ADDENDUM NO. *1*

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

St. Louis Veterans Home
Interior Renovations, A-Wing
10600 Lewis and Clark Boulevard
St Louis, MO 63136
PROJECT NO. U2307-01

Bid Opening Date: 1:30 PM, August 26, 2025 (Not Changed)

Use Updated Bid Forms issued with Addendum 1 when submitting your bid.

Bidders are hereby informed of the following:

SPECIFICATION CHANGES*:*

1. **Section 004113 – Bid Form**
   A. Replace Section 004113 Bid Form with Section 004113 Bid Form – Addendum 1
2. **Section 000110 – TABLE OF CONTENTS**
   A. Sections 0123000 and 271000 modified, refer to specific sections for updates.
3. **Section 012300 – ALTERNATES**
   A. **ADD** Article 3.1-B to read as follows:
   Alternate No. 2: Provide cost for removal of all existing surface mounted wiremold and recessing within wall. At exterior walls include cost to remove gypsum board, recess into the framing, repair/reinstall the vapor barrier and insulation and patch/repair/repaint disturbed area. If the Owner should decline the alternate the surface mounted wiremold would remain as is and be painted to match wall.
4. **Section 271000 – STRUCTURED TELECOMMUNICATIONS CABLING SYSTEMS**
   A. **MODIFY,** Spec section modified to CAT6 cabling

DRAWING CHANGES:

1. **SHEET A-011 – DEMOLITION PLANS – CENTRAL FACILITIES**
   a. **MODIFY**, detail 2, updated door graphics to match door schedule
2. **SHEET A-102 – FLOOR PLANS – CENTRAL FACILITIES**
   a. **MODIFY**, detail 2, updated door graphics to match door schedule
3. **SHEET A-503 – INTERIOR DETAILS**
   a. **ADD**, detail 3, note added for clarity
4. **SHEET A-603 – DOOR SCHEDULES FOR A-WING & STAFF LOUNGE**
   a. **ADD**, comment 12 added to select A HOME doors schedule for clarity
5. **SHEET I-103 – FINISH PLANS – A HOME 2**
   a. **MODIFY**, detail 1, finish updated to match finish legend
6. **SHEET F-003 – LEVEL 01 FIRE PROTECTION DEMOLITION PLAN – A WING**
   a. **MODIFY**, key plan modified for clarity of entire scope of work
7. **SHEET F-102 – LEVEL 01 FIRE PROTECTION PLAN – A WING**
   a. **MODIFY**, key plan modified for clarity of entire scope of work
8. **SHEET P-002 – UNDERFLOOR PLUMBING DEMOLITION PLAN – A WING**
   a. **MODIFY**, key plan modified for clarity of entire scope of work
9. **SHEET P-004 – LEVEL 01 PLUMBING DEMOLITION PLAN – A WING**
   a. **MODIFY**, key plan modified for clarity of entire scope of work

10. **SHEET P-101 – UNDERFLOOR PLUMBING PLAN – A WING**
    a. **MODIFY**, key plan modified for clarity of entire scope of work
11. **SHEET P-103 – LEVEL 01 PLUMBING PLAN – A WING**
    a. **MODIFY**, key plan modified for clarity of entire scope of work
12. **SHEET M-003 – LEVEL 01 DUCTWORK DEMOLITION PLAN – A WING**
    a. **MODIFY**, key plan modified for clarity of entire scope of work
13. **SHEET M-004 LEVEL 01 PIPING DEMOLITION PLAN – A WING**
    a. **MODIFY**, key plan modified for entire scope of work clarity
    b. **MODIFY,** general note 3 modified to read as follows:
    EXISTING FAN COIL UNIT TO REMAIN. REMOVE EXISTING DDC CONTROLLER.
14. **SHEET M-103 – DUCTWORK PIPING PLAN – A WING**
    a. **MODIFY**, key plan modified for clarity of entire scope of work
15. **SHEET M-104 LEVEL 01 HVAC PIPING PLAN – A WING**
    a. **MODIFY**, key plan modified for clarity of entire scope of work
    b. **ADD**, keyed note 3 added
16. **SHEET M-601 SCHEDULES**
    a. **MODIFY**, Make-up Air handling unit schedule remark 2 updated to read as follows:
    PROVIDE WITH CONTROLS COMPATIBLE WITH FACILTY BMS. SCHNEIDER-ELECTRIC BACnet IP)
17. **SHEET E-502 – SYSTEM DETAILS**
    a. MODIFY, schedule updated to match plans
    b. MODIFY, cable updated to Cat6

BIDDER QUESTIONS AND RESPONSES:

1. Specification Section 230900 lists Siemens Building Technologies as the only bidder for controls. The MO VA System has standardized on Schneider Electric EBO via C&C Group. (It is shown on Drawing M-602).

Response: From Tim Hoyer: Schneider Electric shall be the only controls used for this project.

2. Is the MAU coming with factory controls? If so, it should be spec'd with BACnet IP interface. If not, C&C will provide field installed controls to match existing BAS.

Response: From Tim Hoyer: Please spec all controls with BACnet IP interphase. From CannonDesign: The Make-up Air unit schedule notes that the controls are to be compatible with the rest of the facility controls.

3. Architectural Plans show a key that demonstrates that the shown space is typical of the other wings. The Mechanical Plans do not. Are all pods identical?

Response: Wings A1A, A2A, and A2B are typical. Wing A1B incorporates an additional air filtration system.

4. Ceramic tile shows 4 colors, sheet A202 shows CT1 are we to use all 4 colors, and if so an equal amount?

Response: There is only one color assigned to each kitchenette. Refer to Finish Schedule on sheet I-001.

5. On plans it shows something labeled WP-6 for base, not sure what that is, mainly in corridors. What should it be?

Response: Refer to sheet A-821.

6. Pantry 153 shows RES-3, but material list only shows 1 and 2.

Response: Should be RES-2.

7. The existing Honeywell Lon controllers are obsolete, and their Lon profiles are no longer

available (even through Honeywell). I recommend replace all of the controllers in A wing at this time.

Response: Replace controllers on all existing fan coil units. Controllers to be Schneider-Electric MP-C SmartX IP Controller.

8. Attached is a substitution request form and the associated data sheets for the desired product. The blueprints call out to utilize Cat5e cabling, which is no longer the standard cable for voice/data systems and is no longer mass produced or readily available. I am requesting to substitute a Belden Cat6 data solution. Please let me know if any other information is needed.

Response: Cat6 was used in C-wing as well. We will update it in an Addendum.

9. The specs call out a GE Telligence Series nurse call system. I had inquired about this with a vendor who informed me that the GE Telligence system is obsolete and no longer available. He stated that this had come up on a bid for STL Veterans Home back in 2019 but was not sure of the changes made. Can the nurse call be an open spec for the manufacturer?

Response: The existing nurse call devices are to be removed, stored, and reinstalled at new locations. The current nurse call system is GE Telligence Series.

GENERAL:

1. Please contact Mandy Roberson, Contract Specialist, at 573-522-0074 or Mandy.Roberson@oa.mo.gov for questions about bidding procedures, MBE\WBE\SDVE Goals, and other submittal requirements.

2. The deadline for technical questions is August 18, 2025, at Noon.

3. Changes to, or clarification of, the bid documents are only made as issued in the addenda.

4. All correspondence with respect to this project must include the State of Missouri project number as indicated above.

5. Current Plan Holders list available online at: *Bid Listing/ Electronic Plans (Projects Currently Bidding) | Office of Administration (mo.gov)* U230701 - St Louis Veterans Home-Interior Renovations, A Wing.

6. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 7A, Columbia MO 65203, 573-446-7768 to order official plans and specifications.

7. All bids shall be submitted on the bid form without additional terms and conditions, modifications, or stipulations. Each space on the bid form shall be properly filled including a bid amount for the alternates. Failure to do so will result in rejection of the bid.

8. MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 10%/10%/3%, respectively. Only certified firms as of the bid opening date can be used to satisfy the MBE/WBE/SDVE participation goals for this project. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.

ATTACHMENTS:

1. Specifications
   a. Section 000110 – TABLE OF CONTENTS (6 pages)
   b. Section 004113 – Bid Form – ADDENDUM 1 (6 pages)

c. Section 012300 – ALTERNATES (2 pages)
d. Section 27100 – STRUCTURED TELECOMMUNICATIONS CABLING SYSTEMS (38 pages)

2. Drawings
   a. SHEET A-011 – DEMOLITION PLANS – CENTRAL FACILITIES
   b. SHEET A-102 – FLOOR PLANS – CENTRAL FACILITIES
   c. SHEET A-503 – INTERIOR DETAILS
   d. SHEET A-603 – DOOR SCHEDULES FOR A-WING & STAFF LOUNGE
   e. SHEET I-103 – FINISH PLANS – A HOME 2
   f. SHEET F-003 – LEVEL 01 FIRE PROTECTION DEMOLITION PLAN – A WING
   g. SHEET F-102 – LEVEL 01 FIRE PROTECTION PLAN – A WING
   h. SHEET P-002 – UNDERFLOOR PLUMBING DEMOLITION PLAN – A WING
   i. SHEET P-004 – LEVEL 01 PLUMBING DEMOLITION PLAN – A WING
   j. SHEET P-101 – UNDERFLOOR PLUMBING PLAN – A WING
   k. SHEET P-103 – LEVEL 01 PLUMBING PLAN – A WING
   l. SHEET M-003 – LEVEL 01 DUCTWORK DEMOLITION PLAN – A WING
   m. SHEET M-004 LEVEL 01 PIPING DEMOLITION PLAN – A WING
   n. SHEET M-103 – DUCTWORK PIPING PLAN – A WING
   o. SHEET M-104 LEVEL 01 HVAC PIPING PLAN – A WING
   p. SHEET M-601 SCHEDULES
   q. SHEET E-502 – SYSTEM DETAILS

3. Pre-Bid Sign-in Sheet

By the Order of:

Fred L. Decker Jr., Project Manager
Division of Facilities Management,
Design and Construction
August 21, 2025

END ADDENDUM NO. 1

TABLE OF CONTENTS

VOLUME 1

DIVISION 01 - GENERAL REQUIREMENTS

TECHNICAL SPECIFICATIONS INDEX:

DIVISION 02 – EXISTING CONDITIONS

DIVISION 03 – CONCRETE

DIVISION 04 – MASONRY (NOT USED)

DIVISION 05 – METALS

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

VOLUME 2

END OF SECTION 000110

Addendum 1

STATE OF MISSOURI

Bid Time: 1:30 PM

Bid Date: _____

All bid documents shall be emailed to FMDCBids@oa.mo.gov

SECTION 004113 - BID FORM – ADDENDUM 1

1.0 BID

A. From: _____
(Bidder's Company Name)

☐ Sole Proprietorship/General Partnership ☐ LLC ☐ Limited Partnership ☐ Corporation ☐ Joint Venture

Address:_____

City, State, Zip _____

Phone: _____ Email: :_____

Federal ID Number: _____ Missouri Business Charter Number:_____

Contact Name: _____Contact email: _____

herein after called the "**Bidder".**

B. To: Director, Division of Facilities Management, Design and Construction
Room 730, Harry S Truman State Office Building
301 West High Street
Jefferson City, Missouri 65101

herein after called the **"Owner."**

C. For: Interior Renovations, A Wing
St Louis Veterans Home
St. Louis, Missouri 63136

D. Project Number: U2307-01

hereinafter called the **"Work."**

E. Documents: The undersigned, having examined and being familiar with the local conditions affecting the work and with the complete set of contract documents, including the Drawings, the Invitation For Bid, Instructions To Bidders, Statement of Bidders Qualifications, General Conditions, Supplement to General Conditions, and the technical specifications, including: addenda number _____ through _____ hereby proposes to perform the Work for the following:

F. Bid Amount: _____

_____ Dollars ($_____)

H. Alternates:

Alternate No. 1: Provide cost for one additional Nurse Station in lieu of DEN 236 as shown on the Drawings as the referenced add-alternate. Should this alternate be accepted by the Owner after the bids are reviewed, the total nurse station count for A-wing would be 2 (two). If the Owner should decline the alternate, DEN 236 would remain as would the Nurse Station as shown on the Drawings under the base contract.

