDING STRUCTURES AND COMPONENTS, ADJACENT SOILS AND STRUCTURES, UTILITIES AND RIGHT-OF-IAIAYS MAY BE SUBJECT DURING CONSTRUCTION.

12. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS INDICATED WITHIN THESE DOCUMENTS AND SHALL NOTIFY THE ARCHITECT OF ANY VARIATION PRIOR TO THE PURCHASING OF ANY MATERIALS, STARTING FABRICATION OR BEGINNING CONSTRUCTION.

13. ALL DEMOLITION AND WORK RELATED DEBRIS SHALL BE REMOVED FROM THE SITE REGULARLY AND PROMPTLY.

14. THE CONTRACTOR, AT THE COMPLETION OF THIS PROJECT, SHALL LEAVE ALL AREAS AND FINISHED SPACES IN A CLEAN AND ACCEPTABLE CONDITION.

15. ALL MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS ARE TO BE FULLY COORDINATED WITH THE ARCHITECTURAL DOCUMENTS BY THE GENERAL CONTRACTOR.

16. ALL WORK SHALL BE PERFORMED AT THE HIGHEST LEVEL OF STATE OF THE INDUSTRY PRACTICES.

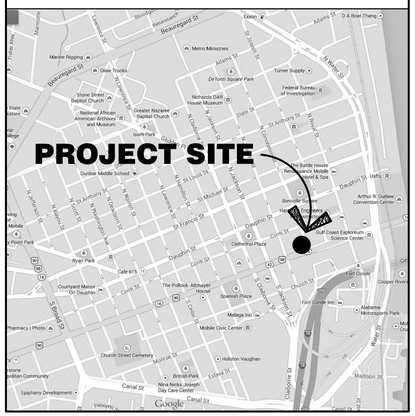
17. WALL, FLOOR, CEILING GRILLS AND REGISTERS SHALL BE FINISHED TO MATCH COLOR SPECIFIED FOR THE SURFACE IN WHICH THE ITEM IS INSTALLED. PAINT USED ON METAL WORK SHALL BE SEMI-GLOSS ENAMEL UNLESS OTHERWISE SPECIFIED.

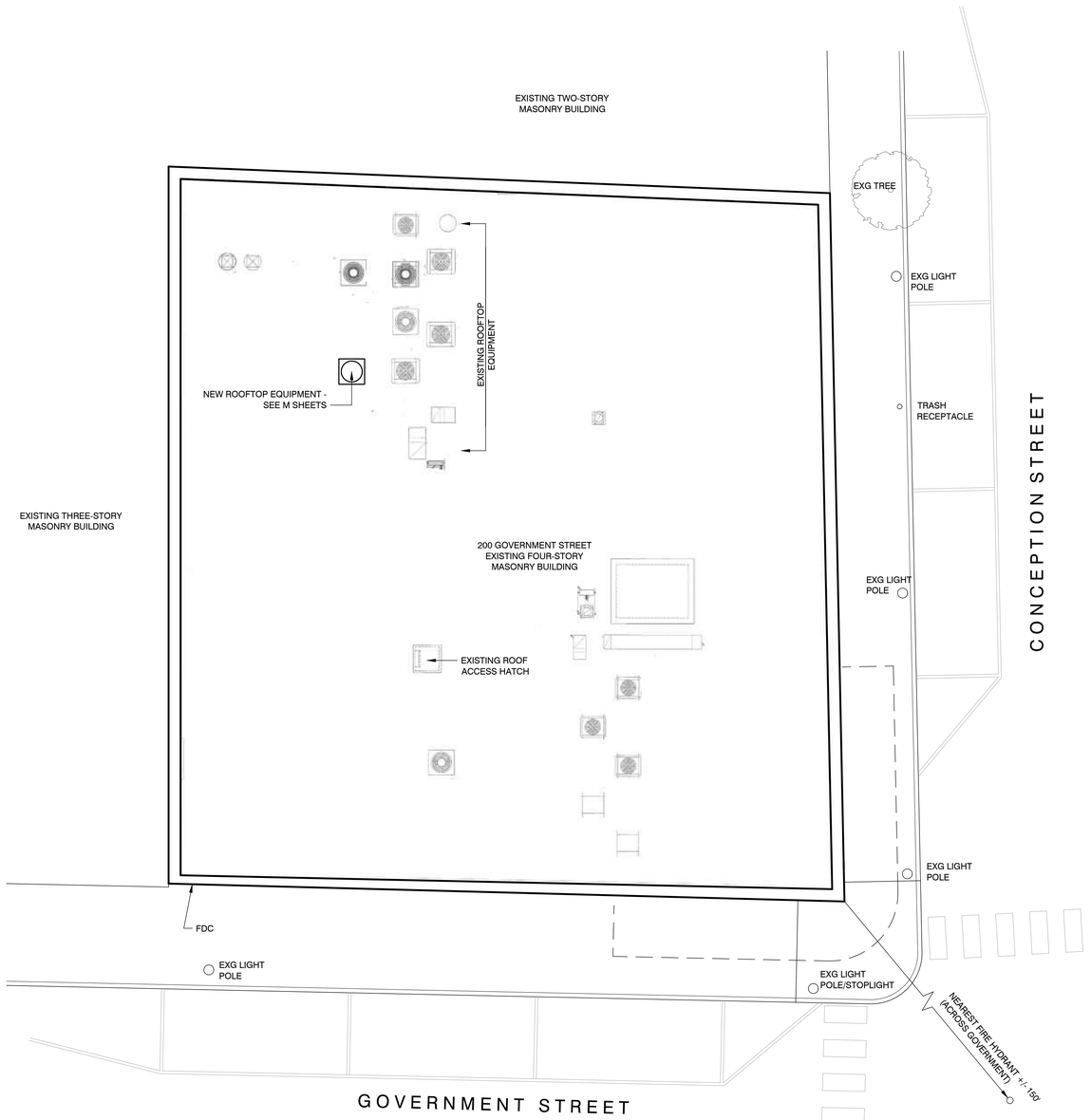
18. ALL FASTENERS AND ATTACHMENTS SHALL BE FULLY CONCEALED FROM VIEW UNLESS OTHERWISE NOTED.

19. CONTRACTOR SHALL COORDINATE, SCHEDULE AND PERFORM ALL CONSTRUCTION ACTIVITY, PROVIDE ALL SUPPORT AND MISCELLANEOUS MATERIALS REQUIRED TO ACHIEVE THE INTENDED DESIGN OBJECTIVES.

DRAWING INDEX

VICINITY MAP





1 SITE / ROOF PLAN
1/8"=1'-0"

PROJECT NORTH

dakinstreetarchitects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

STATE OF ALABAMA STEVE STONE NO. 6473 REGISTERED ARCHITECT

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
PROJECT NUMBER MX-068-22
mobile•alabama

Issues + Revisions
ISSUE FOR BID/PERMIT 12.16.22

DRAWING INDEX, SITE PLAN, NOTES & VICINTY MAP

G1.0

1 GENERAL INFORMATION

NAME OF PROJECT	200 GOVERNMENT STREET THIRD FLOOR RENOVATIONS
ADDRESS	200 GOVERNMENT STREET : MOBILE
PROPOSED USE	OFFICE
OWNER/TENANT	CITY OF MOBILE
ADDRESS	205 GOVERNMENT STREET
PHONE	
CONTRACTOR	TBD
ADDRESS	
PHONE	
ARCHITECT	STEVE STONE / dakinstreet architects
ADDRESS	70 N. JOACHIM UNIT C
PHONE	251.382.8317

2 LEAD DESIGN PROFESSIONAL

DESIGNER	-	LICENSE #	PHONE #
ARCHITECTURAL	STEVE STONE, AIA	6473	251.382.8317
CIVIL	-	-	
ELECTRICAL	ANDREW MAURIN	25105	
FIRE ALARM	-		
PLUMBING	N/A		
MECHANICAL	MICHAEL PRUITT	39069	
SPRINKLER/STANDPIPE	YES	-	
STRUCTURAL	N/A		
LETTER OF SUPERVISION?	Y		

2.1 SPECIAL INSPECTIONS - IBC SEC. 1704.1.1

BUILDING PERMIT REQUIREMENTS: THE PERMIT APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN CHARGE AND IN ACCORDANCE WITH IBC SECTION 107.1. AS A CONDITION FOR PERMIT ISSUANCE, THIS STATEMENT SHALL INCLUDE A LIST OF MATERIALS AND WORK REQUIRING SPECIAL INSPECTIONS BY THIS SECTION, 1704.3. THE INSPECTIONS TO BE PERFORMED, LIST OF INDIVIDUALS, APPROVED AGENCIES AND FIRMS INTENDED TO BE RETAINED FOR CONDUCTING SUCH INSPECTIONS.

YES ☐
NO ☒ (IF NO, EXPLAIN) CITY OF MOBILE INSPECTIONS SHALL SUFFICE

2.2 STATEMENT OF SPECIAL INSPECTIONS

PROJECT NAME:
PROJECT ADDRESS:
PERMIT NUMBER:
PERMIT APPLICANT:
PERMIT APPLICANT ADDRESS:
OWNER:
OWNER ADDRESS:

REGISTERED DESIGN PROFESSIONALS:

ARCHITECT:
GEOTECHNICAL ENGINEER:
STRUCTURAL ENGINEER:
MECHANICAL ENGINEER:
ELECTRICAL ENGINEER:

A STATEMENT OF SPECIAL INSPECTIONS SHALL BE SUBMITTED AS A CONDITION FOR THE ISSUANCE OF A PERMIT IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, CHAPTER 17. THE STATEMENT OF SPECIAL INSPECTIONS SHALL INCLUDE A SCHEDULE OF SPECIAL INSPECTIONS FOR THE ABOVE-REFERENCED PROJECT, AS WELL AS IDENTIFY THE INDIVIDUALS, AGENCIES, OR FIRMS INTENDED TO BE RETAINED FOR CONDUCTING THE SPECIAL INSPECTIONS.
THE SPECIAL INSPECTOR (S) SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INTERIM INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND AT A FREQUENCY AGREED UPON BY THE PERMIT APPLICANT AND BUILDING OFFICIAL PRIOR TO THE START OF WORK. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT OF FINAL INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED BY EACH AGENT AT THE COMPLETION OF THAT PHASE OF WORK.

MIN FREQUENCY OF INTERIM REPORT SUBMITTALS SHALL NOT BE LESS THAN:

MONTHLY ☐ BI-MONTHLY ☐ UPON COMPLETION ☐ PER ATTACHED ☐

THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH THE CONTRACT DOCUMENTS. JOBSITE SAFETY, MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

OWNER/TENANT SIGNATURE DATE

BUILDING OFFICIAL SIGNATURE DATE

2.3 SCHEDULE OF SPECIAL INSPECTIONS

CODE SECT.	SPECIAL INSPECTOR	INSPECTION	Y	N	FREQUENCY: CONTINUOUS	FREQUENCY: PERIODIC
1705.2		STEEL CONSTRUCTION	☐	☐	☐	☐
1705.3		CONCRETE CONSTRUCTION	☐	☐	☐	☐
1705.4		MASONRY CONSTRUCTION	☐	☐	☐	☐
1705.5		WOOD CONSTRUCTION	☐	☐	☐	☐
1705.6		SOILS	☐	☐	☐	☐
1705.7		DRIVEN DEEP FOUNDATIONS	☐	☐	☐	☐
1705.8		C.I.P. DEEP FOUNDATIONS	☐	☐	☐	☐
1705.9		HELICAL PILE FOUNDATIONS	☐	☐	☐	☐
1705.10		WIND RESISTANCE	☐	☐	☐	☐
1705.11		SEISMIC RESISTANCE	☐	☐	☐	☐
1705.12		TESTING & QUAL. FOR SEISMIC	☐	☐	☐	☐
1705.13		SPRAYED FIRE RES. MATERIAL	☐	☐	☐	☐
1705.14		MASTIC AND INTUMES. COATINGS	☐	☐	☐	☐
1705.15		EXT. INSULTATION FINISH SYSTEM	☐	☐	☐	☐
1705.16		FIRE RESISTANT PENETRATIONS	☐	☐	☐	☐
1705.17		SMOKE CONTROL	☐	☐	☐	☐

3 GENERAL CODE DATA

3.1 BUILDING & FIRE CODES USED IN DESIGN

☒ 2012 INTERNATIONAL BUILDING CODE
☒ 2012 INTERNATIONAL PLUMBING CODE
☒ 2014 NATIONAL ELECTRICAL CODE
☐ 2012 INTERNATIONAL PROPERTY MAINTENANCE CODE
☒ 2012 INTERNATIONAL MECHANICAL CODE
☒ 2012 INTERNATIONAL FIRE CODE
☐ 2012 INTERNATIONAL RESIDENTIAL CODE
☒ 2012 INTERNATIONAL EXISTING BUILDING CODE
☐ 2012 INTERNATIONAL RESIDENTIAL CODE
☐ INTL ENERGY CONSERVATION (LATEST ED. CODE ADOPTED BY STATE OF AL.)
☐ ASHRAE 90.1

3.2 CONSTRUCTION DESCRIPTION

☐ NEW CONSTRUCTION ☐ TENANT BUILD-OUT
☒ RENOVATION (EXISTING BUILDING) ☐ ADDITION
☐ ALTERATION ☐ CHANGE OF OCCUPANCY

3.2 CONSTRUCTION DESCRIPTION (CONT'D)

SCOPE OF WORK

BUILDING — SELECTIVE NON-LOADBEARING DEMOLITION TO EXISTING THIRD FLOOR OFFICE SPACE. NEW WORK TO INCLUDE NEW PARTITIONS, ASSOCIATED AREAS AND ARCHITECTURAL FINISHES PER PLAN.

ELECTRICAL — NEW ELECTRICAL WORK PER PLANS AS SHOWN. ALL WORK PERFORMED SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.

MECHANICAL — NEW MECHANICAL WORK PER PLANS AS SHOWN. ALL WORK PERFORMED SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.

PLUMBING — NEW PLUMBING WORK PER PLANS AS SHOWN. ALL WORK PERFORMED SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.

ENERGY CONSERVATION — PER APPLICABLE CODES

FIRE — N/A

3.3 EXISTING BUILDINGS

THE BUILDING WILL REMAIN IN OPERATION DURING CONSTRUCTION
YES ☒ NO ☐

IF YES, ADD PROVISIONS FOR RIGID SAFETY BARRIERS AND DUST BARRIERS TO PROTECT THE PUBLIC DURING CONSTRUCTION IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF IBC CHAPTER 33. YELLOW SAFETY TAPE NOT ACCEPTABLE.

3.4 RENOVATIONS

IS THE WORK IN THIS BUILDING OR SPACE A CHANGE OF OCCUPANCY?
YES ☐ NO ☒

3.5 HISTORIC BUILDINGS

THIS BUILDING IS WITHIN A HISTORIC DISTRICT
YES ☒ NO ☐

3.6 COMPLIANCE ALTERNATIVES - IBC SECT 3412

SEE COMPLIANCE ALTERNATIVE REPORT, PROVIDED FOR LACK OF MINIMUM DISTANCE BETWEEN TWO EXISTING STAIRWELLS (SHEET G1.4)

4 BUILDING DATA

CONSTRUCTION TYPE	☐ IA	☐ IIA	☐ IIIA	☐ IV EXISTING BUILDING	☐ VA
	☐ IB	☐ IIB	☒ IIIB		☐ VB
MIXED CONSTRUCTION	☐ YES	☒ NO			
SPRINKLER	☒ YES	☐ NO	☐ PARTIAL		
TYPE ☒ 13	☐ 13R	☐ 13D			
STANDPIPES	☒ YES	☐ NO			
TYPE ☐ WET	☐ DRY	☐ COMBINED			

BUILDING HEIGHT 48 FEET
NUMBER OF STORIES 4
UNLIMITED PER IBC 507 ☐ YES ☒ NO
MEZZANINE ☐ YES ☒ NO
HIGH RISE ☐ YES ☒ NO
ATRIUM ☐ YES ☒ NO
BASEMENT ☐ YES ☒ NO

5 BUILDING CLASSIFICATION

ASSEMBLY	☐ A-1	☐ A-2	☐ A-3	☐ A-4	☐ A-5
BUSINESS	☒				
EDUCATION	☐				
FACTORY INDUSTRIAL	☐ F-1	☐ F-2			
HIGH-HAZARD	☐ H-1	☐ H-2	☐ H-3	☐ H-4	☐ H-5
INSTITUTIONAL	☐ I-1	☐ I-2	☐ I-3	☐ I-4	
MERCANTILE	☐				
RESIDENTIAL	☐ R-1	☐ R-2	☐ R-3	☐ R-4	
STORAGE	☐ S-1	☐ S-2	☐ HIGH-PILED		
UTILITY & MISC.	☐				
PARKING GARAGE	☐ OPEN	☐ ENCLOSED	☐ REPAIR		

5.1 OCCUPANT LOAD

OCCUPANCY LOAD CALCULATIONS

BUSINESS USE 6,224 GSF @ 100 GSF = 62.24 (63) OCCUPANTS

5.2 SPECIAL OCCUPANCY - IBC 406 & 509

PARKING GARAGE ☐ OPEN ☐ ENCLOSED ☐ REPAIR

S-2 ENCLOSED PARKING GARAGE WITH S-2 OPEN PARKING ABOVE ☐

PARKING BENEATH (R) 510.4 ☐ R-1 ☐ R-2
CONSTRUCTION TYPE ☐ IIA ☐ IIIA

OPEN PARKING BENEATH A,I,B,M, AND R 510.7 ☐

S-2 ENCLOSED PARKING WITH A,B,M, OR R ☐

5.3 MIXED OCCUPANCY

MIXED OCCUPANCY? SINGLE-USE, NON-SEPARATED OCCUPANCY
YES ☐ NO ☒

IDENTIFY WHETHER YOU ARE USING THE PROVISIONS OF NON-SEPARATED USES OR SEPARATED USES BY PLACING AN "X" BELOW BY YOUR DESIGN CHOICE.

NON-SEPARATED MIXED OCCUPANCY (508.3) ☐

THE REQUIRED TYPE OF CONSTRUCTION FOR THE BUILDING SHALL BE DETERMINED BY APPLYING THE HEIGHT AND AREA LIMITATIONS FOR EACH OF THE APPLICABLE OCCUPANCIES TO THE ENTIRE BUILDING. THE MOST RESTRICTIVE TYPE OF CONSTRUCTION, SO DETERMINED, SHALL APPLY TO THE ENTIRE BUILDING

SEPARATED MIXED OCCUPANCY (508.4) ☐

EACH PORTION OF THE BUILDING SHALL BE INDIVIDUALLY CLASSIFIED AS TO USE AND SHALL BE COMPLETELY SEPARATED FROM ADJACENT AREAS BY FIRE BARRIER WALLS OR HORIZONTAL ASSEMBLIES OR BOTH HAVING A FIRE-RESISTANCE RATING DETERMINED IN ACCORDANCE WITH **TABLE 508.4** FOR THE USES BEING SEPARATED. FOR EACH STORY, THE AREA OF OCCUPANCY SHALL BE SUCH THAT THE SUM OF THE RATIOS OF THE ACTUAL FLOOR AREA OF EACH USE DIVIDED BY THE ALLOWABLE FLOOR AREA FOR EACH USE SHALL NOT EXCEED 1.

INCIDENTAL USE AREAS (508.2.5) ☐

$$\frac{\text{ACTUAL AREA OF OCC. A}}{\text{ALLOWABLE AREA OF OCC. A}} + \frac{\text{ACTUAL AREA OF OCC. B}}{\text{ALLOWABLE AREA OF OCC. B}} \leq 1$$

6 ALLOWABLE BUILDING AREAS & HEIGHTS -TABLE 503

6.1 ALLOWABLE AREA

ALLOWABLE AREA 36,000 GSF

ACTUAL AREA 6,224 SF

6.2 ALLOWABLE HEIGHT

ALLOWABLE HGT 55 FT ACTUAL HGT 48 FT
ALLOWABLE STORIES 5 ACTUAL STORIES 4

7.1 FIRE PROTECTION ELEMENTS

SPRINKLER	☒ YES	☐ NO	☐ PARTIAL
TYPE ☒ 13	☐ 13R	☐ 13D	
STANDPIPES	☒ YES	☐ NO	
TYPE ☐ WET	☐ DRY	☐ COMBINED	

7.2 FIRE PROTECTION ELEMENTS

	REQUIRED RATING	UL NO.
INTERIOR WALL - BEARING	0	
INTERIOR WALL - NON-BEARING	0	
CEILING/FLOOR	0	
BEAMS	0	
COLUMNS	0	
CEILING/ROOF	0	
SHAFTS - EXIT	0	
SHAFTS - OTHER	0	
CORRIDOR SEPARATION	0	
OCCUPANCY SEPARATION	0	
PARTY/FIRE WALL SEPARATION	0	
SMOKE BARRIER SEPARATION	0	
TENANT SEPARATIONS	0	

FOOTNOTES
1. ALL FIRE RATED WALLS SHALL BE IDENTIFIED ON PLANS BY HATCHING, SHADING, ETC.; SHOW LEGEND.
2. IDENTIFY CODE SECTION WHEN USING ANY SPECIAL EXCEPTIONS, ETC. REPRODUCE FULL UL. OR OTHER APPROVED AGENCIES DETAILS OR REPRODUCTIONS OF RATED ASSEMBLIES/PENETRATIONS ON THE DRAWINGS.

7.3 DRAFTSTOPPING

IN FLOOR (718.3) ☐ YES ☒ NO
IN ATTIC (718.4) ☐ YES ☒ NO

7.4 DIST. TO PROPERTY LINE FROM EXTERIOR WALL

FIRE SEPARATION DISTANCE 0 FT (WEST WALL)
FIRE RESISTANCE RATING EXISTING 2+ HRS

7.5 LIFE SAFETY SYSTEMS

EMERGENCY LIGHTING	☒ YES	☐ NO
EXIT SIGNS	☒ YES	☐ NO
FIRE ALARM	☐ YES	☒ NO
SMOKE DETECTION SYS.	☐ YES	☒ NO
PANIC HARDWARE	☐ YES	☒ NO

8 EXIT REQUIREMENTS

8.1 EXIT ACCESS

EXITS REQUIRED 2 EXITS PROVIDED 2

8.2 MEANS OF EGRESS WIDTH - IBC 1005

UNITS OF EXIT WIDTH REQUIRED 10 UNITS OF EXIT WIDTH PROVIDED 64
UNITS OF STAIR WIDTH REQUIRED 13 UNITS OF STAIR WIDTH PROVIDED 96

8.3 DIAGONAL RULE - IBC 1015.1

MEETS 1015.2.1 ☐ YES ☒ NO SEE COMPLIANCE REPORT

8.4 TRAVEL DISTANCE

ALLOWABLE TRAVEL DISTANCE 300'-0"
ACTUAL TRAVEL DISTANCE 234'-0"

8.5 SPACES WITH ONE MEANS OF EGRESS - IBC 1015

FOR BUILDINGS/SPACES WITH ONE MEANS OF EGRESS, I HAVE CHECKED THE OCCUPANT LOAD AND THE COMMON PATH OF TRAVEL PER IBC 1015 ☐ N/A

9 LIFE SAFETY PLAN

PROVIDED (LS1.1) ☒ YES ☐ NO

10 ACCESSIBLE PARKING

TOTAL PARKING SPACES N/A (WITHIN HANK AARON LOOP)
TOTAL ACCESSIBLE PARKING SPACES
TOTAL ACCESSIBLE VAN PARKING SPACES

11 DESIGN LOADS EXISTING BUILDING

ULTIMATE DESIGN WIND SPEED MAPS IN ACCORDANCE WITH 1109 OR ASCE 7-10
☐ RISK CAT. I - 145MPH ☐ RISK CAT. II - 159MPH ☐ RISK CAT. III/IV - 169MPH

CLASSIFICATION OF BUILDING : USE GROUP N/A

LIVE LOAD
ROOF
ATTIC SEE STRUCTURAL DRAWINGS
MEZZANINE
FLOOR

THIS BUILDING WILL USE IMPACT RESISTANT GLASS PER 1609.1.2 ☒ YES ☐ NO

THIS BUILDING WILL USE WOOD STRUCTURAL PANELS PER EXCEPTION 1609.1.2 ☐ YES ☒ NO

THIS BUILDING WILL USE SHUTTERS ☐ YES ☒ NO

LOAD BEARING VALUES OF SOILS (1610)

ALLOWABLE SOIL BEARING N/A
SOIL REPORT ☐ YES ☒ NO

EARTHQUAKE DESIGN (1613)

SEISMIC DESIGN LOAD CONTROLS ☐ YES ☒ NO
(IF YES, FURNISH DATA PER 1603.1.5)

12 SPECIAL DETAILED REQUIREMENTS

I HAVE REVIEWED THE SPECIAL DETAIL REQUIREMENTS IN CHAPTER 4 AS INDICATED BELOW AND INCORPORATED THE PROVISIONS INTO MY DESIGN

☐ 402	COVERED MALL BUILDING	☐ 410	STAGES & PLATFORMS
☐ 403	HIGH RISE BUILDINGS	☐ 411	SPECIAL AMUSEMENT BLDGS
☐ 404	ATRIUMS	☐ 412	AIRCRAFT RELATED OCCUP
☐ 405	UNDER GROUND BUILDINGS	☐ 413	COMBUSTIBLE STORAGE
☐ 406	MOTOR-VEHICLE RELATED OCC.	☐ 414	HAZARDOUS MATERIALS
☐ 407	GROUP I-2	☐ 415	GROUPS H-1, H-2, H-3, H-4, & H-5
☐ 408	GROUP I-3	☐ 416	APP. OF FLAMMABLE FINISHES
☐ 409	MOTION PICTURE PROJ. ROOMS	☐ 417	DRYING ROOMS
		☐ 418	ORGANIC COATINGS

13 FLOOD REQUIREMENTS - IBC 1612

THE BUILDING LIES WITHIN AN X-SHADED ZONE

13.1 SPECIAL FLOOD HAZARD AREA

☒ YES ☐ NO

13.2 FLOOD ZONE

BASE FLOOD ELEVATION (BFE) 12.0
MIN. FINISH FLOOR ELEVATION (MFFE) 13.0

13.3 FLOODPROOFING REQUIREMENTS

☐ YES ☒ NO SEE ABOVE

13.4 FLOODPROOFING CERTIFICATE PROVIDED

☐ YES ☒ NO SEE ABOVE

13.5 FLOODPROOFING PLAN INCLUDED

☐ YES ☒ NO SEE ABOVE

13.6 FLOOD OPENINGS REQUIREMENTS

☐ YES ☒ NO SEE ABOVE

TOTAL NET AREA OF FLOOD OPENINGS N/A
NO. OF FLOOD OPENINGS N/A

14 QUALITY ASSURANCE FOR WIND REQ'S - IBC 1705.10

I HAVE REVIEWED THE REQUIREMENTS OF IBC SECT. 1706 AND MY DESIGN INCORPORATES THE REQ'S OF THIS SECTION OF THE CODE AND IS REFLECTED ON THE DRAWINGS AND IN THE SPECIFICATIONS. ☒ YES

I HAVE NOTIFIED THE CONTRACTOR OF HIS RESPONSIBILITY UNDER SECTION 1704 ☒ YES

CONTRACTOR'S SIGNATURE AT TIME OF PERMITTING N/A

15 SAFETY GLAZING FOR HAZARDOUS LOCATION

I HAVE IDENTIFIED ON DRAWINGS WHERE TEMPERED GLASS IS REQUIRED IN HAZARDOUS LOCATIONS (2406.3) ☐ YES ☐ NO N/A

16 PREFABRICATED METAL BUILDINGS

REQUIREMENTS FOR METAL BUILDING ERECTION DRAWINGS N/A
INCLUDED ON DRAWINGS XXX

17 PRE-ENGINEERED TRUSSES

LIVE LOADS SHOWN ☐
WIND LOADS SHOWN ☐
CERTIFICATION FROM MANUFACTURER (SEALED) ☐

18.1 FIRE DEPARTMENT REQUIREMENTS

REQUIRED WATER SUPPLY OF 1,500GPM @ 20PSI (PER ARCH/ENG)

(THE INSURANCE SERVICE OFFICE (ISO) METHOD; THE IOWA STATE UNIVERSITY (ISU) METHOD; THE ILLINOIS INSTITUTE OF TECHNOLOGY (IIT) RESEARCH INSTITUTE METHOD), OR THE 2012 INTERNATIONAL FIRE CODE (TABLE B105.1).

18.2 HYDRAULIC CALCULATIONS

HYDRAULIC CALCULATIONS FOR FIRE HYDRANT SYSTEMS SHALL BE SUBMITTED TO THE FIRE DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ☐ N/A

18.3 TIMING OF INSTALLATION

FIRE APPARATUS ACCESS ROADS AND A WATER SUPPLY FOR FIRE PROTECTION SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION.

18.4 KNOX KEY BOX

REQUIRED FOR ALL COMMERCIAL OCCUPANCIES WITH FIRE ALARM AND FIRE PROTECTION SYSTEMS AND ALL COMMERCIAL OCCUPANCIES REQUIRING A CERTIFICATE OF OCCUPANCY INSPECTION. ☒

19 19.1 19.2 ENERGY REQUIREMENTS

THE FOLLOWING DATA SHALL BE CONSIDERED MINIMUM AND ANY SPECIAL ATTRIBUTE REQUIRED TO MEET THE ENERGY CODE SHALL ALSO BE PROVIDED. EACH DESIGNER SHALL FURNISH THE REQUIRED PORTIONS OF THE PROJECT INFORMATION FOR THE PLAN DATA SHEET. IF PERFORMANCE METHOD, STATE THE ANNUAL ENERGY COST FOR THE STANDARD REFERENCE DESIGN VERSUS ANNUAL ENERGY COST FOR THE PROPOSED DESIGN.

CLIMATE ZONE : 2- MOBILE, ALABAMA

19.3 METHOD OF COMPLIANCE

METHOD OF COMPLIANCE:

☒ PRESCRIPTIVE (INTERNATIONAL ENERGY CONSERVATION CODE - (LATEST EDITION ADOPTED BY STATE)
BUILDING ENVELOPE REQUIREMENTS
BUILDING MECHANICAL SYSTEMS
SERVICE WATER HEATING
ELECTRICAL POWER & LIGHTING SYSTEM
☐ PRESCRIPTIVE (ASHRAE 90.1)
☐ UA TRADE-OFF (NEED SIGNED COMCHECK CALCULATIONS OR OTHER APPROVED SOFTWARE)
☐ PERFORMANCE (INTERNATIONAL ENERGY CONSERVATION CODE)
☐ PERFORMANCE (ASHRAE 90.1)

20 ELECTRICAL CODE REQUIREMENTS

ELECTRICAL WORK	☒ YES	☐ NO
RISER DIAGRAM INCLUDED	☒ YES	☐ NO
PANEL SCHEDULES	☒ YES	☐ NO
LIGHT FIXTURE SCHEDULE	☒ YES	☐ NO
SERVICE LOCATION	☒ YES	☐ NO
PANEL LOCATION	☒ YES	☐ NO

21 MECHANICAL CODE REQUIREMENTS

COMPLETE FLOOR PLAN OF MECH LAYOUT	☒ YES	☐ NO
MANUFACTURER'S SPECIFICATIONS	☒ YES	☐ NO
HVAC EQUIPMENT SCHEDULES	☒ YES	☐ NO
HVAC CLEARANCES	☒ YES	☐ NO
EER RATINGS FOR COOLING CAPACITY	☒ YES	☐ NO
PERMANENT ROOF ACCESS LOCATION	☒ YES	☐ NO
OUTSIDE AIR VENTILATION CALCULATIONS	☒ YES	☐ NO
VERIFY RATED WALLS/CEILING WITHIN BLDG	☒ YES	☐ NO
HEATING AND COOLING LOAD CALCS	☒ YES	☐ NO
DRYER VENT LENGTH AND LOCATION	☐ YES	☒ NO

22 SPACES WITH COOKING EQUIPMENT

KITCHEN EQUIPMENT SCHEDULE	☐ YES	☒ NO
VENTILATION CALCULATIONS ON DRAWINGS	☐ YES	☒ NO
COOKING AND VENT EQUIP SPECS	☐ YES	☒ NO
EXHAUST OUTLET DISCHARGE CLEARANCES	☐ YES	☒ NO
HOOD CLEARANCES FROM COMBUSTIBLES	☐ YES	☒ NO
EXHAUST DUCT MATERIAL/CONSTRUCTION	☐ YES	☒ NO
EXHAUST DUCT LAYOUT DIAGRAM SHOWN	☐ YES	☒ NO

23 PLUMBING REQUIREMENTS

PLUMBING WORK	☒ YES	☐ NO
RISER DIAGRAM INCLUDED	☒ YES	☐ NO
FIXTURE SCHEDULE INCLUDED	☒ YES	☐ NO
PUBLIC SEWER	☒ YES	☐ NO

23.5 TOTAL NUMBER OF REQUIRED FIXTURES

IPC TABLE 403.1

OCCUPANCY	OCC. LOAD	WATER CLOSETS RATIO	M	LAVATORIES RATIO	W	M	DRINKING FOUNTAIN RATIO	M	W	SERVICE SINK
BUSINESS USE	63	1/25	1.28	1/25	1.28	1/40	.80	.80	1	1
TOTAL	63	1.28 (2.0)		1.28(2.0)		.80(1.0)	(1.0)			
PROVIDED		1 WC		1 WC		1 LAV PER SEX			2	1
		1 URINAL								

dakinstreet architects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

STATE OF ALABAMA — STEVE STONE — NO. 6473 — REGISTERED ARCHITECT — 12.16.22

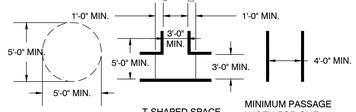
200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
PROJECT NUMBER MX-068-22

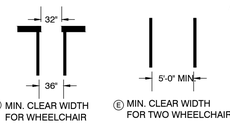
mobile•alabama

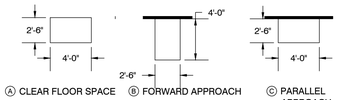
Issues + Revisions
ISSUE FOR BID/PERMIT 12.16.22

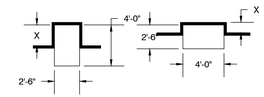
BUILDING CODE SUMMARY

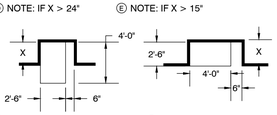
G1.1

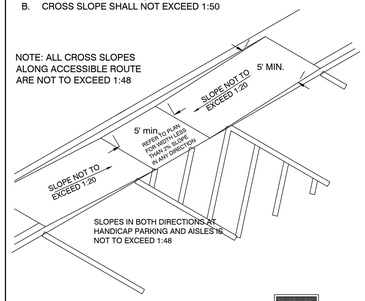


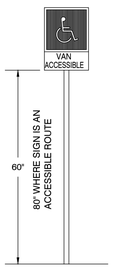


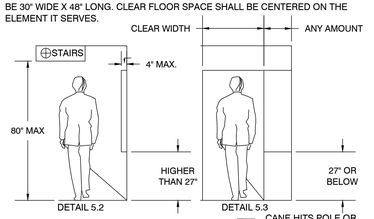


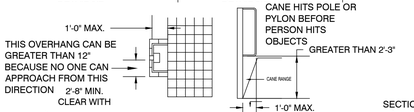


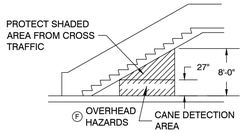


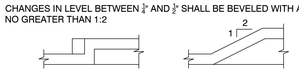


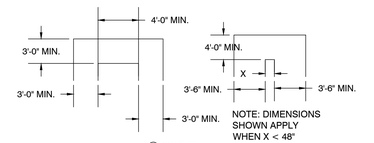


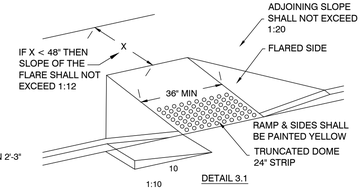


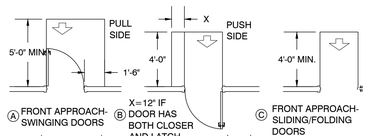


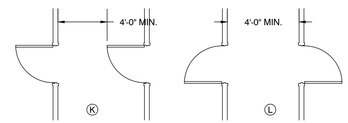


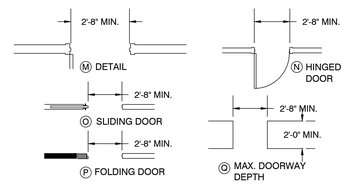


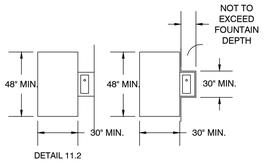


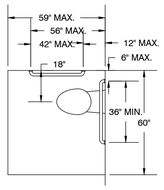


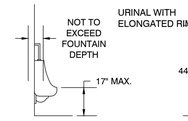


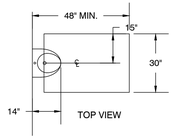


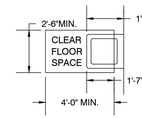












4.2 SPACE ALLOWANCES AND REACH RANGES

SECTIONS 4.2.1 - WHEELCHAIR PASSAGE WIDTH
A. THE MINIMUM CLEAR WIDTH FOR SINGLE WHEELCHAIR PASSAGE SHALL BE 32" AT A POINT AND 36" CONTINUOUSLY

SECTIONS 4.2.2 - WIDTH FOR WHEELCHAIR PASSING
A.THE MINIMUM CLEAR WIDTH FOR TWO WHEELCHAIRS TO PASS IS 60"

SECTIONS 4.2.4.1 - SIZE AND APPROACH
A. MINIMUM CLEAR FLOOR SPACE FOR A WHEELCHAIR AND OCCUPANT SHALL BE 30" WIDE X 48" LONG. CLEAR FLOOR SPACE SHALL BE CENTERED ON THE ELEMENT IT SERVES.