_____ Dollars ($_____)

Alternate No. 2: Provide cost for removal of all existing surface mounted wiremold and recessing within wall. At exterior walls include cost to remove gypsum board, recess into the framing, repair/reinstall the vapor barrier and insulation and patch/repair/repaint disturbed area. If the Owner should decline the alternate the surface mounted wiremold would remain as is and be painted to match wall.

_____ Dollars ($_____)

2.0 MBE/WBE/SDVE PERCENTAGE OF PARTICIPATION PROJECT GOALS

A. This project's specific goals are: **MBE 10%**, **WBE 10%**, and **SDVE 3%**. NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity, and SDVE(s) meeting the requirements of Section 34.074, RSMo, and 1 CSR 30-5.010, as of the date of bid opening can be used to satisfy the MBE/WBE/SDVE participation goals for this project.

3.0 BID BOND

A. Accompanying the bid is: ___ 5% Bid Bond or ___ Cashier's Check/Bank Draft for 5% of base bid that is payable without condition to the Division of Facilities Management, Design and Construction, State of Missouri, as per Article 5 of "Instructions To Bidders".

4.0 CONTRACT COMPLETION TIME AND LIQUIDATED DAMAGES

A. The Bidder agrees to complete the work within 250 working days from the date the Notice of Intent to Award is issued as modified by additional days added by the Owner's acceptance of alternates, if applicable. This includes ten (10) working days for document mailing and processing. The Bidder further agrees to pay to, or allow the State as liquidated damages the sum of $1,000 for each working day thereafter that the entire work is not substantially complete.

5.0 ATTACHMENTS TO BID

004322	Unit Prices Form
004336	Proposed Subcontractors
004337	MBE/WBE/SDVE Compliance Form
004338	MBE/WBE/SDVE Joint Venture Form
004339	MBE/WBE/SDVE Waiver Form
004340	SDVE Business Form
004541	Affidavit of Work Authorization
004545	Anti-Discrimination Against Israel Act Certification form

6.0 BIDDER'S CERTIFICATIONS

By signing and submitting this bid form, the Bidder certifies as follows:

A. **No Undisclosed Interests or Associations, Collusion, or Solicitation of Other Bidders**

1. This bid is genuine and is not made in the interest of or on behalf of any undisclosed person, firm, or corporation, and is not submitted in conformity with any agreement or rules of any group, association or corporation.

2. The Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham proposal.

3. The Bidder has not solicited or induced any person, firm or corporation to refrain from submitting a bid.

4. The Bidder has not sought by collusion or otherwise to obtain any advantage over any other bidder or over the Owner.

B. **Accuracy of Contract Documents**

The Bidder has based this bid upon an official/complete set of contract documents, either obtained from the Owner or from a secondary source known to the Bidder to have provided a complete and accurate set of contract documents. If the Bidder received the contract documents from such a secondary source, any errors or omissions in the contract documents shall be interpreted and construed in favor of the Owner and against the Bidder. This bid is based upon the conditions within Article 1.2 of the General Conditions.

C. **Non-Discrimination**

The Bidder will not discriminate against any employee or applicant for employment because of race, creed, color or national origin in the performance of the Work.

D. **Prevailing Wage**

MISSOURI PREVAILING WAGE LAW (Sections 290.210 to 290.340, RSMo): The Contractor shall pay not less than the specified hourly rate of wages, as set out in the wage order attached to and made part of the specifications for work under this contract, to all workers performing work under the contract, in accordance with sections 290.210 to 290.340, RSMo. The Contractor shall forfeit a penalty to the Owner of one hundred dollars per day (or portion of a day) for each worker that is paid less than the specified rates for any work done under the contract by the Contractor or by any subcontractor, in accordance with section 290.250, RSMo.

DAVIS-BACON ACT: If this Project is financed in whole or in part from Federal funds (as indicated in the Instructions to Bidders or other bid or contract documents for this Project), then this contract shall be subject to all applicable federal labor statutes, rules and regulations, including provisions of the Davis-Bacon Act, 40 U.S.C. §3141 et seq., and the "Federal Labor Standards Provisions," as further set forth in Section 007333 – Supplementary General Conditions for Federally Funded/Assisted Construction Projects, which is incorporated into the contract by reference. Where the Missouri Prevailing Wage Law and the Davis-Bacon Act require payment of different wages for work performed under this contract, the Contractor and all Subcontractors shall pay the greater of the wages required under either law, on a classification-by-classification basis.

E. **Transient Employers**

The Bidder will comply with the provisions of Sections 285.230-234, RSMo, regarding transient employers.

F. **Federal Work Authorization Program**

The Bidder has enrolled and is participating in, and will continue to participate in, a federal work authorization program in accordance with Sections 285.525 and 285.530, RSMo for the duration of any contract awarded because of this bid.

G. **Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA)**

1. If awarded contract for this project, the Bidder/Contractor shall only utilize personnel authorized to work in the United States in accordance with applicable federal, state and local laws. This includes, but is not limited to, the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.

2. If found to be in violation of this requirement or any applicable laws, and if the State of Missouri has reasonable cause to believe that the Contractor has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar the contractor from doing business with the state.

3. The Contractor agrees to cooperate fully with any audit or investigation from federal, state or local law enforcement agencies.

H. **Anti-Discrimination Against Israel Act**

1. If the awarded Contractor meets the definition of a company as defined in section 34.600, RSMo, and has ten or more employees, the Contractor shall not engage in a boycott of goods or services from the State of Israel; from companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or from persons or entities doing business in the State of Israel as defined in section 34.600, RSMo.

2. If, at any time during the life of the contract, Contractor meets the definition of a company as defined in section 34.600, RSMo, and the company's employees increases to ten or more OR the contractor's business status changes to become a company as defined in section 34.600, RSMo, and the company has ten or more employees, then the Contractor shall submit to the Division of Facilities Management, Design and Construction a completed Box C of the exhibit titled "Anti-Discrimination Against Israel Act Certification, and shall comply with the requirements of Box C.

7.0 SIGNATURES

FOR SOLE PROPRIETORSHIPS/GENERAL PARTNERSHIPS ONLY

_____ Name each general partner: _____
Sole Proprietor's Name (printed)

_____

_____

Today's Date: _____

_____

I, _____, being the sole proprietor/general partner of (name of business) _____ (*and if the name of said business is other than my legal name, having filed a Registration of Fictitious Name with the Missouri Secretary of State in order to allow me to use such name in connection with my business, as provided by Section 417.200, RSMo, et seq.*), do hereby submit this bid and agree to be bound unto the State of Missouri as herein provided (if a general partnership, all partners must sign below).

Signature: _____ Signature: _____

Signature: _____ Signature: _____

FOR LIMITED LIABILITY COMPANIES ONLY

_____ today's date _____State(s) of organization: _____
Manager's (or Managing Member's) Name (printed)

I, _____, being the Manager (or Managing Member) of (full legal name of limited liability company from Articles of Organization) _____, and being duly authorized to act as herein provided on behalf of said limited liability company, do hereby submit this bid on behalf of said limited liability company and agree that said limited liability company shall be bound unto the State of Missouri as herein provided.

Signature: _____

FOR LIMITED PARTNERSHIPS/LIMITED LIABILITY PARTNERSHIPS/LIMITED LIABILITY LIMITED PARTNERSHIPS ONLY

_____ today's date: _____State(s) of organization:_____
General/Managing Partner's Name (printed)

I, _____, being the General Partner/Managing Partner of (full legal name of limited partnership/limited liability partnership/limited liability limited partnership from partnership agreement or Certificate of Limited Partnership) _____, and being duly authorized to act as herein provided on behalf of said limited partnership/limited liability partnership/limited liability limited partnership, do hereby submit this bid on behalf of said limited partnership/limited liability partnership/limited liability limited partnership and agree that said limited partnership/limited liability partnership/limited liability limited partnership shall be bound unto the State of Missouri as herein provided.

Signature:_____
___

FOR CORPORATIONS ONLY

_____ _____ _____

President's Name (printed) Secretary's Name (printed) Today's date

State(s) of incorporation: _____

I, _____, being the (officer or title) _____ of (full legal name of corporation, from Articles of Incorporation) _____, and being duly authorized by the Board of Directors of said corporation to act as herein provided on behalf of said corporation, do hereby submit this bid on behalf of said corporation and agree that said corporation shall be bound unto the State of Missouri as herein provided.

Signature: _____ Attested
by:_____ President
Corporate Secretary

The President should sign as the bidder. If the signator is other than the corporate president, the bidder must provide satisfactory evidence that the signator has the legal authority to bind the corporation.

FOR ASSOCIATIONS/JOINT VENTURES

If multiple business entities/individuals are bidding collectively as an association or joint venture, each business entity/individual bidding as part of the association or joint venture shall sign this bid in the above sections relevant to the form that such business entity or individual does business, and the bidder shall duplicate the necessary number of signature pages so that all members of the association or joint venture shall sign this bid. If a name is adopted for use by the association or joint venture, the association or joint venture shall file a Registration of Fictitious Name with the Missouri Secretary of State in order to use such name in connection with the association or joint venture, as provided by Section 417.200, RSMo, *et seq*.

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing Alternates.

1.3 DEFINITIONS

A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents..

1. The cost for each alternate is the net addition to the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

B. No additional time will be allowed for alternate work unless the number of work days is so stated on the bid form.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate the Alternate Work into the 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 mentioned as part of the Alternate.

B. Notification: The award of the Contract will indicate whether alternates have been accepted or rejected.

C. Execute accepted alternates under the same conditions as other Work of this Contract.

D. Schedule: A “Schedule of Alternates” is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Provide cost for one additional Nurse Station in lieu of DEN 236 as shown on the Drawings as the referenced add-alternate. Should this alternate be accepted by the Owner after the bids are reviewed, the total nurse station count for A-wing would be 2 (two). If the Owner should decline the alternate, DEN 236 would remain as would the Nurse Station as shown on the Drawings under the base contract.

B. Alternate No. 2: Provide cost for removal of all existing surface mounted wiremold and recessing within wall. At exterior walls include cost to remove gypsum board, recess into the framing, repair/reinstall the vapor barrier and insulation and patch/repair/repaint disturbed area. If the Owner should decline the alternate the surface mounted wiremold shall remain as is and shall be painted to match wall.

END OF SECTION 012300

SECTION 271000 - STRUCTURED TELECOMMUNICATIONS CABLING SYSTEMS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide and install a complete structured telecommunications cabling infrastructure to support information transport systems as specified and as shown on Drawings. Quantities of outlets shall be as shown on Drawings.

1. Voice Systems.
2. Data Systems.
3. Video Systems.

B. This Section includes:

1. Horizontal Cabling System:
    a. Copper Cabling System.
2. Patch panels, patch cords, and connection hardware.
3. Signal grounding – equipment connection.
4. Administration – labeling.
5. Acceptance testing.
6. Re-working of existing cabling systems.
7. Removal of existing cabling systems.

C. Coordinate all work with Division 26 for proper pathways and rough-in requirements.

D. Requirements of Division 20 Section "Common Work Results, Division 21 through 28" apply to this section.

E. Requirements of the following Division 26 Sections apply to this Section.

1. Section "Common Work Results for Communications."
2. Section "Raceways."
~~3. Section "Ladder Type Cable Trays."~~
~~4. Section "Center Hung Type Cable Trays."~~
~~5. Section "Wire Basket Type Cable Trays."~~
~~6. Section "Control/Signal Transmission Media."~~
~~7.~~3. Section "Grounding and Bonding."

~~8.~~4. Section "Conduit Rough-In Systems."

F. Requirements of the following Division 27 sections apply to this Section.

1. Section "Common Work Results for Communications."
2. Section "Grounding and Bonding for Communications Systems."
3. ~~Section "Cable Runway."~~
4. ~~Section "Voice Communications."~~

1.2 GENERAL DESIGN CONCEPT

A. Data Network System:

1. The structured cabling system is designed in a two-tier star topology to meet the needs of the facility now and in the future. Tier 2 shall be the horizontal cabling circuits.
2. Numerous modular telecommunications outlets (work area outlets) are located throughout each building as shown on Drawings. It is the intention of these Specifications and Drawings to terminate these outlets to existing horizontal cross-connects (HC) in existing telecommunications rooms using horizontal cabling between termination points. This will facilitate the connection of computers and other equipment to the network distributed electronics for the purpose of sharing resources such as printers, internet/intranet services, storage and backup devices.
3. The existing Main Telecommunications Room and existing Remote Telecommunications Rooms contain existing data racks/cabinets that house existing backbone cross-connects, horizontal cross-connects and network electronics. The work area outlets will terminate at the specified existing telecommunications room on the horizontal cross-connects to allow segmentation and future reconfiguration of the network and the common resources to the end-users.

B. Telephone Cabling System:

1. The structured cabling system is designed in a two-tier star topology to meet the needs of the facility now and in the future. Tier 1 shall be the backbone or distribution cabling and Tier 2 shall be the horizontal cabling circuits.
2. Numerous modular telecommunications outlets (work area outlets) are located throughout each building as shown on Drawings. It is the intention of these Specifications and Drawings to terminate these outlets to horizontal cross-connects in telecommunication rooms (also referred to as Intermediate Cross-Connect (ICC)) using horizontal cabling to interconnect telephones to the system.
3. The Main Cross-Connect (MCC) contains telephone system equipment mounted on an equipment backboard and located as shown on Drawings. The MCC forms the central hub of the telephone system by providing the connection to the telephone service entrance and the termination of the backbone cabling system on cross-connect blocks at a central location.

4. The MCC will be connected to other telecommunications rooms' horizontal cross-connect located throughout the Facility via copper cable backbone systems. The backbone system will be terminated on the patch panels at each telecommunications room to allow connection to work area outlets using patch cords.

5. Work area outlets, consisting of a quantity of cables as shown on Drawings, shall terminate at specified telecommunications rooms on patch panels to enable connection to the telephone network and to allow for future Voice over IP (VoIP). Patch cords shall be provided to enable telephone location changes by "patching" into the backbone cabling system.

6. The MCC will be connected to other telecommunications rooms (ICCs) located throughout the Facility via copper cable backbone systems. The backbone will be terminated at wall-mounted cross connect blocks at each telecommunications room (ICC) to allow connection to work area outlets.

7. Work area outlets, consisting of a quantity of cables as shown on Drawings, shall terminate at specified telecommunications rooms (ICCs) on cross-connect blocks to allow connection to backbone cabling.

1.3 REFERENCES

A. If this document and any of the documents listed below are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents; the vendor is responsible to determine and adhere to the most recent release and associated addenda when developing the proposal for installation.

1. NFPA 70 – National Electrical Code, 2017.

2. ANSI/TIA 568-C.2 - Transmission Performance Specification for 4-Pair 100 Ω Augmented Category 6 Cabling.

3. ANSI/TIA 568.0-D - Generic Telecommunications Cabling for Customer Premises Standard.

4. ANSI/TIA 568.1-D - Commercial Building Telecommunications Cabling Standard.

5. TIA-568-C.2 - Balanced Twisted Pair Cabling Components.

6. TIA-568.3-D - Optical Fiber Cabling Components Standard.

7. Technical Service Bulletin 162 - Cabling Wireless Access Points.

8. ANSI/EIA/TIA 569-D – Commercial Building Standard for Telecommunication Pathways and Spaces, April 2015.

9. ANSI/TIA 606B – Administrative Standard for Telecommunications Infrastructure, June 2012.

10. ANSI/TIA-STD 607C – Commercial Building Grounding, Earthing, and Bonding Requirements for Telecommunications, November 2015.

11. ANSI/EIA/TIA 758B – Customer-Owned Outside Plant Telecommunications Cabling Standard, March 2012.
12. ANSI/EIA/TIA 862B – Structured Cabling Infrastructure Standard for Intelligent Building Systems, February 2016.
13. ANSI/EIA/TIA 942A – Telecommunications Infrastructure Standard for Data Centers, March 2014.
14. ANSI/NECA/BICSI 568-2006 – Installing Commercial Building Telecommunications Cabling.
15. IEEE Std. 802.3bm – 40 GB/s and 100 GB/s Standard for High Speed Ethernet Networking, February 2015.
16. NECA NEIS 301 - Standard, Installing and Testing Fiber Optics - 2009.
17. TIA-1179 - Healthcare Facility Structured Cabling Standard.
18. BICSI – Telecommunications Distribution Methods Manual (TDMM) 13th Edition – 2014.
19. TIA TSB-184- Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling, July 2009.
20. IEEE 802.3at - 2009 Standard for Power Over Ethernet Plus Standard Requirements for Distributing Power (25W) via Low Voltage Structured Cabling Devices.
21. Federal Communications Commission (FCC) Rules: Part 21 and Part 94.
22. ANSI/NEMA WC 66/ICEA S-116-732-2013 - Standard for Category 6 and Category 6A, 100 Ohm Individually Unshielded Twisted Pairs, Indoor Cables (With or Without an Overall Shield) For Use in LAN Communication Wiring Systems - 2014.
23. Underwriters Laboratories (UL) - UL 444 Standard for Safety for Communications Cable.
24. Underwriters Laboratories (UL) - UL 1666 Vertical Flame Tests for Plenum Applications.
25. Infocomm/BICSI – AV Design Reference Manual.
26. BICSI – Information Transport Systems Installation Methods Manual, 7th Edition.
27. ANSI/NECA 1-2015 – Standard Practice of Good Workmanship in Electrical Contracting.

B. If a conflict exists between applicable documents, then the order in the list above shall dictate the order of precedence in resolving conflicts. This order of precedence shall be maintained unless a lesser order document has been adopted as code by a local, state or federal entity, and is therefore enforceable as law by a local, state or federal inspection agency.

1.4 SUBMITTALS

A. General: Submit in accordance with Division 27 Section "Common Work Results for Communications" and for ACTION SUBMITTALS, INFORMATION SUBMITTALS, CLOSEOUT SUBMITTALS, and MAINTENANCE MATERIAL SUBMITTALS.

1.5 ACTION SUBMITTALS

A. All documentation shall be accompanied with an RCDD stamp and registration number.

B. Shop drawings and manufacturer's literature shall include all information necessary to confirm that the proposed system is in complete compliance with the Specifications.

1. All items of equipment must be new, in current production, currently eligible for warranty and maintenance coverage and have guaranteed availability for a minimum of 5 years from the delivery date.

2. Submit the following:

a. Complete materials list indicating manufacturer, part numbers, page number, and quantities.

b. Manufacturer's specifications and descriptive literature.

c. Manufacturer's recommended installation procedures.

d. Provide a list of at least three (3) installations of equivalent or larger systems installed within the last two (2) years with the specified products.

e. Provide certification with data substantiating that products comply with requirements of the Contract Documents. Furnish UL File number with product data as submitted.

f. Provide certification from copper cable and connector equipment manufacturer that installer or representative is an authorized installation and service supplier for the specified equipment and cable.

g. Provide specific certification for telecommunication cable/connector manufacturer that installer or representative is authorized to provide extended system warranties as specified herein.

h. Provide certification letter that the designed system meets the requirements of the manufacturer's warranty program and is eligible for warranty certification.

i. Provide certification form from the system manufacturer for each installer on the Project to document specific training for termination and cable installation.

j. Provide copies of all documentation with equipment cable/connector manufacturer to register Project for required extended warranties as indicated herein.

k. Submit the resume of the RCDD to be utilized for this Project. Be responsible for employing a full time BICSI Certified Registered Communications Distribution Designer to supervise the installation, testing, certification, and documentation associated with all Telecommunications and Local Area Network Systems. All documentation and correspondence shall be administered by the RCDD.

l. Fully documented scale drawings in paper and soft (AutoCAD) files of the entire distribution system including building and floor layouts, distribution frames, cable routes, interconnect locations, main distribution frame location, riser locations, and all other information pertinent to the installation:

1) After installation is complete, drawings must be updated to reflect any as-built modifications.

m. System block diagram, indicating interconnection between system components and subsystems.

n. Interface requirements, including connector types and pin-outs, to external systems and systems or components not supplied.

o. Provide documentation of service capability for LAN systems on a 24 hours a day, 7 days a week basis, with on-site assistance and service response requirements as follows:

1) Cable Plant/Horizontal Wiring: 24 hours.

2) Cable Plant/Backbone Wiring: 4 hours.

3) Maximum Radius from Project Site: 100 miles.

4) The successful Bidder must provide an escalation chart that indicates time limits, levels of escalation, and individuals' names, titles, and locations to be used in case of extraordinary problems.

p. Provide responsibilities of those to be assigned to this Project including subcontractors.

q. Provide certification from the Cable Testing Equipment manufacturer identifying qualified individuals to perform required testing procedures for each telecommunications media specified.

1) Provide documentation verifying the cable testing equipment to be used has been factory calibrated within the last twelve (12) months.

2) Provide a sample test report to Engineer for approval prior to beginning any testing.

3. Samples:

a. Provide the following sample devices to the Engineer for approval.

1) Each telecom/datacom outlet type identified on the telecommunications outlet schedule with proper faceplate, type/quantity of device jacks, terminated cable (6 inch length), cable label (identifier), faceplate label installed in surface mount raceway. Ensure colors as specified.

2) Provide sample labels to be reviewed by the Engineer/Owner for size, color, font size/type, etc.

1.6 INFORMATIONAL SUBMITTALS

A. General: Submit in accordance with Division 27 Section "Common Work Results for Communications."

1.7 CLOSEOUT SUBMITTALS

A. General: Submit in accordance with Division 27 Section " Common Work Results for Communications."

1.8 MATERIALS AND MAINTENANCE SUBMITTALS

A. General: Submit in accordance with Division 27 Section " Common Work Results for Communications."

1.9 QUALITY ASSURANCE

A. The products listed are subject to compliance with the requirements as listed in this specification based on performance, form, fit, and function.

B. The products provided for by this Specification shall be the products of one manufacturer or manufacturers with previously documented partnerships certifying the use of the cabling, patch panels, connectors, patch cords, (channel components) used will exceed the parameters of this specification.

1. A system warranty shall be provided by the manufacturer and shall cover permanent link and channel performance for a minimum of 15 years for copper systems.

C. The necessary documentation shall be provided that indicates that the Contractor is qualified to install, terminate, and test the structured cabling system and its components.

1. Provide information that identifies the installer has been a provider of the specified system for five (5) years.

2. Provide a listing of at least three (3) projects of similar size and scope which have been completed within the last two (2) years.

3. The Owner may, with full cooperation of the bidder, visit client installations to observe equipment installations and consult with references. Specified visits and discussion shall be arranged through the bidder; however, the bidder's personnel shall not be present during discussions with references.

D. Utilize components as indicated in this Specification to install a complete "system" as recognized by all component manufacturers utilized.

1. The individual component manufacturers shall have previously completed standardized factory "system" testing of the specific components utilized.

a. Provide channel "solutions" for all individual cable systems (i.e., terminations, copper cables, patch panels and patch cords).

2. All components shall be the product of one (1) manufacturer or those of previously recognized "system" partners.

3. The manufacturer shall be authorized to provide a minimum 15 year warranty on the complete system with the verified test reports and other building documentation as required by the manufacturer.

4. The bidder shall be a certified installer meeting the manufacturer's installation requirements for all components.

E. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70 "National Electrical Code."

F. The successful Bidder shall agree to indemnify the Purchaser with respect to any legal suit, claim, or proceeding which may be brought against it claiming that the use of the Category 6A Structured Cabling System constitutes an infringement of any patent or trade secret. The successful Bidder will further agree to defend the Purchaser against any such claims and to pay all litigation costs, attorney fees, settlement payments and any damages awarded or resulting from any such claims.

G. Toxicity: Comply with applicable codes and regulations regarding toxicity of combustion products of materials used in telecommunications cabling.

H. UL Compliance: Comply with applicable requirements of UL Standard 910 "Test Method for Fire and Smoke Characteristics of Cables Used in Air Handling Spaces." Provide UL 1666 flame test and UL 70,000 BTU vertical tray flame test products that are UL-listed and labeled for such use.

I. Electronic Industries Association/Telecommunications Industries Association Compliance: Comply with EIA/TIA Standards as listed in this Specification.

J. Comply with latest BICSI Telecommunications Distribution Methods Manual.

K. All materials shall comply with ROHS directive for the restricted use of hazardous materials.

1.10 PERSONNEL

A. The Installation Representative shall employ and assign to this Project qualified personnel experienced in the design and installation of structured cabling systems.

B. Project Manager:

1. Must employ full time a BICSI – RCDD® (Registered Communications Distribution Designer) on staff that will be ultimately responsible for this work.

2. Supervise and review installation, testing, certification, and documentation associated with installed system. Provide approval and sign off.