Ⓐ 60" DIAMETER SPACE
Ⓑ T-SHAPED SPACE FOR 180° TURN
Ⓒ MINIMUM PASSAGE WIDTH FOR ONE WHEELCHAIR AND ONE AMBULATORY PERSON
Ⓓ MIN. CLEAR WIDTH FOR WHEELCHAIR
Ⓔ MIN. CLEAR WIDTH FOR TWO WHEELCHAIRS

WHEELCHAIR TURNING SPACE

Ⓐ CLEAR FLOOR SPACE
Ⓑ FORWARD APPROACH
Ⓒ PARALLEL APPROACH
Ⓓ NOTE: IF X > 24"
Ⓔ NOTE: IF X > 15"
Ⓕ NOTE: IF X > 24", THEN AN ADDITIONAL MEASURING CLEARANCE OF 6" SHALL BE PROVIDED AS SHOWN
Ⓖ NOTE: IF X > 15", THEN AN ADDITIONAL MEASURING CLEARANCE OF 12" SHALL BE PROVIDED AS SHOWN

CLEAR SPACE IN ALCOVES

4.3 ACCESSIBLE ROUTE

SECTION 4.3.2 - LOCATION
1. AT LEAST ONE ACCESSIBLE ROUTE WITHIN THE BOUNDARY OF THE SITE SHALL BE PROVIDED FROM PUBLIC TRANSPORTATION STOPS, ACCESSIBLE PARKING AND ACCESSIBLE LOADING ZONES, AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCE THEY SERVE

SECTION 4.3.3 - WIDTH
A. THE MINIMUM CLEAR WIDTH OF AN ACCESSIBLE ROUTE SHALL BE 36" EXCEPT AT DOORS

SECTION 4.3.4 PASSING SPACE
A. IF AN ACCESSIBLE ROUTE IS LESS THAN 60" IN CLEAR WIDTH, THEN PASSING SPACES OF AT LEAST 60" X 60" SHALL BE PROVIDED REASONABLE INTERVALS NOT TO EXCEED 200'.

SECTION 4.3.5 HEAD ROOM
A. ACCESSIBLE ROUTES SHALL HAVE 80" MIN. CLEAR HEAD ROOM

SECTION 4.3.7 SLOPE
A. RUNNING SLOPE SHALL NOT EXCEED 1:20 (IF SLOPE EXCEEDS 1:20, REFER TO SECTION 4.8)
B. CROSS SLOPE SHALL NOT EXCEED 1:50

4.4 PROTRUDING OBJECTS

SECTIONS 4.4.1 - GENERAL
OBJECTS PROJECTING FROM WALLS (FOR EXAMPLE, TELEPHONES) WITH THEIR LEADING EDGES BETWEEN 27"-80" ABOVE THE FINISHED FLOOR SHALL PROTRUDE NO MORE THAN 4" INTO WALKS, HALLS, CORRIDORS, PASSAGEWAYS, OR AISLES. OBJECTS MOUNTED WITH THEIR LEADING EDGES AT OR BELOW 27" ABOVE THE FINISHED FLOOR MAY PROTRUDE ANY AMOUNT. FREE-STANDING OBJECTS MOUNTED ON POSTS OR PYLONS MAY OVERHANG 12" MAXIMUM FROM 27"-80" ABOVE THE GROUND OR FINISHED FLOOR. PROTRUDING OBJECTS SHALL NOT REDUCE THE CLEAR WIDTH OF AN ACCESSIBLE ROUTE OR MANEUVERING SPACE.

SECTIONS 4.2.4.1 - SIZE AND APPROACH
A. MINIMUM CLEAR FLOOR SPACE FOR A WHEELCHAIR AND OCCUPANT SHALL BE 30" WIDE X 48" LONG. CLEAR FLOOR SPACE SHALL BE CENTERED ON THE ELEMENT IT SERVES.

DETAIL 5.2
DETAIL 5.3

Ⓗ PLAN
Ⓙ ELEVATION
Ⓒ PLAN
Ⓓ ELEVATION

FREESTANDING OVERHANGING OBJECTS

Ⓕ OVERHEAD HAZARDS

4.5 GROUND AND FLOOR SURFACES (REF DET 5.1)

SECTIONS 4.5.2 - CHANGES IN LEVEL
A. CHANGES IN LEVEL UP TO $\frac{1}{4}$" MAY BE VERTICAL AND WITHOUT EDGE TREATEMENT
B. CHANGES IN LEVEL BETWEEN $\frac{1}{4}$" AND $\frac{1}{2}$" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2

Ⓐ 90° TURN

4.6 PARKING AND PASSENGER LOADING ZONES

SECTION 4.6.3 - PARKING SPACES
A. ACCESSIBLE PARKING SHALL BE AT LEAST 96" WIDE
B. PARKING ACCESS AISLES SHALL BE 60" WIDE. VAN ACCESSIBLE ACCESS AISLES SHALL BE 96" WIDE.
C. SURFACE SLOPE SHALL NOT EXCEED 1:50 IN ALL DIRECTIONS

SECTION 4.6.4 - SIGNAGE
A. CHARACTERS AND SYMBOLS ON SUCH SIGNS SHALL BE LOCATED 60" MINIMUM ABOVE THE GROUND
B. SIGNAGE LOCATED WITHIN AN ACCESSIBLE ROUTE SHALL BE LOCATED 80" MIN. ABOVE THE WALKING SURFACE

SECTION 4.6.5 - VERTICAL CLEARANCE
A. PROVIDE MIN. VERTICAL CLEARANCE OF 114" AT ACCESSIBLE PASSENGER LOADING ZONES AND ALONG AT LEAST ONE VEHICLE ROUTE FROM SITE ENTRANCE AND EXITS

SECTION 4.6.6. PASSENGER LOADING ZONE
A. PASSENGER LOADING ZONES SHALL PROVIDE AN ACCESS AISLE AT LEAST 60" WIDE AND 20 FEET LONG ADJACENT AND PARALLEL TO THE VEHICLE PULL-UP SPACE. IF THERE ARE CURBS BETWEEN THE ACCESS AISLE AND THE VEHICLE PULL-UP SPACE, THEN A CURB RAMP COMPLYING WITH 4.7 SHALL BE PROVIDED. VEHICLE STANDING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH THE SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS

4.7 CURB RAMPS

SECTION 4.7.2 - SLOPE (REF DETAIL 3.1)
A. SLOPES OF CURB RAMPS SHALL COMPLY WITH 4.8.2
B. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20

SECTION 4.7.3 - WIDTH (REF DETAIL 3.1)
A. THE MIN. WIDTH OF A CURB RAMP SHALL BE 36", EXCLUSIVE OF FLARED SIDES

SECTION 4.7.5 - SIDES OF CURB RAMPS (REF DETAIL 3.1)
A. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES, THE MAX. SLOPE OF THE FLARE SHALL BE 1:10

SECTION 4.7.10 - DIAGONAL CURB RAMPS
A. IF DIAGONAL CURB RAMPS HAVE RETURNED CURBS OR OTHER WELL-DEFINED EDGES, SUCH EDGES SHALL BE PARALLEL TO THE DIRECTION OF PEDESTRIAN FLOW. THE BOTTOM OF DIAGONAL CURB RAMPS SHALL HAVE 48 MIN. CLEAR SPACE. IF DIAGONAL CURB RAMPS ARE PROVIDED AT MARKED CROSSING, THE 48" CLEAR SPACE SHALL BE WITHIN THE MARKINGS. IF DIAGONAL CURB RAMPS HAVE FLARED SIDES, THEY SHALL ALSO HAVE AT LEAST A 24" LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

SECTION 4.7.11- ISLANDS
A. ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR CURBS RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48: LONG BETWEEN THE CURB RAMPS IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

DETAIL 3.1

SECTION 4.7.5 - SIDES OF CURB RAMPS (REF DETAIL 3.1)
A. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES, THE MAX. SLOPE OF THE

4.8 RAMPS

SECTION 4.8.1 - GENERAL
A. ANY PART OF AN ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 SHALL BE CONSIDERED A RAMP AND SHALL COMPLY WITH 4.8

SECTION 4.8.2 - SLOPE AND RISE
A. THE LEAST POSSIBLE SLOPE SHALL BE USED FOR ANY RAMP. THE MAX. SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. THE MAX. RISE FOR ANY RUN SHALL BE 30"

SECTION 4.8.3 - CLEAR WIDTH
A. THE MINIMUM CLEAR WIDTH OF A RAMP 30FT OR LESS IN LENGTH SHALL BE 36". RAMPS MORE THAN 30FT IN LENGTH SHALL HAVE A MIN. CLEAR WIDTH OF 44"

SECTION 4.8.4 - LANDINGS
A. LEVEL LANDINGS REQUIRED AT TOP AND BOTTOM OF EACH RUN WITH THE FOLLOWING FEATURES
  A.A. MIN. WIDTH : EQUAL TO WIDTH OF RAMP
  A.B. LENGTH : MIN. 60" CLEAR

SECTION 4.8.5 - HANDRAILS
A. HEIGHT : 34-36" ABOVE RAMP SURFACE
B. THE CLEAR SPACE BETWEEN THE HANDRAIL AND THE WALL SHALL BE 1 $\frac{1}{2}$"

SECTION 4.8.7 - EDGE PROTECTION
C. RAMPS AND LANDINGS WITH DROP-OFFS SHALL HAVE CURBS, WALLS, RAILINGS, OR PROJECTING SURFACES THAT PREVENT SLIPPING OFF THE RAMP. CURBS SHALL BE A MINIMUM OF 2" HIGH

4.9 STAIRS

SECTION 4.9.2 - TREADS AND RISERS
A. ALL STEPS OF A FLIGHT OF STAIRS SHALL HAVE UNIFORM RISER HEIGHTS AND TREAD WIDTHS.
  A.A. MIN. TREAD DEPTH SHALL BE 11"
  A.B. OPEN RISERS ARE NOT PERMITTED

SECTION 4.9.4 - HANDRAILS
A. NON-CONTINUOUS HANDRAILS SHALL EXTEND 12" BEYOND THE TOP RISER AND 12" PLUS THE WIDTH OF ONE TREAD BEYOND THE BOTTOM RISER. AT THE TOP, THE EXTENSION SHALL BE PARALLEL TO THE FLOOR. AT THE BOTTOM, THE HANDRAIL SHALL CONTINUE TO SLOPE FOR A DISTANCE OF ONE TREAD WIDTH (11"); THE REMAINING EXTENSION SHALL BE HORIZONTAL.
B. HEIGHT: 34-36", MEASURED FROM THE STAIR NOSING

4.10 ELEVATORS

SECTION 4.10.3 - HALL CALL BUTTONS
A. SHALL BE CENTERED 42" ABOVE FLOOR

SECTION 4.10.4 - HALL LANTERNS
A. VISIBLE SIGNALS SHALL HAVE THE FOLLOWING FEATURES
  A.A. FIXTURES SHALL BE MOUNTED WITH CENTERLINE AT LEAST 72" ABOVE THE LOBBY FLOOR
  A.B. VISUAL ELEMENTS SHALL BE AT LEAST 2 $\frac{1}{2}$" IN THE SMALLEST DIMENSION.

SECTION 4.10.5 - RAISED & BRAILLE CHARACTERS ON HOISTWAY ENTRANCES
A. ALL ELEVATOR HOISTWAY ENTRANCES SHALL HAVE RAISED AND BRAILLE FLOOR NO. DESIGNATIONS PROVIDED ON BOTH JAMBS. CENTERLINE OF THE CHARACTERS SHALL BE 60" ABOVE THE FLOOR. CHARACTERS SHALL BE 2" HIGH.

SECTION 4.10.6 DOOR PROTECTIVE AND REOPENING DEVICE
A. ELEVATOR DOORS SHALL PEN AND CLOSE AUTOMATICALLY. THEY SHALL BE PROVIDED WITH A REOPENING DEVICE THAT WILL STOP AND REOPEN A CAR DOOR AND HOISTWAY DOOR AUTOMATICALLY IF THE DOOR BECOMES OBSTRUCTED BY AN OBJECT OR PERSON.

SECTION 4.10.12 - CAR CONTROLS
A. ALL FLOOR BUTTONS SHALL BE:
  A.A. ALL CONTROLS BUTTONS SHALL BE AT LEAST $\frac{3}{4}$" IN THEIR SMALLEST DIMENSION. THEY SHALL BE FLUSHED OR RAISED.
  A.B. ALL CONTROL BUTTONS SHALL BE DESIGNATED BY BRAILLE AND BY RAISED STAR AT THE LEFT OF THE FLOOR DESIGNATION
  A.C. MAX. 54" ABOVE FLOOR WHERE SIDE APPROACH IS PROVIDED
  A.D. MAX. 48" WHERE FORWARD APPROACH IS PROVIDED

B. EMERGENCY CONTROLS
  B.A. SHALL HAVE CENTERLINES 35" MIN. ABOVE FLOOR
  B.B. SHALL BE GROUPED AT BOTTOM OF PANEL

4.11 PLATFORM LIFTS

SECTION 4.11.2, 4.27.3 - OTHER REQ'S CONTROLS AND OPERATING SYSTEMS
A. HEIGHTS PERMITTED : CONTROLS AND OPERATING MECHANISMS SHALL BE LOCATED FOR EITHER A FORWARD OR SIDE APPROACH FROM ANY DIRECTION OF TRAVEL. THEY SHALL BE LOCATED 28" MIN. AND 48" MAXIMUM ABOVE THE FLOOR. THEY SHALL BE OPERABLE WITH ONE HAND. THERE SHALL BE AT LEAST ONE HANDRAIL COMPLYING WITH 4.26. WHEELSTOPS AND QUARDRAILS SHALL BE PROVIDED WHERE NECESSARY.

4.13 DOORS

SECTION 4.13.4 - DOUBLE LEAF DOORWAYS
A. DOORWAYS WITH TWO INDEPENDENTLY OPERATED LEAVES SHALL HAVE AT LEAST ONE LEAF THAT MEETS THE REQUIREMENTS IN 4.13.5 AND 4.13.6

SECTION 4.18.5 - CLEAR WIDTH
A. DOORWAYS SHALL PROVIDE A CLEAR OPENING OF 32" MIN. WITH THE DOOR OPEN 90°
B. CLEAR OPENING SHALL BE MEASURED BETWEEN THE FACE OF THE DOOR AND STOP
C. OPENINGS MORE THAN 24" IN DEPTH SHALL PROVIDE A CLEAR OPENING OF 36" MIN.

EXCEPTION: DOORS NOT REQUIRING FULL USER PASSAGE, SUCH AS SHALLOW CLOSETS, SHALL HAVE A CLEAR OPENING OF 20" MIN.

SECTION 4.13.6-MANEUVERING CLEARANCES AT DOORS

Ⓐ FRONT APPROACH-SWINGING DOORS
Ⓑ X=12" IF DOOR HAS BOTH CLOSER AND LATCH
Ⓒ FRONT APPROACH-SLIDING/FOLDING DOORS
Ⓓ SLIDE SIDE APPROACH-SLIDING/FOLDING DOORS
Ⓔ LATCH SIDE APPROACH-SLIDING/FOLDING DOORS
Ⓕ X=42" MIN IF Y=54"
Ⓖ Y=48" MIN. IF DOOR HAS BOTH CLOSER AND LATCH
Ⓗ Y=54"" MIN. IF DOOR HAS CLOSER. LATCH SIDE APPROACH (SWING DOOR)
Ⓘ HAS CLOSER

NOTE: ALL DOORS ABOVE SHALL COMPLY WITH THE CLEARANCES FOR FRONT APPROACHES

Ⓚ
Ⓛ

TWO DOORS HINGED IN SERIES

Ⓜ DETAIL
Ⓝ HINGED DOOR
Ⓞ SLIDING DOOR
Ⓟ FOLDING DOOR
Ⓠ MAX. DOORWAY DEPTH

CLEAR DOORWAY WIDTH AND DEPTH

4.13 DOORS

SECTION 4.13.8 - THRESHOLDS AT DOORWAYS
A. MAXIMUM THRESHOLD HEIGHT: 1/2" (3/4" AT EXTERIOR SLIDING DOORS). RAISED THRESHOLDS AND FLOOR LEVEL CHANGES SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2

SECTION 4.13.9 - DOOR HARDWARE
A. HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE.
B. LEVER-OPERATED MECHANISMS, PUSH-TYPE MECHANISMS, AND U-SHAPED HANDLES ARE ACCEPTABLE DESIGNS.
C. WHEN SLIDING DOORS ARE FULLY OPEN, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES.
D. HARDWARE REQUIRED FOR PASSAGE SHALL BE MOUNTED NO HIGHER THAN 48" ABOVE FINISHED FLOOR.

SECTION 4.13.10 - DOOR CLOSERS
A. IF A DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70°, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3" FROM THE LATCH, MEASURED TO THE LEADING EDGE OF THE DOOR.

SECTION 4.13.11 - DOOR OPENING FORCE
A. THE MAX. FORCE FOR PUSHING OR PULLING OPEN A DOOR SHALL BE
  A.A. FIRE DOORS SHALL HAVE THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY.
  A.B. OTHER DOORS
    A.B.A. EXTERIOR HINGED DOORS: NO REQUIREMENT.
    A.B.B. INTERIOR HINGED DOORS: 5.0 LBF.
    A.B.C. SLIDING OR FOLDING DOORS: 5.0 LBF.

THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT BOLTS OR DISENGAGE OTHER DEVICES THAT MAY HOLD THE DOOR IN A CLOSED POSITION

4.15 DRINKING FOUNTAINS

SECTION 4.15.2 - SPOUT HEIGHT
A. SPOUTS SHALL BE NO HIGHER THAN 36" MEASURED FROM THE FLOOR OR GROUND SURFACE TO THE SPOUT OUTLET

SECTION 4.15.3 SPOUT LOCATION
A. SPOUTS SHALL BE LOCATED AT THE FRONT OF THE UNIT AND SHALL DIRECT THE WATER FLOW IN A TRAJECTORY THAT IS PARALLEL OR NEARLY PARALLEL TO THE FRONT OF THE UNIT.
B. THE SPOUT SHALL PROVIDE A FLOW OF WATER AT LEAST 4" HIGH.
C. IF THE FOUNTAIN HAS A ROUND OR OVAL BOWL, THE SPOUT MUST BE POSITIONED SO THE FLOW OF WATER IS WITHIN 3" OF THE FRONT EDGE OF THE FOUNTAIN.

SECTION 4.15.4 - CONTROLS
A. UNIT CONTROLS SHALL BE FRONT OR SIDE MOUNTED NEAR THE FRONT EDGE
B. SECTION 4.15.5 - CLEARANCES)WALL AND POST MOUNTED CANTILEVER FOUNTAINS SHALL HAVE CLEAR KNEE SPACE AS FOLLOWS
C. MINIMUM 27" HIGH (FROM APRON BOTTOM TO FLOOR) MINIMUM 30" WIDE,AND 17" - 19" DEEP.
D. A MINIMUM 30" BY 48" CLEAR FLOOR SPACE ALLOWING A FORWARD APPROACH TO THE UNIT SHALL BE PROVIDED
E. FREESTANDING OR BUILT-IN UNITS NOT HAVING A CLEAR KNEE SPACE SHALL HAVE A MINIMUM 30" X 48" CLEAR FLOOR SPACE ALLOWING A PARALLEL APPROACH TO THE UNIT

DETAIL 11.2

4.16 WATER CLOSETS

A. SECTION 4.16.2 - CLEAR FLOOR SPACE
B. CLEAR FLOOR SPACE FOR WATER CLOSETS NOT IN STALLS SHALL BE PROVIDED AS FOLLOWS
  B.A. FRONT APPROACH - 48" MIN. WIDE X 66" MIN. LONG
  B.B. SIDE APPROACH - 56" MIN. TO FRONT OF TOILET X 48" MIN. WIDE
  B.C. BOTH APPROACH - 60" MIN. WIDE X 56" MIN. LONG

SECTION 4.16.3 - HEIGHT (DET 12.1.1)
A. THE HEIGHT TO THE TOP OF THE TOILET SEAT SHALL BE 17-19" ABOVE FLOOR
B. SEATS SHALL NOT BE SPRUNG TO RETURN TO A LIFTED POSITION

SECTION 4.16.4 - GRAB BARS (DET 12.1.1 AND 12.1.2)
A. FOR WATER CLOSETS NOT LOCATED IN TOILET STALLS, THE FOLLOWING GRAB BARS SHALL BE PROVIDED, 33-36" ABOVE THE FINISH FLOOR
B. SIDE WALL : 42" LONG MIN. 12" FROM BACK WALL
C. BACK WALL : 36" LONG MIN. 12" MIN EACH SIDE OF WATER CLOSET CENTERLINE

REFER TO 4.26 GRAB BARS FOR SIZE AND STRUCTURAL ELEMENTS

SECTION 4.16.5 - FLUSH CONTROLS
A. CONTROLS SHALL BE 44" MAX. ABOVE THE FINISH FLOOR
B. CONTROLS FOR FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREAS
C. CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC
D. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST
E. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LB/F

SECTION 4.16.6 DISPENSERS
A. TOILER PAPER DISPENSERS SHALL BE INSTALLED ON THE SIDE WALL A MIN. 19" ABOVE THE FLOOR, AND A MA.X 36" FROM THE REAR WALL.
B. DISPENSERS THAT CONTROL DELIVERY OR DO NOT PERMIT CONTINUOUS PAPER FLOW SHALL NOT BE USED.

4.17 TOILET STALLS

SECTION 4.22.4 WHERE APPLICABLE
A. IF TOILET STALLS ARE PROVIDED IN A TOILET ROOM OR BATHROOM, THEN AT LEAST ONE SHALL BE A "STANDARD" ACCESSIBLE TOILET STALL (FOR WHEELCHAIR USERS) COMPLYING WITH THIS SECTION.
B. IF 6 OR MORE TOILET STALLS ARE PROVIDED IN A TOILET ROOM OR BATHROOM IN ADDITION TO THE 'STANDARD' ACCESSIBLE STALL REQUIRED; AN ADDITIONAL 'ALTERNATE A' ACCESSIBLE STALL 36" WIDE (FOR AMBULATORY PERSONS WITH DISABILITIES) COMPLYING WITH THIS SECTION SHALL BE PROVIDED.
C. ALTERATIONS/EXISTING CONDITIONS: IN ALTERATION WORK. WHERE PROVISION OF A 'STANDARD' ACCESSIBLE STALL IS TECHNICALLY INFEASIBLE, OR WHERE PLUMBING CODE REQUIREMENTS PREVENT COMBINING EXISTING STALLS TO PROVIDE SPACE, EITHER 'ALTERNATE' STALL (A OR B) COMPLYING WITH THIS SECTION MAY BE PROVIDED IN LIEU OF THE STANDARD STALL.

SECTION 4.17.3 - SIZE AND ARRANGEMENT (REFERENCE DETAIL 12.2.1)
A. TOILET STALLS MAY BE ARRANGED TO PROVIDE EITHER A LEFT OR A RIGHT HANDED APPROACH. ACCESSIBLE TOILET STALL SHALL HAVE THE FOLLOWING DIMENSIONS:
B. STANDARD ACCESSIBLE STALL:
  B.A. 60" MIN WIDTH
  B.B. 59" MIN. DEPTH WITH FLOOR MOUNT WC
  B.C. 56" MIN DEPTH WITH WALL MOUNT WC
  B.D. DOOR- OUTWARD SWING. IF SWINGS INTO STALL, DEPTH INCREASED BY 36"

DETAIL 12.2.1

SECTION 4.17.4 - TOE CLEARANCES
A. IN 'STANDARD' ACCESSIBLE STALLS, THE FRONT PARTITION AND AT LEAST ONE SIDE PARTITION SHALL PROVIDE A TOE CLEARANCE OF AT LEAST 9" ABOVE THE FLOOR.
B. IF THE DEPTH OF THE STALL IS GREATER THAN 60", THE TOE CLEARANCE IS NOT REQUIRED.

SECTION 4.17.5 - DOORS
A. TOILET STALL DOORS, INCLUDING HARDWARE, SHALL COMPLY WITH ELEMENT 10: DOORS
B. IF TOILET STALL APPROACH IS FROM THE LATCH SIDE OF THE STALL DOOR, CLEARANCE BETWEEN THE DOOR SIDE OF THE STALL AND ANY OBSTRUCTION SHALL BE 42" MINIMUM.(THIS IS AN EXCEPTION FROM TYPICAL DOOR MANEUVERING CLEARANCES)

SECTION 4.17.6 - GRAB BARS
A. GRAB BARS MOUNTED 33" - 36" ABOVE THE FLOOR, SHALL BE PROVIDED AS FOLLOWS:
B. STANDARD' ACCESSIBLE STALL: ONE 40" SIDE WALL GRAB BAR (ON NEAR WALL) AND ONE REAR WALL GRAB BAR.
C. 'ALTERNATE A" ACCESSIBLE STALL: 42" SIDE WALL GRAB BAR EACH SIDE.
D. 'ALTERNATE B" ACCESSIBLE STALL: ONE 42" SIDE WALL GRAB BAR (ON NEAR WALL), ONE REAR WALL GRAB BAR.
E. SIDE WALL GRAB BAR: MINIMUM LENGTH AS INDICATED, MOUNTED 12" MAXIMUM OFF REAR WALL.

4.18 URINALS

SECTION 4.18.2 - HEIGHT
A. URINALS SHALL BE STALL-TYPE OR WALHUNG WITH A TAPERED, ELONGATED RIM AT 17" MAXIMUM ABOVE THE FINISHED FLOOR.
B. THE RIM SHALL EXTEND A MINIMUM OF 14" FROM THE WALL.

SECTION 4.18.3 - CLEAR FLOOR SPACE
A. A CLEAR FLOOR SPACE 30" WIDE BY 48" DEEP MINIMUM SHALL BE PROVIDED IN FRONT OF URINAL TO ALLOW FRONTAL APPROACH.
B. THIS SPACE SHALL ADJOIN OR OVERLAP AN ACCESSIBLE ROUTE.
C. URINAL SHIELD THAT DO NOT EXTEND BEYOND THE FRONT EDGE OF THE URINAL RIM MAY BE PROVIDED WITH 29" CLEARENCE BETWEEN THEM.
D. URINALS INSTALLED IN ALCOVES DEEPER THAN 24" REQUIRE A MANEUVERING AREA OF AT LEAST 36" MINIMUM WIDE.

SECTION 4.18.4 -FLUSH CONTROLS
A. CONTROLS SHALL BE 44" MAXIMUM ABOVE THE FINISHED FLOOR.
B. CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC.
C. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST.
D. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LFB.

SIDE VIEW
FRONT VIEW
TOP VIEW

4.19 LAVATORIES & MIRRORS

SECTION 4.19.2 - HEIGHT AND CLEARANCES
A. LAVATORIES SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO HIGHER THAN 34" ABOVE THE FINISHED FLOOR
B. LAVATORIES SHALL EXTEND 17" MINIMUM FROM THE WALL.
C. CLEARANCE OF 29" MINIMUM SHALL BE PROVIDED FROM THE FINISHED FLOOR TO BOTTOM OF APRON.
D. KNEE CLEARANCE OF 27" MINIMUM SHALL EXTEND 8" MINIMUM UNDER THE EDGE OF THE LAVATORY.
E. TOE CLEARANCE OF 9" MINIMUM SHALL BE PROVIDED FOR THE FULL DEPTH OF THE LAVATORY

SECTION 4.19.4 - EXPOSED PIPES AND SURFACES
A. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT.
B. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.

CLEAR FLOOR SPACE AT LAVATORIES

SECTION 4.19.5 FAUCETS
A. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHTGRASPING, PINCHING, OR TWISTING OF THE WRIST.
B. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBF.
C. LEVER-OPERATED, PUSH-TYPE, AND ELECTRONICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS.
D. IF SELF-CLOSING VALVES ARE USED THE FAUCET SHALL REMAIN OPEN FOR AT LEAST 10 SECONDS.

SECTION 4.19.6 - MIRRORS
A. MIRRORS SHALL BE MOUNTED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE 40" MAXIMUM ABOVE THE FINISHED FLOOR.

SECTION 4.20 BATHTUBS

SECTION 4.20.2 - FLOOR SPACE
A. CLEAR FLOOR SPACE SHALL BE PROVIDED IN FRONT OF BATHTUBS AS FOLLOWS:
B. 30" WIDE X 60" LONG BESIDE THE BATHTUB FOR SIDE APPROACH
C. 48" WIDE X 60" LONG BESIDE THE BATHTUB FOR FRONT APPROACH WITH SEAT AT HEAD OF TUB - 30" WIDE X 75" LONG BESIDE TUB

SECTION 4.20.3 - SEAT
A. AN IN-TUB SEAT OR A SEAT AT THE HEAD END OF THE TUB SHALL BE PROVIDED. SEATS SHALL BE MOUNTED SECURELY AND SHALL NOT SLIP DURING USE.

SECTION 4.20.4 - GRAB BARS
A. HEIGHTS PERMITTED
B. WITHIN TUB SEAT
  B.A. CONTROL WALL: 24" LONG MINIMUM, FROM OUTSIDE WALL, 33-36" ABOVE FLOOR
  B.B. BACK WALL: 2 BARS, 24" LONG MINIMUM, 12" MAXIMUM FROM FOOT END, 24" MAXIMUM FROM HEAD END; ONE 33-36" ABOVE FLOOR, ONE 9" ABOVE THE TUB
  B.C. HEAD WALL: 12" MINIMUM, FROM OUTSIDE WALL, 33-36" ABOVE FLOOR

C. WITH SEAT AT HEAD OF TUB
  C.A. CONTROL WALL: 24" LONG MINIMUM, FROM OUTSIDE WALL, 33-36" ABOVE FLOOR
  C.B. BACK WALL: 2 BARS, 48" LONG MINIMUM, 12" MAXIMUM FROM FOOT END, 15" MAXIMUM FROM HEAD END: ONE 33-36" ABOVE FLOOR, ONE 9" ABOVE THE TUB
  C.C. HEAD WALL: NONE

dakinstreetarchitects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

STEVE STONE
NO. 6473
12.09.22

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
PROJECT NUMBER MX-068-22
mobile•alabama

Issues + Revisions
ISSUE FOR BID/PERMIT
12.16.22

ACCESSIBILITY STANDARDS

G1.2

xref 200 Gov THIRD 36x24.dwg

4.22 TOILET ROOMS

SECTIONS 4.22.2 - DOORS
A. ALL DOORS TO ACCESSIBLE TOILET ROOMS SHALL COMPLY WITH 4.13. DOORS SHALL NOT SWING INTO CLEAR FLOOR SPACE REQUIRED FOR ANY FIXTURE. CLEAR FLOOR TURNING SPACE MAY OVERLAP DOOR SWINGS.

SECTIONS 4.22.3 - CLEAR FLOOR SPACE
B. THE ACCESSIBLE FIXTURES AND CONTROLS REQUIRED IN 4.22.4, 4.22.5, 4.22.6 4.22.7 SHALL BE ON AN ACCESSIBLE ROUTE. AN UNOBSTRUCTED TURNING SPACE COMPLYING WITH 4.2.3 SHALL BE PROVIDED WITHIN AN ACCESSIBLE TOILET ROOM. THE CLEAR FLOOR SPACE AT FIXTURES AND CONTROLS, THE ACCESSIBLE ROUTE, AND THE TURNING SPACE MAY OVERLAP, HOWEVER; THE ONLY TURNING SPACE PROVIDED SHALL NOT BE LOCATED WITHIN A STALL.

SECTION 4.22.4 - WATER CLOSETS
A. IF TOILET STALLS ARE PROVIDED, THEN AT LEAST ONE SHALL BE A STANDARD TOILET STALL COMPLYING WITH 4.17; WHERE 6 OR MORE STALLS ARE PROVIDED IN ADDITION TO THE STALL COMPLYING WITH 4.17.3, AT LEAST ONE STALL 36" WIDE WITH AN OUTWARD SWINGING, SELF-CLOSING DOOR AND PARALLEL GRAB BARS SHALL BE PROVIDED. WATER CLOSETS IN SUCH STALLS SHALL COMPLY WITH 4.16.

SECTION 4.22.5 URINALS
A. IF URINALS ARE PROVIDED, THEN AT LEAST ONE SHALL COMPLY WITH 4.18

SECTION 4.22.6 LAVATORIES AND MIRRORS
A. IF LAV AND MIRRORS ARE PROVIDED, THEN AT LEAST ONE SHALL COMPLY WITH 4.19

SECTION 4.22.7 CONTROLS AND DISPENSERS
A. IF CONTROLS, DISPENCERS, RECEPTACLES, OR OTHER EQUIPMENT ARE PROVIDED, THEN AT LEAST ONE OF EACH SHALL BE ON AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH 4.27 - (CONTROLS & OPERATING MECHANISMS).

4. 24 SINKS

SECTION 4.24.2 - HEIGHT
A. SINKS SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO HIGHER THAN 34" ABOVE THE FINISHED FLOOR.

SECTION 4.24.3 - KNEE CLEARANCE
A. KNEE CLEARANCE OF 27" HIGH MINIMUM, 30" WIDE MINIMUM, AND 19" DEEP MINIMUM SHALL BE PROVIDED UNDERNEATH SINKS. REFER TO DETAIL 12.5.1 FOR ADDITIONAL CLEARANCES.

SECTION 4.24.4 - DEPTH
A. EACH SINK SHALL BE A MAX. OF 6 1/2" DEEP

SECTION 4.24.6 - EXPOSED PIPES AND SURFACES
A. HOT WATER AND DRAIN PIPES UNDER SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT.
B. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS.

SECTION 4.24.7 - FAUCETS
A. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST,
B. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBF.
C. LEVER-OPERATED, PUSH-TYPE, AND ELECTRONICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS.

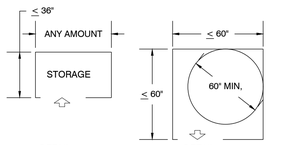
4.25 - STORAGE

SECTION 4.25.1 - DEPTH
A. STORAGE AREAS MAY BE 36" IN DEPTH OR LESS. IF MORE THAN 36" IN DEPTH THEN AREA MUST ALLOW 60" DIAMETER OF CLEAR FLOOR SPACE FOR TURNING.

SECTION 4.25.2 - CLEAR FLOOR SPACE - REFER TO 14.2

SECTION 4.25.3 - HEIGHT
A. WHERE A FORWARD REACH IS REQUIRED, ACCESSIBLE STORAGE SPACES SHALL BE 48" MAXIMUM AND 15" MINIMUM ABOVE THE FLOOR. IF THE FORWARD REACH IS OVER AN OBSTRUCTION (WITH KNEE SPACE EQUAL TO OR GREATER THAN REACH DISTANCE) 20"-25" DEEP, THE MAXIMUM HEIGHT SHALL BE 44"; IF THEOBSTRUCTION IS LESS THAN 20", MAXIMUM HEIGHT SHALL BE 48".
B. WHERE A SIDE REACH IS PROVIDED, ACCESSIBLE STORAGE SPACES SHALL BE 54" MAXIMUM AND 9" MINIMUM ABOVE THE FLOOR. MAXIMUM HEIGHT SHALL BE 46" FOR SIDE REACH OVER AN OBSTRUCTION 34" MAXIMUM HIGH AND 24" MAXIMUM DEEP.
C. CLOTHES RODS OR SHELVES SHALL BE A MAXIMUM 54" ABOVE FLOOR WHERE A SIDE REACH IS REQUIRED.
D. WHERE THE DISTANCE FROM THE WHEELCHAIR TO THE CLOTHES ROD OR SHELF EXCEEDS 10" (AS AT CLOSETS WITH INACCESSIBLE DOORS) THE FOLLOWING CRITERIA SHALL BE MET:
D.A. SHELVES: REACH: 21" MAXIMUM; HEIGHT: 48" MAXIMUM, 9" MINIMUM.
D.B. CLOTHES RODS: REACH 21" MAXIMUM; HEIGHT: 48" MAXIMUM.