3. Attend all project meetings and report on project status, deliverables, manpower, shutdowns, etc.
4. Administer all correspondence between Installer and Owner/Engineer.
5. A single point of contact (POC) with the Customer who will be responsible for reporting progress and updating the Owner's Representative with issues that the Owner must address to facilitate the cabling system installation. Information critical to the completion of the task or project shall be communicated to the Owner's Representative as the requirement becomes known.
6. The RCDD must have sufficient experience in this type project as to be able to lend adequate technical support to the field forces during installation, during the warranty period, and during any extended warranty periods or maintenance contracts. A resume of the responsible RCDD must be attached to the Vendor's response for evaluation by the Owner's Representative. Should the RCDD assigned to this Project change during the installation, the new RCDD assigned must also submit a resume for review by the Owner's Representative.
7. If, in the opinion of the Customer, the RCDD does not possess adequate qualifications to support the project, the Customer reserves the right to require the contractor to assign an RCDD who, in the Customer's opinion, possesses the necessary skills and experience required of this Project.

C. Project Foreman:

1. BICSI – Certified ITS Technician.
2. Represent Installer on site and supervise day-to-day activities and installation at site.
3. Coordinate installation of pathways.
4. Coordinate installation per construction schedule.
5. Certified by manufacturer for all proposed/installed components, cable, test equipment, etc. to be used on the Project.

D. Installers:

1. The Vendor must also have BICSI Registered Installers and Technicians on staff and assign them to this Project. The Project shall be staffed at all times by Installers and Technicians who, in the role of lead crafts-persons, will be able to provide leadership and technical resources for the remaining crafts-persons on the project. A minimum of 30 percent of personnel shall be BICSI Registered Information Transport Systems Installers. Of that number, 15 percent shall be registered at the Technician Level, at least 40 percent shall be registered at the Installer Level 2, Installer Level 2, Copper or Installer Level 2, Optical Fiber,

and the balance shall be registered at the Installer Level 1. A copy of their registrations must be submitted in the Vendor's response to this RFQ.

2. Certified by manufacturers for proposed/installed equipment to be installed under their direction. Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver cable, materials, and components in manufacturer's original, unopened, undamaged containers or reels with identification labels intact.

B. Deliver cable factory-packaged in containers or reels. Store, as recommended by manufacturer, in clean dry space and protect products from damaging fumes and traffic. Handle wire and cable carefully to avoid damage.

C. All risk of loss or damage to the equipment during and until delivery to Purchaser as a result of fire, theft, water, malicious mischief, or other cause shall be borne by the successful Bidder. This responsibility shall continue until receipt by the Purchaser.

1.12 WARRANTY COVERAGE

A. The cabling system warranty shall cover all products (components and cable), and labor to repair/replace systems for a minimum of 15 years from the date of Substantial Completion.

B. The cabling system warranty shall include both permanent link and channel system performance guarantees which insure that the cabling will operate all existing and future applications as approved by ANSI, IEEE, or ISO that specify compatibility with the cabling system. Provide separate warranty for fiber and copper systems.

C. The warranty shall include responsibility for replacing/removing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.

PART 2 - PRODUCTS

2.1 EXTENDED FREQUENCY COPPER DATA CABLING

A. General: All copper data cabling installed shall meet or exceed the following requirements as well as the requirements listed in the specific application of the cable:

1. All copper data cabling shall be new and installed one (1) year within date of manufacture.

2. All copper cabling shall be UL listed for its required application.

~~3. All horizontal copper data cabling referred to in these Specifications or on the Drawings as data cabling, copper cabling UTP, Cat 5E, 5E, or Enhanced Cat 5 shall be Enhanced Category 5E data cabling as specified herein.~~

~~4.~~3. All horizontal copper cabling referred to in these specifications or on Drawings as data cabling, copper cabling, UTP shall be Category 6 data cabling as specified herein.

a. Category 6 structured cabling system must be backward compatible with Category 5 and Enhanced Category 5 cabling and components.

~~5. All horizontal copper cabling referred to in these specifications or on Drawings as data cabling, copper cabling, F/UTP shall be Category 6A data cabling as specified herein.~~

~~a. Category 6A structured cabling system must be backward compatible with Category 6 and Enhanced Category 5 cabling and components.~~

~~6.~~4. Exceed all channel performance requirements for TIA-568-C.2-1 to support IEEE 802.3an standard for 10 gigabit Ethernet.

B. Enhanced Category ~~5E~~6 Cabling:

1. High performance unshielded twisted pair cable capable of data transmission speeds of 10BaseT, 100BaseT4, 100BaseTx, 25 Mbps, 51 Mbps, 155 Mbps, 1000BaseT and FDDI TP-PMD.

a. Four individually twisted pairs.

b. 2~~4~~3 AWG solid copper conductors.

c. Cable jacket shall be plenum rated (CMP).

1) Cable jacket color shall be blue.

d. The cabling shall have the following performance measurements (minimum):

Impedance:	100 ohm (+-15%, 1 MHz-500 MHz)
Propagation Delay:	538 ns/100m max. @ 100 MHz
Delay Skew:	25 ns maximum
Attenuation:	22.0 dB @100 MHz 44.9 dB @ 350 MHz
Near-End Crosstalk: (NEXT)	35.3 dB @ 100 MHz 27.1 dB @ 350 MHz
Power Sum NEXT (PS-NEXT):	37 dB @ 100 MHz 29 dB @ 350 MHz
Equal Level Far-End Crosstalk (ELFEXT):	24 dB @ 100 MHz 13 dB @ 350 MHz
Power Sum ELFEXT (PS-ELFEXT):	20.8 dB @ 100 MHz 9.9 dB @ 350 MHz
Return Loss:	20.1 dB @ 100 MHz 16.8 dB @ 350 MHz

Attenuation – Crosstalk Ratio (ACR):	17.7 @ 100 MHz 10.7 @ 155 MHz
Power Sum ACR (PS-ACR):	15.0 dB @ 100 MHz 8.7 dB @ 155 MHz

2. Factory completed end-to-end test report for each master reel indicating surpassing EIA/TIA 568B qualification testing prior to shipment of product.
3. Cable shall exceed the requirements listed in EIA/TIA 568B upon installation.
4. Conform to ANSI/ICEA S-80-661, S-80-576, and ASTM B-3.
5. Cable shall be ETL verified.
6. Acceptable Cable Manufacturers:

~~DataMax CAT5e (HITACHI 39419-8-XX) – Coordinate with Owner prior to ordering~~ Mohawk M58281

2.2 PATCH PANELS

A. Provide Category ~~5e~~6 modular patch panels for the termination of all field data outlets at horizontal cross-connects in telecommunications rooms throughout the facility.

1. Patch panels shall be capable of mounting 48 modular jacks.
2. 19 inch rack-mountable unit.
3. Unit shall be manufactured from cold-rolled steel for durability.
4. Termination jacks shall be 8-position, 8-conductor, non-keyed, RJ-45, T568 universal with 110 style IDC termination blocks.
5. 110 style IDC termination blocks shall be capable of terminating 22 AWG – 24 AWG solid copper conductors.
6. Panels shall have facilities for labeling each port.
7. Supply multiple 48-port patch panels as required for all terminations. 24-, 72-, 96-port, etc. patch panels will not be accepted.
8. Standard density; 3.5 inches H (2 RMUs) .
9. Manufacturers:
   a. ~~Enhanced~~ Category ~~5~~6:
      1) ~~Leviton~~Legrand OR-SPKSU48.
      ~~2) Panduit.~~

2.3 MODULAR TELECOMMUNICATIONS OUTLETS

A. Faceplates:

1. All telecommunications outlets shall have a flush (low-profile assembly), nylon (high-abuse), tamper-resistant faceplate as required to mount to the field outlet backbox. Provide all mounting hardware.
    a. Provide jack identification icons.
        1) Color and symbol to be defined at project equipment submission.
    b. Device shall be tamperproof. Data jacks shall require faceplate removal for access.
    c. Mounting: Screws shall be tamperproof type. Screw head color shall match faceplate.
2. Single gang faceplates shall have 2-, 4-, or 6-port connector openings as required.
    a. Faceplate shall accommodate two (2) recessed label locations with protective clear plastic covers.
    b. Provide approved interchangeable icons/service descriptions identifying each jack.
    c. Provide blank port inserts to match faceplate if port is not required for termination.
3. Double gang faceplates shall have 4-, 6-, or 12-port connector openings as required.
    a. Faceplate shall accommodate four (4) recessed label locations with protective clear plastic covers.
    b. Provide approved interchangeable icons/service descriptions identifying each jack.
    c. Provide blank port inserts to match faceplate if port is not required for termination.
4. Multi-channel surface raceway mounting plate shall provide quantity of port outlets as required and be manufactured for the specified raceway.
    a. Mount data/telephone jacks into open system modules for installation into raceway.
    b. Provide blank modules and mounting brackets.
    c. Provide end plates with label windows.
    d. Color to match raceway.
    e. Coordinate mounting plates with Division 26 Section "Raceways."
5. Modular 3-Port and 4-Port Furniture Faceplate:
    a. Flush mounted 3- or 4-port plate as shown on Drawings.
    b. Label location with cable plastic covers and icon identifier.
    c. Sized for specified furniture opening.
    d. Color to match furniture mounted on.
6. Modular Faceplate for Poke-Thru/Doghouse Devices:
    a. Flush mounted device plate to fit device opening.
    b. Coordinate with Division 26 for manufacturer type to match component system.

~~7. Wall mounted single gang faceplates for telephone set mounting shall have Enhanced Category 5e data jack, stainless steel faceplate with telephone set mounting lugs.~~

~~a. Siemon #MX-WP-(CS)-SS.~~

~~b. Approved equal, or,~~

~~1) Match VoIP telephone system base for proper mounting requirements.~~

~~8.~~7. Faceplate color as selected by the Architect/Engineer. Available colors shall be:

a. White.

b. Ivory.

B. Termination Jacks:

1. ~~Enhanced~~ Category ~~5E~~6 Jacks:

a. 110 Style IDC termination block.

b. T568A or T568B (Universal).

c. 8-position, 8-conductor, RJ-45, non-keyed.

d. Capable of terminating 23 AWG or 24 AWG conductors.

e. Electrical Requirements – to PoE demands to 12.95 W at 48 V DC.

1) Min. Dielectric Withstand Voltage (Contact to Contact): 1000VA RMS.

2) Min. Dielectric Withstand Voltage (to Conductive Surface): 1500VAC RMS.

f. Verify color of termination jack prior to installation:

1) Jack color shall match color of faceplate. Provide White or Ivory

2) Jack color shall match color of system cable. Provide Black Jacks in the IDF closets for termination on the Patch Panel. Ivory jack color should be at each workstation as noted in the submittal.

g. Manufacturers:

1) Leviton.

2) Ortronics.

2.4 TRANSITION CABLE ASSEMBLY

A. Pre-manufactured cable assembly to connect and terminate an RJ-45 jack in a multi-service box to a desk mounted RJ-45 female termination jack:

1. Pre-terminated RJ-45 plug (male connector) on one end to be connected in multi-service box.

2. Length to allow installation cable from multi-service box to table box (via table leg or otherwise concealed).

3. Field terminated RJ-45 jack (female connector) mounted in face plate or at cable retractor unit at user work area (table box).
4. Solid conductor twisted pair cabling.
5. Cabling type to match installed category/shielding as indicated to terminating multi-service box.

B. Manufacturer to match cable and/or connectivity solution.

2.5 PATCH CORDS

A. Copper patch cords for use in patch panels and work area outlets:

1. Factory constructed patch cords:
   a. Length: 6 foot, 8 foot, and 14 foot cables.
2. Category ~~5e~~ 6 compliant.
3. Modular data cable utilizing stranded copper conductors.
4. 8-position, 8-conductor, modular RJ-45 plugs with protective boots.
5. Cable color shall be **blue** for all data patch cords.(coordinate with Owner prior to ordering)
   a. Telephone patch cords shall be yellow at the telecommunications rooms.
6. Patch cords shall be 100 percent factory tested according to "Production Modular Cord NEXT Loss Test Method and requirements for Unshielded Twisted – Pair Cabling" EIA/TIA-568-A-4.
7. Patch cords shall be 100 percent factory tested and show compliance with Category 6 cord requirements as listed in TIA/EIA 568B Annex J for NEXT and return loss.
   a. Provide test reports direct from manufacturer or provide field testing with individual compliance certified for each cord. Channel testing is not acceptable.
8. Provide cords acceptable to manufacturer extended warranty for a certified channel solution to meet the specifications.
9. Manufacturers:

Category ~~5e~~ 6:

1) Leviton.
2) Ortronics.

2.6 CROSS-CONNECT WIRE

A. Category ~~5e~~ 6 Compatible Solution:

1. 24 AWG, 4-pair insulated solid copper wire.
2. Manufacturers:

a. Belden/CDT; Giga BIX Series.

b. Siemon; CJ6-W4-1000 Series.

2.7 LABELING

A. Machine Printed Labels:

1. Self-adhesive, smudge resistant vinyl labels for cables and faceplates.
2. Size labels appropriately for cable diameter; utilize "wrap" installation.
3. Size labels appropriately to fit in recessed area of faceplate or under available plastic cover.
4. Size labels appropriately to fit on punch-down block and patch panel labeling location.
5. Submit samples of labels to verify color of label and size of font for each application.
6. Center justify all text.
7. Utilize Hellermon-Tyton Spirit 2100 or approved equal by Rhino Pro, Brother, or Panduit.

B. Engraved, Laminated Acrylic, or Melamine Label:

1. White letters on a dark-gray background.
2. Minimum letter height shall be 3/8 inch (10 mm).
3. Punched or drilled for screw mounting.

2.8 CABLE INFRASTRUCTURE SUPPORT

A. J-Hook:

1. Metallic J-hook bracket (1-1/2 inches wide) with cable retainer or Velcro strap, capable of being ceiling or support rod mounted.
   a. Provide manufacturer recommended fasteners as required.
2. Category ~~5e~~6 compliant.
3. Acceptable Manufacturers/Series:
   a. Caddy Cat. HP932 Series.
   b. B-Line BCH32 Series.
   c. Or approved equivalent.

B. Cable Tie:

1. Reusable hook and loop cable managers (Velcro).
2. 1/2 inch width minimum by length as required with oversized head, slot, and mounting hole.
3. Color to match cabling/system.

4. Manufacturer: Siemon Part #VCM-100-XXX-X or approved equal by Panduit.

C. Pull Line:

1. Minimum 210 pound tensile strength continuous-fiber polypropylene polyline line for installation directly into conduit.
2. White with green or gray tracer for easy identification.
3. Waterproof line can be left in conduit for future use. Will not rot or mildew.
4. Manufacturer:
   a. Ideal 31-338.
   b. Approved equal.

D. Pull Tape:

1. Durable and stretch resistant tape for easily pulling and installing copper and fiber optic cables.
2. Factory lubricated to reduce burn-through in innerduct.
3. Imprinted with sequential footage or meter markings for accurate measurements.
4. Minimum Average Breaking Strength: 1,800 lbs. (8.01 kN).
5. Manufacturers:
   a. Greenlee 4436.
   b. Ideal 31-315.
   c. Approved equal.

2.9 NETWORK DOCUMENTATION AND CABLE MANAGEMENT SOFTWARE

A. Provide a software based network documentation/cable management package to be utilized for moves, adds, and changes for cable administration.

1. Web-based Software Application.
2. Password/Log-In Security.
3. Documentation Help Wizard.
4. Spreadsheet Import Tool – Coordinate and Implement with Labeling Software Solution.
5. Test Results Import Tool – Coordinate and Implement with Testing Software Solution.
6. Customized Fields.
7. ANSI/TIA/EIA 606A Compliant.
8. Manufacturer: Brady Net Doc or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Review Drawings for device locations, telecommunication room locations, routings, trunk risers, cable trays, details, and special features. Coordinate requirements with appropriate Divisions.

B. Coordinate cabling installation requirements with installation of all pathways, raceways, outlet boxes, etc.

C. Provide modular telecommunications outlets, patch panels, data cabinets, and associated raceway/pathway installations including special wire management auxiliaries.

D. Install nameplates at all racks, cabinets, innerconnects, etc. and label all cables, pathways, and associated termination points.

E. Provide testing and obtain associated approval.

F. Provide as-built documents, submit for Engineer’s review, and hang approved documents in respective telecommunications room.

G. Meet with the Owner’s telecommunications representatives prior to each of the following installation tasks:

1. Mounting patch panels, data cabinets, and equipment grounds.
2. Backbone and telecommunications room raceway installations.
3. Pulling cable.
4. Terminating cable.
5. Labeling of cable and equipment.
6. Testing cable.
7. As-built documentation completion.

3.2 INSTALLATION

A. Provide all labor, tools, materials, services, and technical knowledge to provide a complete, reliable, structured cabling system as specified herein that meets all governing codes and meets or exceeds industry standards as presented.

1. Coordinate exact locations of outlets, devices, equipment, etc.

B. Install all structured cabling in accordance with EIA/TIA 568C/D Standards, associated addenda and technical service bulletins, and per cable manufacturer's requirements.

1. Install all structured cabling in a safe, neat, professional, workmanlike manner.

C. Test all existing data cabling to be reworked prior to relocating cabling to verify cabling will meet the intended testing criteria upon completion of the work. Retest cabling after installation per the testing requirements in this Section.

3.3 COPPER DATA CABLING

A. Install horizontal cabling in a star topology. Cabling shall be terminated at work area outlets and homerun to the specified telecommunications room, terminated, labeled, and tested.

1. All cabling shall be terminated using RJ-45 female jacks unless specified otherwise.
2. Install horizontal cabling a maximum of 280 feet in length for any individual twisted pair. Cabling which exceeds this length may be rerouted with the Engineer’s discretion to decrease individual pair length.
3. Install horizontal cabling a minimum length to enable accurate testing with the data cable tester being utilized. This is typically a minimum of 40 linear feet.
4. Make no splices or bridged taps as they are prohibited. All cabling shall be electrically and mechanically continuous from patch panel to work area outlet.
5. Install cabling such that cable manufacturer’s minimum bend radius shall not be exceeded. The bend radius shall not be less than four (4) times the diameter of the cable.
6. Modified single connector permanent link shall be utilized only where specifically identified on the Drawings for Wireless Access Points and/or ~~[~~security camera~~]~~ installations.
7. Extended Frequency Copper Backbone Cabling: Bond bonding conductor to ground at each end.
8. Penetrations through floor and fire-rated walls shall utilize intermediate metallic conduit (IMC) or galvanized rigid conduit (GRC) sleeves and shall be firestopped after installation and testing, utilizing a firestopping assembly approved for that application.
9. The number of horizontal cables placed in a cable support or pathway shall be limited to a number of cables that will not alter geometric shape of the cables. Under no circumstances should cables in the horizontal pathway be bundled. This is to minimize "alien" cross talk.
10. F/UTP (ScTP) Only:
    a. Telecommunications pathways, spaces and metallic cables, which run parallel with electric power or lighting, which is less than 3 kVA, shall be installed with a minimum clearance of 1 foot (0.3 m).
    b. Telecommunications pathways, spaces and metallic cables, which run parallel with electric power or lighting, which is more than 3 kVA but less than 6 kVA, shall be installed with a minimum clearance of 2 feet (0.6 m).

c. Telecommunications pathways, spaces and metallic cables, which run parallel with electric power or lighting, which is more than 6 kVA, shall be installed with a minimum clearance of 3 feet (1 m).

d. No telecommunications cross-connects shall be physically located within 20 feet (6 m) of electrical distribution panels, step down devices, or transformers, which carry voltages in excess of 480 Vrms.

3.4 GENERAL CABLING REQUIREMENTS

A. Pull all telecommunications cabling from data rack or equipment backboard distribution panel in telecommunications room to outlet boxes as shown on the Drawings.

B. Conceal all cabling in the facility except where specifically indicated otherwise.

C. Mixing, in the form of either bundling or conduit sharing, of 10G 6A UTP cabling with other UTP cable categories is not allowed. While pathways such as cable trays may be shared, the cables must be routed independently.

D. Do not employ pulling lubricants as they can degrade cable performance (insertion loss).

E. Install horizontal copper cabling for telephone/data open in accessible ceiling spaces.

1. Support cabling alternating 4 feet and 5 feet on center using J-hooks, or a unistrut trapeze configuration, approved by the Engineer.

a. Install a maximum of 30 cables through a single J-hook, etc. Avoid deformation of cables.

1) Utilize multiple J-hooks, etc. as required to route all cabling. Provide 30 percent additional usable pathway space at minimum.

2) Loosely cinch cable bundles with cable ties at each mounting location. Avoid overtightening cable ties.

~~2. Utilize cable tray to support cabling in corridors where available.~~

~~a. Install cabling neatly in tray. Group and bundle cabling with Velcro cable ties to form neat, orderly bundles for Engineer review. Remove cable ties upon approval of Engineer.~~

~~b. Install cables only when cable tray installation has been completed and inspected.~~

~~c. Fasten cables on horizontal runs with Velcro straps cable clamps or nylon cable ties as recommended by NEMA VE 2 and minimum 8 feet on center to separate systems within tray. Tighten clamps only enough to secure the cable without indenting the cable jacket. Install cable ties with a tool that includes an automatic pressure limiting device.~~

~~d. Prior to building occupancy, remove ties upon request of Engineer after inspection to reduce effects of alien crosstalk.~~

~~e. On vertical runs, fasten cables to tray every 18 inches (457 mm). Install intermediate supports when cable weight exceeds the load-carrying capacity of the tray rungs.~~

~~f. In existing construction, remove inactive or dead cables from cable tray.~~

~~g.~~b. ~~Install covers after installation of cable is completed.~~

~~3.~~2. Coordinate cabling installation such that it is not supported from conduits, piping, ductwork, etc. Cabling shall not lie directly on ceiling or be supported by ceiling tie-wires.

~~4.~~3. Utilize all metal mounting hardware in ceiling spaces.

~~F. Properly support all cabling with J-hooks to stanchion posts under raised/accessible floor locations 2 feet on center. Route cabling to permit air circulation as required by HVAC equipment.~~

~~G.~~F. Install all cabling parallel and perpendicular to building lines.

~~H.~~G. Install cabling tight to building steel. Avoid locating cabling within 12 inches of lay-in ceilings or access panels.

~~I.~~H. Support vertically routed cabling at each floor. Attach supports such as wire mesh grips as recommended by manufacturer and required by local codes.

~~J.~~I. Traverse common system cables along the same pathway. Multiple runs of cabling terminated at roughly the same geographic area shall traverse the same path whenever possible.

~~K.~~J. Install cable bundles level, taught and tight to building steel. Provide caution during installation so as to not stress or provide excessive tension on the cable.

1. Pulling tension shall not exceed 25 pounds on a single cable or bundle.
2. Avoid unnecessary bends and do not exceed a 90 degree bend for any cable.

~~L.~~K. Group and Ty-wrap all cabling in a neat and orderly manner with Velcro cable ties in groups of 12 cables for testing purposes. Remove ties after performing cable testing and visual inspection by Engineer.

~~M.~~L. Install cabling in pathways/raceways without exceeding EIA/TIA maximum fill for that raceway type.

1. Install cabling in conduits/sleeves to the maximum fill capacity allowed before using an adjacent conduit/sleeve when multiple conduits/sleeves are required.
2. Install all exposed cabling penetrating walls or through floors through rigid metallic conduit/sleeves.
3. Refer to Division 26 Section "Conduit Rough-In Systems" for conduit/sleeve requirements.

~~N.~~M. Route cabling to avoid the following areas:

1. Elevator shafts and elevator equipment rooms.
2. Electrical rooms.
3. Egress stairwells.
4. Any areas that contain or store hazardous materials.

~~O.~~N. The cabling system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.

~~P.~~O. Avoid sources of electromagnetic interface (EMI) for all voice/data equipment and cables.

1. Refer to Division 26 Section "Conduit Rough-In Systems" for EMI separation requirements.

~~Q.~~P. Avoid routing cabling in areas subject to excessive environmental conditions.

1. Refer to Division 26 Section "Conduit Rough-In Systems" for environmental requirements.

~~R. Provide cable slack in exterior manholes equal to three (3) times perimeter of manhole.~~

~~S.~~Q. Replace entirely any cable jacket that is cut or scored during installation.

~~T.~~R. Protect cabling from paint, paint overspray, plaster, adhesives, etc. Replace entirely cable that has been contaminated.