SECTION 4.25.4 - HARDWARE
A. HARDWARE FOR ACCESSIBLE STORAGE FACILITIES SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TISTING OF THE WRIST
B. THE FORCE REQUIRED TO ACTIVATE THE HARDWARE SHALL BE NO GREATER THAN 5 LBF



DETAIL 14.1 DETAIL 14.2 DETAIL 14.3 DETAIL 14.4

4.26 GRAB BARS

SECTION 4.26.2 - SIZE AND SPACING
A. DIAMETER OR WIDTH OF GRIPPING SURFACE SHALL BE 1-1/4" TO 1-1/2", OR THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE.
B. THE SPACE BETWEEN GRAB BARS AND ADJACENT WALLS SHALL BE 1-1/2"

SECTION 4.26.3 - STRUCTURAL STRENGTH
A. GRAB BARS AND MOUNTING DEVICES SHALL MEET THE FOLLOWING REQUIREMENTS:
A.A. BENDING STRESS INDUCED BY MAXIMUM BENDING MOMENT FROM APPLICATION OF 250 LBF SHALL BE LESS THAN ALLOWABLE STRESS FOR MATERIAL USED.
A.B. SHEAR STRESS INDUCED BY APPLICATION OF 250 LBF SHALL BE LESS THAN ALLOWABLE SHEAR STRESS FOR MATERIAL USED. IF CONNECTION BETWEEN GRAB BAR AND MOUNTING BRACKET IS CONSIDERED TO BE FULLY RESTRAINED, THEN DIRECT AND TORSIONAL SHEAR STRESSES SHALL BE TOTALED FOR THE COMBINED SHEAR STRESS, WHICH SHALL NOT EXCEED THE ALLOWABLE SHEAR STRESS.
A.C. SHEAR FORCE INDUCED IN A FASTENER OR MOUNTING DEVICE FROM APPLICATION OF 250 LBF SHALL BE LESS THAN ALLOWABLE LATERAL LOAD OF EITHER THE FASTENER OR MOUNTING DEVICE OR THE SUPPORTING STRUCTURE, WHICHEVER IS THE SMALLER ALLOWABLE LOAD.
A.D. TENSILE FORCE INDUCED IN A FASTENER BY A DIRECT TENSION FORCE OF 250 LBF PLUS THE MAXIMUM MOMENT FROM THE APPLICATION OF 250 LBF SHALL BE LESS THAN THE ALLOWABLE WITHDRAWAL LOAD BETWEEN THE FASTENER AND THE SUPPORTING STRUCTURE.
A.E. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.

4.26.4 - ELIMINATING HAZARDS
A. GRAB BARS AND ADJACENT WALL SURFACES SHALL BE FREE OF SHARP OR ABRASIVE SURFACES
B. EDGES SHALL HAVE A RADIUS OF 1/8" MINIMUM

4.27 CONTROLS AND OPERATING MECHANISMS

SECTION 4.27.3 - HEIGHT
A. FRONT APPROACH - 15" MIN, 48" MAX
B. SIDE APPROACH - 9" MIN. TO 54" MAX EXCEPT BELOW
C. ELECTRICAL & COMMUNICATION SYSTEM RECEPTICALS SHALL BE MOUNTED NO LESS THAN 15" ABOVE THE FLOOR.

4.28 ALARMS

SECTION 4.28.1 - GENERAL
A. WHEN REQUIRED, VISUAL ALARMS SHALL BE PROVIDED IN EACH OF THE FOLLOWING AREAS, AS A MINIMUM: RESTROOMS AND ANY OTHER GENERAL USAGE AREAS (E.G., MEETING ROOMS), HALLWAYS, LOBBIES, AND ANY OTHER AREA FOR COMMON USE.

SECTION 4.28.2 - AUDIBLE ALARMS
A. IF PROVIDED, AUDIBLE ALARMS SHALL PRODUCE A SOUND THAT EXCEEDS THE PREVAILING EQUIVALENT SOUND LEVEL IN THE ROOM OR SPACE BY AT LEAST 15 DBA OR EXCEEDS ANY MAXIMUM SOUND LEVEL WITH A DURATION OF 60 SECONDS BY 5 DBA, WHICHEVER IS LOUDER.
B. SOUND LEVELS FOR ALARM SIGNALS SHALL NOT EXCEED 120 DBA.

SECTION 4.28.3 - VISUAL ALARMS
A. VISUAL ALARM SIGNAL APPLIANCES SHALL BE INTEGRATED INTO THE BUILDING OR FACILITY ALARM SYSTEM. IF SINGLE STATION AUDIBLE ALARMS ARE PROVIDED THEN SINGLE STATION VISUAL ALARM SIGNALS SHALL BE PROVIDED.
B. VISUAL ALARM APPLIANCES SHALL HAVE THE FOLLOWING FEATURES:
B.A. THE LAMP SHALL BE A XENON STROBE TYPE OR EQUILAVENT.
B.B. THE COLOR SHALL BE CLEAR OR NOMINAL WHITE (I.E. UNFILTERED OR CLEAR FILTERED WHITE LIGHT).
B.C. THE MAXIMUM PULSE DURATION SHALL BE TWO-TENTHS OF ONE SECOND WITH A MAXIMUM DUTY CYCLE OF 40%. (THE PULSE DURATION IS DEFINED AS THE TIME INTERVAL BETWEEN INITIAL AND FINAL POINTS OF 10% OF MAX SIGNAL)
B.D. THE INTENSITY SHALL BE A MINIMUM OF 75 CANDELA.
B.E. THE FLASH RATE SHALL BE A MINIMUM OF 1 HZ AND A MAXIMUM OF 3 HZ
B.F. THE APPLIANCE SHALL BE PLACED 80" ABOVE THE HIGHEST FLOOR LEVEL WITHIN THE SPACE OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.
B.G. IN GENERAL, NO PLACE IN ANY ROOM OR SPACE SHALL BE MORE THAN 50' FROM THE SIGNAL (MEASURED IN A HORIZONTAL PLANE).
B.H. IN LARGE ROOMS AND SPACES EXCEEDING 100' ACROSS, WITHOUT OBSTRUCTIONS 6' ABOVE THE FINISHED FLOOR, SUCH AS AUDITORIUMS, DEVICES MAY BE PLACE AROUND THE PERIMETER, SPACED A MAXIMUM 100' APART, IN LIEU OF SUSPENDING APPLIANCES FROM THE CEILING.
B.I. NO PLACE IN COMMON CORRIDORS OR HALLWAYS SHALL BE MORE THAN 50' FROM THE SIGNAL.

4.30 SIGNAGE

SECTION 4.1.2, 4.1.3 WHERE APPLICABLE
A. SIGNS WHICH DESIGNATE PERMAMENT ROOMS AND SPACES SHALL COMPLY WITH THE REQUIREMENTS LISTED BELOW FOR:
A.A. RAISED AND BRAILLE CHARACTERS, AND PICTOGRAM
A.B. FINISH AND CONTRAST
A.C. MOUNTING LOCATION AND HEIGHT

SECTION 4.1.2 (7) WHERE APPLICABLE
A. SIGNS WHICH PROVIDE DIRECTION TO, OR INFORMATION ABOUT, FUNCTIONAL SPACES OF THE BUILDING SHALL COMPLY WITH THE REQUIREMENTS LISTED BELOW FOR:
A.A. CHARACTER PROPORTION
A.B. CHARACTER HEIGHT
A.C. FINISH AND CONTRAST

EXCEPTION: BUILDING DIRECTORIES, MENUS, AND ALL OTHER SIGNS WHICH ARE TEMPORARY ARE NOT REQUIRED TO COMPLY.

SECTION 4.1.2 (7) WHERE APPLICABLE
A. ELEMENT AND SPACES OF ACCESSIBLE FACILITIES WHICH SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY ARE:
A.A. PARKING SPACES DESIGNATED AS RESERVED FOR PERSONS WITH DISABILITIES.
A.B. ACCESSIBLE PASSENGER LOADING ZONES.
A.C. ACCESSIBLE ENTRANCES WHEN NOT ALL ARE ACCESSIBLE (INACCESSIBLEENTRANCES SHALL HAVE DIRECTIONAL SIGNAGE TO INDICATE ROUTE TO NEAREST ACCESSIBLE ENTRANCE).
A.D. ACCESSIBLE TOILET AND BATHING FACILITIES WHEN NOT ALL ARE ACCESSIBLE.

SECTION 4.30.2 - CHARACTER PROPORTION
A. LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1, AND A STROKE-WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10.

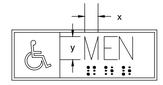
SECTION 4.30.3 - OVERHEAD SIGNS
A. CHARACTERS AND NUMBERS ON OVERHEAD SIGNS SHALL BE SIZED ACCORDING TO THE VIEWING DISTANCE FROM WHICH THEY ARE TO BE READ.
A.A. FOR SIGNS HIGHER THAN 80" ABOVE THE FINISHED FLOOR, CHARACTER SIZE SHALL BE 3" MINIMUM.
A.B. THE MINIMUM HEIGHT IS MEASURED USING AN UPPER CASE X.
A.C. LOWER CASE LETTERS ARE PERMITTED.

SECTION 4.30.4 - RAISE AND BRAILLE CHARACTERS
A. LETTER AND NUMERALS SHALL BE RAISED 1/32", UPPER CASE, SANS SERIF AND SHALL BE ACCOMPANIED BY GRADE 2 BRAILLE.
B. RAISED CHARACTER HEIGHT: 5/8" MINIMUM, 2" HIGH MAXIMUM
C. PICTOGRAMS SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM.
D. THE BORDER DIMENSION OF THE PICTOGRAM SHALL BE 6" MINIMUM

SECTION 4.305 - FINISH AND CONTRAST
A. THE CHARACTER AND BACKGROUND OF THE SIGNS SHALL BE EGGSHELL, MATTE, OR OTHER NON-GLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND (EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND).

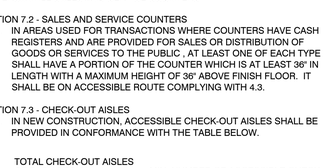
SECTION 4.30.6 MOUNTING LOCATION AND HEIGHT
A. WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR.
B. WHERE THERE IS NO WALL SPACE TO THE LATCH SIDE OF THE DOOR, INCLUDING AT DOUBLE-LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL.
C. MOUNTING HEIGHT SHALL BE 60" ABOVE THE FINISHED FLOOR TO THE CENTERLINE OF THE SIGN
D. MOUNTING LOCATION FOR SUCH SIGNAGE SHALL BE SO THAT A PERSON MAY APPROACH WITHIN 3' OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.


INTERNATIONAL SYMBOL OF ACCESSIBILITY



LETTERS & NUMBERS ON SIGNS SHALL HAVE A WIDTH TO HEIGHT RATIO OF BETWEEN 3:5 AND 1:1 AND A STROKE-WIDTH TO HEIGHT RATIO BETWEEN 1:5 AND 1:10. LETTERS AND NUMBERS SHALL BE RAISED 1/32", UPPER CASE, SANS SERIF OR SIMPLE SERIF TYPE AND SHALL BE ACCOMPANIED WITH GRADE 2 BRAILLE, RAISED CHARACTERS SHALL BE AT LEAST 5/8" HIGH, BUT NO HIGHER THAN 2"

DETAIL 16.1 DETAIL 16.2



DETAIL 16.3

4.32 SEATING AND TABLES

SECTION 4.32.2 - SEATING
A. IF SEATING SPACES FOR PEOPLE IN WHEELCHAIRS ARE PROVIDED AT FIXED TABLES OR COUNTERS, CLEAR FLOOR SPACE OF 30" X 48" SHALL BE PROVIDED. FLOOR SPACE SHALL NOT OVERLAP REQUIRED KNEE SPACE BY MORE THAN 19"

SECTION 4.32.3 - KNEE SPACE
A. IF SEATING FOR PEOPLE IN WHEELCHAIRS IS PROVIDED AT FIXED TABLES OR COUNTERS, KNEE SPACE AT LEAST 27" HIGH, 30" WIDE AND 19" DEEP SHALL BE PROVIDED.

SECTION 4.32.4 - HEIGHT OF TABLES OR COUNTER
A. THE TOPS OF ACCESSIBLE TABLES AND COUNTERS SHALL BE 28" MINIMUM, AND 34" MAXIMUM, ABOVE THE FINISHED FLOOR.

4.35 DRESSING AND FITTING ROOMS

SECTION 4.35.4 - BENCH
A. EVERY ACCESSIBLE DRESSING ROOM SHALL HAVE A 24" X 48" BENCH FIXED TO THE WALL ALONG THE LARGER DIMENSION. THE BENCH SHALL BE MOUNTED 17" TO 19" ABOVE THE FINISH FLOOR.

SECTION 4.35.5 - MIRROR
A. A FULL-LENGTH MIRROR, MEASURING AT LEAST 18" WIDE BY 54" HIGH, SHALL BE MOUNTED IN A POSITION AFFORDING A VIEW TO A PERSON ON THE BENCH AS WELL AS TO A PERSON IN A STANDING POSITION.

5.2 RESTAURANTS AND CAFETERIAS

SECTION 5.1 - GENERAL
A. EXCEPT AS SPECIFIED OR MODIFIED IN THIS SECTION, RESTAURANTS AND CAFETERIAS SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 4. WHERE FIXED TABLES ARE PROVIDED, AT LEAST 5%, BUT NOT LESS THAN ONE OF THE FIXED TABLES SHALL BE ACCESSIBLE AND COMPLY WITH 4.32 AS REQUIRED IN 4.1.3(18).IT SHALL BE ON ACCESSIBLE ROUTE COMPLYING WITH 4.3.

SECTION 5.3 - ACCESS AISLES
A. ALL ACCESSIBLE FIXED TABLES SHALL BE ACCESSIBLE BY MEANS OF AN ACCESS AISLE AT LEAST 36 IN CLEAR BETWEEN PARALLEL EDGES OF TABLES OR BETWEEN A WALL AND THE TABLE EDGE.

SECTION 5.5 - FOOD SERVICE LINES
A. FOOD SERVICE LINES SHALL HAVE A MINIMUM CLEAR WIDTH OF 36 IN, WITH A PREFERRED CLEAR WIDTH OF 42". TRAY SLIDES SHALL BE MOUNTED NO HIGHER THAN 34" ABOVE THE FLOOR. IF SELF-SERVICE SHELVES ARE PROVIDED AT LEAST 50% OF EACH TYPE MUST BE WITHIN THE REACH RANGES SPECIFIED IN 4.2.5 AND 4.2.6.

SECTION 5.6 - TABLEWARE AND CONDIMENT AREAS
A. SELF-SERVICE SHELVES AND DISPENSING DEVICES FOR TABLEWARE, DISHWARE, CONDIMENTS, FOOD AND BEVERAGES SHALL BE INSTALLED TO COMPLY WITH 4.2.

7.2 MERCANTILE SALES AND SERVICE COUNTERS

SECTION 7.2 - SALES AND SERVICE COUNTERS
A. IN AREAS USED FOR TRANSACTIONS WHERE COUNTERS HAVE CASH REGISTERS AND ARE PROVIDED FOR SALES OR DISTRIBUTION OF GOODS OR SERVICES TO THE PUBLIC , AT LEAST ONE OF EACH TYPE SHALL HAVE A PORTION OF THE COUNTER WHICH IS AT LEAST 36" IN LENGTH WITH A MAXIMUM HEIGHT OF 36" ABOVE FINISH FLOOR. IT SHALL BE ON ACCESSIBLE ROUTE COMPLYING WITH 4.3.

SECTION 7.3 - CHECK-OUT AISLES
A. IN NEW CONSTRUCTION, ACCESSIBLE CHECK-OUT AISLES SHALL BE PROVIDED IN CONFORMANCE WITH THE TABLE BELOW.

TOTAL CHECK-OUT AISLES OF EACH DESIGN	MIN. NUMBER OF ACCESSIBLE CHECK
1-4	1
5-8	2
8-15	3
OVER 15	3 (PLUS 20% OF ADDITIONAL AISLES)

EXCEPTION:IN NEW CONSTRUCTION, WHERE THE SELLING SPACE IS UNDER 5000 SQUARE FEET, ONLY ONE CHECK-OUT AISLE IS REQUIRED TO BE ACCESSIBLE.

dakinstreet architects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

STATE OF ALABAMA STEVE STONE NO. 6473 REGISTERED ARCHITECT 12.16.22

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
PROJECT NUMBER MX-068-22

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ACCESSIBILITY STANDARDS

G1.3

SUMMARY SECTIONS

REGARDING THE PROJECT AT 200 GOVERNMENT STREET, I AM PROVIDING THE FOLLOWING PERFORMANCE COMPLIANCE REPORT. THIS IS IN CONCERT WITH THE INTERNATIONAL BUILDING CODE, 2012 EDITION, CHAPTER 14 AND THE INTERNATIONAL EXISTING BUILDING CODE, 2012 EDITION, CHAPTER 12.

THE FOLLOWING DATA WILL ATTEMPT TO SHED LIGHT ON THE MANDATORY SAFETY VALUES OF OUR PROJECT AS IT IS DESIGNED.

IEBC SECTION 1201.2 STATES "*A HISTORIC BUILDING UNDERGOING REPAIR, ALTERATION, OR CHANGE OF OCCUPANCY SHALL BE INVESTIGATED AND EVALUATED. IF IT IS INTENDED THAT THE BUILDING MEET THE REQUIREMENTS OF THIS CHAPTER, A WRITTEN REPORT SHALL BE PREPARED AND FILED WITH THE CODE OFFICIAL BY A REGISTERED DESIGN PROFESSIONAL WHEN SUCH A REPORT IS NECESSARY IN THE OPINION OF THE CODE OFFICIAL. SUCH REPORT SHALL BE IN ACCORDANCE WITH CHAPTER 1 AND SHALL IDENTIFY EACH REQUIRED SAFETY FEATURE THAT IS IN COMPLIANCE WITH THIS CHAPTER AND WHERE COMPLIANCE WITH OTHER CHAPTERS OF THESE PROVISIONS WOULD BE DAMAGING TO THE CONTRIBUTING HISTORIC FEATURES. ADDITIONALLY, THE REPORT SHALL DESCRIBE EACH FEATURE THAT IS NOT IN COMPLIANCE WITH THESE PROVISIONS AND SHALL DEMONSTRATE HOW THE INTENT OF THESE PROVISIONS IS COMPLIED WITH IN PROVIDING AN EQUIVALENT LEVEL OF SAFETY. "*

IBC SECTION 1401.1 STATES "*…THE PROVISIONS OF THIS CHAPTER ARE INTENDED TO MAINTAIN OR INCREASE THE CURRENT DEGREE OF PUBLIC SAFETY, HEALTH AND GENERAL WELFARE IN EXISTING BUILDING WHILE PERMITTING REPAIR, ALTERATION, ADDITION AND CHANGE OF OCCUPANCY WITHOUT REQUIRING FULL COMPLIANCE WITH CHAPTERS 5 THROUGH 13…*"

IBC SECTION 1401.2.4 STATES THAT "*AN EXISTING BUILDING…THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THIS CODE FOR NEW CONSTRUCTION SHALL NOT BE ALTERED OR REPAIRED IN SUCH A MANNER THAT RESULTS IN THE BUILDING BEING LESS SAFE OR SANITARY THAT SUCH BUILDING IS CURRENTLY*".

SECTION 1401.5 REQUIRES A 19-SECTION, 3-CATEGORY TABLE TO BE COMPILED TO ASSESS VALUES IN FIRE SAFETY, MEANS OF EGRESS AND GENERAL SAFETY. THE FOLLOWING IS A LIST OF EACH OF THOSE SECTIONS AS REQUIRED. EACH OF THESE SAFETY PARAMETER ITEMS ARE REFLECTED IN THE ATTACHED TABLE.

BUILDING HEIGHT

HEIGHT VALUE (FEET) = (AH-EBH/12.5) X CF

AH (ALLOWABLE HEIGHT) = 55
EBH (EXISTING BUILDING HEIGHT) = 48
CF=1

(55-48/12.5) X 1 = 0.56 LESSER OF TWO HEIGHT VALUES TO BE USED

HEIGHT VALUE (STORIES) = (AS-EBS) X CF

AH (ALLOWABLE HEIGHT) = 5
EBH (EXISTING BUILDING STORIES) = 4
CF=1

(5-4) X 1 = 1.0

BUILDING AREA

ALLOWABLE AREA = (AT + (AT X IF) + (AT X IS)

AT = 36,000 (TABLE 503)
IF= .25
IS = 2

IF= (F/P-.25)W/30

IF= (163/326-.25)30/30 = 0.25

(36000 + (36000 X .25) + (36000 X 2) = 117,000

AREA VALUE = ALLOWABLE AREA/1200SF * (1-(ACTUAL AREA /ALLOWABLE AREA)

117,000/1200 * (1-(6224/117000) =
97.5 X .947 = 92.33 MAXIMUM AMOUNT ALLOWED IS 50% OF THE FIRE SAFETY SCORE (15 MAXIMUM)

COMPARTMENTATION

PER TABLE 1401.6.3, COLUMN "D" FOR COMPARTMENT SIZES 7,500SF OR LESS FOR B OCCUPANCY:

COMPARTMENTATION VALUE = 10

SEPARATION VALUES

PER TABLE 1401.6.4 FOR B AND CATEGORY "C"

SEPARATION VALUE = 0

CORRIDOR WALLS

PER TABLE 1401.6.5 FOR A-2 AND CATEGORY "C".

CORRIDOR WALL VALUE = 0

VERTICAL OPENINGS

PV X CF = VO

2 X 2.3 = 4.6

VERTICAL OPENINGS VALUE= 4.6

HVAC SYSTEMS

CATEGORY "D" SYSTEMS IN COMPLIANCE

HVAC SYSTEMS VALUE = 0

AUTOMATIC FIRE DETECTION VALUES

B, CATEGORY "C"-

AUTOMATIC FIRE DETECTION VALUE = 0

FIRE ALARM SYSTEM VALUES

B, CATEGORY "C"-

AUTOMATIC FIRE DETECTION VALUE = 0

SMOKE CONTROL

B, CATEGORY "E"

SMOKE CONTROL VALUE = 3

MEANS OF EGRESS

B, CATEGORY "A"

MEANS OF EGRESS VALUE = -1 THIS IS DUE TO THE DISTANCE BETWEEN THE TWO STAIRWELL DOORS BEING LESS THAN THE ALLOWED DIAGONAL DISTANCE CALCULATION. THIS IS THE KEY ITEM NOT IN COMPLIANCE.

DEAD ENDS

B, CATEGORY "B"

DEAD ENDS VALUE = 0

MAXIMUM EXIT ACCESS TRAVEL DISTANCE TO EXIT

20 X MAX ALLOWABLE TRAVEL DISTANCE- MAX ACTUAL TRAVEL DIST / MAX ALLOWABLE TRAVEL DISTANCE

20 X (300-234)/300 = 4.4

MAXIMUM EXIT ACCESS TRAVEL DISTANCE TO EXIT VALUE = 4.4

ELEVATOR CONTROL

B, CATEGORY "C"

ELEVATOR CONTROL VALUE = 0

MEANS OF EGRESS EMERGENCY LIGHTING VALUES

CATEGORY "C"

MEANS OF EGRESS EMERGENCY LIGHTING VALUE = 4

MIXED OCCUPANCY VALUES

SINGLE OCCUPANCY (BUSINESS)

MIXED OCCUPANCY VALUE = 0

AUTOMATIC SPRINKLERS

CATEGORY "E"

AUTOMATIC SPRINKLERS VALUE= 6

STANDPIPES

CATEGORY "C"

STANDPIPES VALUE= 6

INCIDENTAL USES

PER TABLE 1401.6.19

INCIDENTAL USE VALUE= 0

BUILDING SCORE SUMMARY

FACTORING EACH OF THE CATEGORY VALUES INTO THE GIVEN MATRIX, THE TOTAL VALUES FOR FIRE SAFETY, MEANS OF EGRESS, AND GENERAL SAFETY ARE ALL WITHIN ACCEPTABLE PASSING VALUES (GREATER THAN THE MANDATORY VALUES).

		Fire Safety (FS)	Means of Egress (ME)	General Safety(GS)
1401.6.1	Building Height	0.56	0.56	0.56
1401.6.2	Building Area	15	15	15
1401.6.3	Compartmentation	10	10	10
1401.6.4	Tenant and Dwelling Unit Separations	0	0	0
1401.6.5	Corridor Walls	0	0	0
1401.6.6	Vertical Openings	4.6	4.6	4.6
1401.6.7	HVAC Systems	0	0	0
1401.6.8	Automatic Fire Detection	0	0	0
1401.6.9	Fire Alarm System	0	0	0
1401.6.10	Smoke Control	NA	3	3
1401.6.11	Means of Egress	NA	-1	-1
1401.6.12	Dead Ends	NA	0	0
1401.6.13	Maximum Exit Access Travel Distance	NA	4.4	4.4
1401.6.14	Elevator Control	0	0	0
1401.6.15	Means of Egress -Emergency Lighting	4	4	4
1401.6.16	Mixed Occupancies	0	NA	0
1401.6.17	Automatic Sprinklers	6	6	6
1401.6.18	Standpipes	6	6	6
1401.6.19	Incidental Use	0	0	0
	Building Score- Total Value	**46.16**	**52.56**	**52.56**
	Table 1401.8 Mandatory Safety Scores	**30**	**40**	**40**
		PASS	PASS	PASS

dakinstreetarchitects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317
mobile•alabama

STATE OF ALABAMA STEVE STONE NO. 6473 REGISTERED ARCHITECT 12.16.22

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COMPLIANCE ALTERNATIVE REPORT

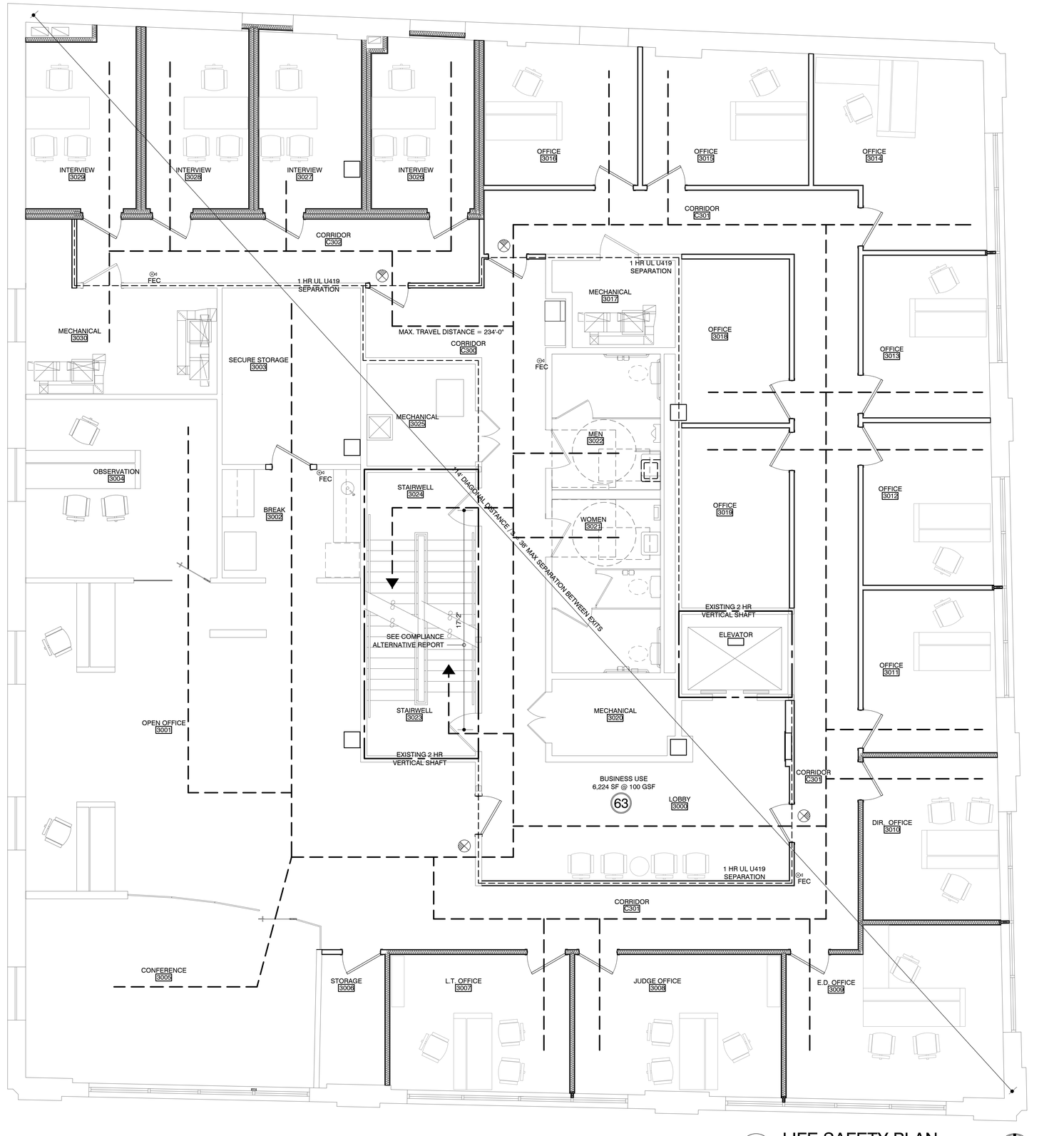
G1.4

LIFE SAFETY LEGEND

- (X) OCCUPANT LOAD
- ILLUMINATED EXIT SIGN
- TRAVEL PATH
- FEC — TYPE ABC PORTABLE FIRE EXTINGUISHER IN SEMI-RECESSED CABINET UNLESS NOTED OTHERWISE
  FIRE EXISTINGUISHER TO MATCH EXISTING FE IN CAPACITY AND STYLE.
  FIRE EXISTINGUISHER CABINET TO MATCH EXISTING CABINETS ON FLOOR IN STYLE AND COLOR.
- EMERGENCY LIGHT

REFER TO ELECTRICAL DRAWINGS FOR EMERGENCY LIGHTING LAYOUT

THE BUILDING SHALL BE FULLY SPRINKLED



1 LIFE SAFETY PLAN
1/4"=1'-0"

PROJECT NORTH

dakinstreet architects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317
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LIFE SAFETY PLAN

LS1.1

DEMOLITION GENERAL NOTES

1.) DASHED LINES ON DEMO PLANS REPRESENT WALLS, DOORS, SOFFITS, CASEWORK, ETC TO BE REMOVED. PATCH & REPAIR EXISTING ADJOINING AREAS TO REMAIN.

2.) THE CONTRACTOR SHALL NOT CONSIDER DEMOLITION AND ALTERATION NOTES TO BEALL-INCLUSIVE. IT IS CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREAAND TO FULFILL THE INTENT OF THE DESIGN INDICATED BY THE CONTRACT DOCUMENTS,CONTRACTOR SHALL COORDINATE ARCHITECTURAL DEMOLITION DRAWINGS AND NOTESWITH HVAC,ELECTRICAL, FIRE PROTECTION AND PLUMBING DRAWINGS AND NOTES. PATCH ORREBUILD ANY AREAS TO REMAIN THAT HAVE BEEN DAMAGED OR DISTURBED BY HVAC,ELECTRICAL, FIRE PROTECTION AND PLUMBING DEMOLITION.

3.) THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS WITHIN THECONTRACT LIMITS AND NOTIFY THE ARCHITECT IMMEDIATELY IN WRITING OF ANY DEVIATIONFROM CONTRACT DOCUMENTS NECESSITATED BY FIELD CONDITIONS OR ITEMS NOTCOVERED.

4.) MAINTAIN ACCESS TO EXITS AND EXIT STAIRS AT ALL TIMES. FIRE ALARM AND SMOKEDETECTION SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES. PROTECT SMOKEDETECTORS AS REQUIRED AND IN CONFORMANCE WITH CODES AND LOCAL AUTHORITIESHAVING JURISDICTION.

5.) FOR ALL SURFACES SCHEDULED TO REMAIN, PATCH AND MATCH SURFACES DISTURBEDBY DEMOLITION OR REMOVAL OF EQUIPMENT OR UTILITIES. INSTALL PATCHING TO MATCH ADJACENT WORK IN FINISH, STRUCTURAL QUALITIES, COURSING OF MASONRY, AND OTHER CHARACTERISTICS. PATCH SURFACES TO COMPLY WITH FIRE RATINGS, SMOKE-TIGHT RATINGS, ACOUSTICAL CRITERIA AND OTHER PERFORMANCE CRITERIA INDICATED.

6.) ALL DEMOLITION SHALL BE PERFORMED IN A SAFE AND ACCEPTABLE MANNER TO ALL AUTHORITIES HAVING JURISDICTION AND THE OWNER. A FIRE WATCH SHALL BE PROVIDED IF ANY HAZARDOUS SITUATIONS ARE THOUGHT TO BE POSSIBLE. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION FOR POLLUTION CONTROL. THOROUGHLY CLEAN ADJACENT AREAS OF DUST, DIRT AND DEBRIS CAUSED BY DEMOLITION WORK. BEFORE NEW WORK BEGINS, RETURN ADJACENT AREAS TO CONDITION FOUND PRIOR TO START OF DEMOLITION WORK

7.) PROVIDE TEMPORARY PARTITIONS/DUST PROTECTION (RATED AND/OR NON-RATED) AS REQUIRED. REVIEW LOCATIONS OF TEMPORARY PARTITIONS/DUST PROTECTION WITH OWNER AND ARCHITECT PRIOR TO START OF WORK.

8.) HAZARDOUS MATERIAL NOTE: CONTRACTOR SHALL STOP WORK AND INFORM OWNER IMMEDIATELY IN WRITING OF ANY HAZARDOUS MATERIAL ENCOUNTERED OR THOUGHT TO BE HAZARDOUS MATERIAL. THE OWNER, AFTER RECEIVING WRITTEN NOTICE SHALL INSTRUCT CONTRACTOR ON HOW TO PROCEED.

9.) ALL WORK SHALL BE DONE IN PROTECTED SPACE. NO DUST OR DIRT SHALL TRAVEL FROM CONSTRUCTION AREA TO ADJACENT AREAS. TEMPORARY DUST PROTECTION SHALL BE ERECTED PRIOR TO START OF WORK. CONTRACTORS SHALL REVIEW PROVISIONS TO CONTROL AIRBORNE DUST WITH INFECTION CONTROL DIRECTOR, FACILITIES-BUILDING MANAGER AND CONSTRUCTION MANAGER. COORDINATE ADDITIONAL FILTRATION OF EXTERIOR AIR INTAKES TO MECHANICAL SYSTEMS.

10.) PRIOR TO ANY DEMOLITION, THE CONTRACTOR SHALL COORDINATE BRACING AND MAINTAIN THE STRUCTURAL INTEGRITY OF THE REMAINING ELEMENTS OF THE BUILDING AND ITS SYSTEMS AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPORT OF ADJACENT STRUCTURES DURING DEMOLITION AND NEW CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING, SCAFFOLDING, ETC., WHICH ARE NECESSARY TO PREVENT COLLAPSE, SUBSIDENCE, DEFLECTION OR ANY OTHER TYPE OF DAMAGE. REPAIR SPRAY FIREPROOFING DAMAGED DURING DEMOLITION WORK TO ITS REQUIRED ASSEMBLY AND FIRE RATING AS SCHEDULED ON ARCHITECTURAL DRAWINGS.

11.) CONTRACTOR SHALL REVIEW ALL ITEMS TO BE DEMOLISHED WITH OWNER TO IDENTIFY ANY ITEMS TO BE SALVAGED PRIOR TO START OF DEMOLITION

GENERAL: REHABILITATE
THROUGHOUT THESE DRAWINGS AND SPECIFICATIONS WHENEVER THE WORD 'REHABILITATE' IS USED IT MEANS THAT THE ELEMENT, DEVICE, MEMBER OR ARTICLE SHALL BE TREATED AS FOLLOWS: FIRST THE ELEMENT, DEVICE, MEMBER OR ARTICLE SHALL BE STRIPPED OF ALL PAINT. SEE OTHER NOTES FOR ALLOWABLE METHODS. THEN ANY BROKEN, MISSING, OR DETERIORATED PARTS SHALL BE REPLACED WITH NEW MATCHING PARTS, AND THE ELEMENT INVOLVED SHALL BE CAREFULLY REPAIRED AND REBUILT AS NEED BE AS UNTIL IT IS SOUND AND WHOLE. THEN IT SHALL BE REINSTALLED AND PREPARED FOR ITS NEW FINISH BY SANDING OR OTHER MEANS AS MAY BE INDICATED AND THEN IT SHALL RECEIVE ITS FINISH AS SPECIFIED ELSEWHERE. THIS APPLIES TO ANY ELEMENT, DEVICE, MEMBER OF ARTICLE THAT IS REUSED - BE IT MADE OF WOOD, METAL, PLASTER, GLASS OR STUCCO.

GENERAL CLEANING:
ANY REMAINING LOOSE PAINT SHALL BE REMOVED FROM ALL CEILINGS, CANOPIES, WALLS, CORNICES ETC. CONTRACTOR SHALL CONFORM TO OSHA AND ADEM REQUIREMENTS FOR DISPOSAL OF ANY LEAD BASED PAINT AND WORKER SAFETY. ALL INTERIOR WOOD WORK THAT WILL BE REUSED, (DOORS AND DOOR AND WINDOW TRIM), ALL BRACKETS, CABINETS, HANDRAILS, INDEED ALL WOOD THAT REMAINS EXPOSED TO VIEW IN ALL AREAS SHALL HAVE ALL LOOSE PAINT REMOVED AND SOLIDLY ADHERED PAINT FEATHERED OUT PRIOR TO REPAINTING OR THAT WHICH IS STAINED SHALL BE REHABILITATED AS CALLED FOR IN SPECIFIC NOTES.

GENERAL: PROTECTION
PROTECT ALL EDGES DURING CLEANING. DO NOT RUB EDGES ROUND BUT USE EXTREME CARE TO RETAIN THE TRUE CONFIGURATION OF ALL SURFACES AND MOLDED SHAPES TO BE CLEANED.

GENERAL: METHODS
THE EXACT METHOD TO BE EMPLOYED IN CLEANING THE VARIOUS MATERIALS SHALL BE LEFT TO THE CONTRACTOR. HOWEVER, HE SHALL SUBMIT THE PROPOSED METHODS OF CLEANING TO THE ARCHITECT FOR APPROVAL HE MAY EXPERIMENT WITH THE VARIOUS SURFACES TO BE CLEANED PRIOR TO BIDDING. AREAS TO BE EXPERIMENTED WITH SHALL BE APPROVED BY THE ARCHITECT. ALL PAINT SHALL BE REMOVED AND PRIMED IMMEDIATELY. SEE "PAINTING". WOOD AND PLASTER SHALL BE CLEANED AS REQUIRED AFTER EARLIER WORK WITH CHEMICAL STRIPPERS, SCRAPERS, AND WATER. IN CERTAIN LOCATIONS TO BE APPROVED BY THE ARCHITECT, THE PAINT MAY BE REMOVED WITH HEAT. IF THE CONTRACTOR SELECTS THIS METHOD HE SHALL HAVE FIRE EXTINGUISHERS ON HAND AND HE SHALL POST A FIRE WATCH. HE SHALL STOP WORK A MINIMUM OF 2 HOURS BEFORE QUITTING - TIME AND WET DOWN AFFECTED AREA. OTHER MATERIALS SHALL BE CLEANED WITH APPROPRIATE CLEANERS PLUS WATER UNDER PRESSURE AND BRUSHES.

GENERAL: NEUTRALIZATION
AFTER CLEANING, EACH MATERIAL CLEANED SHALL BE NEUTRALIZED WITH AN APPROPRIATE NEUTRALIZER PRIOR TO APPLICATION OF NEW PAINT.

GENERAL: PROTECTION
SURROUNDING AND ADJACENT MATERIALS AND PLANTS SHALL BE COVERED AND CAREFULLY PROTECTED DURING THE CLEANING OPERATION. SOIL BELOW WALLS TO BE CLEANED SHALL BE NEUTRALIZED AND EXCESS CHEMICALS SHALL BE WASHED AWAY OR GATHERED AND DISPOSED OF ELSEWHERE.

GENERAL: CLEAN UP
AT END OF CLEANING ALL DEBRIS REMOVED SHALL BE GATHERED TOGETHER AND HAULED AWAY FROM THE SITE AND DISPOSED OF ELSEWHERE.

GENERAL: PROTECTION OF BUILDINGS
THE CONTRACTOR SHALL PROTECT THE BUILDING AND KEEP IT DRY AT ALL TIMES. HE SHALL PROVIDE AND INSTALL TEMPORARY FLASHING, MEMBRANE OR PLYWOOD COVERS, PIPING, GUTTERING, DOWN SPOUTS, ETC. AS MAY BE NEEDED TO PROTECT THE BUILDING FROM DAMAGE FROM ANY SOURCE -- NATURAL OR MAN MADE.

GENERAL : MOVEMENT OF EXISTING AND NEW MILLWORK
PREVIOUS EXPERIENCE WITH HISTORIC STRUCTURES AND MILLWORK, HAS SHOWN THAT THE MILLWORK "MOVES" AS AND AFTER IT RETURNS TO A CONTROLLED ENVIRONMENT. VARIOUS JOINTS OPEN UP WHICH REQUIRE FILLING. THE CONTRACTOR SHALL BE REQUIRED TO COME BACK AFTER THE JOINTS ARE OPEN AND FILL AND TOUCH UP PAINT AS REQUIRED FOR A FIRST CLASS FINISH.

SPECIFIC REHABILITATION / DEMOLITION PLANS
SEE DEMOLITION PLAN AS WELL AS REVISED PLANS, ELEVATIONS, SECTIONS, DOOR AND ROOM FINISH SCHEDULES AND VARIOUS DETAILS FOR WORK TO BE DONE.

GENERAL - DEMOLITION SCOPE
DEMOLITION AND SALVAGE AND RELATED ITEMS NECESSARY TO COMPLETE WORK REQUIRED BY THE DRAWINGS OR SPECIFICATIONS ARE A PART OF THESE CONTRACT DOCUMENTS UNLESS SPECIFICALLY EXCEPTED. SEE MECHANICAL AND ELECTRICAL DOCUMENTS FOR APPLICABLE DEMOLITION WORK, OR WORK TO BE DONE PRIOR TO DEMOLITION.

GENERAL - SALVAGE
IN ADDITION TO THESE ITEMS THAT WILL NOT BE REINCORPORATED IN THE WORK , CERTAIN OTHER ITEMS SHALL BE REINCORPORATED IN THE WORK. SPECIFICALLY SEE THE INDIVIDUAL DEMOLITION AND REHABILITATION NOTES AND THE LIST OF ITEMS BELOW: 1) INTERIOR MILLWORK AND TRIM ITEMS ARE TO BE SALVAGED AND REUSED.

GENERAL - PROTECTION OF STRUCTURE
THROUGHOUT THIS PHASE OF THE WORK THE CONTRACTOR SHALL SECURE THE BUILDING AND MAKE IT WATERTIGHT AT THE END OF EACH DAY'S WORK OR AT THE APPROACH OF RAIN.

GENERAL - DEMOLITION AND REMOVAL
DEMOLITION AND REMOVAL INCLUDED IN THE PROJECT COVERS THE DEMOLITION AND REMOVAL OF CERTAIN PARTS OF THE EXISTING BUILDING, ALL AS SHOWN AND NOTED ON THE DRAWINGS.
1) REMOVAL OF CERTAIN WOOD, GYPSUM BOARD WALLS, FLOORS, DECKS, FRAMING, NAILERS AND CEILINGS.
2) REMOVAL OF CERTAIN DOORS.
3) REMOVAL OF CERTAIN TRIM.
4) REMOVAL OF CERTAIN ELECTRICAL AND MECHANICAL WORK. THIS INCLUDES THE REMOVAL OF ALL "DEAD" OR INACTIVE PIPING,
WIRING, CONDUIT, CABLES, DEVICES, FIXTURES, ELEMENTS, PIECES OF EQUIPMENT, ETC., UNLESS SPECIFICALLY NOTED TO STAY.
5) REMOVAL OF ALL LOOSE OR DETERIORATED CEMENT STUCCO FROM THE EXTERIOR AS IS SET FORTH ON THE DRAWINGS. CAUTION:

NOTE THAT CERTAIN ELECTRICAL, WATER, GAS, SEWER AND STORM SEWER SYSTEMS ARE IN THE AREA WHERE DEMOLITION WORK TAKES PLACE. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN ALL AREAS BUT IN PARTICULAR IN THE AREAS SO NOTED. CAUTION: OTHER UTILITY LINES EXIST IN AREAS WHERE DEMOLITION IS TO TAKE PLACE. NO DATA IS AVAILABLE ON THESE. THEREFORE, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN ALL DEMOLITION WORK. CAUTION: THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS DURING DEMOLITION WORK AS WELL AS DURING NEW CONSTRUCTION.

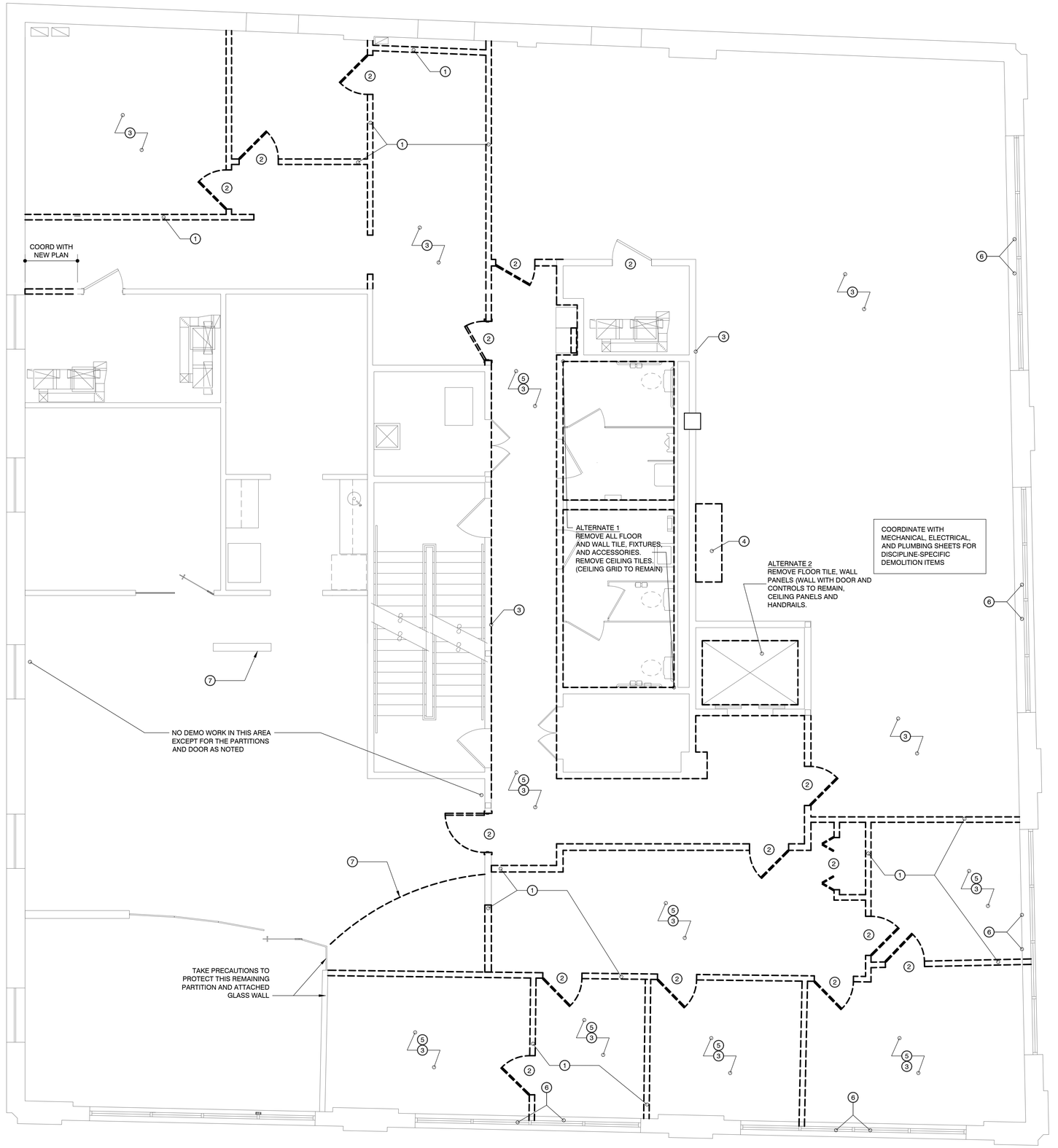
DEBRIS:
THE CONTRACTORS SHALL EXERCISE EXTREME CAUTION IN LOWERING CONSTRUCTION DEBRIS TO THE GROUND. THIS DEBRIS SHALL NOT BE ALLOWED TO FALL FREE, BUT SHALL BE LOWERED WITH MECHANICAL DEVICES OR ALLOWED TO SLIDE DOWN CHUTES WITH SIDES AS REQUIRED TO CONTROL THE DEBRIS.

AFTER DEBRIS IS ON THE GROUND, IT SHALL BE HAULED AWAY AND DISPOSED OF ELSEWHERE. DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE AND THE SITE SHALL BE KEPT CLEAN AND FREE OF TRASH AND DEBRIS

GENERAL HARDSCAPE PROTECTIONS:
THE CONTRACTORS SHALL EXERCISE EXTREME CAUTION IN DISTURBANCE OF EXISTING CONCRETE WALKS AND ASPHALT TO REMAIN. ALL DAMAGE REPAIRS SHALL MATCH AND BLEND w/ ADJACENT SURFACES.

DEMOLITION KEYNOTES

1. REMOVE EXISTING NON-LOADBEARING PARTITION. COORDINATE WITH MECH, ELEC, AND PLUMBING DEMOLITION DRAWINGS FOR ASSOCIATED ITEMS CONTAINED IN OR ATTACHED TO PARTITION
2. REMOVE EXISTING DOOR AND FRAME
3. REMOVE EXISTING CARPET, WALL BASE, CHAIR RAIL, PADDING, AND ANY ADHESIVE RESIDUE
4. REMOVE EXISTING CABINETRY. COORDINATE WITH MECH, ELEC, AND PLUMBING DEMOLITION DRAWINGS FOR ASSOCIATED ITEMS CONTAINED IN OR ATTACHED TO CABINETRY
5. REMOVE EXISTING SUSPENDED ACOUSTIC CEILING , GRID, AND TRIM. REMOVE ANY LIGHT FIXTURES AND HVAC ITEMS ATTACHED. REFER TO MEP DEMOLITION DRAWINGS FOR COORDINATING NOTES.
6. REMOVE EXISTING WINDOW BLINDS
7. REMOVE EXISTING VINYL LETTERING



1 DEMOLITION PLAN
1/4"=1'-0"

PROJECT NORTH

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STATE OF ALABAMA · STEVE STONE · NO. 6473 · REGISTERED ARCHITECT

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS

PROJECT NUMBER MX-068-22

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DEMOLITION PLAN

AD1.1

ADD FURNITURE SCHEDULE

1 FURNITURE LAYOUT
1/4" = 1'-0"

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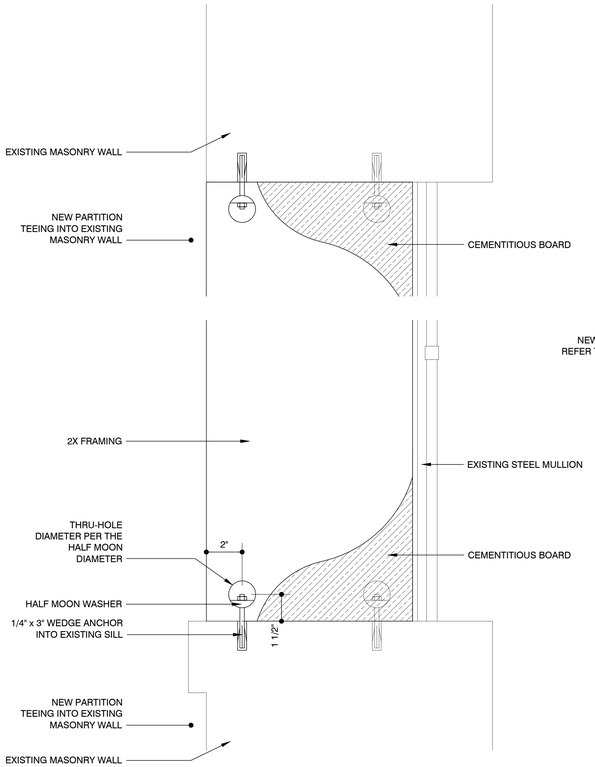
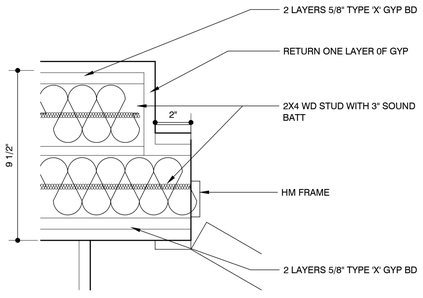
FURNITURE LAYOUT

A1.0



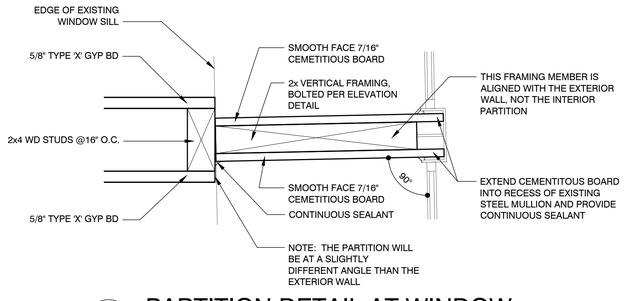
4 VERTICAL SECTION AT WINDOW

3"=1'-0"



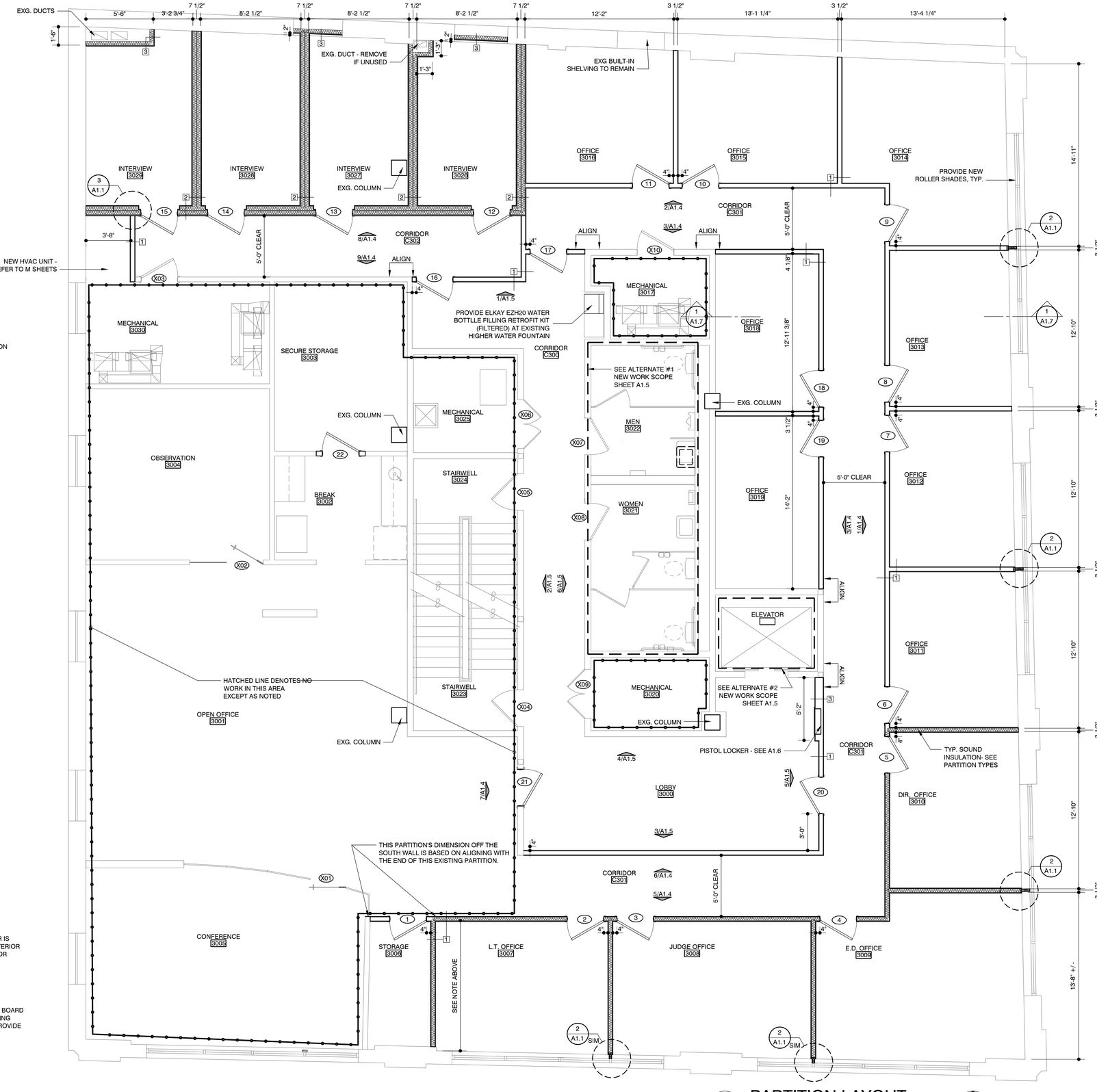
3 JAMB DETAIL AT INTERVIEW

3"=1'-0"



2 PARTITION DETAIL AT WINDOW

3"=1'-0"



1 PARTITION LAYOUT

1/4"=1'-0"

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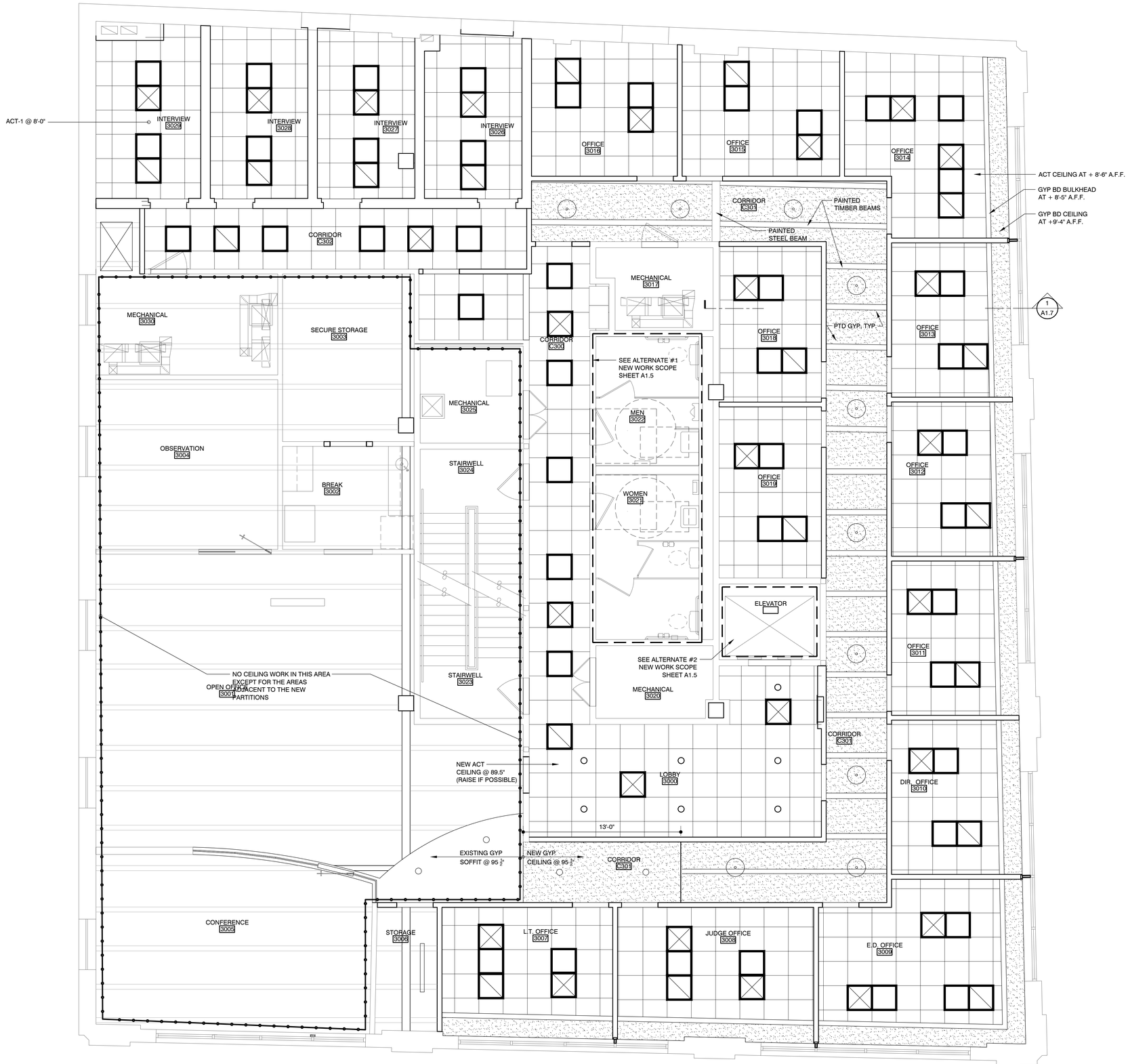
PARTITION LAYOUT

A1.1

RCP LEGEND

- 6" RECESSED LED CAN FIXTURE
- PENDANT MOUNT FIXTURE
- 2X2 TROFFER LED FIXTURE
- 2x2 LAY-IN CEILING PANEL
- HVAC SUPPLY
- HVAC RETURN
- GYPSUM BOARD



1 REFLECTED CEILING PLAN
1/4"=1'-0"

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REF. CEILING PLAN

A1.2

FINISH SCHEDULE

RM NUM	ROOM NAME	FLOORS	BASE	WALLS	REMARKS
3000	LOBBY	CPT-1	VB-1	PTD GYP	
3001	OPEN OFFICE	EXISTING	EXISTING	EXISTING	
3002	BREAK	EXISTING	EXISTING	EXISTING	
3003	SECURE STORAGE	EXISTING	EXISTING	EXISTING	
3004	OBSERVATION	EXISTING	EXISTING	EXISTING	
3005	CONFERENCE	EXISTING	EXISTING	EXISTING	
3006	STORAGE	LVT-1	VB-1	PTD GYP / SEALED BRICK	
3007	L.T. OFFICE	CPT-3	VB-1	PTD GYP / SEALED BRICK	
3008	JUDGE OFFICE	CPT-3	VB-1	PTD GYP / SEALED BRICK	
3009	EXEC. DIRECTOR OFFICE	CPT-3	VB-1	PTD GYP / SEALED BRICK	
3010	DIRECTOR OFFICE	CPT-3	VB-1	PTD GYP / SEALED BRICK	
3011	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3012	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3013	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3014	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3015	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3016	OFFICE	CPT-2	VB-1	PTD GYP / SEALED BRICK	
3017	MECHANICAL	EXISTING	EXISTING	PTD GYP / SEALED BRICK	
3018	OFFICE	CPT-1	VB-1	PTD GYP / SEALED BRICK	
3019	OFFICE	CPT-1	VB-1	PTD GYP / SEALED BRICK	
3020	MECHANICAL	EXISTING	EXISTING	PTD GYP / SEALED BRICK	
3021	WOMEN	SEE ALT #1			
3022	MEN	SEE ALT #1			
3023	STAIRWELL	EXISTING	EXISTING	EXISTING	
3024	STAIRWELL	EXISTING	EXISTING	PTD GYP	
3025	MECHANICAL	EXISTING	EXISTING	EXISTING	
3026	INTERVIEW	CPT-1	VB-1	PTD GYP	
3027	INTERVIEW	CPT-1	VB-1	PTD GYP	
3028	INTERVIEW	CPT-1	VB-1	PTD GYP	
3029	INTERVIEW	CPT-1	VB-1	PTD GYP	
3030	MECHANICAL	EXISTING	EXISTING	PTD GYP / SEALED BRICK	
C301	CORRIDOR	CPT-2	VB-1	EXISTING	
C302	CORRIDOR	CPT-2	VB-1	PTD GYP	
	ELEVATOR	SEE ALT #2			

FINISH LEGEND

MARK	MATERIAL	DESCRIPTION / BASIS OF DESIGN	COLOR
LVT-1	LUXURY VINYL TILE	INTERFACE BRUSHED LINES	COORDINATE WITH ARCHITECT AND OWNER
CPT-1	MODULAR CARPET	INTERFACE NET EFFECT	COORDINATE WITH ARCHITECT AND OWNER
CPT-2	MODULAR CARPET	INTERFACE NET EFFECT	COORDINATE WITH ARCHITECT AND OWNER
CPT-3	MODULAR CARPET	INTERFACE NET EFFECT	COORDINATE WITH ARCHITECT AND OWNER
PT-1	PAINT	INTERIOR LATEX SEMI-GLOSS	SW6993 "BLACK OF NIGHT"
PT-2	PAINT	INTERIOR LATEX EGGSHELL	SW7757 HIGH REFLECTIVE WHITE
PT-3	PAINT	INTERIOR LATEX FLAT	SW 7005 PURE WHITE
VB-1	VINYL BASE	6" TARKETT	82 BLACK PEARL

FINISH NOTES

FINAL COLOR SCHEME TO BE COORDINATED WITH OWNER AND ARCHITECT

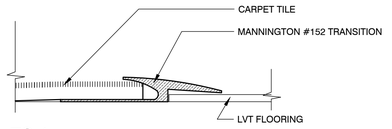
CLEAN, SCRAPE, PRIME AND PAINT ALL EXISTING AND NEW WOOD HEAVY TIMBER BEAMS. FINAL COLOR TBD

CLEAN, SCRAPE, PRIME AND PAINT ALL EXISTING METAL WINDOWS AND FRAMES. FINAL COLOR TBD

RETOUCH OR REPAIR, PRIME, AND PAINT ANY AREAS OF EXISTING FINISHES DAMAGED DURING CONSTRUCTION OR EXPOSED DURING SELECTIVE DEMOLITION

ALL EXPOSED BRICK MAY CONTAIN LEAD-BASED PAINT. THE GC SHALL TAKE ALL PRECUATION TO NOT DISTURB THE EXISTING MASONRY PRIOR TO CLEANING AND ENCAPSULATING WITH NEW PAINT AS SCHEDULED. ANY AREAS OF MISSING MORTAR SHALL BE TUCKPOINTED TO MATCH SURROUNDING MORTAR. ANY MISSING BRICKS OR PORTIONS OF BRICKS LARGER THAN 1/4 OF THE FULL BRICK SHALL BE REPLACED AND TUCKPOINTED TO MATCH THE SURROUNDING MORTAR.

TRANSITION DETAILS



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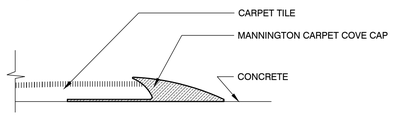

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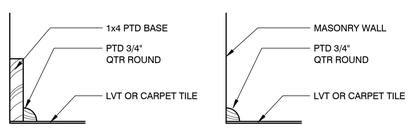
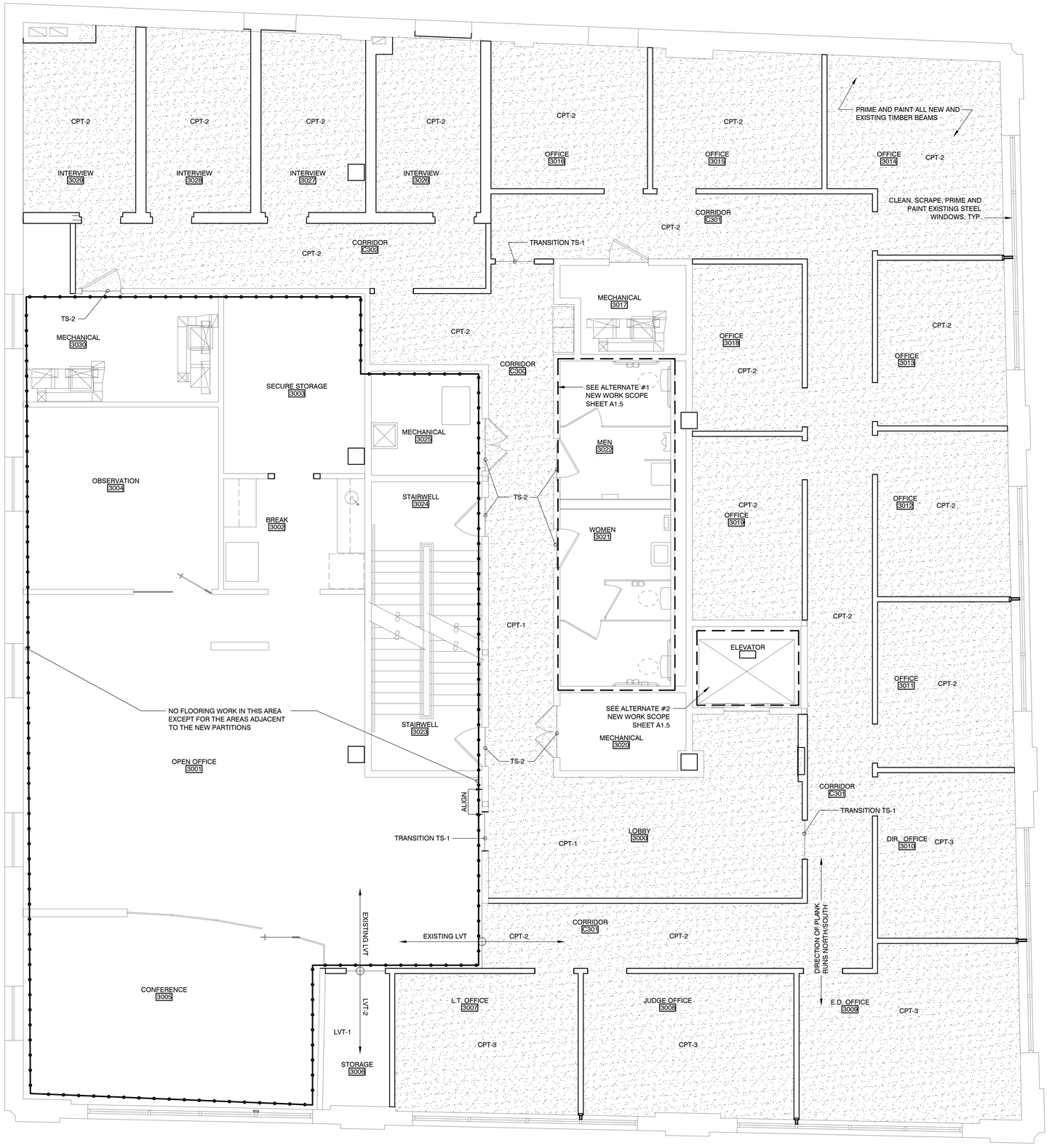


TYP. BASE AT GYP TYP. BASE AT BRICK



1 FINISH PLAN
1/4"=1'-0"

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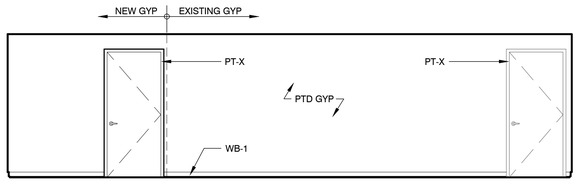
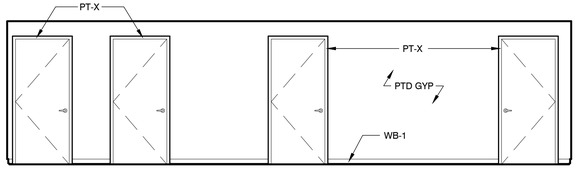
FINISH PLAN AND SCHEDULES

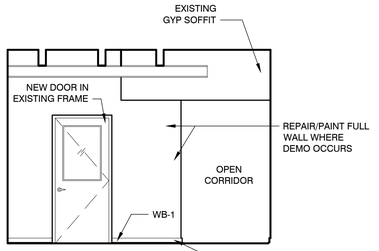
A1.3



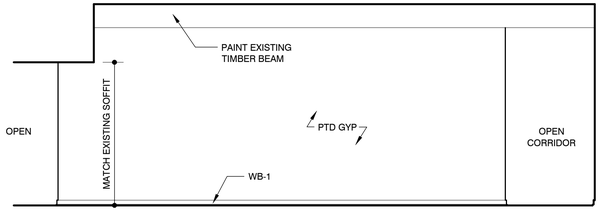
9 ELEVATION
1/4"=1'-0"



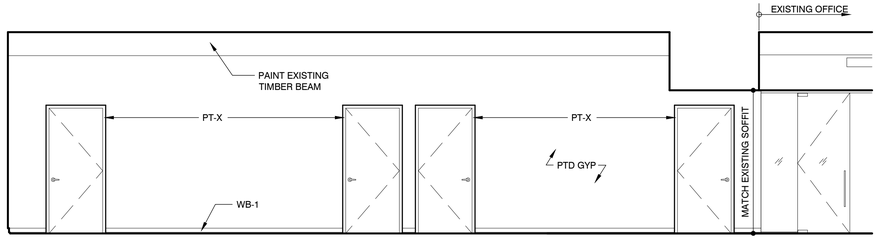
8 ELEVATION
1/4"=1'-0"



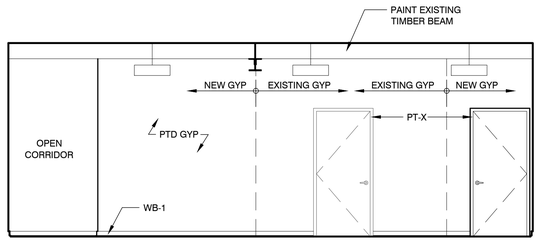
7 ELEVATION
1/4"=1'-0"