~~U.~~S. Terminate all horizontal and backbone cabling at each cable end as indicated in these Specifications.

~~V.~~T. Test all horizontal and backbone cabling as indicated in these Specifications.

~~W.~~U. Label all horizontal and backbone cabling as indicated in these Specifications.

~~X.~~V. Cable Shields: Cable shields shall be bonded to the cabinet ground buss with #12 AWG minimum stranded copper wire at only one end of the cable run. Cable shields shall be insulated from each other, faceplates, equipment racks, consoles, enclosures, or cabinets, except at the system common ground point. Coaxial and audio cables shall have one ground connection at the source; in all cases, cable shield ground connections shall be kept to a minimum.

3.5 TERMINATIONS

A. Utilize tools recommended by the manufacturer for providing all terminations.

B. Special Techniques:

1. Termination of RJ-45 modular jacks shall be completed using a hand tool which employs a fully repeatable, self-centering, non-impact mechanical termination process. This process shall simultaneously cut and terminate all eight (8) conductors to the modular jack.

C. Copper Data Cabling:

1. Utilize the EIA/TIA T568B wiring pattern terminated on an 8-position, non-keyed modular jack (RJ-45) for all data cabling.
    a. Mount the data jack in the faceplate with the metal contacts on top and the snap/release on the bottom.
2. Terminate four (4) individual twisted pairs to each voice/data jack and patch panel per cable.
3. Untwist cable pairs a maximum of .375 inches prior to termination to jack and patch panel.
4. Remove a maximum of 1-1/4 inches of the cable jacket to provide cable terminations.
5. Provide for a minimum of five (5) meters of slack backbone cabling supported by the cable runway system prior to termination.
    a. Cables shall extend vertically along rails of data rack and horizontally along patch panel to termination point.
    b. Cables shall be routed along edge of equipment board supported by cable spools/mushrooms prior to termination point.
6. Provide one (1) foot of slack cable coiled in the outlet box at the work area outlet location prior to termination.
    a. Provide for minimum bends radius of cable within outlet box.
7. Protect copper terminations and pins from construction dust at all times.

3.6 CROSS-CONNECTS

A. Provide patch panels with capacity to terminate all structured data cabling.

B. Provide shielded patch panels for termination of shielded cabling/outlets. Ground case per manufacturer's recommendations.

C. Cable Routing:

1. Neatly dress all telecommunications cabling and route into telecommunications room through entrance sleeves/cable tray and down into data rack. Provide slack from sleeve to tray to allow relocation of data racks.
2. Support, fasten, and neatly dress all cabling on sidewalls of telecommunications rooms on each floor.
3. Install all cabling on data racks in a neat and workmanlike manner. Cables shall not wrap or cross bundles.
4. Route cabling in cable management units and cross-over to patch panel at 90 degree angles for termination.

5. Make cable identification number visible from rear of patch panel.

6. Install cabling so that it does not interfere with the installation, operation, or maintenance of all equipment.

3.7 MODULAR TELECOMMUNICATIONS OUTLETS (WORK AREA OUTLETS)

A. Install quantity and type of copper and/or fiber modular jacks as scheduled and shown on Drawings.

1. Provide icon identifiers to identify cable/port type. Review color and style prior with Owner.

B. Install modular faceplates with 2, 4, or 6-ports as scheduled and shown on Drawings.

C. Mount all modular telecommunications outlets vertically, unless otherwise noted.

1. Mounting Heights:

a. Desk Type: 18 inches AFF.

b. Wall Mounted: 48 inches AFF.

c. Overcounter: 6 inches above counter, desk, cabinet, etc.

D. Mount modular faceplates alongside associated power receptacles.

E. Install wall plate units plumb, level, square, and free from warp or twist while maintaining dimensional tolerance and alignment with surrounding construction adjacent surfaces.

F. Label faceplates under provided clear plastic plate with typewritten identifiers. Refer to labeling section.

G. Verify faceplate color and jack color prior to installation.

3.8 PATCH CORDS/CABLES

A. Copper Patch Cords – Quantities:

1. Provide two (2) patch cords for each data/voice outlet jack shown on the Drawings.

a. Provide two (2) patch cords equal to ~~14~~7 foot total length for each outlet location, ~~e.g. (1) 8 foot and (1) 6 foot, or (1) 10 foot and (1) 4 foot, etc~~ 1-foot total length for patch panel location.

b. Coordinate quantities with Owner and Engineer prior to purchase.

~~2. Provide an additional fifty (50) 14 foot patch cords.~~

~~3.~~2. Provide extended length patch cords for locations identified on Drawings to connect equipment.

B. Install patch cords at all phone locations as shown on Drawings.

1. Provide cross-connection of horizontal cabling to multi-pair backbone cabling at termination blocks.
2. Install patch cords to facilitate complete connection of horizontal cabling to multi-pair backbone cabling.

C. Install patch cords at all data locations as shown on Drawings.
1. Install patch cords from all horizontal cross-connects to network electronics.

D. Install patch cords in wire management parallel and perpendicular to equipment rails.

3.9 EQUIPMENT BACKBOARDS

A. Provide 1/2 inch spacers between wall and backboards. Mount backboard rigid to wall to support intended equipment. Start 6 inches above finished floor; 4 foot width, 8 foot height. All backboards shall be installed level around the room.

B. Paint equipment and cabinet backboards with two (2) coats of white enamel (fire retardant) on all sides.

C. Install 1-1/2 inch cable spools (mushrooms) on backboards to allow cable support and routing. Mount spools along edge of boards, 6 inches from each corner and 1 foot on center, minimum.

D. Coordinate location of all 120-volt duplex receptacles as shown on Drawings. Coordinate 1-1/4 inch extension ring to install flush backbox to wall, flush to backboard.

E. Ground equipment backboards and cabinets to nearest telecommunications grounding busbar per Division 27 Section "Grounding and Bonding of Communications Systems" and ANSI-J-STD-607.

3.10 SIGNAL GROUNDING

A. Provide ground connection for all equipment as required by EIA/TIA 607A, IEEE, and manufacturer to local telecommunications grounding busbar.

B. Refer to Division 27 Section "Grounding and Bonding of Communications Systems" for ground sizing based on length.

3.11 LABELING

A. Meet with Owner and develop a complete labeling convention for structured cabling system, telecommunications rooms, racks, pathways, etc.
1. Provide complete cable "Run-List" to Owner for approval prior to installation and update for O & M manuals. Provide a spreadsheet equating the cable number and the final telecommunications jack number as identified below.
a. Use Microsoft Excel format or other approved equal.

b. Provide hard copy and electronic copy to Owner.

B. Label all cables in four (4) separate locations in a neat workmanlike manner:

1. During installation, each cable shall be labeled at either end of the cable to facilitate identification prior to termination (cable number).

a. Each cable shall have a different alphanumerical designation indicating floor termination, room termination, and cable termination.

b. Ensure cable number is visible after termination of cable in patch panel without adjusting/moving cabling.

2. During termination, all modular telecommunications outlet faceplates shall be labeled identifying each data/voice cable terminated in that faceplate based on current existing labeling scheme.

3. Terminate all jacks at the telecommunications room cross-connect from left to right in ascending order corresponding to the room number and the associated port number in that room.

a. Match room numbers for labels with existing/final room numbers approved by the Owner’s representative upon the completion of this Project. The room numbers shown on Drawings are not necessarily the actual room numbers.

C. Install all labels neatly onto cabling and faceplates. Install vinyl self-adhesive labels on cabling and in recessed area of outlet faceplates (under protective clear laminate window) specifically designed for use.

1. Labels shall be affixed to faceplates free of smudges and fingerprints.

2. Labels shall fit completely in the recessed area of the label location.

D. Utilize an engraved labeling process for all faceplates that do not have a pre-manufactured location for a label that is protected by laminated plastic window.

E. Utilize laminated plastic plates for labeling equipment other than faceplates.

3.12 TESTING

A. Schedule all cable testing with the Owner and perform in the presence of the Owner.

1. Complete testing for individual cabling channel/link systems within 14 days of installation/ termination of equipment

2. Complete testing while the facility is fully operational to evaluate cabling systems over maximum electromagnetic interference possibilities. This requirement will be under the discretion of the Engineer.

3. Provide all testing to meet manufacturer minimum warranty requirements.

4. Visually inspect the installation prior to testing for the following:
    a. Kinks or knots in cabling.
    b. Deformation of cable jacket; cable ties shall not cinch cabling.
    c. Bend radius is within conformance.
    d. Separation from EMI sources.
    e. Cabling is properly supported.
    f. Pair twisting is within .325 inch of termination.
5. Provide notification to Owner/Engineer that visual inspection has been completed and installation is acceptable to begin testing. Any testing completed prior to receipt of notification and approval from Owner shall be voided.

B. Test Result Documentation:

1. The test results/measurements shall be transferred into a Windows™-based database utility that allows for the maintenance, inspection, and archiving of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered, i.e., "as saved in the tester" at the end of each test and that these results cannot be modified at a later time.
2. The database for the completed job shall be stored and delivered in PDF format ~~on CD-ROM including the software tools required~~ to view, inspect, and print any selection of test reports.
3. A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information.
    a. The identification of the link in accordance with the naming convention defined in the overall system documentation.
    b. The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number.
    c. The date and time the test results were saved in the memory of the tester.
4. General Information to be provided in the electronic data base with the test results information for each link:
    a. The identification of the customer site as specified by the end-user.
    b. The identification of the link in accordance with the naming convention defined in the overall system documentation.
    c. The overall Pass/Fail evaluation of the link-under-test.
    d. The name of the standard selected to execute the stored test results.
    e. The cable type and the value of NVP used for length calculations.
    f. The date and time the test results were saved in the memory of the tester.
    g. The brand name, model, and serial number of the tester.

h. The identification of the tester interface.

i. The revision of the tester software and the revision of the test standards database in the tester

j. The test results information must contain information on each of the required test parameters that are listed in Section B and as further detailed below under paragraph C6.

5. In-Link (In-Channel) Detailed Test Results: The detailed test results data to be provided in the electronic database for must contain the following information:

a. For each of the frequency-dependent test parameters, the value measured at every frequency during the test is stored. The PC-resident database program must be able to process the stored results to display and print a color graph of the measured parameters. The PC-resident software must also provide a summary numeric format in which some critical information is provided numerically as defined by the summary results (minimum numeric test results documentation) as outlined above for each of the test parameters.

1) Length: Identify the wire-pair with the shortest electrical length, the value of the length rounded to the nearest 0.1 m (1) and the test limit value.

2) Propagation Delay: Identify the pair with the shortest propagation delay, the value measured in nanoseconds (ns) and the test limit value.

3) Delay Skew: Identify the pair with the largest value for delay skew, the value calculated in nanoseconds (ns) and the test limit value.

4) Insertion Loss (Attenuation): Minimum test results documentation as explained in Section B for the worst pair.

5) Return Loss: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link.

6) NEXT, ELFEXT: Minimum test results documentation as explained in Section B for the worst pair combination as measured from each end of the link.

7) PSNEXT and PSELFEXT: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link.

6. Between-Link (Between-Channel) Test Results Data:

a. A test report shall be provided for each disturbed link included in the Alien Crosstalk sample test. This test report must contain:

1) PS ANEXT results at each frequency (See Table 1) for each wire pair in a victim link as well as the PS ANEXT results for the average of these four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PSANEXT shall be measured and tested from the end of the link or channel where all cables are terminated at a distribution panel. In case the cabling runs from panel to panel (data

center), the PS ANEXT test results for each disturbed link shall be collected and saved from both ends (both panels) of the disturbed link.

2) PS AACR-F results at each frequency tested (See Table 1) for each wire pair in a disturbed link as well as the PS AACR-F results for the average of the four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PS AACRF only needs to be measured and tested from one end of the link or channel. Connect the main DTX-1800 unit (measurement of PS AACR-F disturbance) to the disturbed link or channel at the end where all cabling links are terminated at a distribution panel. Select End 1 in the AxTalk Analyzer Software.

7. Nominal Velocity of Propagation (NVP) expresses the speed of the electrical signals along the cabling link in relation to the speed of light in vacuum ($3x10^8$ m/second). Insulation characteristics and twist rate of the wire pair influence NVP in minor ways. Typically, an ‘average’ value for NVP is published for all four wire-pairs in a data cable.