6 ELEVATION
1/4"=1'-0"



5 ELEVATION
1/4"=1'-0"



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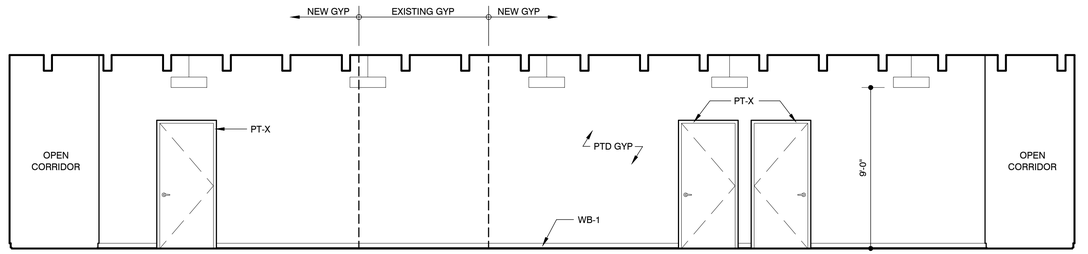

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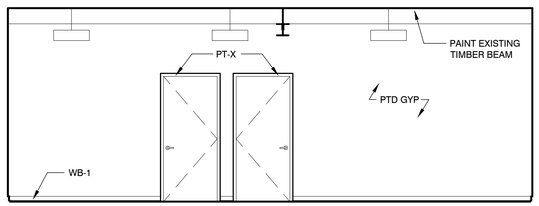

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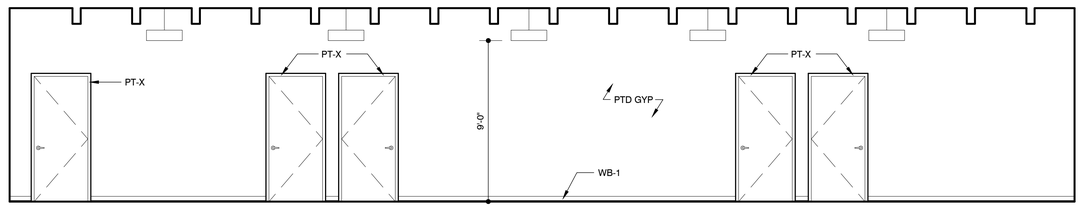

1 ELEVATION
1/4"=1'-0"

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STATE OF ALABAMA
STEVE STONE
NO. 6473
REGISTERED ARCHITECT

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS

PROJECT NUMBER MX-068-22

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12.16.22

Issues + Revisions
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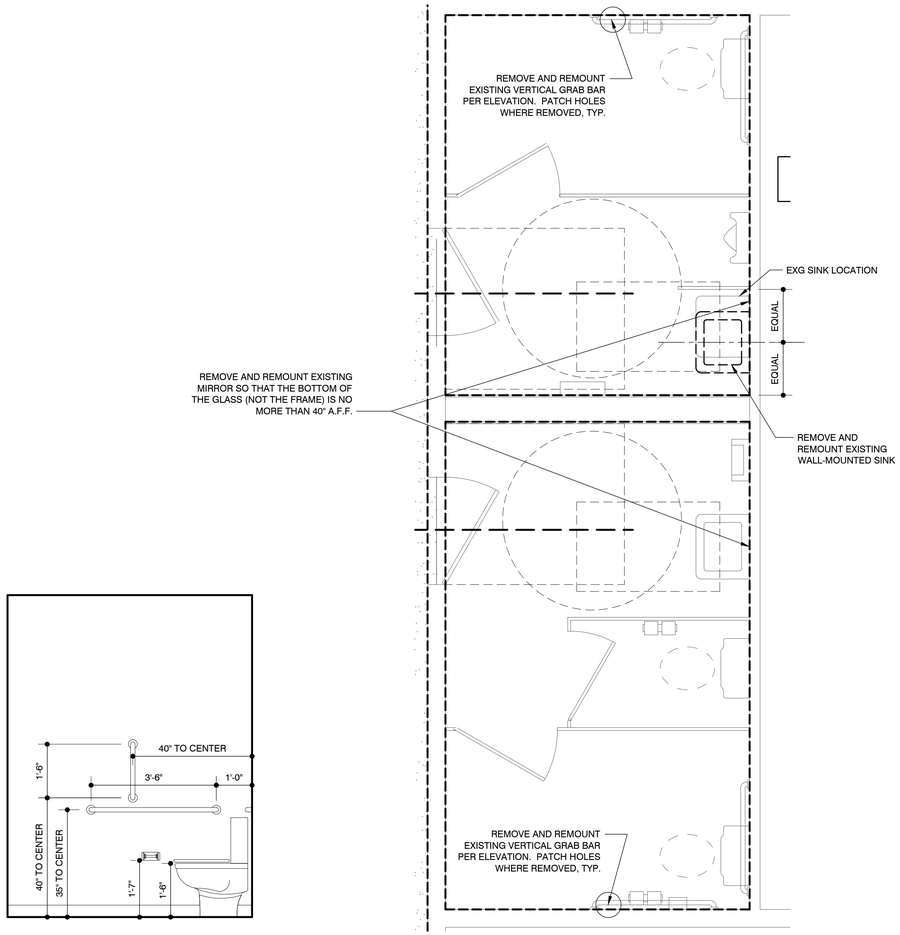
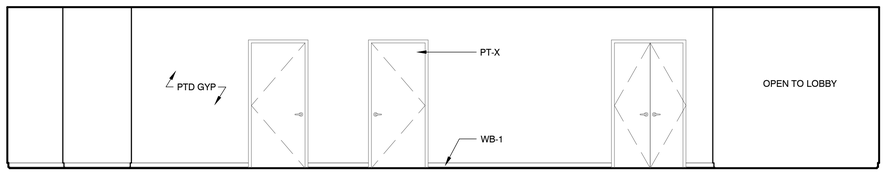
INTERIOR
ELEVATIONS

A1.4



7 ENLARGED RESTROOMS PLAN
1/2"=1'-0"

8 ELEVATION
1/4"=1'-0"



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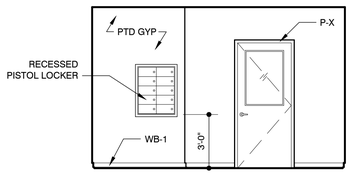

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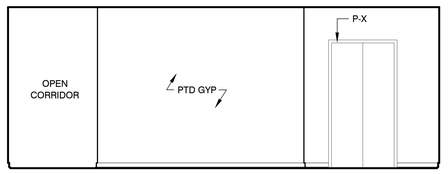

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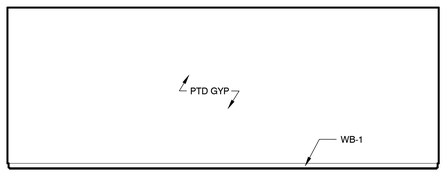

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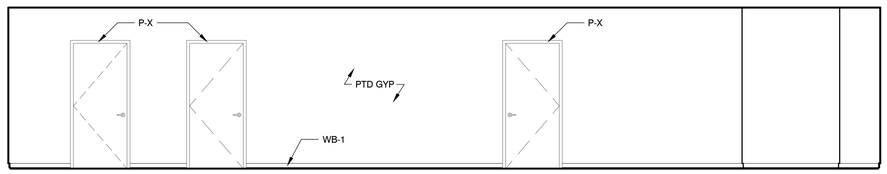
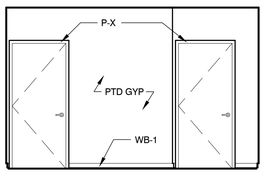
1/4"=1'-0"



2 ELEVATION
1/4"=1'-0"



1 ELEVATION
1/4"=1'-0"

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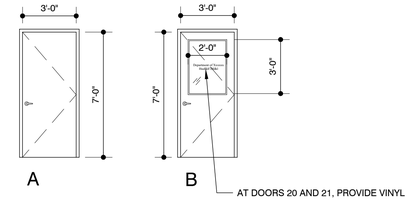
Issues + Revisions
ISSUE FOR BID/PERMIT

INTERIOR ELEVATIONS

A1.5

DOOR TYPES



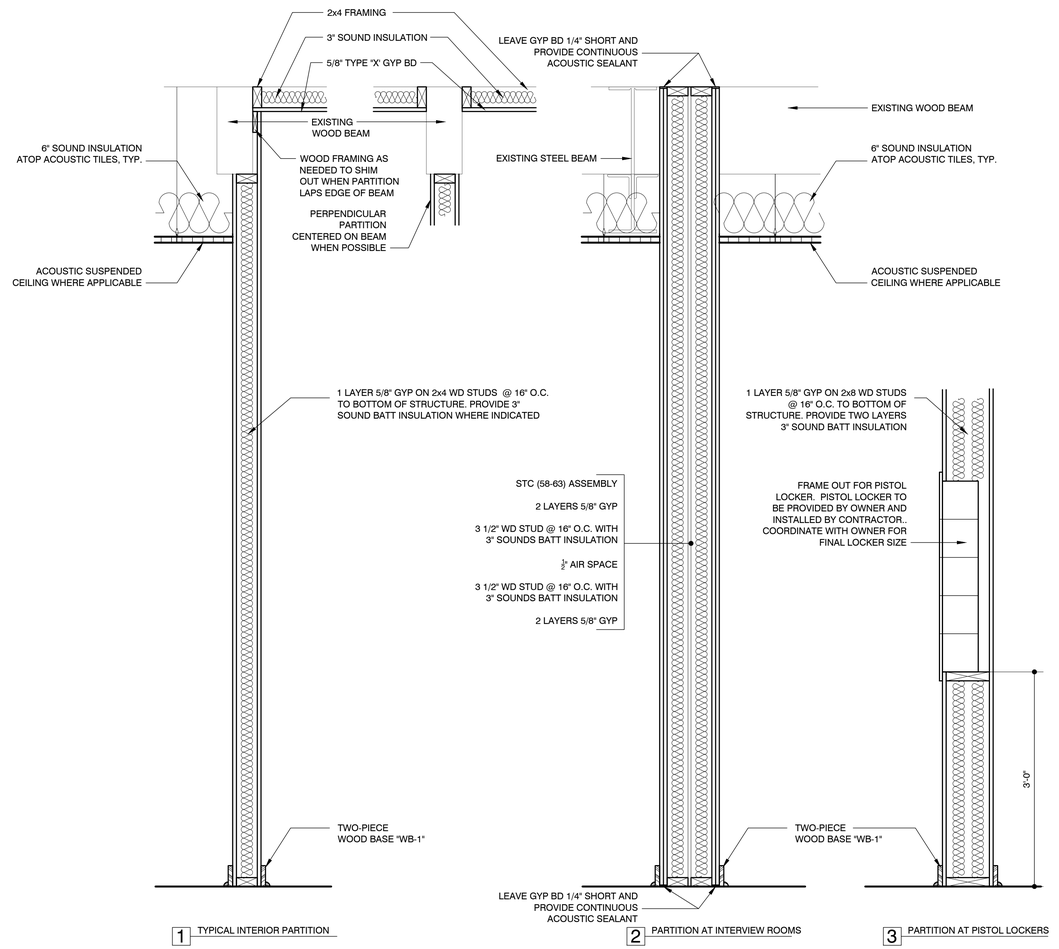
DOOR NOTES

DOOR NOTES:
1. LATCH SIDE CLEARANCES AT ALL DOORWAYS SHALL BE IN ACCORDANCE WITH ADAAG 4.13.16
2. ALL EXITS TO BE LABELED
3. INTERIOR DOORS TO BE LABELED AS TO INTENDED USE
4. THE OPERATING DEVICE ON ALL DOORS SHALL BE CAPABLE OF OPERATION WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.
5. ALL DOORS AND HARDWARE SHALL COMPLY WITH IBC 2021 1008.1.9 "DOOR OPERATIONS"

DOOR SCHEDULE

MARK	SIZE	TYPE	FRAME	HDWR	GLAZING	REMARKS
X01	EXG	EXG	EXG	EXG		
X02	EXG	EXG	EXG	EXG		
X03	EXG	EXG	EXG	EXG		
X04	EXG	EXG	EXG	EXG		
X05	EXG	EXG	EXG	EXG		
X06	EXG	EXG	EXG	EXG		
X07	EXG	EXG	EXG	EXG		
X08	EXG	EXG	EXG	EXG		
X09	EXG	EXG	EXG	EXG		
X10	EXG	EXG	EXG	EXG		
1	3'-0" x 7'-0"	A	HM			
2	3'-0" x 7'-0"	A	HM			
3	3'-0" x 7'-0"	A	HM			NOTE : ALL NEW DOOR HARDWARE TO BE COORDINATED WITH CITY OF MOBILE BUILDING STANDARDS FOR 200 GOVERNMENT
4	3'-0" x 7'-0"	A	HM			
5	3'-0" x 7'-0"	A	HM			
6	3'-0" x 7'-0"	A	HM			
7	3'-0" x 7'-0"	A	HM			
8	3'-0" x 7'-0"	A	HM			
9	3'-0" x 7'-0"	A	HM			
10	3'-0" x 7'-0"	A	HM			
11	3'-0" x 7'-0"	A	HM			
12	3'-0" x 7'-0"	A	HM			STC SPECIALTY
13	3'-0" x 7'-0"	A	HM			STC SPECIALTY
14	3'-0" x 7'-0"	A	HM			STC SPECIALTY
15	3'-0" x 7'-0"	A	HM			STC SPECIALTY
16	3'-0" x 7'-0"	A	HM			
17	3'-0" x 7'-0"	A	HM			
18	3'-0" x 7'-0"	A	HM			
19	3'-0" x 7'-0"	A	HM			
20	3'-0" x 7'-0"	B	HM		HALF	
21	3'-0" x 7'-0"	B	HM		HALF	
22	3'-0" x 7'-0"	A	HM			

PARTITION TYPES



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200 GOVERNMENT ST
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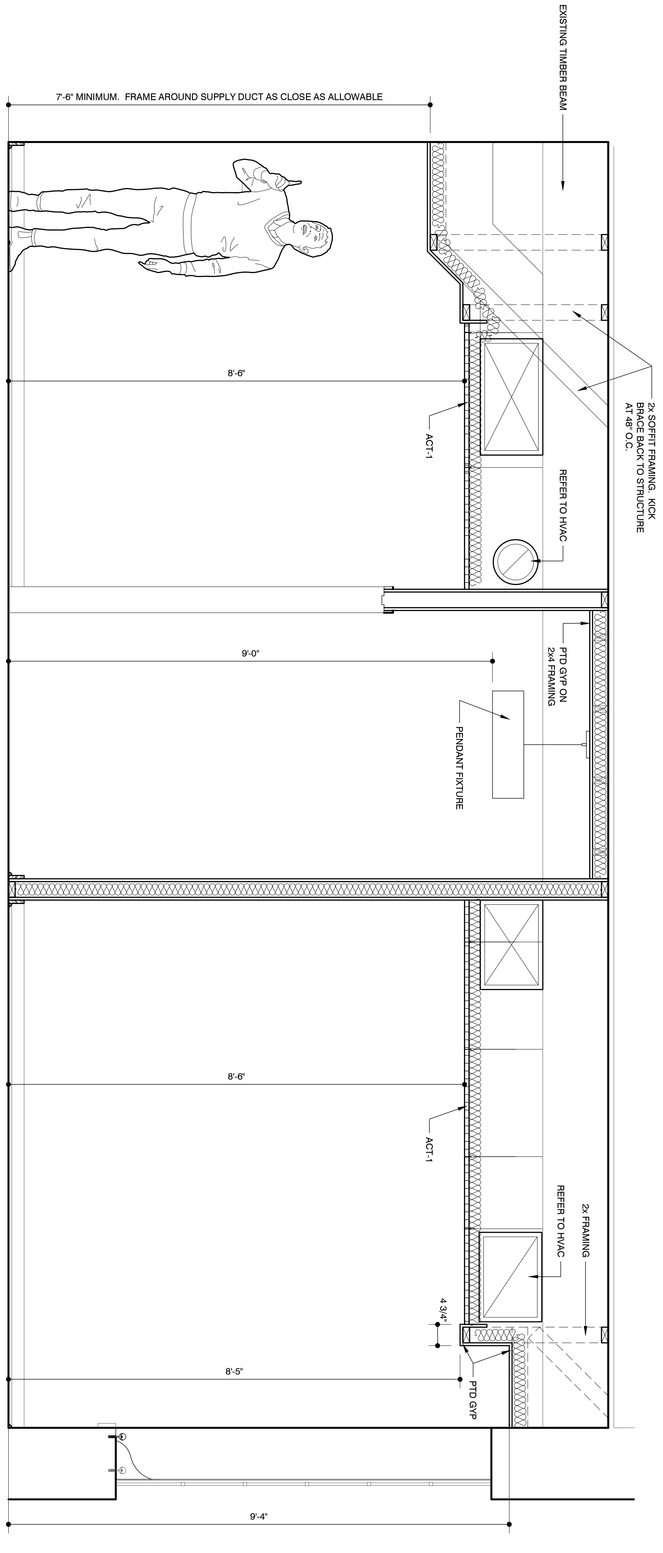
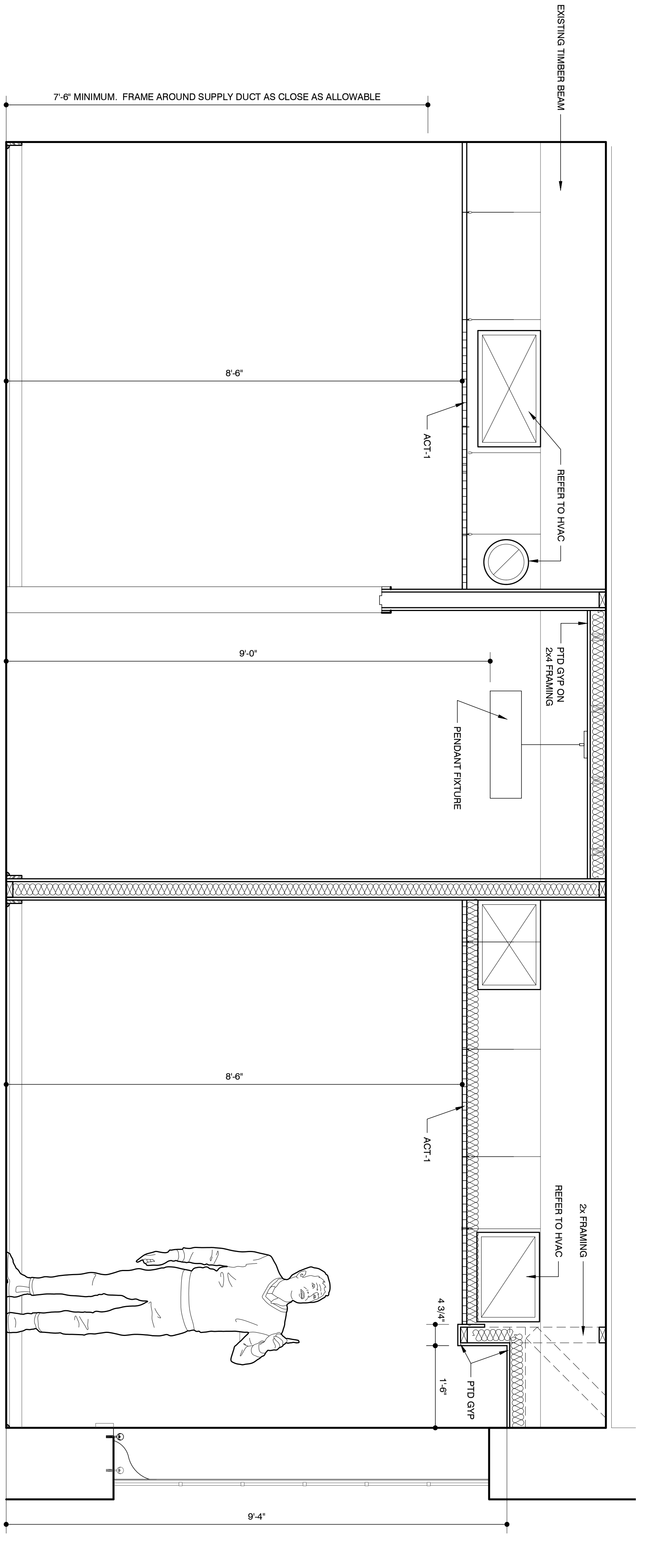
ISSUE FOR BID/PERMIT 12.16.22

DOOR SCHEDULE AND PARTITION TYPES

A1.6



1 SECTION
3/4"=1'-0"



2 SECTION
3/4"=1'-0"

A1.7

SECTIONS

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ISSUE FOR BID/PERMIT	12.16.22

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
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STATE OF ALABAMA
STEVE STONE
NO. 6473
12.09.22
REGISTERED ARCHITECT

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dell consulting
MEP Engineering
Michael A. Pruett 39069
Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
DELL CONSULTING PROJECT: 22-057

FIRE PROTECTION GENERAL NOTES

1. ALL FIRE PROTECTION AND SPRINKLER WORK SHALL BE PERFORMED BY A LICENSED FIRE SPRINKLER CONTRACTOR IN THE STATE OF ALABAMA. ALL WORK SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, APPLICABLE CODES AND STANDARDS, AND NFPA 13.
2. FIRE SPRINKLER SYSTEM SHOP/DESIGN DRAWINGS, PIPING LAYOUT, HYDRAULIC CALCULATIONS, AND SEISMIC RESISTANT DESIGN (IF REQUIRED) SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ALABAMA PER RULING OF ALABAMA FIRE MARSHAL'S OFFICE AND ALABAMA BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS ADMINISTRATIVE CODE ARTICLE 1, GENERAL PROVISIONS. THE ENGINEER OF RECORD SHALL BE IN RESPONSIBLE CHARGE OF SYSTEMS DESIGNED UNDER THE ENGINEER'S SEAL. THE FIRE PROTECTION ENGINEER SHALL HAVE AT LEAST FIVE (5) YEARS DOCUMENTED FIRE PROTECTION EXPERIENCE.
3. THE INSTALLING CONTRACTOR SHALL HAVE A NICET LEVEL III (OR HIGHER) SPRINKLER TECHNICIAN, IN THEIR FULL-TIME EMPLOYMENT, SUPERVISE THE FABRICATION AND INSTALLATION OF THE SYSTEM.
4. SPRINKLER WORK ENTAILS MODIFYING INDICATED PORTIONS OF THE THIRD FLOOR IN A FOUR-STORY BUILDING SERVED BY AN EXISTING WET PIPE SPRINKLER SYSTEM.
5. CONTRACTOR SHALL OBTAIN A RECENT FIRE FLOW TEST PRIOR TO BID. IN THE EVENT THAT A RECENT (WITHIN 6 MONTHS OF BID DATE) FLOW TEST IS NOT AVAILABLE, THE CONTRACTOR SHALL CONDUCT OR WITNESS A FLOW TEST PRIOR TO BID. COORDINATE WITH AHJ TO WITNESS THE FLOW TEST.
6. MAXIMUM WATER FLOW VELOCITY AS CALCULATED IN HYDRAULIC CALCULATIONS SHALL NOT EXCEED 16 FPS.
7. PROVIDE FIRE STOPPING FOR ALL PIPING PENETRATING RATED FLOORS, WALLS, PARTY WALLS AND CEILINGS. FIRE STOPPING METHODS SHALL BE PER CODE REQUIREMENTS.
8. ALL NEW FIRE SPRINKLER PIPE AND ASSOCIATED FITTINGS AND JOINTS SHALL MATCH EXISTING.
9. PROVIDE NEW SPRINKLER HEADS, BRANCH PIPING, AND FLEX DROPS IN ACCORDANCE WITH NFPA 13 AS REQUIRED TO PROVIDE FULL COVERAGE OF AREAS BEING RENOVATED. REUSE MAINS AND CROSS MAINS.
10. CONTRACTOR SHALL FIELD VERIFY EXISTING SPRINKLER HEADS AND ASSOCIATED PIPING FOR THE REQUIRED SPRINKLER SYSTEM MODIFICATIONS.
11. SPRINKLER HEADS LOCATED IN ACOUSTIC CEILING TILES SHALL BE IN THE CENTER OF TILE.
12. WHENEVER THE EXISTING FIRE SPRINKLER SYSTEM IS DISABLED, A FIRE WATCH SHALL BE PROVIDED AND ALL TENANTS, THE OWNER, AND THE AHJ SHALL BE NOTIFIED IN WRITING AT LEAST TWO WEEKS IN ADVANCE.

FIRE PROTECTION LEGEND

(#) SHEET NOTES TAG

FIRE PROTECTION ABBREVIATIONS

EX	EXISTING
°F	DEGREE FAHRENHEIT
FPS	FEET PER SECOND
GAL	GALLONS
GPM	GALLONS PER MINUTE
HR	HOUR
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
PSI	POUNDS PER SQUARE INCH
SF	SQUARE FEET

FIRE PROTECTION DESIGN CRITERIA

NAME OF FACILITY:	200 GOVERNMENT ST
LOCATION:	MOBILE, AL
TYPE OF CONSTRUCTION:	NON-COMBUSTIBLE
OWNER:	ALTAPOINTE
AUTHORITY HAVING JURISDICTION:	CITY OF MOBILE FIRE MARSHAL
GENERAL BUILDING HAZARD:	LIGHT HAZARD

PRELIMINARY HYDRAULIC ANALYSIS

LIGHT HAZARD - WET SYSTEM

REMOTE AREA:	1500 SF
MAXIMUM AREA PER SPRINKLER:	225 SF
MINIMUM WATER FLOW DENSITY:	0.1 GPM/SF
PRELIMINARY SPRINKLER DEMAND:	200 GPM
HOSE STREAM:	100 GPM

ORDINARY HAZARD GROUP I - WET SYSTEM

REMOTE AREA:	1500 SF
MAXIMUM AREA PER SPRINKLER:	130 SF
MINIMUM WATER FLOW DENSITY:	0.15 GPM/SF
PRELIMINARY SPRINKLER DEMAND:	270 GPM

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ALABAMA LICENSED No. 39069 PROFESSIONAL ENGINEER MICHAEL A. PRUETT
12-16-2022

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS

PROJECT NUMBER MX-068-22

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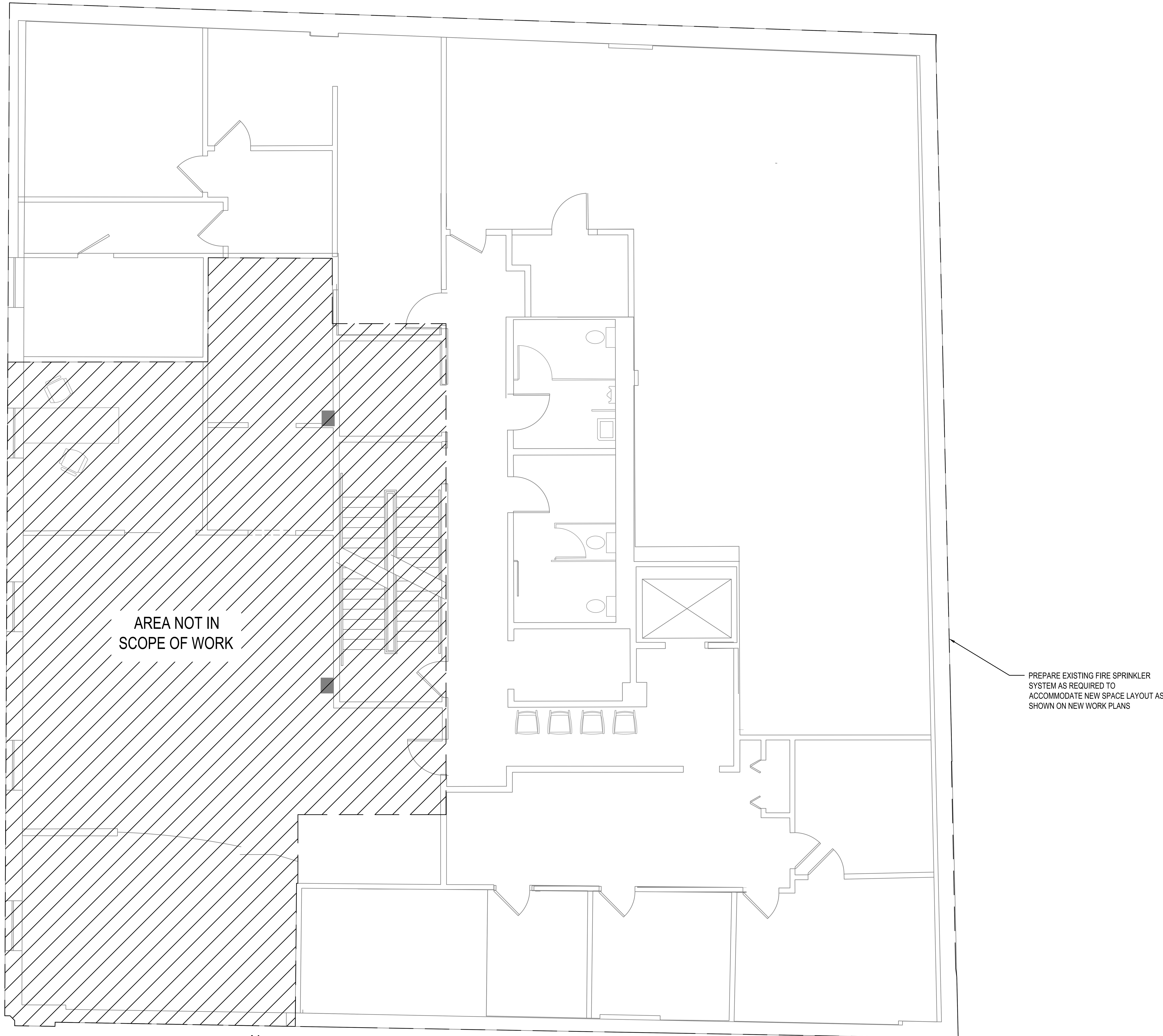
ISSUE FOR BID/PERMIT 12.16.22

LEGEND, NOTES, AND ABBREVIATIONS

FP1.0



N

1 DEMOLITION PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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MEP Engineering
Michael A. Pruett 39069
Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
DELL CONSULTING PROJECT: 22-057

dakinstreetarchitects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

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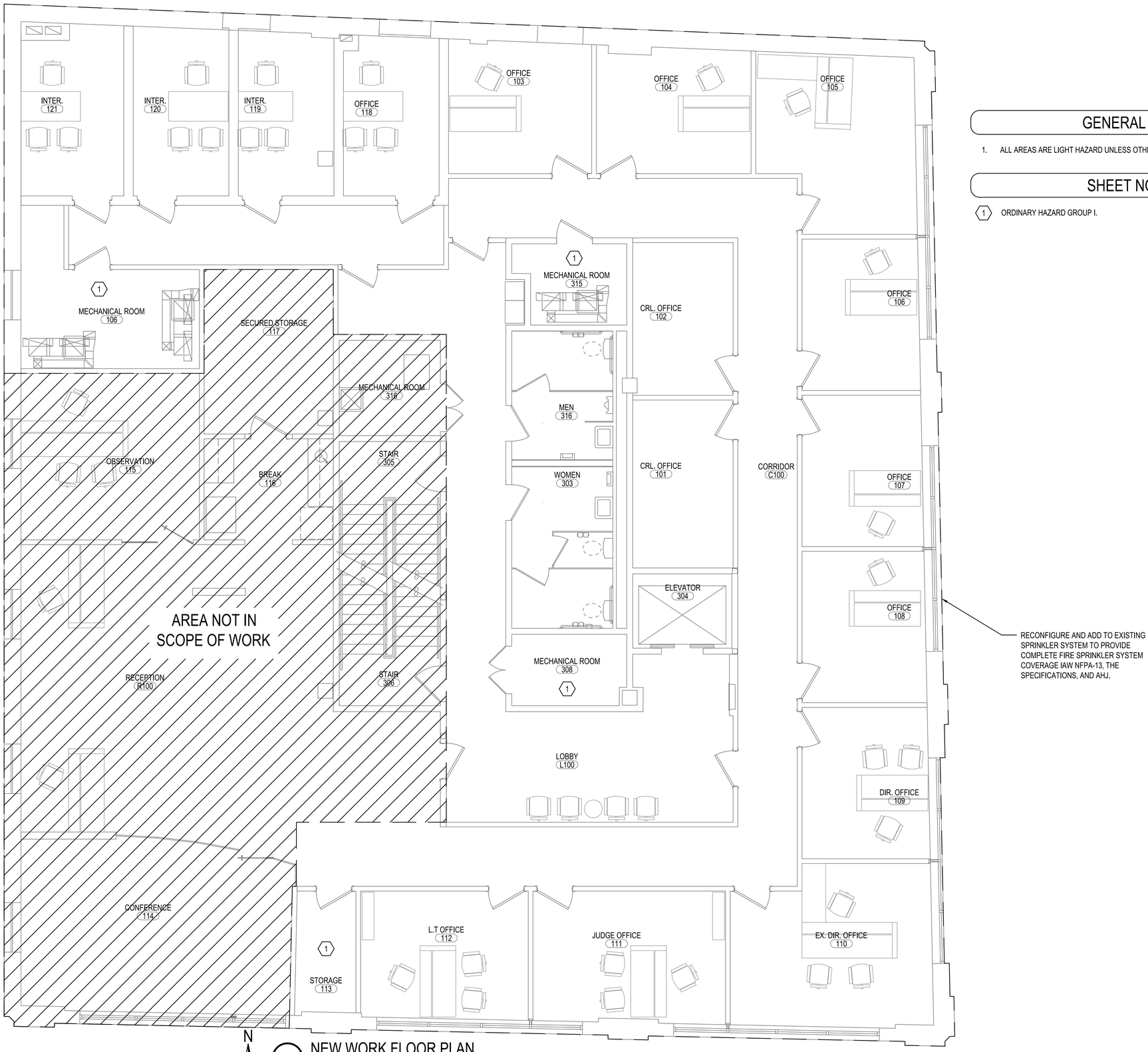
DEMOLITION PLAN

FP2.0



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MEP Engineering
Michael A. Pruett 39069
Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
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GENERAL NOTES

1. ALL AREAS ARE LIGHT HAZARD UNLESS OTHERWISE NOTED.

SHEET NOTES

1. ORDINARY HAZARD GROUP I.

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NEW WORK PLAN

FP3.0

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HVAC ABBREVIATIONS

A	AMPS
AAV	AUTOMATIC AIR VENT
ACH	AIR CHANGE PER HOUR
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AHRI	AIR CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
AUX	AUXILIARY
B	BOILER
BD	BALANCING DAMPER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
C	CONDENSATE
CD	CEILING DIFFUSER
CDW	CONDENSER WATER
CDWP	CONDENSER WATER PUMP
CDWR	CONDENSER WATER RETURN
CDWS	CONDENSER WATER SUPPLY
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CL	CENTER LINE
CO	CLEANOUT
COP	COEFFICIENT OF PERFORMANCE
CR	CONDENSATE RETURN (STEAM)
CU	CONDENSING UNIT; COPPER
CV	COEFFICIENT OF VALVE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DELTA-T	TEMPERATURE DIFFERENCE
DEMO	DEMOLISH
DG	DOOR GRILLE
DIA	DIAMETER
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DS	DUCT SILENCER
DWG	DRAWING
EA	EACH
EAL	EXHAUST AIR LOUVER
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENT RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST AIR GRILLE
ELEC	ELECTRICAL
ER	EXHAUST AIR REGISTER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST AIR
F/A	FIRE ALARM
°F	DEGREE FAHRENHEIT
FCU	FAN COIL UNIT
FD	FIRE DAMPER; FLOOR DRAIN
FLA	FULL LOAD AMPS
FMS	FLOW MEASURING STATION
FO	FLAT OVAL
FPM	FEET PER MINUTE
FS	FLOAT SWITCH; FLOW SWITCH
FSD	FIRE AND SMOKE DAMPER
FT	FEET
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
HPU	HEAT PUMP UNIT
HR	HOUR
HSPF	HEAT SEASONAL PERFORMANCE FACTOR
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IAW	IN ACCORDANCE WITH
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LD	LINEAR DIFFUSER
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBH	THOUSANDS OF BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOCP	MAXIMUM OVERCURRENT PROTECTION
MVD	MANUAL VOLUME DAMPER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN; NUMBER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OAL	OUTDOOR AIR LOUVER
P	PUMP
PD	PRESSURE DROP
PG	PRESSURE GAUGE
PHC	PREHEAT COIL
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
R	RADIUS; RELAY
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RG	RETURN AIR GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RUN LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN AIR REGISTER
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SQUARE FEET; SUPPLY FAN
SP	STATIC PRESSURE
SR	SUPPLY AIR REGISTER; SIDEWALL REGISTER
SS	STAINLESS STEEL
STM	STEAM
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	DOOR UNDERCUT
UG	UNDERGROUND
UH	UNIT HEATER
V	VOLTS
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
W	WATTS
WB	WET BULB
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
Φ	PHASE

HVAC LEGEND

SUPPLY AIR DUCT UP

SUPPLY AIR DUCT DOWN

RETURN AIR DUCT UP

RETURN AIR DUCT DOWN

EXHAUST AIR DUCT UP

EXHAUST AIR DUCT DOWN

DEMO DUCTWORK

EXISTING DUCTWORK

NEW DUCTWORK

WxH — RECTANGULAR DUCTWORK, SIZES SHOWN ARE INTERNAL CLEAR DIMENSIONS. FIRST FIGURE IS SIDE SHOWN.

W/H — OVAL DUCTWORK, SIZES SHOWN ARE INTERNAL CLEAR DIMENSIONS. FIRST FIGURE IS SIDE SHOWN.

Ø — ROUND GALVANIZED STEEL DUCTWORK. SIZE SHOWN IS SHEET METAL DIAMETER.

FACTORY FABRICATED/INSULATED FLEXIBLE ROUND DUCT

ROUND BRANCH DUCT TAKEOFF WITH SPIN-IN COLLAR AND MANUAL VOLUME DAMPER.

RECTANGULAR BRANCH DUCT TAKEOFF WITH 45° COLLAR AND MANUAL VOLUME DAMPER.

SQUARE THROAT ELBOW IN RECTANGULAR DUCT WITH TURNING VANES

LONG RADIUS ELBOW (R = 1.5 * DIA)

RECTANGULAR TO ROUND DUCT TRANSITION

CONCENTRIC TRANSITION

ECCENTRIC TRANSITION

AUTOMATIC DAMPER (OPPOSED)

AUTOMATIC DAMPER (PARALLEL)

MANUAL VOLUME DAMPER

DEMO PIPING

EXISTING PIPING

NEW PIPING

PIPE UP

PIPE DOWN

PIPE CAP

CONNECT TO EXISTING

AHU 1 — EQUIPMENT TAG

T — THERMOSTAT

2408CD 200CFM — CEILING DIFFUSER. PROVIDE SURFACE MOUNT STYLE WITH TRIM RING FOR GYPSUM BOARD CEILING AND LAY-IN TYPE AT T-BAR CEILING GRID. ROUND NECK SIZE AND AIRFLOW AS INDICATED. BACK FACE OF DIFFUSER SHALL HAVE INSULATION BLANKET. "24" = FACE SIZE; "08" = NECK DIAMETER 4-WAY THROW OR AS SHOWN ON PLANS

24x24RG 400CFM 10"Ø — RETURN AIR GRILLE. PROVIDE SURFACE MOUNT STYLE WITH TRIM RING FOR GYPSUM BOARD CEILING AND LAY-IN TYPE AT T-BAR CEILING GRID. PROVIDE REGISTERS WITH FACE-OPERATED OPPOSED BLADE DAMPER. SIZE, AIRFLOW, DUCT COLLAR AS INDICATED.

24x24EG 400CFM 10"Ø — EXHAUST AIR GRILLE. PROVIDE SURFACE MOUNT STYLE WITH TRIM RING FOR GYPSUM BOARD CEILING AND LAY-IN TYPE AT T-BAR CEILING GRID. PROVIDE REGISTERS WITH FACE-OPERATED OPPOSED BLADE DAMPER. SIZE, AIRFLOW, DUCT COLLAR AS INDICATED.

HVAC GENERAL NOTES

1. INSTALL ALL MECHANICAL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND STANDARDS.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. PROVIDE ALL FITTINGS, ACCESSORIES, PIPING, DUCTWORK, AND CONTROLS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM TO MEET THE DESIGN INTENT.
3. EXISTING CONDITIONS ARE BASED ON AS-BUILT DRAWINGS AND FIELD INVESTIGATIONS. THE SIZE AND LOCATION OF EXISTING DUCTWORK, PIPING, AND EQUIPMENT SHOWN MAY NOT REFLECT ACTUAL INSTALLATION. CONTRACTOR SHALL FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING DUCTWORK, PIPING, AND EQUIPMENT.
4. COORDINATE EQUIPMENT CLEARANCES (AS RECOMMENDED BY MANUFACTURER) WITH ALL DISCIPLINES BEFORE INSTALLATION.
5. VERIFY CLEARANCE SPACE AVAILABLE, OFFSETS REQUIRED, STRUCTURAL OPENINGS, AND WORK BY OTHER TRADES PRIOR TO FABRICATION OF DUCTWORK AND PIPING. SUBMIT SHOP DRAWINGS ON DUCTWORK AND PIPING LAYOUT. COORDINATE WITH STRUCTURE. PRESSURE TEST ALL DUCTWORK AND PIPING FOR LEAKS.
6. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT.
7. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, VOLUME DAMPERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK THAT REQUIRE SERVICE AND/OR INSPECTION.
8. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION. PROVIDE DUCT AND PIPE FLEX CONNECTIONS FOR ALL EQUIPMENT CONNECTIONS. PROVIDE VIBRATION ISOLATORS FOR ALL EQUIPMENT; SEE SPECIFICATIONS AND DETAILS.
9. LOCATIONS AND SIZES OF FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
10. ALL EQUIPMENT REQUIRING CONDENSATE DRAIN LINES SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET TO THE NEAREST DISPOSAL POINT AS INDICATED. PROVIDE A TRAP ON ALL DRAIN OUTLETS AND SLOPE PIPING MINIMUM 1/8 IN. PER FOOT.
11. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS.
12. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING MOUNTED DEVICES.
13. NO DUCTWORK OR PIPING SHALL RUN PARALLEL WITH AND OVER WALLS. AVOID ROUTING DUCTWORK AND PIPING OVER LIGHTS WHEREVER POSSIBLE. MAINTAIN MINIMUM 6" CLEARANCE BETWEEN HVAC INSULATION TO TOP OF LIGHTS. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCE AROUND MECHANICAL EQUIPMENT FOR PROPER OPERATION AND ROUTINE MAINTENANCE.
14. SEAL ALL DUCT PENETRATIONS OF WALLS AIRTIGHT, REGARDLESS OF WHETHER WALLS ARE FIRE-RATED OR NOT. PROVIDE SLEEVES AND SEAL ALL PIPE PENETRATIONS OF WALLS AIRTIGHT.
15. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC. SHALL BE FIRE-STOPPED WITH AN APPROVED UL-LISTED PRODUCT.
16. ALL AIR INTAKE OPENINGS TO EXTERIOR SHALL HAVE A MIN 10'-0" CLEARANCE FROM ANY EXHAUST OPENING TO PREVENT RECIRCULATION.
17. MOUNT DUCTWORK AS HIGH AS POSSIBLE WHERE EXPOSED, UNLESS OTHERWISE NOTED.
18. THERMOSTATS INDICATED ADJACENT TO DOORWAYS SHALL BE LOCATED WITHIN 18" OF JAMB AND MOUNTED 48" AFF.
19. ALL EXPOSED CONTROL WIRING (MECHANICAL AND ELECTRICAL ROOMS) SHALL BE IN CONDUIT. ALL REMAINING CONTROL WIRING SHALL BE PLENUM-RATED CABLE.

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ALABAMA LICENSED PROFESSIONAL ENGINEER MICHAEL A. PRUETT No. 39069 12-16-2022

200 GOVERNMENT ST THIRD FLOOR RENOVATIONS

PROJECT NUMBER MX-068-22

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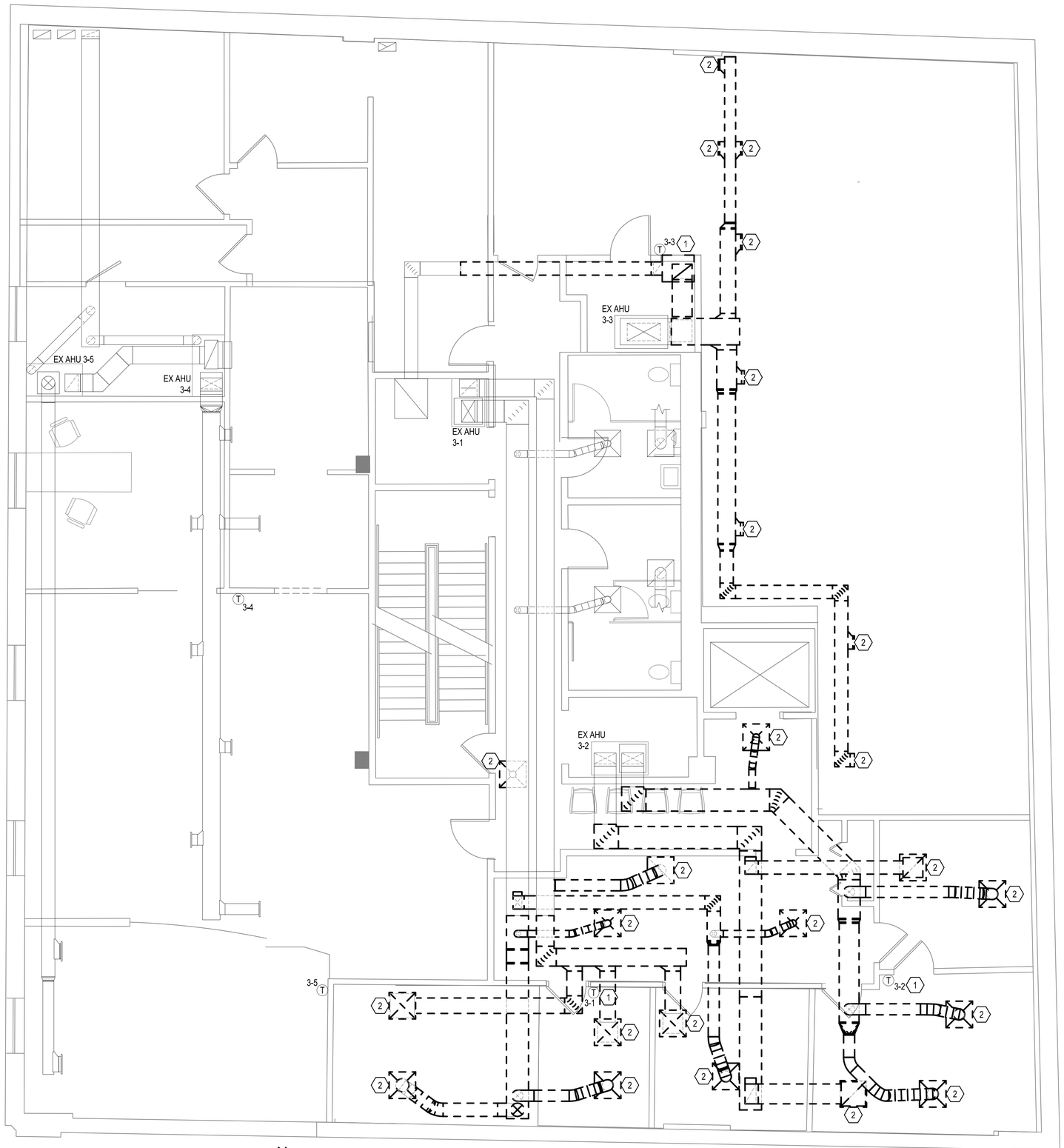
LEGEND, NOTES, AND ABBREVIATIONS

M1.0



1 DEMOLITION PLAN

SCALE: 1/4"=1'-0"

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MEP Engineering
Michael A. Pruett 39069
Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
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SHEET NOTES

1. RELOCATE THERMOSTAT TO ACCOMMODATE NEW WALL LAYOUT AS SHOWN ON NEW WORK PLANS.
2. REMOVE EXISTING REGISTER/GRILLE AND ASSOCIATED DUCTWORK AND SUPPORTS AS INDICATED.

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DEMOLITION PLAN

M2.0

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Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6429
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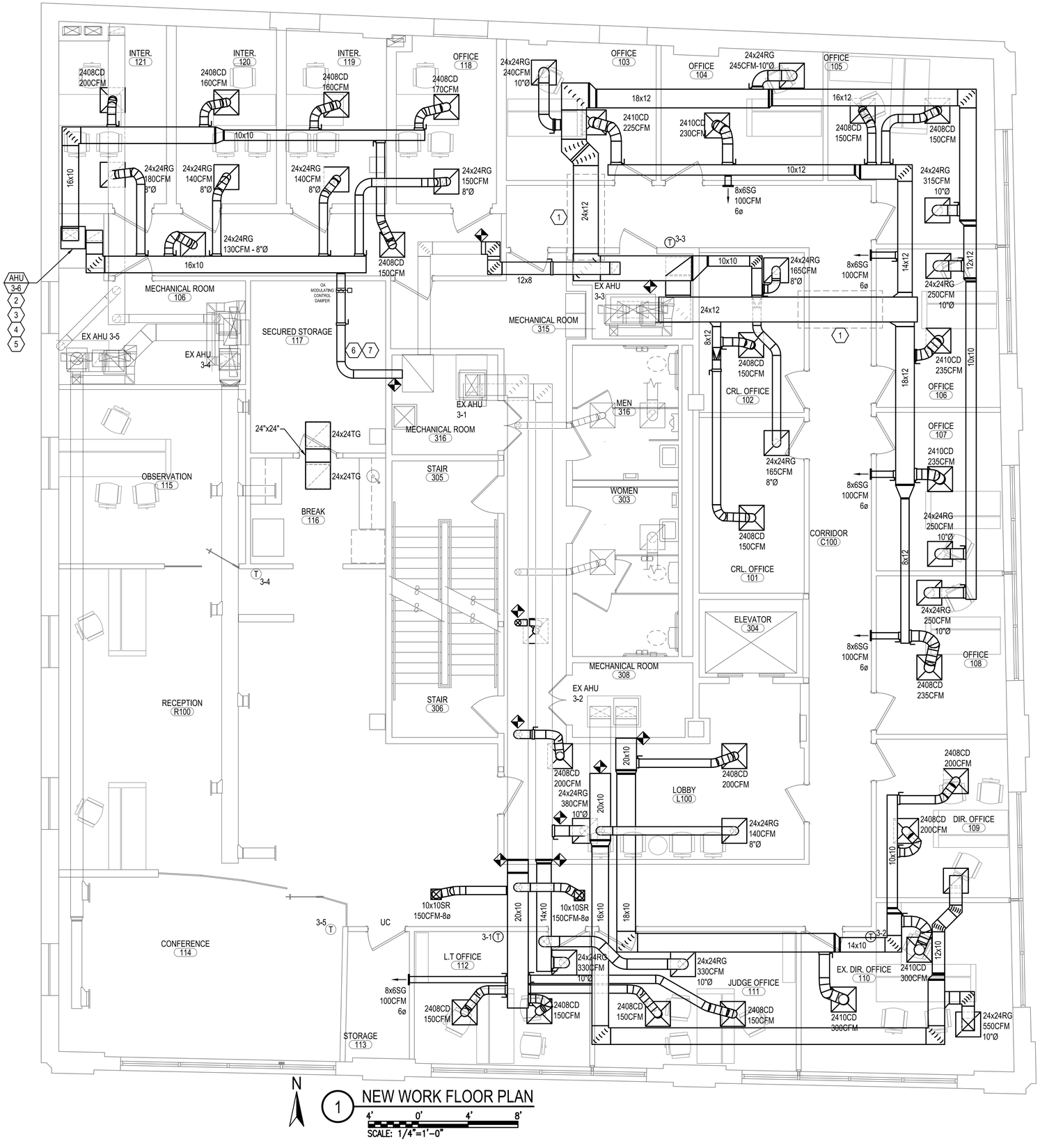
SHEET NOTES

1. EXPOSED DUCTWORK IN OPEN CORRIDOR SHALL BE 24" SPIRAL DOUBLE-WALL INSULATED ROUND DUCT. COORDINATE COLOR WITH ARCHITECT.
2. INSTALL UNIT ON RETURN AIR PLENUM. ROUTE REFRIGERANT PIPING TO ASSOCIATED CONDENSING UNIT ON ROOF PER MANUFACTURER'S RECOMMENDATIONS. SLEEVE AND SEAL PIPING THROUGH BUILDING ENVELOPE.
3. PROVIDE FLOAT SWITCH IN PRIMARY DRAIN PAN TO SHUTDOWN UNIT UPON DETECTION OF MOISTURE.
4. PROVIDE TRAPPED, INSULATED CONDENSATE PIPING FULL SIZE OF EQUIPMENT OUTLET TO NEAREST EXISTING CONDENSATE DRAIN SERVING AHU 3-5. SLOPE A MINIMUM OF 1/8" PER FOOT.
5. PROVIDE BI-POLAR IONIZATION SYSTEM UPSTREAM OF COOLING COIL SIMILAR TO GLOBAL PLASMA SOLUTIONS MODEL GPS-FC24-AC. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INTERLOCK BIPOLAR IONIZATION TO OPERATE DURING FAN OPERATION.
6. ROUTE 8ø OA DUCT FROM EXISTING OUTSIDE AIR PLENUM TO AHU RETURN DUCT. PROVIDE MVD IN OA DUCT AND BALANCE TO AHU'S SCHEDULED OUTSIDE AIR FLOW.
7. PROVIDE OA DUCT WITH TWO-POSITION MOTORIZED DAMPER AND 24V ACTUATOR. INTERLOCK DAMPER WITH ASSOCIATED AHU FAN OPERATION.



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NEW WORK
FLOOR PLAN

M3.0

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813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6429
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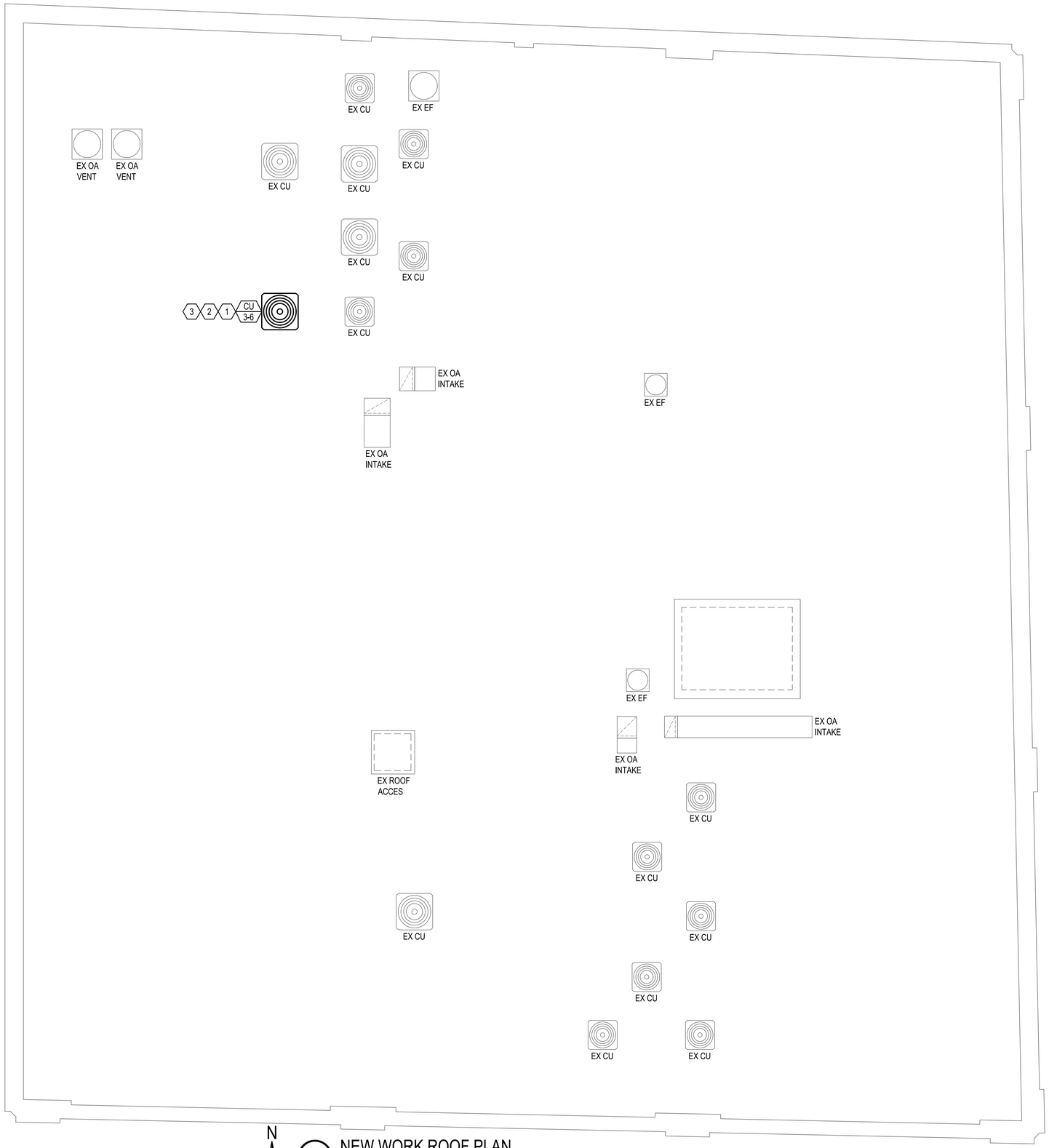

1 NEW WORK ROOF PLAN
SCALE: 1/4"=1'-0"

SHEET NOTES

1. ROUTE REFRIGERANT PIPING TO ASSOCIATED AIR HANDLING UNIT UNIT ON THE THIRD FLOOR PER MANUFACTURER'S RECOMMENDATIONS. SLEEVE AND SEAL PIPING THROUGH BUILDING ENVELOPE.
2. PROVIDE PIPE CURB SIMILAR TO PATE PCC. WEATHERPROOF AND SEAL AROUND PIPING. COORDINATE ALL ROOF PENETRATIONS WITH ARCHITECT.
3. MOUNT CONDENSING UNIT WITH VIBRATION ISOLATION ON ALUMINUM OR HOT-DIPPED GALVANIZED STEEL STANDS. SIZE STANDS TO ACCOMMODATE REFRIGERANT PIPING AND DISCONNECT SWITCH.

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NEW WORK
ROOF PLAN

M3.1

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Michael A. Pruett 39069
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813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
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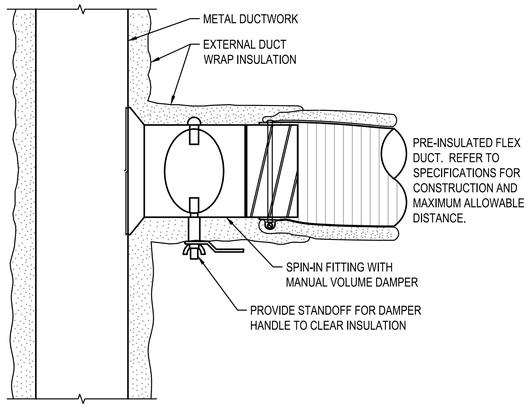
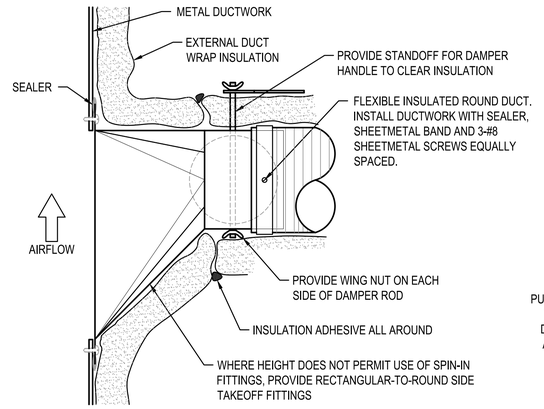
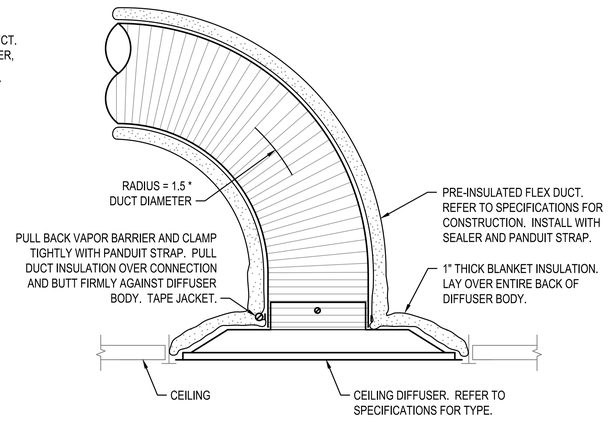




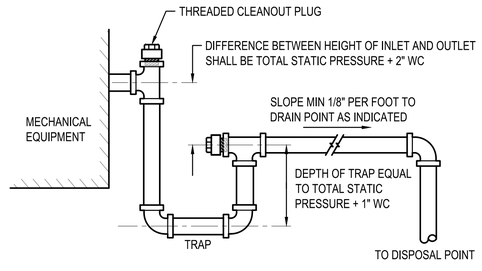
NOTES:
1. CONNECT FLEXIBLE DUCT TO FITTING WITH DRAWBAND AND SEALER.
2. PROVIDE RIGID ROUND DUCT AS REQUIRED AT TAKEOFF FITTING TO COMPLY WITH MAXIMUM ALLOWABLE DISTANCE OF FLEX DUCT.
3. FOR EXHAUST AIR SYSTEMS, PROVIDE RIGID ROUND DUCT IN LIEU OF FLEX DUCT. PROVIDE INSULATION ONLY WHERE SPECIFIED PER DRAWINGS AND SPECIFICATIONS.

1 ROUND DUCT RUNOUT DETAIL
NOT TO SCALE



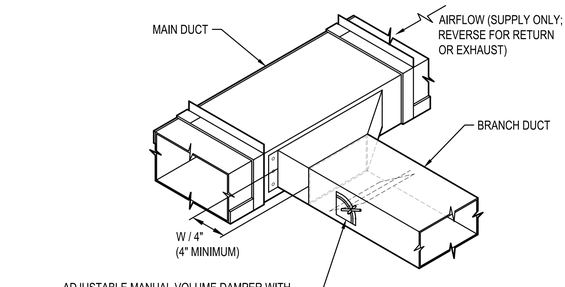
NOTES:
1. FLEX DUCT SHALL BE NO LONGER THAN 5'-0".
2. PROVIDE 24"x24" LAY-IN PANEL FOR DIFFUSERS IN LAY-IN CEILINGS.
3. PROVIDE BEVELED MOUNTING FRAME FOR DIFFUSERS IN HARD CEILINGS.

2 CEILING DIFFUSER DETAIL
NOT TO SCALE



NOTES:
1. CONTRACTOR SHALL COORDINATE DRAIN DIMENSIONS AND PAD AND/OR BASE RAIL HEIGHT TO ENSURE PROPER DRAINAGE SLOPE AND CLEARANCE FOR TRAP.
2. REFER TO SPECIFICATIONS FOR DRAIN PIPE MATERIAL.

3 CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



4 BRANCH DUCT TAKEOFF DETAIL
NOT TO SCALE

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813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
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SPLIT-SYSTEM DX CONDENSING UNIT SCHEDULE

MARK	LOCATION	TYPE	DESIGN CONDITIONS			DX COOLING CYCLE			DX HEATING CYCLE		ELECTRICAL			UNIT WEIGHT (LB)	BASIS OF DESIGN	
			WINTER OUTDOOR (°F)	SUMMER OUTDOOR		TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	SEER	TOTAL CAPACITY (BTUH)	HSPF	V/PH/HZ	MCA	MOCP		MANUFACTURER	MODEL
				DB (°F)	WB (°F)											
CU-3-6	ROOF	HEAT PUMP	29	95	78	29,400	22,000	14.6	26,800	7.8	208/1/60	17	25	300	TRANE	4TWR4030

NOTES:
1. COOLING AND HEATING CAPACITIES RATED AT AHRI STANDARD CONDITIONS.
2. SIZE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
3. SUBMIT APPROXIMATE REFRIGERANT LINE LENGTHS (TOTAL AND VERTICAL) AND SIZES FOR REVIEW WITH PRODUCT DATA.
4. PROVIDE HAIL GUARD FOR CONDENSER COIL.
5. PROVIDE SEACOAST PROTECTION COATING FOR ALL COILS.
6. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.

SPLIT-SYSTEM DX AIR HANDLING UNIT SCHEDULE

MARK	ASSOCIATED OUTDOOR UNIT	TYPE	DESIGN CONDITIONS			FAN DATA				DX COOLING CYCLE				DX HEATING CYCLE		AUXILIARY HEAT			ELECTRICAL			FILTER DATA		BASIS OF DESIGN	
			WINTER INDOOR (°F)	SUMMER INDOOR		SUPPLY AIRFLOW (CFM)	OUTDOOR AIRFLOW (CFM)	ESP (IN. WG)	FAN MOTOR (HP)	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	COIL EAT		TOTAL CAPACITY (BTUH)	COIL EAT (°F)	TYPE	CAPACITY (KW)	STAGES	V/PH/HZ	CIRCUIT 1		TYPE	EFFICIENCY	MANUFACTURER	MODEL
				DB (°F)	WB (°F)							DB (°F)	WB (°F)							MCA	MOCP				
AHU-3-6	CU-3-6	VERTICAL DRAW THRU	70	75	63	1,000	100	0.5	1/3	29,400	22,000	80.0	67.0	26,800	70	ELECTRIC	7.2	1	208/1/60	47	50	2" PLEATED	MERV 8	TRANE	TEM6A0B30

NOTES:
1. COOLING AND HEATING CAPACITIES RATED AT AHRI STANDARD CONDITIONS.
2. REFRIGERANT PIPING SIZING PER MANUFACTURER'S RECOMMENDATIONS. SUBMIT APPROXIMATE REFRIGERANT LINE LENGTHS (TOTAL AND VERTICAL) AND SIZES FOR REVIEW WITH PRODUCT DATA.
3. COORDINATE INSTALLATION WITH MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES.
4. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
5. PROVIDE INTEGRAL DISCONNECT SWITCH.

OUTSIDE AIR VENTILATION CALCULATIONS

SYSTEM TAG:	AHU 3-1
SYSTEM TYPE:	MULTIPLE ZONE RECIRCULATING SYSTEMS
APPLICABLE CODE:	2015 INTERNATIONAL MECHANICAL CODE, SECTION 403

ROOM NUMBER AND NAME	CATEGORY	FLOOR AREA, Az (SF)	FLOOR AREA OA RATE, Ra (CFM/SF)	ROOM OCCUPANCY, Pz (PEOPLE)	OCCUPANCY OA RATE, Rp (CFM/PERSON)	BREATHING ZONE OUTSIDE AIRFLOW, Vbz (CFM)	AIR DISTRIBUTION EFFECTIVENESS, Ez	ROOM OUTSIDE AIRFLOW, Voz (CFM)	MAX SUPPLY AIRFLOW, (CFM)	DESIGN SUPPLY AIRFLOW, Vpz (CFM)	PRIMARY OUTSIDE AIR FRACTION, Zp
C100 - CORR	CORRIDORS	230	0.06	0	-	13.8	0.8	17.3	250	250	0.07
L100 - LOBBY	LOBBIES	195	0.06	4	5.0	31.7	0.8	39.6	200	200	0.20
111 - JUDGE OFFICE	OFFICE SPACES	175	0.06	3	5.0	25.5	0.8	31.9	300	300	0.11
112 - L.T. OFFICE	OFFICE SPACES	150	0.06	3	5.0	24.0	0.8	30.0	300	300	0.10
113 - STORAGE	DRY STORAGE ROOMS	55	0.06	0	5.0	3.3	0.8	4.1	150	150	0.03
TOTALS		575	-	10	-	84.5	-	105.6	1,200	1,200	0.20

SYSTEM SUMMARY	
OCCUPANT DIVERSITY, D	1
UNCORRECTED OUTSIDE AIR INTAKE, Vou (CFM)	84.5
SYSTEM VENTILATION EFFICIENCY, Ev	0.95
MINIMUM REQUIRED OUTSIDE AIRFLOW, Vot (CFM)	88.9
DESIGN OUTSIDE AIRFLOW (CFM)	190

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SCHEDULES

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MEP Engineering
Michael A. Pruett 39069
Alabama Certificate Number CA-4146-E
813 Downtowner Blvd. Ste. D
Mobile, Alabama 36609
P: 251-316-0015 F: 850-332-6629
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OUTSIDE AIR VENTILATION CALCULATIONS

SYSTEM TAG:	AHU 3-2
SYSTEM TYPE:	MULTIPLE ZONE RECIRCULATING SYSTEMS
APPLICABLE CODE:	2015 INTERNATIONAL MECHANICAL CODE, SECTION 403

ROOM NUMBER AND NAME	CATEGORY	FLOOR AREA, Az (SF)	FLOOR AREA OA RATE, Ra (CFM/SF)	ROOM OCCUPANCY, Pz (PEOPLE)	OCCUPANCY OA RATE, Rp (CFM/PERSON)	BREATHING ZONE OUTSIDE AIRFLOW, Vbz (CFM)	AIR DISTRIBUTION EFFECTIVENESS, Ez	ROOM OUTSIDE AIRFLOW, Voz (CFM)	MAX SUPPLY AIRFLOW, (CFM)	DESIGN SUPPLY AIRFLOW, Vpz (CFM)	PRIMARY OUTSIDE AIR FRACTION, Zp
109 - DIR. OFFICE	OFFICE SPACES	145	0.06	3	5.0	23.7	0.8	29.6	400	400	0.07
110 - EX. DIR. OFFICE OFFICE	OFFICE SPACES	225	0.06	3	5.0	28.5	0.8	35.6	600	600	0.06
TOTALS		370	-	6	-	52.2	-	65.3	1,000	1,000	0.07

SYSTEM SUMMARY

OCCUPANT DIVERSITY, D	1
UNCORRECTED OUTSIDE AIR INTAKE, Vou (CFM)	52.2
SYSTEM VENTILATION EFFICIENCY, Ev	0.95
MINIMUM REQUIRED OUTSIDE AIRFLOW, Vot (CFM)	54.9
DESIGN OUTSIDE AIRFLOW (CFM)	160

OUTSIDE AIR VENTILATION CALCULATIONS

SYSTEM TAG:	AHU 3-3
SYSTEM TYPE:	MULTIPLE ZONE RECIRCULATING SYSTEMS
APPLICABLE CODE:	2015 INTERNATIONAL MECHANICAL CODE, SECTION 403

ROOM NUMBER AND NAME	CATEGORY	FLOOR AREA, Az (SF)	FLOOR AREA OA RATE, Ra (CFM/SF)	ROOM OCCUPANCY, Pz (PEOPLE)	OCCUPANCY OA RATE, Rp (CFM/PERSON)	BREATHING ZONE OUTSIDE AIRFLOW, Vbz (CFM)	AIR DISTRIBUTION EFFECTIVENESS, Ez	ROOM OUTSIDE AIRFLOW, Voz (CFM)	MAX SUPPLY AIRFLOW, (CFM)	DESIGN SUPPLY AIRFLOW, Vpz (CFM)	PRIMARY OUTSIDE AIR FRACTION, Zp
C100 - CORR	CORRIDORS	350	0.06	0	-	21.0	0.8	26.3	400	400	0.07
101 - CRL OFFICE	OFFICE SPACES	110	0.06	1	5.0	11.6	0.8	14.5	150	150	0.10
102 - CRL OFFICE	OFFICE SPACES	110	0.06	1	5.0	11.6	0.8	14.5	150	150	0.10
103 - OFFICE	OFFICE SPACES	122	0.06	1	5.0	12.3	0.8	15.4	225	225	0.07
104 - OFFICE	OFFICE SPACES	125	0.06	1	5.0	12.5	0.8	15.6	230	230	0.07
105 - OFFICE	OFFICE SPACES	178	0.06	1	5.0	15.7	0.8	19.6	300	300	0.07
106 - OFFICE	OFFICE SPACES	127	0.06	1	5.0	12.6	0.8	15.8	235	235	0.07
107 - OFFICE	OFFICE SPACES	128	0.06	1	5.0	12.7	0.8	15.9	235	235	0.07
108 - OFFICE	OFFICE SPACES	134	0.06	1	5.0	13.0	0.8	16.3	235	235	0.07
TOTALS		1034	-	8	-	102.0	-	127.6	2,160	1,760	0.10

SYSTEM SUMMARY

OCCUPANT DIVERSITY, D	1
UNCORRECTED OUTSIDE AIR INTAKE, Vou (CFM)	102.0
SYSTEM VENTILATION EFFICIENCY, Ev	1.00
MINIMUM REQUIRED OUTSIDE AIRFLOW, Vot (CFM)	102.0
DESIGN OUTSIDE AIRFLOW (CFM)	280

OUTSIDE AIR VENTILATION CALCULATIONS

SYSTEM TAG:	AHU 3-6
SYSTEM TYPE:	MULTIPLE ZONE RECIRCULATING SYSTEMS
APPLICABLE CODE:	2015 INTERNATIONAL MECHANICAL CODE, SECTION 403

ROOM NUMBER AND NAME	CATEGORY	FLOOR AREA, Az (SF)	FLOOR AREA OA RATE, Ra (CFM/SF)	ROOM OCCUPANCY, Pz (PEOPLE)	OCCUPANCY OA RATE, Rp (CFM/PERSON)	BREATHING ZONE OUTSIDE AIRFLOW, Vbz (CFM)	AIR DISTRIBUTION EFFECTIVENESS, Ez	ROOM OUTSIDE AIRFLOW, Voz (CFM)	MAX SUPPLY AIRFLOW, (CFM)	DESIGN SUPPLY AIRFLOW, Vpz (CFM)	PRIMARY OUTSIDE AIR FRACTION, Zp
C101 - CORR	CORRIDORS	270	0.06	0	-	16.2	0.8	20.3	150	150	0.14
118 - OFFICE	OFFICE SPACES	118	0.06	3	5.0	22.1	0.8	27.6	170	170	0.16
119 - OFFICE	OFFICE SPACES	105	0.06	3	5.0	21.3	0.8	26.6	160	160	0.17
120 - OFFICE	OFFICE SPACES	108	0.06	3	5.0	21.5	0.8	26.9	160	160	0.17
121 - OFFICE	OFFICE SPACES	113	0.06	0	5.0	6.8	0.8	8.5	200	200	0.04
TOTALS		444	-	9	-	71.6	-	89.6	840	840	0.17

SYSTEM SUMMARY

OCCUPANT DIVERSITY, D	1
UNCORRECTED OUTSIDE AIR INTAKE, Vou (CFM)	71.6
SYSTEM VENTILATION EFFICIENCY, Ev	0.98
MINIMUM REQUIRED OUTSIDE AIRFLOW, Vot (CFM)	73.1
DESIGN OUTSIDE AIRFLOW (CFM)	100

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Issues + Revisions
ISSUE FOR BID/PERMIT 12.16.22

SCHEDULES

M5.1

ELECTRICAL LEGEND

GENERAL ELECTRICAL DEVICES:

$ SINGLE POLE LIGHTING SWITCH. MOUNT 48" TO TOP OF BOX AFF UNLESS NOTED OTHERWISE. SUBSCRIPT INDICATES AS FOLLOWS:
- D - LOW VOLTAGE DIMMER. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.
- LV - WALL MOUNTED LOW VOLTAGE LIGHT SWITCH. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.
- M - TWO POLE MOTOR RATED SWITCH MOUNTED AT THE EQUIPMENT. PROVIDE PHENOLIC LABEL.
- 3 - THREE-WAY LIGHTING SWITCH.
- 4 - FOUR-WAY LIGHTING SWITCH.
- D1- DIMMING WALL SWITCH WITH OCCUPANCY SENSOR. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.
- D2- TWO CHANNEL LOW VOLTAGE DIMMER. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.
- a,b - LETTER INDICATES ZONE OF CONTROL.
- T - TIME DELAY LIGHT SWITCH FOR DELAYED OFF TO EXHAUST FAN.
- DT - DIGITAL TIME SWITCH WITH AUDIBLE & "FLASH LIGHTING" ALERTS.