8. 'Margin’ designates the difference between the measured value and the corresponding test limit value. For passing links, ‘worst case margin’ identifies the smallest margin over the entire frequency range; the point at which the measured performance is "closest" to the test limit.

9. Field test all cabling to fully support IEEE 802.3bt (PoE++ for 60 watts). This shall be derived from the DC resistance unbalance within the pair, and not an approximation of the DC loop resistance. Specifically identify the test and certification on the test report.

C. Test all Category ~~5e~~6 cabling in conformance with ANSITIA/EIA 568B and addenda.

1. Test all twisted pair cabling with a Level III cable analyzer and interface.

2. Test all pairs in all cables.

3. Identify all cables on the test report identically to the final port alphanumeric designation as indicated on the outlet faceplate and the cable run list.

4. Provide a printed report graphically and numerically documenting the following testing categories with comparisons to the most recent Category 5e testing standards. The output shall include a graphical analysis of the cable for each test.

a. Individual pair cable length.

b. Individual pair attenuation.

c. Individual pair Near End Crosstalk (NEXT).

d. Power Sum – Near End Crosstalk (PS-NEXT).

e. Individual Pair Attenuation to Crosstalk Ratio (ACR).

f. Power – Sum Attenuation to Crosstalk Ratio (PS-ACR).

g. Equal-Level Far-End Crosstalk (ELFEXT).

h. Power – Sum Equal-Level Far-End Crosstalk (PS-ELFEXT).

i. Return Loss (from both ends of cable).

j. Propagation Delay.

k. Longitudinal Conversion Loss (LCL).

l. Longitudinal Transfer Conversion Loss.

m. Delay Skew.

n. Impedance.

o. Wire Map indicating:

1) Proper pin termination at each end.

2) Continuity to the remote end.

3) Shorts between any two or more conductors.

4) Crossed pairs.

5) Reversed pairs.

6) Split pairs.

7) Any other miswires.

5. Graphical analysis shall show and itemize available headroom above testing standards and compare to provided cable/component manufacturer's published guarantee for specified tests.

a. If necessary, a second complete test set shall be provided that tests to those requirements.

6. Test each installed Category ~~5E~~6 permanent link to meet or exceed the following parameters:

a.	Attenuation:	.4 dB @ 20 MHz 22 dB @ 100 MHz
b.	NEXT:	50.6 dB @ 20 MHz 35.3 dB @ 100 MHz
c.	PS-NEXT:	48.6 dB @ 20 MHz 32.3 dB @ 100 MHz
d.	ACR:	15 dB @ 1-80 MHz 13.3 dB @ 80-100 MHz
e.	PS-ACR	12 dB @ 1-80 MHz 10 dB @ 80-100 MHz
f.	ELFEXT:	49.2 dB @ 20 MHz 23.8 dB @ 100 MHz

g. PS-ELFEXT: 44.8 dB @ 20 MHz
20.8 dB @ 100 MHz

h. Return Loss: 22 dB @ 20 MHz
17 dB @ 100 MHz

i. Propagation Delay: 538 ns @ 100 MHz

j. Delay Skew: 45 ns @ 100 MHz

k. Longitudinal Transfer Conversion Loss (LCTL), worst case delay skew @ 100 MHz: 35 dB.

l. Pass/Fail Application Testing for 10 Base-T, 100 Base-T4, 100 Base-Tx, 1000 Base-T, 25 Mbps ATM, 51 Mbps ATM, 155 Mbps ATM.

7. Modified Single Connector Permanent Link Testing:

a. Test specifically for cabling links with Direct Attach field terminated modular male plugs at device locations as shown on Drawings for Wireless Access Points and/or security cameras.

1) Utilize a permanent link adapter at patch panel and channel adapter at far end.

2) Identify test parameter as Mod-1 connector permanent link.

8. Field test all cabling to fully support IEEE 802.3bt (PoE++ for 60 watts). This shall be derived from the DC resistance unbalance within the pair, and not an approximation of the DC loop resistance. Specifically identify the test and certification on the test report.

9. Modified Single Connector Permanent Link Testing:

a. Test specifically for cabling links with field terminated modular male plugs at device locations as shown on Drawings for Wireless Access Points and security cameras.

1) Utilize a permanent link adapter at patch panel and channel adapter at far end.

2) Identify test parameter as Mod-1 connector permanent link.

D. Test all multi-pair copper cabling to ensure continuity, proper termination and proper resistance. In addition, individual cable pair length shall be determined and documented.

E. Data Testing Equipment:

1. Utilize a data testing unit with the following features to complete the required testing:

a. ISO Accuracy Level III cable analyzer.

b. 2-piece portable testing unit.

c. Digital DSP design. Measurements to be recorded in frequency domain and fault diagnostics in time domain.

d. Category ~~5E~~6 testing capability up to 350 MHz (upgraded to latest standards).

e. Single mode/multimode fiber optic cable testing capability (upgraded to latest standards).

f. Windows 7/8 compatible software database utility that allows inspection, maintenance, and archiving the test results.

1) Software shall be turned over to Owner upon completion of project with test results for simple search and review.

2) Upgrades for software shall be available for future testing requirements (revisions to standards, new standards, etc.).

3) Capability of Full Data Set testing and storage to verify compliance of completed test results with any future new/revised standards.

4) Software shall be configurable to specific project requirements including cable type (category, manufacturer) and testing configuration.

a) Verify manufacturer components are in cable library prior to submitting on cable and components.

g. The testing unit shall be ETL verified.

2. Provide documentation indicating the specific testing unit to be used has been calibrated within the last twelve (12) months.

3. Testing unit shall be Fluke DTX-1800 or approved equal by Softing.

4. The current listing of approved field testers and adapters is as follows below:

Tester Firmware	Version	Permanent Link Adapter	Channel Adapter
Fluke Networks DTX-1800	2.05	DTX-PLA002	DTX-CHA001A
Softing WireXpert 4500	N/A	WX-AD-6ALKIT2	WX-AD-6ACH2
Fluke Networks DSX-5000	3.0	DSX-PLA 0045	DSX-CHA 0045

5. Calibration:

a. All field testers used must be within factory calibration timeframes and also must be recalibrated prior to each use based upon the manufacturer's requirements. In addition, all adapters used must be in good condition and be approved for use based upon the above requirements.

6. Tester Settings:

a. In addition, the using an approved calibrated tester with the necessary adapters and firmware, the proper test setting must be selected to ensure accurate testing. The proper settings for each approved tester are listed below:

1) Fluke Networks™ DTX-1800:

a) Permanent Link Test: TIA AugCat6 PL Draft 8.0.

b) Channel Test: TIA Cat6A Ch Draft 8.0.

c) Cable Type: 10G 6A F/UTP CMX/CMR/CMP/LS0H.

b. Turn over testing unit to Owner upon completion of project.

1) Testing unit shall be in good operating condition free of physical damage and markings.

2) Unit shall be complete with copper testing adapters.

3) Provide new, unused batteries for unit.

4) Provide manufacturer-based training on testing operations.

F. Test Report Information:

1. Provide on each test report, in addition to the required test results, the following information:

a. Facility Site/Location.

b. Test Date and Time.

c. Cable Manufacturer and Part Number.

d. Overall Pass/Fail Evaluation of Link under Test indicating certification.

e. Cable Identification Number (i.e., alphanumeric designation as indicated on outlet faceplate).

f. Application Testing Results.

g. Technician Name and Signature.

2. Evaluate all test results by the testing unit in comparison to the latest EIA/TIA Standards and indicate result in an overall pass or fail evaluation.

a. Marginal reporting shall be enabled.

b. All test reports shall be printed out directly by the testing unit.

c. Headroom analysis compared with manufacturer’s published data.

3. Rework all cables that do not pass or receive marginal (pass*) results at the termination ends and retest. A Pass* result is not acceptable. If cables still do not meet the specified requirements, they shall be replaced in their entirety and retested.

4. Sign and date all test reports by the certified technician performing testing.

5. Provide copies of the printed test report as follows:

a. One (1) copy shall be sent to the Engineer.

b. One (1) copy shall be included in each of the Owner’s Operating and Maintenance Manuals.

c. Provide one (1) electronic copy on read-only CD-ROM format for review by Engineer.

6. Provide an overall summary sheet for each telecommunications room produced by the testing unit software with the following criteria:

a. Cable ID.

b. Summary: (Pass/Fail).

c. Cable Length.

d. Headroom.

e. Test Standards.

f. Date/Time.

7. Provide to the Owner the most recent software version available for the data tester. The software and test results shall be installed on the Owner's computer for review by Owner.

3.13 CABLE REWORKING

A. Reworking of existing cabling shall include rerouting and supporting cabling to new cross-connect location. Provide new terminations, labeling, and testing for cabling system to meet these Specifications.

1. Test all cabling systems prior to reworking to verify system meets the specifications for which it was originally intended.

2. Utilize new termination components and procedures to maximize the cablings performance for testing compliance.

3. Upon completion, cabling shall meet the performance requirements of that system as documented by the EIA/TIA Standards (i.e. Category 5 shall meet or exceed TSB95; Enhanced Category 5 shall meet or exceed 568B, etc.).

4. Protect all existing telecommunications cabling required to remain during demolition or removal of surrounding systems, equipment, etc.

5. Support all previously unsupported telecommunications cabling above ceilings to be replaced.

3.14 CABLE REMOVAL

A. Remove existing data equipment, outlets, patch panels, cabling, etc., throughout the facility not to be reused or specifically shown to remain.

B. Refer to Division 27 Section "Selective Removals, Relocations, and Rearrangements."

3.15 DOCUMENTATION

A. Record telecommunications room locations and each voice/data port with its corresponding voice/data port label onto project blueprints.

1. Record horizontal cabling lengths for rooms extending to limit of telecommunications port termination area for each telecommunications room.

2. Record backbone cable lengths, number of strands/number of pairs, and cable type, on a riser diagram supplied with blueprints.

3. Record sizes of pathways, location of cable routings and system rack elevations as installed on the project blueprints.

B. Turnover Items:

1. Operation and Maintenance Data: Provide approved shop drawings with modifications as required by Engineers' instructions or project progression. Include operating and maintenance instructions, parts inventory listing, purchase source listing, emergency instructions, assembly/disassembly and termination diagrams, and wire administration data as specified herein.

2. Two (2) complete sets of system manuals in hard and soft copy (Microsoft Word or PDF) files including installation, operation and maintenance procedures. The successful Bidder agrees to update these manuals as updates are published and shall grant the Purchaser permission to copy any or all portions of these documents for internal use.

3. Provide cable records in paper and soft copy (Microsoft Access) files which detail riser cable number, fiber count, cross-connects, and equipment type. Bidders should include a sample copy of cable records in their proposals.

4. Provide an outline of recommended system administration documentation and how this documentation shall be kept accurate.

5. Provide one set of "telecommunications only" blueprints in each telecommunications room indicating all termination locations, cable designations (labels) and associated identifiers (legend-symbols), and riser diagrams. Blueprints shall be produced from AutoCAD drawings at a scale determined by the Owner (CD-ROM). Laminate front and back of Drawings and mount in telecommunications room.

6. Provide AutoCAD/REVIT files to Owner in a version usable by the Owner.

7. Test Reports: Submit results of all tests as specified, with specific parameters identified and pass/fail criteria with performance.

8. Provide one set of project cable (channel/permanent link) test reports on CD-ROM including vendor viewing software.

9. Include one set of documentation test results and blueprints in three-ring binder (8-1/2" x 11" size) labeled with schedules cross-referenced to drawings provided.

    a. Horizontal copper cabling system.

C. Provide any additional information as required per the manufacturer's requirements for required warranties.

3.16 CLEANING

A. Provide cutting and patching necessary to perform work per appropriate Sections. Clean all equipment on a day-to-day basis and final cleaning of all communications equipment prior to turning building over to the Owner. All necessary cleaning referred to herein shall be cleaned to the satisfaction of the Owner's representative.

B. Communications Distribution Equipment:

1. Clean all communications distribution equipment completely inside and out prior to testing.

2. Furnish cleaning consisting of vacuuming all panels, terminations, enclosures (inside and out), etc. If equipment is wet or contains moisture, it shall be thoroughly dried before testing.

C. Raceways and Junction Boxes:

1. Blow out and dry all raceways and conduits prior to installation of cabling.

D. Telecommunications Rooms:

1. The entire room shall be swept clean and all garbage removed from the site upon completion of cleaning communications equipment as described in above paragraph, but before testing equipment.