DUPLEX RECEPTACLE NEMA 5-20R. MOUNT 18" AFF UNLESS NOTED OTHERWISE. VERIFY DUPLEX MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN. SUBSCRIPT INDICATES AS FOLLOWS:
- G - GROUND FAULT CIRCUIT INTERRUPTER TYPE.
- WP - GFI DEVICE WITH DIECAST WEATHERPROOF BACKBOX & DIECAST COVER. IN EXTERIOR LOCATIONS MOUNT 30" AFG.
- EWC - CONCEAL RECEPTACLE BEHIND EWC (COORDINATE WITH DIVISION 15).
- D - SHALL BE ON DEDICATED CIRCUIT.
- TV - COORDINATE RECEPTACLE LOCATION WITH A/V OUTLET.
- 84" - MOUNTING HEIGHT OF DEVICE AFF.
- E - ON EMERGENCY CIRCUIT.
- 21 - # INDICATES PANELBOARD CKT NUMBER
- IG - INDICATES ISOLATED GROUND (IG) RECEPTACLE. PROVIDE IG CONDUCTOR AS WELL AS EGC.

QUADRAPLEX RECEPTACLE (TWO NEMA 5-20R) MOUNTED 18" AFF. UNLESS NOTED OTHERWISE.

DUPLEX RECEPTACLE MOUNTED 42" AFF. OR MOUNT 7" ABOVE COUNTER. VERIFY COUNTER HEIGHT PRIOR TO ROUGH-IN. ORIENT WITH LONG AXIS HORIZONTAL ABOVE COUNTERS.

SPECIAL NEMA TYPE RECEPTACLE. VERIFY WITH EQUIPMENT BEING SUPPLIED. MOUNTED 10" AFF, UNLESS NOTED OTHERWISE.

QUADRAPLEX RECEPTACLE (TWO NEMA 5-20R) MOUNTED 42" AFF. OR MOUNT 7" ABOVE COUNTER. VERIFY COUNTER HEIGHT PRIOR TO ROUGH-IN.

DUPLEX RECEPTACLE NEMA 5-20R. MOUNTED FACE DOWN IN CEILING.

DUPLEX RECEPTACLE NEMA 5-20R. MOUNTED IN MILLWORK.

QUADRAPLEX RECEPTACLE (TWO NEMA 5-20R) MOUNTED IN MILLWORK. UNLESS NOTED OTHERWISE.

QUADRAPLEX RECEPTACLE (TWO NEMA 5-20R) MOUNTED FACE DOWN IN CEILING.

SIMPLEX RECEPTACLE NEMA 5-20R. MOUNT 18" AFF UNLESS NOTED OTHERWISE. VERIFY MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

OCCUPANCY SENSORS:

D WALL MOUNTED LINE VOLTAGE DUAL TECHNOLOGY SWITCH WITH SINGLE RELAY. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.

D2 WALL MOUNTED LINE VOLTAGE DUAL TECHNOLOGY SWITCH WITH DUAL RELAYS. EACH RELAY IS TO HAVE INDEPENDENT DELAY CONTROL. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.

PP POWER PACK. PROVIDE WITH NEMA 1 ENCLOSURE.

DT CEILING MOUNTED LOW VOLTAGE 360° DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC) OCCUPANCY SENSOR.

PI CEILING MOUNTED LOW VOLTAGE DIRECTIONAL-WIDE PASSIVE INFRARED OCCUPANCY SENSOR.

DT CEILING MOUNTED LOW VOLTAGE DIRECTIONAL-WIDE DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC) OCCUPANCY SENSOR.

PI CEILING MOUNTED LOW VOLTAGE BI-DIRECTIONAL-WIDE PASSIVE INFRARED OCCUPANCY SENSOR.

DT CEILING MOUNTED LOW VOLTAGE BI-DIRECTIONAL-WIDE DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC) OCCUPANCY SENSOR.

PI CEILING MOUNTED LOW VOLTAGE DIRECTIONAL-NARROW PASSIVE INFRARED OCCUPANCY SENSOR.

DS CEILING MOUNTED LOW VOLTAGE 360° DAYLIGHT HARVESTING SENSOR.

PP POWER PACK WITH 2 RELAYS FOR 2 CIRCUITS. PROVIDE WITH NEMA 1 ENCLOSURE.

P WALL MOUNTED LINE VOLTAGE PIR SWITCH WITH SINGLE RELAY. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.

P2 WALL MOUNTED LINE VOLTAGE PIR SWITCH WITH DUAL RELAYS. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.

PI CEILING MOUNTED LOW VOLTAGE 360° PASSIVE INFRARED OCCUPANCY SENSOR.

LIGHTING CONTROL EQUIPMENT:

LC LIGHTING CONTACTOR. SEE DETAIL.

PC PHOTOELECTRIC CELL. SEE LIGHTING CONTROL DIAGRAM AND CONNECT AS REQUIRED.

TC PROGRAMMABLE TIME CLOCK. SEE DETAIL.

PROGRAMMABLE LIGHTING CONTROL PANEL. SEE DETAIL.

$LVM WALL MOUNTED MASTER LOW VOLTAGE LIGHT SWITCH. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SWITCH SHALL BE PROGRAMMED TO BE MANUAL ON.

OTHER:

CIRCUIT RUN CONCEALED ABOVE CEILING OR IN WALL.

2P2-9 CIRCUIT RUN CONCEALED IN OR BELOW FLOOR SLAB OR UNDERGROUND.

HOMERUN TO PANELBOARD. ANY CIRCUIT WITHOUT FURTHER DESIGNATION SHALL BE 2#12,#12G,3/4"C. TICK MARKS INDICATE # OF CONDUCTORS (EGC NOT SHOWN). MINIMUM SIZE ON 120V HOMERUNS GREATER THAN 50 FEET SHALL BE #10 AWG. MINIMUM SIZE ON 120V HOMERUNS GREATER THAN 100 FEET SHALL BE #8 AWG. MINIMUM SIZE ON 120V HOMERUNS GREATER THAN 160 FEET SHALL BE #6 AWG. MINIMUM SIZE ON 277V HOMERUNS GREATER THAN 100 FEET SHALL BE #10 AWG. INCREASE CONDUIT SIZE AS REQUIRED PER NEC. UNDERLINED TEXT INDICATES CIRCUIT DESIGNATION.

LOW VOLTAGE CABLE AS SPECIFIED BY THE MANUFACTURER.

EMERGENCY (NEC ART. 700) CIRCUIT RUN CONCEALED ABOVE CEILING OR IN WALL.

OPTIONAL (NEC ART. 702) CIRCUIT RUN CONCEALED ABOVE CEILING OR IN WALL.

AHU 1 MECHANICAL EQUIPMENT IDENTIFICATION TAG. SEE MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE.

F2L LIGHT FIXTURE IDENTIFICATION TAG. SEE LIGHT FIXTURE SCHEDULE FOR SYMBOLS & DETAILS.

1 SHEET NOTE TAG.

4LP1 PANELBOARD, SWITCHBOARD, TRANSFORMER & ELECTRICAL EQUIPMENT IDENTIFICATION TAG.

NAME 100 ROOM NUMBER TAG.

LEADERS.

TELECOMMUNICATIONS SYSTEM:

COMMUNICATIONS OUTLET. PROVIDE A DEEP 4" SQUARE BOX WITH A 3/4" CONDUIT WITH BUSHINGS ON BOTH ENDS TO THE ACCESSIBLE AREA ABOVE THE CEILING. PROVIDE TWO CATEGORY 5e CABLES FROM THE DEVICE LOCATION TO THE COMMUNICATIONS BACKBOARD. MOUNT AT 18" A.F.F. UNLESS SUBSCRIPTED OTHERWISE. "AC" DESIGNATES ABOVE COUNTER MOUNTING. THE ELECTRICAL CONTRACTOR IS TO INSTALL, TERMINATE, TEST AND LABEL ALL CABLING. THE DEVICE PLATES ARE TO BE SELECTED BY THE ARCHITECT.

TELEVISION COAXIAL OUTLET MOUNTED AT THE TELEVISION. COORDINATE THE EXACT HEIGHT PRIOR TO ROUGH-IN. PROVIDE AND INSTALL AN RG-6 CABLE FROM THE DEVICE LOCATION TO THE CABLE TV DISTRIBUTION POINT.

ROUGH-IN FOR COMMUNICATIONS OUTLET (CO). MOUNT ON WALL AT 18" AFF UNLESS SUBSCRIPTED OTHERWISE. INCLUDE 1" EMT FROM ROUGH-IN BOX STUBBED ABOVE CEILING. TERMINATE WITH BUSHING AND PROVIDE PULL STRING.

ROUGH-IN FOR COMMUNICATIONS OUTLET MOUNTED FACE DOWN IN CEILING.

ROUGH-IN FOR COMMUNICATIONS OUTLET (CO) MOUNTED IN MILLWORK.

COMMUNICATIONS OUTLET (CO) MOUNTED IN MILLWORK.

COMMUNICATIONS OUTLET (CO) MOUNTED FACE DOWN IN CEILING.

COMMUNICATIONS OUTLET (CO) MOUNTED IN FLOOR BOX.

DISTRIBUTION & POWER EQUIPMENT:

PANELBOARD. MOUNT AS INDICATED. SEE PANELBOARD SCHEDULES.

DISTRIBUTION PANELBOARD. MOUNT AS INDICATED. SEE PANELBOARD SCHEDULES.

SWITCHBOARD, SWITCHGEAR OR MCC. MOUNT ON CONCRETE HOUSEKEEPING PAD AS INDICATED. SEE PANELBOARD SCHEDULES.

NEC 110.26(A) WORKING CLEARANCE.

VFD VARIABLE FREQUENCY DRIVE W/INTEGRAL DISCONNECT. PROVIDED BY DIVISION 15, INSTALLED BY DIVISION 16.

MAGNETIC MOTOR STARTER. SIZE AS REQUIRED. MOUNT IN SERVING ELECTRICAL ROOM UNLESS SPECIFICALLY NOTED OTHERWISE.

COMBINATION MAGNETIC MOTOR STARTER DISCONNECT. SIZE AS REQUIRED.

ENCLOSED CIRCUIT BREAKER.

NON-FUSED GENERAL DUTY SAFETY SWITCH. SIZE FOR LOAD BEING SERVED.

FUSED GENERAL DUTY SAFETY SWITCH. SIZE FOR LOAD BEING SERVED.

T FLOOR MOUNTED TRANSFORMER WITH CONCRETE HOUSEKEEPING PAD. SEE TRANSFORMER SCHEDULE FOR SIZE AND TYPE.

T TRANSFORMER. MOUNT AS INDICATED. SEE XFMR SCHEDULE FOR SIZE AND TYPE.

P POWER RELAY. PROVIDE WITH NEMA 1 ENCLOSURE. MOUNT IN LOCAL SERVING ELECTRICAL ROOM.

PC POWER CONTACTOR. PROVIDE WITH NEMA 1 ENCLOSURE.

S SPEED CONTROLLER FURNISHED BY DIVISION 15, INSTALLED BY DIVISION 16.

AUTOMATIC TRANSFER SWITCH.

AUTOMATIC TRANSFER SWITCH.

SITE EQUIPMENT:

HANDHOLE. SEE DETAIL.

MANHOLE. SEE DETAIL.

PAD-MOUNTED TRANSFORMER.

ALABAMA POWER COMPANY METER.

MISCELLANEOUS EQUIPMENT:

EF EXHAUST FAN.

E ELECTRICAL CONNECTION TO EQUIPMENT. VERIFY LOCATION WITH EQUIPMENT PROVIDER.

J JUNCTION BOX.

FIRE ALARM SYSTEM:

F FIRE ALARM SYSTEM ADDRESSABLE SINGLE ACTION MANUAL PULL STATION. MOUNT 48" TO TOP OF DEVICE. PROVIDE WITH CLEAR AUDIBLE PROTECTIVE SHIELD.

F FIRE ALARM SYSTEM AUDIO-VISUAL ALARM (CANDELA AS INDICATED ON SUBSCRIPT). MOUNT 80" AFF TO BOTTOM OF LENS OR 6" FROM THE CEILING, WHICHEVER IS LOWER. ALL STROBES SHALL BE SYNCHRONIZED. SUBSCRIPT "WG" INDICATES PROVIDE A WIRE GUARD OVER DEVICE.

F FIRE ALARM SYSTEM VISUAL ONLY APPLIANCE (CANDELA AS INDICATED ON SUBSCRIPT). MOUNT 80" AFF TO BOTTOM OF LENS OR 6" FROM THE CEILING, WHICHEVER IS LOWER. ALL STROBES SHALL BE SYNCHRONIZED. SUBSCRIPT "WP" INDICATES WEATHERPROOF DEVICE.

S FIRE ALARM SYSTEM ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR. CEILING MOUNT.

D FIRE ALARM SYSTEM ADDRESSABLE PHOTOELECTRIC DUCT MOUNTED SAMPLE TUBE TYPE SMOKE DETECTOR. PROVIDED BY DIV. 16, INSTALLED BY DIV. 15 AND CONNECTED BY DIV. 16.

R FIRE ALARM SYSTEM ADDRESSABLE AIR HANDLING UNIT SHUT-DOWN RELAY (UNLESS NOTED OTHERWISE). PROVIDE WITH POWER RELAY WHERE REQUIRED.

FACP MULTIPLEXED ADDRESSABLE FIRE ALARM CONTROL PANEL. BATTERY SUPPLIES TO BE MOUNTED WITH FACP. WITH REMOTE BOOSTER TYPE BATTERY POWER SUPPLIES WILL NOT BE ALLOWED UNLESS SPECIFICALLY SHOWN ON PLANS. FIELD VERIFY EXACT MOUNTING LOCATION.

FA FIRE ALARM SYSTEM REMOTE ANNUNCIATOR. FLUSH MOUNTED AT 5'0" AFF.

FS ADDRESSABLE MONITOR MODULE CONNECTED TO FLOW SWITCH.

TS ADDRESSABLE MONITOR MODULE CONNECTED TO TAMPER SWITCH.

H FIRE ALARM SYSTEM ADDRESSABLE HEAT DETECTOR. CEILING MOUNT. SUBSCRIPT 190° INDICATES TO PROVIDE 190° DEVICE WITH MONITOR MODULE.

NAC NOTIFICATION APPLIANCE CIRCUIT (NAC) EXTENDER PANEL. BATTERY SUPPLIES TO BE MOUNTED IN CABINET. FIELD VERIFY EXACT MOUNTING LOCATION.

E FIRE ALARM SYSTEM ADDRESSABLE CONTROL DEVICE FOR ELEVATOR RECALL/CAPTURE AND SHUNT TRIPPING AS REQUIRED BY CODE/FIRE MARSHAL. PROVIDE AS REQUIRED FOR "DESIGNATED" AND "ALTERNATE" FLOORS. ALSO INCLUDE ALL WORK REQUIRED TO SUPERVISE THE SHUNT TRIP CKT.

ABBREVIATIONS

A	AMPS
AC	ABOVE COUNTER
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ARCH	ARCHITECT OR ARCHITECTURAL
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
ATU	AIR TERMINAL UNIT
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BFG	BELOW FINISHED GRADE
BJ	BONDING JUMPER
BKR	CIRCUIT BREAKER
BLDG	BUILDING
BOD	BASIS OF DESIGN
C	CONDUIT
C/B	CIRCUIT BREAKER
CL	CURRENT LIMITING
C/L	CENTERLINE
CLG	CEILING
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DDC	DIRECT DIGITAL CONTROL
DEMO	DEMOLISH
EC	ELECTRICAL CONTRACTOR
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRICAL
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EF	EXHAUST FAN
EX	EXISTING TO REMAIN
EXT	EXTERIOR
EWC	ELECTRIC WATER COOLER
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
FMC	FLEXIBLE METAL CONDUIT
FACP	FIRE ALARM SYSTEM CONTROL PANEL
FU	FUSE
F/A	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
G	GROUND (OR GFI FOR RECEPTACLE SUBSCRIPT)
GC	GENERAL CONTRACTOR
GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HEAT PUMP OR HORSEPOWER
HVAC	HEATING, VENTILATION & AIR-CONDITIONING
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
JB	JUNCTION BOX
k	KILO
kAIC	KILO-AMPERE INTERRUPTING CAPABILITY
kCMIL	THOUSAND CIRCULAR MILS
LCP	LIGHTING CONTROL PANEL
LTG	LIGHTING
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LV	LOW VOLTAGE
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCE	MAIN COMMUNICATIONS EQUIPMENT ROOM
MCM	THOUSAND CIRCULAR MILS
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MNT	MOUNTING HEIGHT
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N1	NEMA 1
N3R	NEMA 3R
N/A	NOT APPLICABLE
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRICAL SAFETY CODE
NEU	NEUTRAL
OCPD	OVERCURRENT PROTECTION DEVICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
OHE	OVERHEAD ELECTRIC
OHP	OVERHEAD PRIMARY
OHS	OVERHEAD SECONDARY
PBD	PANELBOARD
PF	POWER FACTOR
PNL	PANELBOARD
PT	POTENTIAL TRANSFORMER
PWR	POWER
REC	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RGS	RIGID GALVANIZED STEEL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT
RVSS	REDUCED VOLTAGE SOLID STATE
SA	SURGE ARRESTER
SCA	SHORT CIRCUIT AMPS
SF	SUPPLY FAN
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TR	TELECOMMUNICATIONS ROOM
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UFR	UNDERFLOOR RACEWAY
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGP	UNDERGROUND PRIMARY
UGS	UNDERGROUND SECONDARY
UL	UNDERWRITERS' LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERES
VAR	VOLT-AMPERES REACTIVE
VAV	VARIABLE AIR VOLUME UNIT
W	WATTS
WAO	WORK AREA OUTLET
WP	WEATHERPROOF
WSR	WITHSTAND RATING
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
ϕ	PHASE
72°	DEGREES
Δ	DELTA
Ω	OHMS

dakinstreet architects
70 n joachim st | unit c | mobile, al | 36606 | 251.382.8317

ALABAMA LICENSED No. 25109 PROFESSIONAL ENGINEER ANDREW W. MAURIN
12-16-2022

200 GOVERNMENT ST THIRD FLOOR RENOVATIONS

PROJECT NUMBER MX-068-22

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Issues + Revisions
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ELECTRICAL LEGEND & ABBREVIATIONS

E1.1

ELECTRICAL SPECIFICATIONS

1. GENERAL ELECTRICAL:
   - 1.1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM AS INDICATED WITHIN THESE DRAWINGS. ALL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES AND WITH MANUFACTURER'S RECOMMENDATIONS.
   - 1.2. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS PRIOR TO SUBMITTING HIS BID. THE CONTRACTOR WILL BE REQUIRED TO FURNISH, INSTALL AND CONNECT ALL ITEMS AS INDICATED ON THE DRAWINGS.
   - 1.3. THE ARCHITECT SHALL BE NOTIFIED OF ANY CONFLICTS, OR INTERFERENCES THAT OCCUR BETWEEN INDIVIDUAL DRAWINGS.
   - 1.4. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN A NEAT, FIRST CLASS, WORKMANLIKE MANNER, TO THE APPROVAL OF THE ARCHITECT/ENGINEER AND GOVERNING AUTHORITIES.
   - 1.5. IN ADDITION TO THE MANUFACTURERS STANDARD GUARANTEES, THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP AGAINST DEFECTS FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE, AND SHALL CORRECT ANY DEFECTS AT NO ADDITIONAL COST TO THE OWNER. ALL LAMPS SHALL BE GUARANTEED FOR 30 DAYS AFTER ACCEPTANCE.
   - 1.6. THE LOADS SHOWN FOR APPLIANCES AND EQUIPMENT ARE BASED ON DESIGN INFORMATION. THE CONTRACTOR SHALL VERIFY ALL APPLIANCE LOADS PRIOR TO RUNNING THE CIRCUIT. THE MINIMUM CIRCUIT REQUIREMENTS SHALL BE BASED ON THE APPLIANCE NAMEPLATE VALUE OR CODE REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ADDITIONAL COMPENSATION SHALL NOT BE ALLOWED FOR APPLIANCE MODIFICATIONS BY THE CONTRACTOR.
   - 1.7. PRIOR APPROVAL: PRIOR APPROVAL SHALL BE REQUIRED FOR ANY MANUFACTURER OTHER THAN THOSE LISTED FOR ALL SPECIFIED ITEMS IN THESE DRAWINGS. SUBMIT ALL REQUESTS FOR PRIOR APPROVAL 2 WEEKS PRIOR TO BID OPENING. ENGINEER'S APPROVAL WILL BE IN THE FORM OF AN ADDENDUM.

2. CODES & STANDARDS:
   - 2.1. INSTALLATION AND MATERIALS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE FOLLOWING CODES & STANDARDS:
     - 2.1.1. NATIONAL ELECTRICAL CODE.
     - 2.1.2. NFPA 72. NATIONAL FIRE PROTECTION CODE.
     - 2.1.3. INTERNATIONAL BUILDING CODE.
     - 2.1.4. INTERNATIONAL ENERGY CONSERVATION CODE.
     - 2.1.5. NFPA 101.
     - 2.1.6. ADA .
     - 2.1.7. ANSI.
     - 2.1.8. NEMA.
     - 2.1.9. OSHA.
     - 2.1.10. UL.

3. ALTERATIONS & ADDITIONS TO EXISTING WORK:
   - 3.1. PROVIDE ALL NECESSARY ADDITIONS AND ALTERATIONS TO EXISTING WORK AS REQUIRED TO PROVIDE AND MAINTAIN A COMPLETE AND PROPER ELECTRICAL INSTALLATION.
   - 3.2. AS NECESSARY, RELOCATE EXISTING ELECTRICAL WORK SO OTHER TRADES CAN PURSUE THEIR WORK.
   - 3.3. MAINTAIN POWER TO EXISTING PORTIONS OF BUILDINGS FED FROM OR THROUGH AREA IN SCOPE OF THIS CONTRACT.
   - 3.4. COORDINATE ALL REQUIRED OUTAGES WITH OWNER.

4. BASIC MATERIALS & METHODS:
   - 4.1. ALL POWER AND DISTRIBUTION CABLING SHALL BE COPPER TYPE THWN/THHN.
   - 4.2. ALL ELECTRICAL EQUIPMENT, DEVICES, ETC. LOCATED OUTDOORS SHALL BE WEATHERPROOF.
   - 4.3. ELECTRICAL CONTRACTOR SHALL PROVIDE ADEQUATE AND PROPER SUPPORT FOR ALL ELECTRICAL OUTLETS, DEVICES, LIGHT FIXTURES, ETC. BUILT IN OR MOUNTED ON CEILINGS. NO OUTLET BOX, DEVICE, LIGHT FIXTURE, ETC. SHALL BE SUPPORTED FROM ANY ACOUSTICAL CEILING TILE OR DRYWALL CEILINGS. PROVIDE METAL SUPPORTS THAT ARE MADE FOR USE WITH CEILING GRID SYSTEMS OR PROVIDE HANGERS FROM STRUCTURE ABOVE.
   - 4.4. CONDUIT ROUTINGS AND DEVICE/EQUIPMENT LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTOR SHALL FIELD ROUTE AND LOCATE AS REQUIRED. CONDUIT ROUTINGS SHALL BE PARALLEL OR PERPENDICULAR TO BUILDING LINES.
   - 4.5. JUNCTION BOXES LOCATED ABOVE CEILING SHALL BE INSTALLED FACING DOWN AND SHALL BE ACCESSIBLE AFTER INSTALLATION.
   - 4.6. COORDINATE ALL ELECTRICAL WORK WITH OTHER TRADES AND STRUCTURAL COMPONENTS.
   - 4.7. THE CONDUIT MATERIAL SHALL BE AS FOLLOWS:
     - 4.7.1. ABOVE GRADE SUBJECT TO PHYSICAL ABUSE - RGS.
     - 4.7.2. ABOVE GRADE NOT SUBJECT TO PHYSICAL ABUSE OR WEATHER - EMT.
     - 4.7.3. INDOORS NOT SUBJECT TO PHYSICAL ABUSE - EMT. OR METAL CLAD CABLE(AS ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION).
     - 4.7.4. FINAL CONDUIT CONNECTIONS TO HEAT PUMPS, AIR HANDLERS, EXHAUST FANS, AND WATER HEATERS SHALL BE LFMC WHETHER INTERIOR OR EXTERIOR.
   - 4.8. CONDUIT FITTINGS SHALL BE AS FOLLOWS:
     - 4.8.1. EMT - <=2" USE STEEL SET SCREW WITH INSULATED THROATS FOR INTERIOR/ USE COMPRESSION FITTINGS WITH INSULATED THROATS FOR EXTERIOR, >2" USE SET-SCREW STEEL WITH INSULATED THROATS.
     - 4.8.2. RGS - THREADED GALVANIZED STEEL.
     - 4.8.3. PVC - PVC APPROVED FOR THE USE.
     - 4.8.4. LFMC - CADMIUM-PLATED MALLEABLE IRON OR STEEL COMPRESSION TYPE WITH INSULATED THROAT.
   - 4.9. ALL OUTLET BOXES SHALL BE 4"X4"X1-1/2" DEEP MINIMUM.
   - 4.10. ELECTRICAL CONTRACTOR SHALL WORK CLOSELY WITH THE MASONRY CONTRACTOR ON THE INSTALLATION OF ALL ELECTRICAL BOXES, CABINETS, RINGS, ETC. IN MASONRY WALLS. THE BOXES SHALL BE INSTALLED AT THE UNIFORM HEIGHTS CALLED FOR ON THE DRAWINGS AND SPECIFICATIONS. PROVIDE APPROPRIATE DEPTH MASONRY RINGS FOR ALL OUTLETS IN MASONRY WALLS TO INSURE PROPER CUTTING AND FITTING. THE FACE OF THE CABINETS, BOXES, RINGS, ETC. SHALL BE PLUMB AND FLUSH WITH THE FACE OF THE FINISH MATERIAL. ANY CABINET, OUTLET BOX, ETC. NOT MEETING THE ABOVE REQUIREMENT SHALL BE REMOVED AND REINSTALLED AT NO ADDITIONAL COST TO THE OWNER.
   - 4.11. ALL DIMENSIONS TO DEVICES AFF SHALL BE TO CENTERLINE UNLESS NOTED OTHERWISE.
   - 4.12. WALL OUTLETS SHALL NOT BE INSTALLED BACK TO BACK.
   - 4.13. COORDINATE LOCATIONS OF ELECTRICAL EQUIPMENT, DEVICES, OUTLETS, FIXTURES, ETC., WITH ARCHITECTURAL PLANS, ELEVATIONS AND REFLECTED CEILING PLANS PRIOR TO ROUGH-IN WORK.

5. GROUNDING & BONDING:
   - 5.1. PROVIDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS.
   - 5.2. ALL CABLES SHALL BE COPPER, ALL BOLTED CONNECTIONS SHALL BE BRONZE.

6. IDENTIFICATION:
   - 6.1. PROVIDE ENGRAVED 1"X3" PHENOLIC LABELS FOR ALL PANELBOARDS, SAFETY SWITCHES, TRANSFORMERS, CABINETS, ETC.
   - 6.2. PAINT THE RACEWAY SYSTEM COUPLINGS AND BOX COVERS ABOVE CEILINGS FOR THE FOLLOWING SYSTEMS AS FOLLOWS:
     - 6.2.1. FIRE ALARM - RED.
     - 6.2.2. 208 VOLT SYSTEMS - BLACK.
     - 6.2.3. AFTER PAINTING, WRITE THE CIRCUIT NUMBER (I.E. "LPA-34") ON ALL BRANCH CIRCUIT JUNCTION BOX COVERS ABOVE CEILING WITH WHITE MARKER.

7. GENERAL WIRING DEVICES:
   - 7.1. SWITCHES - SPECIFICATION GRADE, 20 AMP, COLOR BY ARCHITECT.
   - 7.2. RECEPTACLES - SPECIFICATION GRADE, 20 AMP, NEMA 5-20R, COLOR BY ARCHITECT.
   - 7.3. COVER PLATES - NYLON, COLOR BY ARCHITECT.
   - 7.4. SPECIAL RECEPTACLES - PER THE DRAWINGS, VERIFY WITH EQUIPMENT BEING SUPPLIED.
   - 7.5. APPROVED MANUFACTURERS - HUBBELL, LEVITON, EAGLE, PASS & SEYMOUR.

8. SAFETY SWITCHES:
   - 8.1. GENERAL DUTY, VISIBLE BLADE, LOCKABLE, QUICK-MAKE/QUICK-BREAK, HORSEPOWER RATED, FUSED WHERE INDICATED.
   - 8.2. PROVIDE WITH GROUND LUG KIT.
   - 8.3. INTERIOR - NEMA 1.
   - 8.4. APPROVED MANUFACTURERS - SQUARE D, GENERAL ELECTRIC, CUTLER-HAMMER SIEMENS, EATON.

9. LIGHTING:
   - 9.1. PROVIDE A 6'-0" MAXIMUM FLEXIBLE CONNECTION FROM EACH RECESSED LIGHTING FIXTURE TO JUNCTION BOX ABOVE CEILING.
   - 9.2. FOR FIXTURES IN LAY-IN CEILINGS, PROVIDE WIRE SUPPORTS AT OPPOSITE CORNERS OF FIXTURE SEPARATE FROM LAY-IN CEILING WIRE SUPPORTS.
   - 9.3. ELECTRONIC BALLASTS SHALL BE INSTANT START, <10%THD, SOUND RATED A, OUTPUT FREQUENCY >40kHz, CONTAIN NO PCBs, SYLVANIA QTP SERIES OR ADVANCE CENTIUM SERIES.
   - 9.4. APPROVED MANUFACTURERS FOR LAMPS SHALL BE GE, SYLVANIA, PHILIPS.

10. FIRE ALARM SYSTEM:
   - 10.1. MULTIPLEXED ADDRESSABLE INTELLIGENT CONTROL PANEL WITH LCD DISPLAY, OPERATOR INTERFACE, UL 864 LISTED, SUPPORTS INDIVIDUAL ANALOG SENSING, PROGRAMMABLE SENSITIVITY, SENSOR STATUS.
   - 10.2. DO NOT LOAD ANY SLC CONTROLLER MORE THAN 75% OF ITS ALLOWABLE DEVICE LIMIT.
   - 10.3. DO NOT LOAD ANY NAC CONTROLLER MORE THAN 75% OF ITS ALLOWABLE CAPACITY.
   - 10.4. ALL INITIATING DEVICES SHALL BE INTELLIGENT ADDRESSABLE DEVICES. PULL STATIONS SHALL BE SINGLE ACTION TYPE, SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE, DUCT SMOKE DETECTORS SHALL BE SAMPLE TUBE TYPE. PROVIDE REMOTE INDICATORS FOR ALL DUCT SMOKE DETECTORS NOT IN PLAIN SIGHT FROM FLOOR LEVEL.
   - 10.5. PULL STATIONS SHALL BE MOUNTED 48" AFF TO CENTER, STROBES SHALL BE MOUNTED 80" AFF TO BOTTOM OF STROBE LENS.
   - 10.6. TAG ALL CIRCUITS IN CABINETS AND JUNCTION LOCATIONS.
   - 10.7. SLC CABLES SHALL BE #18AWG TWISTED PAIR MINIMUM.
   - 10.8. NAC CABLES SHALL BE #14AWG MINIMUM.
   - 10.9. ALL CABLES SHALL BE IN CONDUIT DEDICATED TO THE FIRE ALARM SYSTEM. MINIMUM SIZE IS 3/4".
   - 10.10. ALL TERMINATIONS SHALL BE UNDER SCREW TERMINALS. WIRE NUTS SHALL NOT BE USED.
   - 10.11. TEST, CERTIFY & DOCUMENT IN COMPLIANCE WITH NFPA 72.
   - 10.12. APPROVED MANUFACTURERS - EST (EST-2 SYSTEM), NOTIFIER (AFP-200 SYSTEM), SIMPLEX (4100 SYSTEM).

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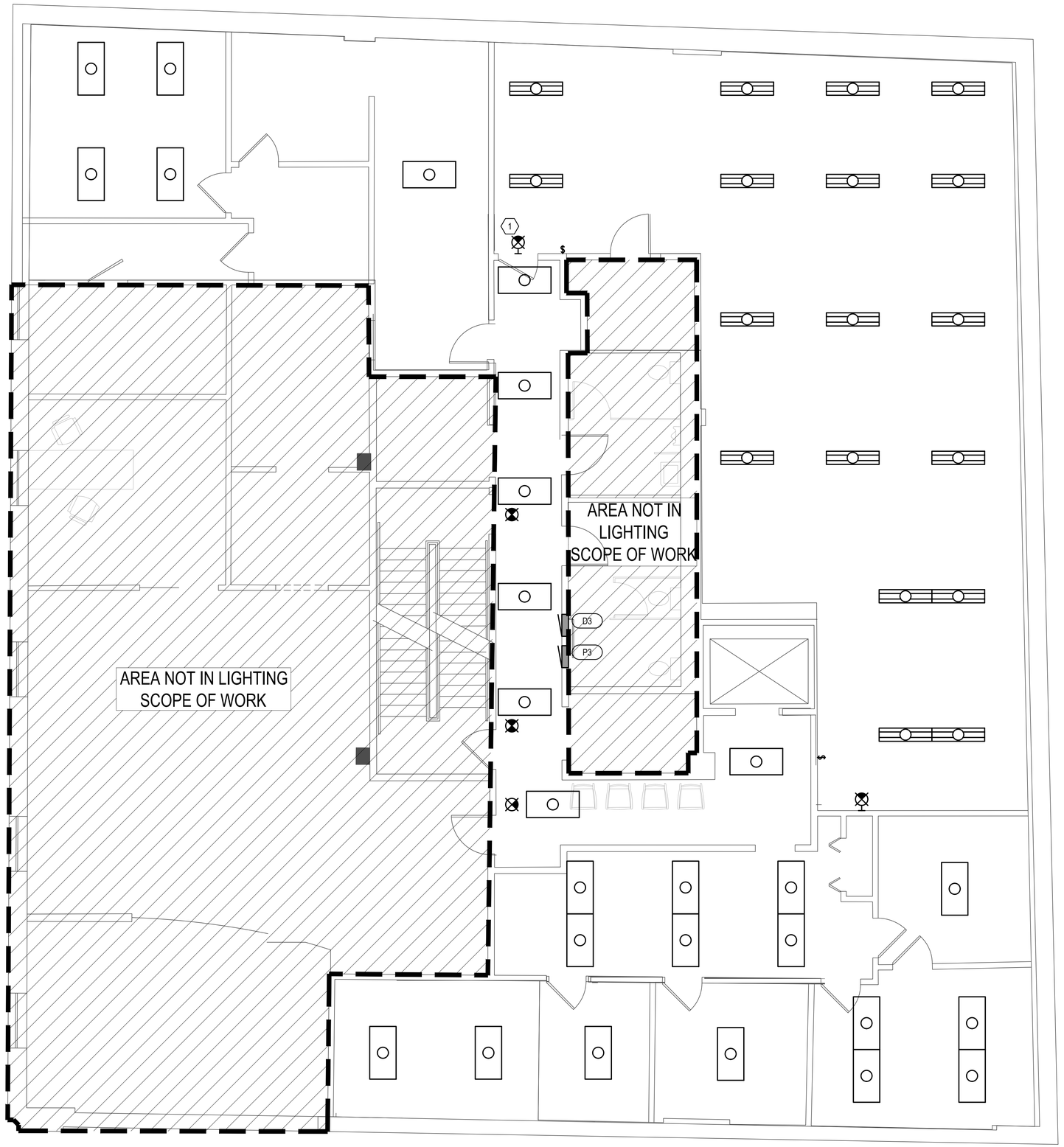
ALABAMA LICENSED PROFESSIONAL ENGINEER No. 25109 ANDREW W. MAURIN
12-16-2022

200 GOVERNMENT ST
THIRD FLOOR RENOVATIONS
PROJECT NUMBER MX-068-22

Issues + Revisions
ISSUE FOR BID/PERMIT 12.16.22

ELECTRICAL SPECIFICATIONS

E1.2



1 EXISTING LIGHTING PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR IS TO DE-ENERGIZE, DISCONNECT, AND REMOVE EXISTING LIGHTING FIXTURES AND DEVICES. ALL ASSOCIATED CONDUIT AND WIRING IS TO BE REMOVED BACK TO THE NEAREST JUNCTION BOX TO REMAIN.
2. ALL EXISTING LIGHTING FIXTURE AND DEVICE QUANTITIES AND LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS TO CONFIRM ALL QUANTITIES AND LOCATIONS IN THE AREA OF THE SCOPE OF WORK PRIOR TO BID.

SHEET NOTES

1 THIS LIGHTING FIXTURE IS EXISTING TO REMAIN.

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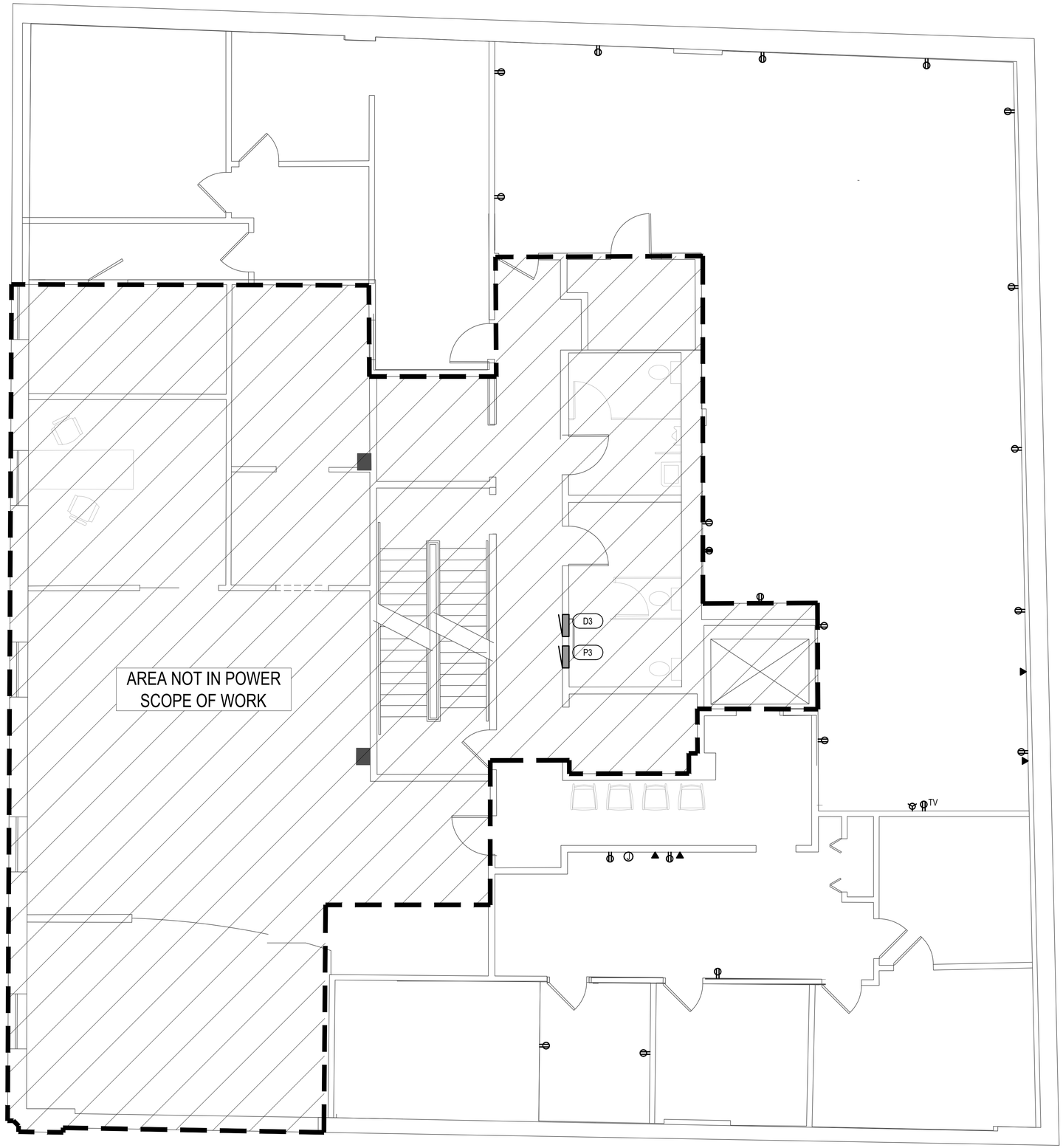
ELECTRICAL
EXISTING
LIGHTING PLAN

E2.1

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR IS TO DE-ENERGIZE, DISCONNECT, AND REMOVE ALL ELECTRICAL AND DATA DEVICES, WIRING, CONDUIT, BOXES, ETC BACK TO THE NEAREST JUNCTION BOX TO REMAIN.
2. ALL EXISTING ELECTRICAL DEVICE QUANTITIES AND LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS TO CONFIRM ALL QUANTITIES AND LOCATIONS IN THE AREA OF THE SCOPE OF WORK PRIOR TO BID.



N

1 EXISTING POWER PLAN

SCALE: 1/4"=1'-0"

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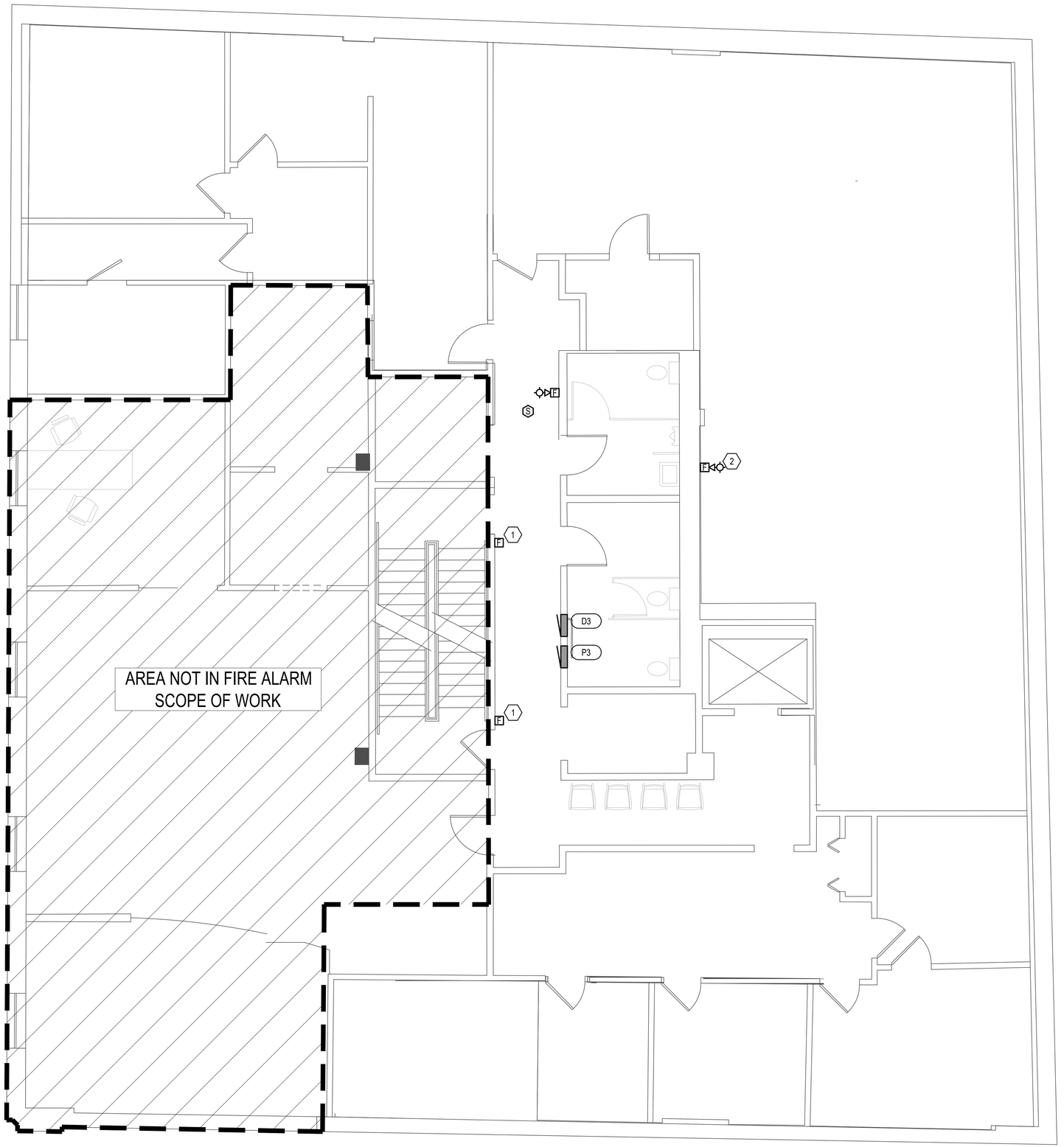
ELECTRICAL
EXISTING
POWER PLAN

E2.2



GENERAL NOTES

1. THE AIR HANDLING UNITS ON THE 3RD FLOOR AND THE ASSOCIATED DUCT SMOKE DETECTORS ON THE SUPPLY AND RETURN DUCTS ARE EXISTING TO REMAIN.
2. ALL EXISTING FIRE ALARM DEVICE QUANTITIES AND LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS TO CONFIRM ALL QUANTITIES AND LOCATIONS IN THE AREA OF THE SCOPE OF WORK PRIOR TO BID.
3. THE EXISTING FIRE ALARM CONTROL PANEL IS LOCATED IN THE 1ST FLOOR LOBBY.

SHEET NOTES

1. THIS FIRE ALARM PULL STATION IS EXISTING AND IS TO BE RE-INSTALLED 48" ABOVE FINISHED FLOOR TO THE TOP OF THE DEVICE.
2. THIS FIRE ALARM DEVICE IS EXISTING TO BE REMOVED. ALL ASSOCIATED CONDUIT AND WIRING IS TO BE DISCONNECTED AND REMOVED BACK TO THE NEAREST JUNCTION BOX TO REMAIN.
3. THIS FIRE ALARM DEVICE IS EXISTING TO REMAIN.

N

1 EXISTING FIRE ALARM PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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PROJECT NUMBER MX-068-22

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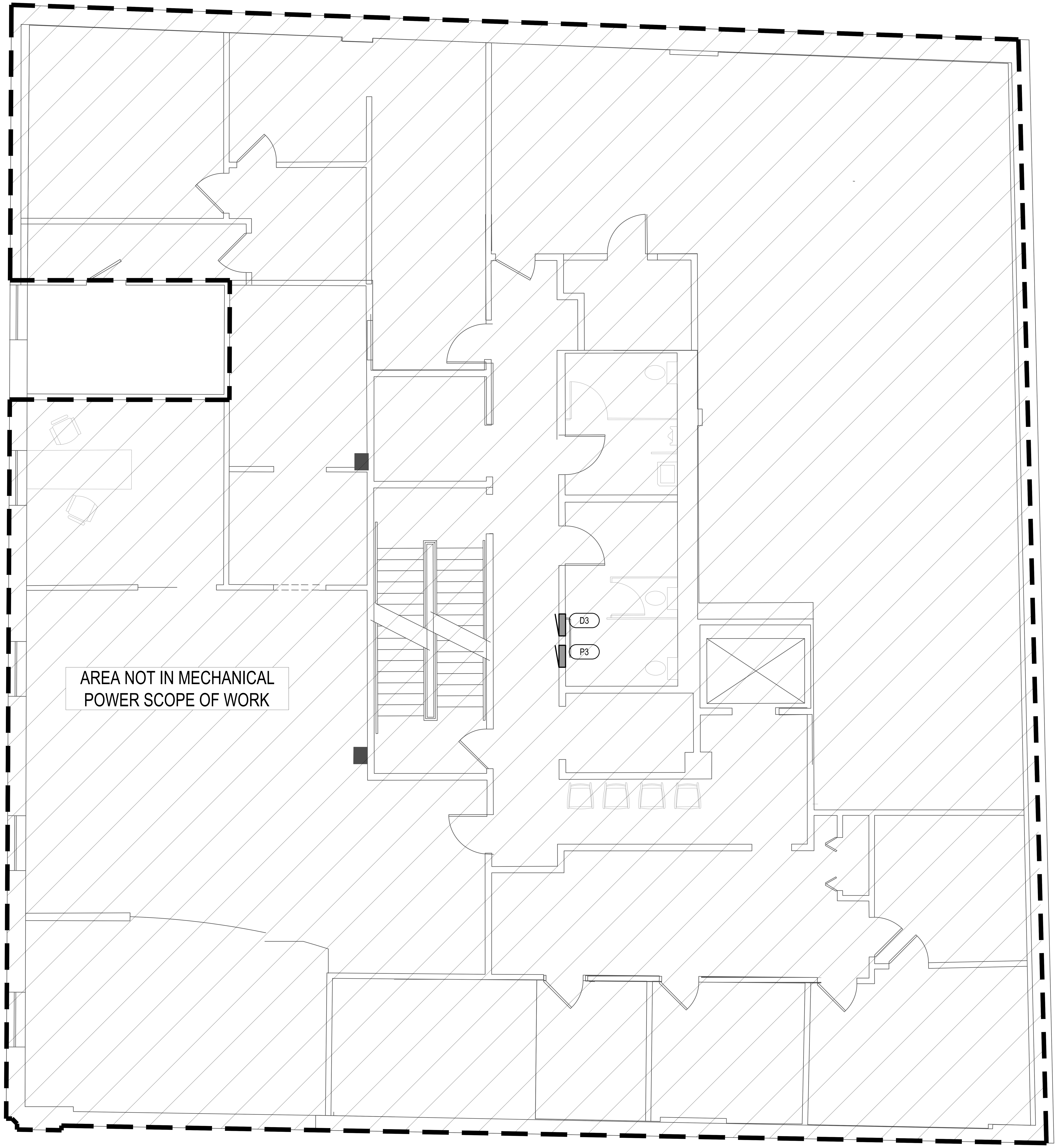
ELECTRICAL
EXISTING
FIRE ALARM PLAN

E2.3



N

1 EXISTING MECHANICAL POWER PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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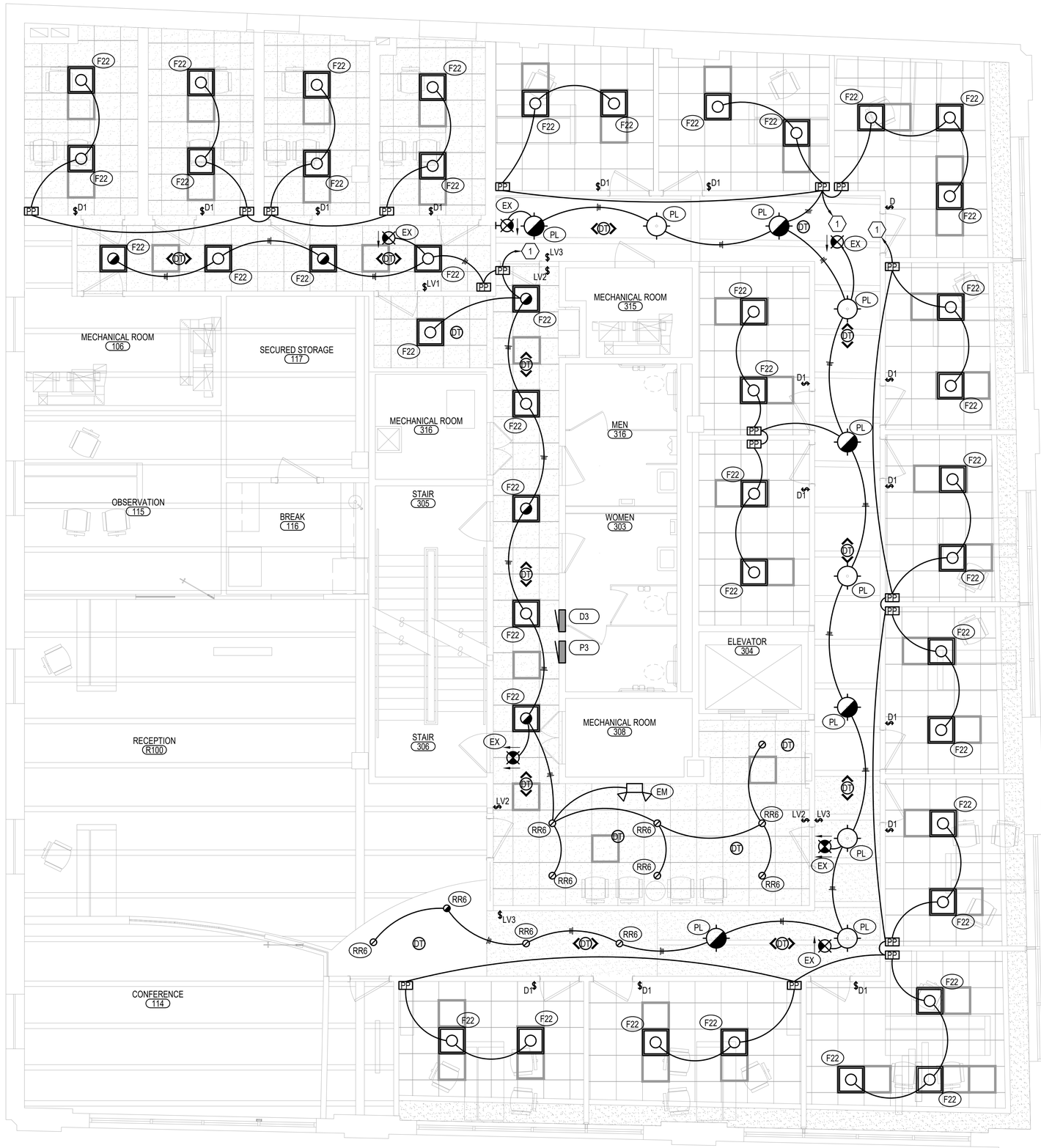
ELECTRICAL EXISTING MECHANICAL POWER PLAN

E2.4



N

1 NEW WORK LIGHTING PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL LOW VOLTAGE CABLING AND 0-10V WIRING BETWEEN FIXTURES AND DEVICES AS REQUIRED FOR A FULLY FUNCTIONAL LIGHTING SYSTEM.
2. LIGHTING FIXTURES DENOTED "EX" ARE EXISTING TO REMAIN.

SHEET NOTES

1. THIS LIGHTING CIRCUIT IS TO BE CONNECTED TO AN EXISTING LIGHTING CIRCUIT SERVING THIS SPACE. FIELD VERIFY SUITABLE LOCATION FOR CONNECTION OF THE NEW TO THE EXISTING.

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PROJECT NUMBER MX-068-22

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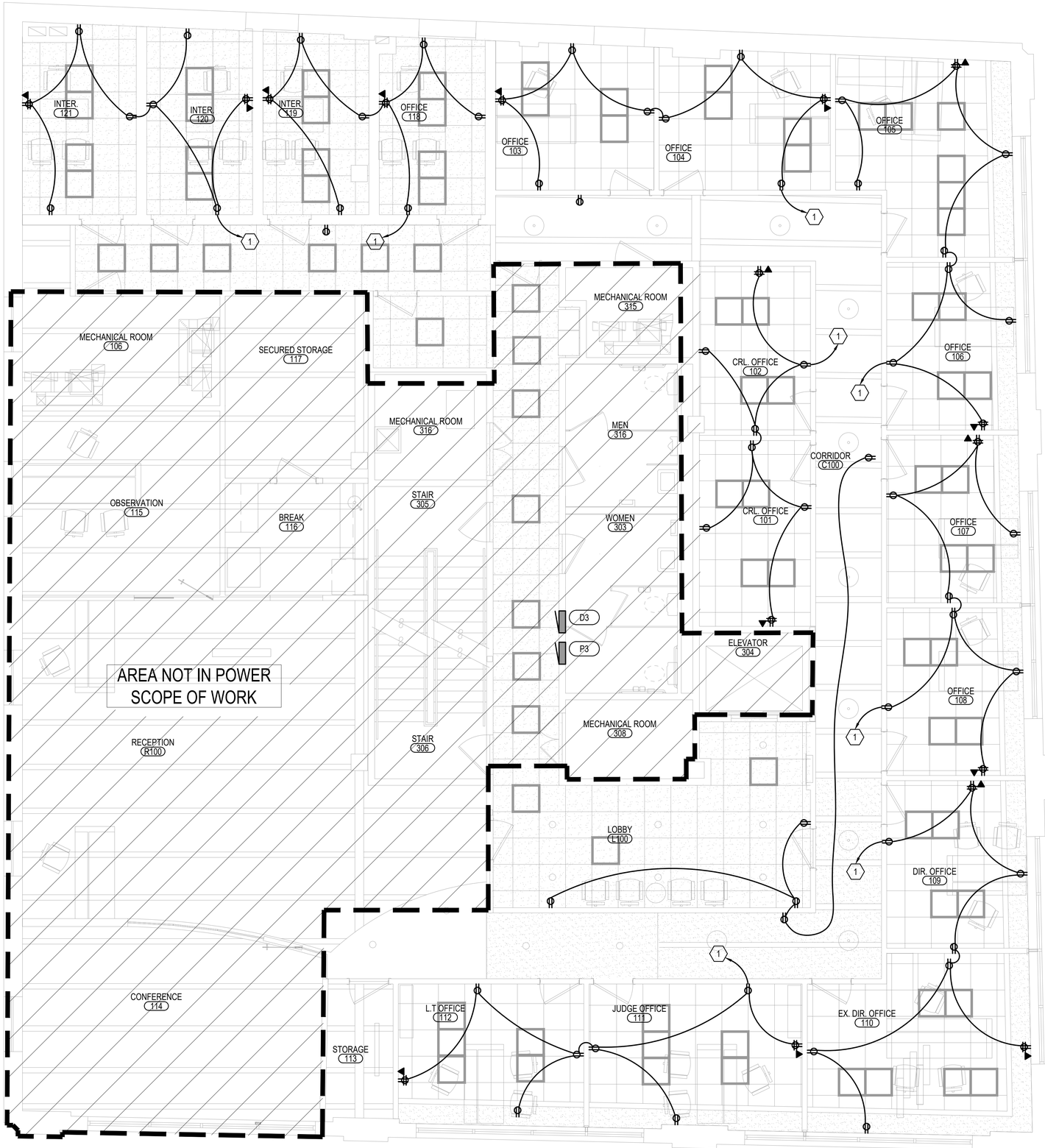
ELECTRICAL
NEW WORK
LIGHTING PLAN

E3.1

SHEET NOTES

1. THIS LIGHTING CIRCUIT IS TO BE CONNECTED TO AN EXISTING RECEPTACLE CIRCUIT SERVING THIS SPACE. FIELD VERIFY SUITABLE LOCATION FOR CONNECTION OF THE NEW TO THE EXISTING.



N

1 NEW WORK POWER PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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ALABAMA LICENSED PROFESSIONAL ENGINEER ANDREW W. MAURIN No. 25100

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PROJECT NUMBER MX-068-22

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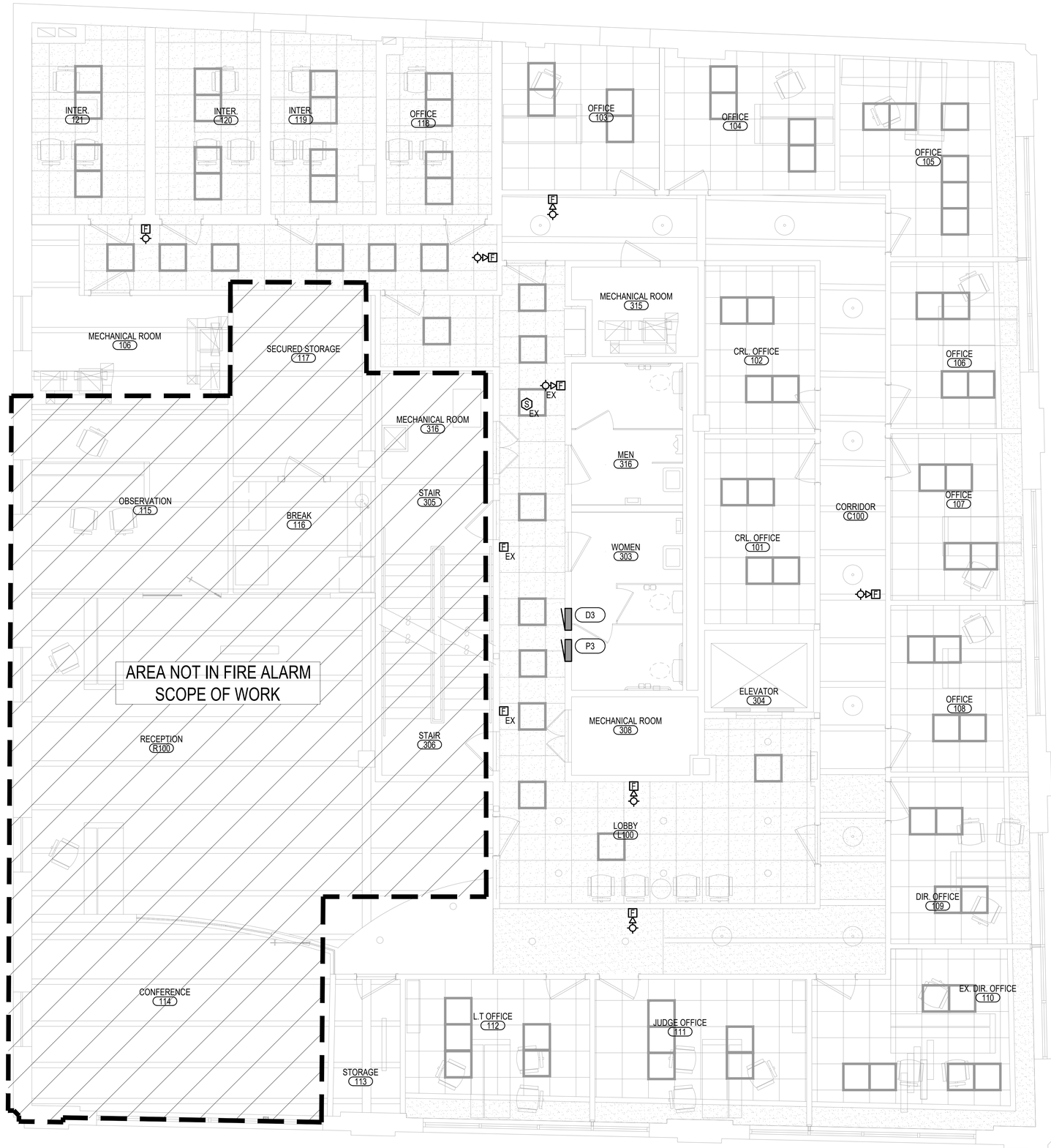
ELECTRICAL
NEW WORK
POWER PLAN

E3.2

GENERAL NOTES

1. FIRE ALARM DEVICES DENOTED "EX" ARE EXISTING TO REMAIN.



N

1 NEW WORK FIRE ALARM PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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PROJECT NUMBER MX-068-22

Issues + Revisions
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ELECTRICAL
NEW WORK
FIRE ALARM PLAN

E3.3

N

1 NEW WORK MECHANICAL POWER PLAN

4' 0' 4' 8'

SCALE: 1/4"=1'-0"

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PROJECT NUMBER MX-068-22

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ISSUE FOR BID/PERMIT 12.16.22

ELECTRICAL
NEW WORK
MECHANICAL
POWER PLAN

E3.4

N

1 NEW WORK ROOF TOP POWER PLAN

SCALE: 1/4"=1'-0"

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PROJECT NUMBER MX-068-22

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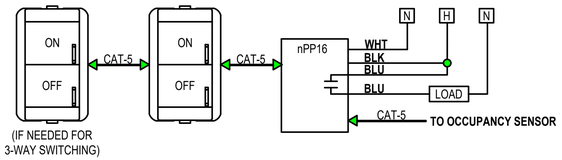
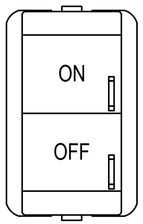
ELECTRICAL
NEW WORK
ROOF TOP
POWER PLAN

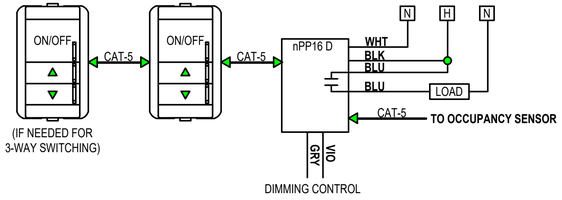
E3.5

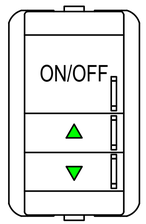




nPODM ^{LV}

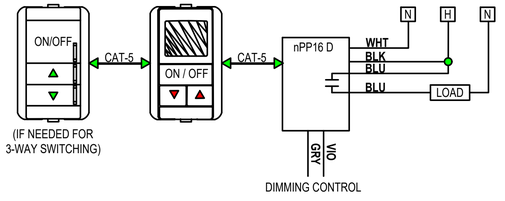
1 LOW VOLTAGE SWITCH DETAIL AND WIRING DIAGRAM

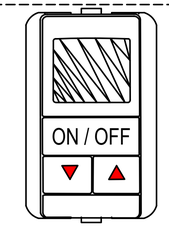




nPODM DX ^{D}

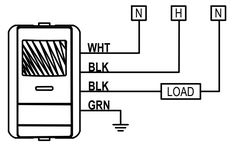
2 LOW VOLTAGE SWITCH WITH DIMMING DETAIL AND WIRING DIAGRAM

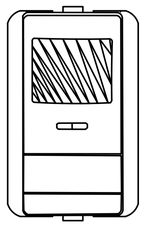




nWSX PDT LV D ^{D1}

3 LOW VOLTAGE SWITCH W/ OCC. SENSOR AND DIMMING DETAIL AND WIRING DIAGRAM



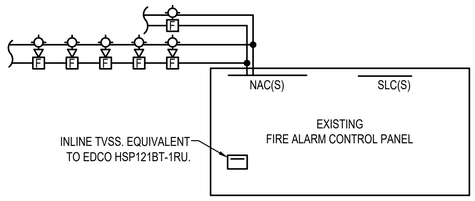


WSX PDT (D)

4 LINE VOLTAGE SWITCH W/ OCC. SENSOR DETAIL AND WIRING DIAGRAM

SHEET NOTES

1. THE ELECTRICAL CONTRACTOR IS TO INSTALL A NEW 50A/2P BREAKER IN THE EXISTING PANEL D3 TO SERVE THE NEW AIR HANDLING UNIT AHU-3-6.
2. THE ELECTRICAL CONTRACTOR IS TO INSTALL A NEW 25A/2P BREAKER IN THE EXISTING PANEL D3 TO SERVE THE NEW ROOFTOP CONDENSING UNIT CU-3-6.



1 FIRE ALARM SYSTEM RISER DIAGRAM
NOT TO SCALE

MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE

MARK	ITEM	VOLTAGE/Ø	MCA	LOAD	MEANS OF DISCONNECT*	C/B TRIP (AMPS)	CIRCUIT Ø	CIRCUIT GROUND	CIRCUIT CONDUIT	SERVING PANEL	NOTES
AHU-3-6	AIR HANDLING UNIT	208/1	47	7.5kVA	SS N1	35	#6	#10	1"C	D3	
CU-3-6	CONDENSING UNIT	208/1	17	2.8kVA	SS N3R	25	#12	#10	1/2"C	D3	
							#N/A	#N/A	#N/A		
							#N/A	#N/A	#N/A		
							#N/A	#N/A	#N/A		
							#N/A	#N/A	#N/A		
							#N/A	#N/A	#N/A		
							#N/A	#N/A	#N/A		

NOTES: *N1=NEMA 1, N3R=NEMA 3R, SS=SAFETY SWITCH, C/B=SERVING C/B, TS=MANUAL TOGGLE SWITCH, TSM=MOTOR RATED TS

PANELBOARD SCHEDULE

MARK: EXISTING PANEL D3

CKT #	LOAD DESCRIPTION	BREAKER P	BREAKER TRIP	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	BREAKER TRIP	BREAKER P	LOAD DESCRIPTION	CKT #
1	OCCUPIED BREAKER	2	60							100	3	OCCUPIED BREAKER	2
3													4
5	OCCUPIED BREAKER	3	30										6
7										60	3	AHU-3	8
9													10
1 11	AIR HANDLING UNIT - AHU-3-6	2	50			4.3							12
13				4.3						60	3	AHU-1	14
2 15	CONDENSING UNIT - CU-3-6	2	25		1.7								16
17						1.7							18
19	SPARE	1	20							60	3	AHU-2	20
21	SPARE	1	20										22
23	SPARE	1	20										24
25	SPARE	1	20							20	1	SPARE	26
27	SPARE	1	20							20	1	SPARE	28
29	SPARE	1	20							20	1	SPARE	30
				4.3	1.7	6.0							

TOTAL (kVA) ØA 4.3 ØB 1.7 ØC 6.0 — HIGH PHASE (AMPS) 50.0

TOTAL CONNECTED LOAD (kVA) 12.0 — TOTAL LOAD (AMPS) 33.3

CREATE A DIRECTORY TO INDICATE INSTALLED LOADS. INDICATE LOAD TYPE (REC, LTG, AHU-1, ETC.) AND ROOM NUMBERS SERVED FOR EVERY BRANCH CIRCUIT.

LIGHTING FIXTURE SCHEDULE

MARK	MANUFACTURER AND CATALOG NUMBER	LAMPS TYPE	LAMPS #	LAMPS WATTS	TOTAL WATTS	VOLTAGE	MOUNTING	NOTES
F22	LITHONIA LIGHTING 2BLT2 40L ADP LP835	LED	1	32	32	MVOLT	RECESSED	2'x2' LED TROFFER 4000 LUMENS 82CRI 3500K
PL	TMS LIGHTING CAL-I-18-17LED-CRD-35K-120-SS-GA-F15-EM	LED	1	17	17	120	PENDANT	18" WAREHOUSE PENDANT LIGHT 3500K WITH DIMMING
RR6	LITHONIA LIGHTING LDN6 35/15 L06AR LD MVOLT EZ10 EL	LED	1	35	35	MVOLT	RECESSED	6" ROUND OPEN LED RECESSED DOWNLIGHT 4000K 3000 LUMENS WITH EMERGENCY BATTERY BACKUP
EX	LITHONIA LIGHTING LQM P W 3 R 120/277 SD	LED	1	4	4	MVOLT	SURFACE	EXIT SIGN, WHITE ENCLOSURE, RED LETTERS WITH EMERGENCY BATTERY BACKUP
EM	LITHONIA LIGHTING EU2C H0	LED	1	1	1	MVOLT	SURFACE	EMERGENCY LIGHT UNIT, WHITE ENCLOSURE
NOTES	FIXTURES WITH HALF-FILLED CIRCLES ARE TO BE EQUIPPED WITH EMERGENCY BATTERY BACKUP							

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ELECTRICAL SCHEDULES & DETAILS

E4.1