2. Ensure that once equipment and room are cleaned and tested, the area remains clean and the doors remain closed until completion of job. If rooms and equipment are subject to dust and moisture after testing equipment, the equipment shall be recleaned to the same specifications.

E. Final Cleaning:

1. Clean all devices, device plates, etc. left in "like new" condition to the satisfaction of the Owner's representative prior to Owner occupancy.

2. Dispose of all rubbish and discarded materials and remove from the site on a day-to-day or week-to-week basis, as required.

3. Clean all equipment to the satisfaction of the Owner's representative.

3.17 MAINTENANCE SERVICE

A. Provide service and maintenance of horizontal wiring system, backbone wiring system, outlets and patch panels for one (1) year from date of Substantial Completion.

B. Include all costs for service such as travel, mileage, expenses, labor, etc.

3.18 MANUFACTURER’S FIELD SERVICES

A. Prepare, set up, and supervise installation of cable plant to the satisfaction of the Owner’s representative and requirements of manufacturer warranty.

B. Include services of technician to review installation techniques and service final connections, and system testing.

C. Final Adjustment upon Achieving Substantial Completion of the Work: Adjust all operable components to ensure that they are properly installed and functioning smoothly. Replace any component which cannot be adjusted for proper operation.

3.19 WARRANTIES

A. Provide all required documentation to the system (cable/component) manufacturer to initiate and ascertain the warranty specified. Provide copies of this information to the Owner.

1. Horizontal Cabling System.

B. Provide warranty of the system by the system (components/cabling) manufacturer and guaranteed for the term of the warranty.

3.20 SPARE EQUIPMENT/PARTS

A. Outlets:

1. Provide six (6) sets of each outlet configuration complete with jacks, icons, blanks, etc. that is included on the project for turnover to the Owner for future use.

B. Tools:

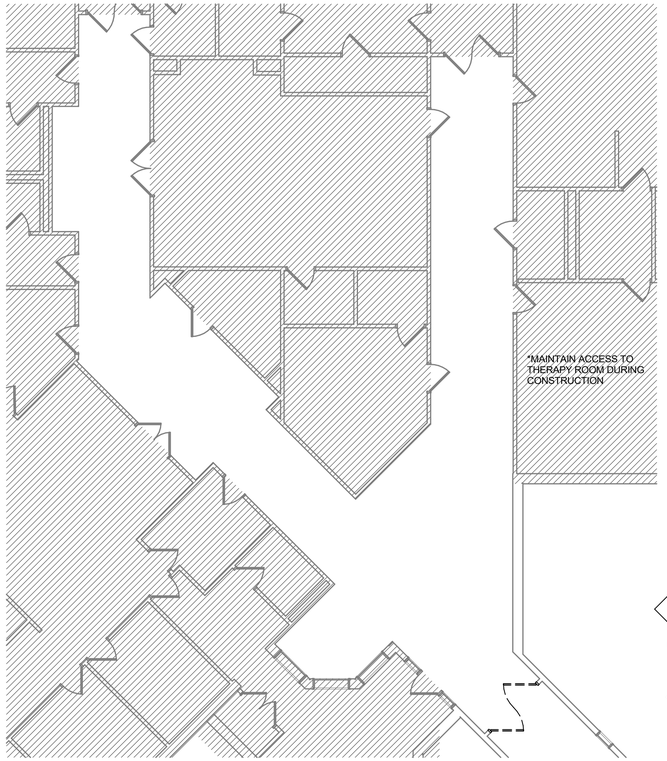
1. Provide three (3) termination tools to Owner upon completion of the work.
2. Provide three (3) tamperproof screwdrivers upon completion of the work.

3.21 TURNOVER MEETING

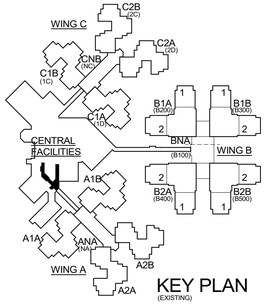
A. Meeting:

1. Upon completion of all work, coordinate a meeting with the Owner and Owner’s representative at the site to provide all as-built documentation, troubleshooting procedures, test reports, spare parts, tools, etc.
2. Provide review of all documentation and equipment prior to presenting to Owner for review.
3. Provide Warranty Certification Letter from Manufacturer.

END OF SECTION 271000



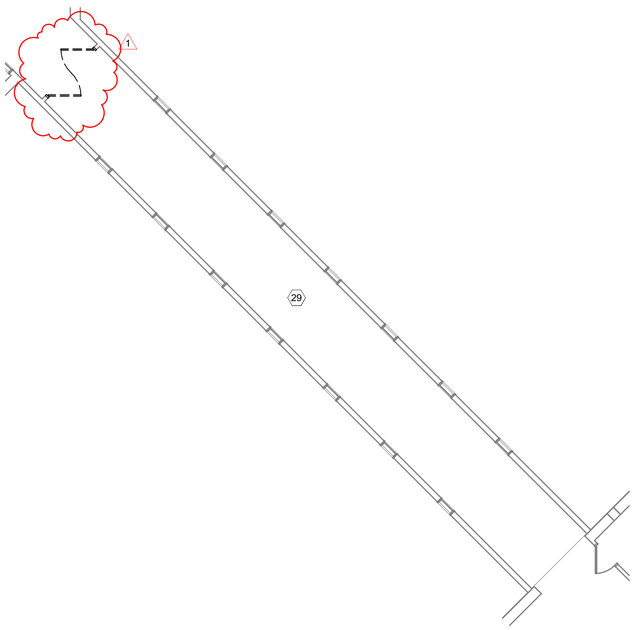
1 DEMOLITION PLAN - CENTRAL FACILITIES CORRIDOR
1/8" = 1'-0"



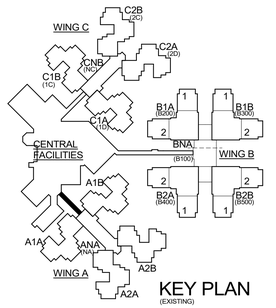
GENERAL NOTES - DEMOLITION

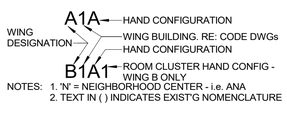
1. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION REQUIRED TO FACILITATE NEW CONSTRUCTION AND REMOVAL OF ALL DEBRIS FROM PROJECT SITE. REVIEW RELATED DRAWINGS (FLOOR PLANS, ELEVATIONS, ETC.) CONTAINED HEREIN.
2. REFER TO SPECIFICATIONS SECTION 02 4119 'SELECTIVE STRUCTURE DEMOLITION' FOR FURTHER REQUIREMENTS GOVERNING DEMOLITION PROCEDURES.
3. REFER TO MEP DOCUMENTS FOR RELATED WORK
4. REFER TO PLUMBING DOCUMENTS FOR TRENCHING AT NEW FIXTURES
5. SLAB DEMOLITION REQUIRED AT NEW FOOTINGS. REFER TO STRUCTURAL DOCUMENTS FOR NEW STRUCTURAL COLUMNS AND SHEAR WALLS THAT REQUIRE NEW FOOTINGS
6. REPAIR AND FINISH WALLS, FLOORS, CEILINGS, TO REMAIN AT AREAS AFFECTED BY DEMOLITION. THIS INCLUDES RESTORING THE INTEGRITY OF EXISTING FIRE RATED PARTITIONS AND CEILINGS THAT HAVE BEEN AFFECTED BY DEMOLITION.
7. COORDINATE WITH OWNER FOR ALL ITEMS TO BE REMOVED AND SALVAGED FOR REUSE. COORD. W/ OWNER LOCATION FOR TEMP. STORAGE OF THESE ITEMS.
8. PROTECT OWNER'S EQUIPMENT TO REMAIN DURING DEMOLITION.
9. MAINTAIN FIRE RATINGS AT ALL RATED WALLS TO REMAIN. RE: CODE COMPLIANCE DWGS FOR EXISTING RATED ENCLOSURES
10. REMOVE ALL WALL BASES AT EXTERIOR & INTERIOR WALLS LOCATED WITHIN PROJECT SCOPE.
11. ALL EXISTING DEDICATION SIGNAGE IN A WING TO BE REMOVED AND RETURNED TO OWNER.
12. REFER TO DOOR SCHEDULE FOR ADDITIONAL DEMOLITION INFORMATION CONCERNING EXISTING DOORS & FRAMES.
13. REMOVE ALL WALLCOVERING OR WALLCOVERING BORDERS LOCATED WITHIN PROJECT SCOPE.
14. REMOVE ALL FLOOR FINISHES WITHIN PROJECT SCOPE UNLESS NOTED OTHERWISE
15. REMOVE ALL WALL PROTECTION INCLUDING HANDRAILS, BUMPER RAILS WITHIN PROJECT SCOPE UNLESS NOTED OTHERWISE
16. REFER TO TYPICAL SECTIONS ON A-300 FOR DIAGRAM OF EXISTING RATED CEILING AT BOTTOM OF TRUSSES. MAINTAIN 1HR RATED SEPARATION. ALERT ARCHITECT OF ANY EXISTING BREACHES.
17. TEMPORARILY SHORE TRUSSES AT LOCATIONS WHERE EXISTING LOAD BEARING WALLS WILL BE DEMOLISHED UNTIL NEW FOOTINGS, COLUMNS, AND HEADERS ARE IN PLACE.
18. EXISTING MEDGAS (AS NOTED) TO BE CUT AND CAPPED INSIDE NEAREST PARTITION TO REMAIN.
19. REMOVE ALL CEILING TILES FROM EXISTING TO REMAINING CEILING GRIDS
20. REPLACE ALL CEILING TILE IN EXISTING TO REMAIN APC CEILING GRIDS.

KEYED NOTES - DEMOLITION PLAN	XX
Number	Description
1	REFER TO STRUCTURAL FOR SLAB DEMOLITION AT NEW FOOTING
2	EXISTING VENDING MACHINES TO BE REMOVED DURING DEMOLITION AND REINSTALLED DURING NEW CONSTRUCTION
4	LOCATION OF NEW TOILET ROOM. REMOVE SLAB SO NEW FLOOR CAN SLOPE TO NEW DRAIN - RE: NEW CONSTRUCTION PLANS & 9/A-503
5	GRIND EXISTING SLAB FOR NEW SHOWER & TRENCH TO NEW DRAIN. RE: PLUMBING
6	FILL ABANDONED PLUMBING RE:035416
7	REMOVE EXISTING FIRE BLANKET CABINET
8	CUT NEW OPENING IN EXISTING SHEARWALL. RE: STRUCT FOR NEW FRAMING
9	REMOVE EXISTING OVERHEAD COILING DOOR
10	REMOVE EXISTING MILLWORK AS INDICATED
11	DEMOLISH EXISTING KNEE WALL
12	TRENCH EXISTING SLAB FOR PLUMBING. RE: PLUMBING DRAWINGS
13	SAW CUT & REMOVE EXISTING CLADDING AT LOCATION OF NEW WALL. REFER TO NEW PLANS & DETAILS
14	REMOVE EXISTING VINYL SIDING AS INDICATED. REFER TO NEW PLANS & DETAILS
15	REMOVE EXISTING FEC
17	REMOVE EXISTING LOCKERS
18	EXISTING LOCKERS TO REMAIN
19	EXISTING CASEWORK TO REMAIN
20	DEMOLISH PORTION OF WALL ADJACENT TO STRUCTURAL WALL AS INDICATED. CONFIRM THAT NO PORTION OF LOAD BEARING WALL OR ANY CONNECTION TO TRUSSES IS REMOVED.
21	STRUCTURAL WALL TO REMAIN
22	DEMO AT EXISTING WALL FOR BLOCKING AND WIRING AT WALL MOUNTED ITEMS RE:6/A-503
23	RELOCATE FIRE SPRINKLER DRAIN LINE
24	DEMO EXISTING ELECTRICAL PANELS
25	EXISTING WALL-MOUNTED COMPUTER STATION. PROTECT AND STORE DURING CONSTRUCTION. TO BE REINSTALLED AT NEW LOCATION
26	EXISTING MECHANICAL ROOM TO REMAIN, PROTECT IN PLACE
28	NO WORK IN THIS AREA
29	HANDRAIL/CRASH RAIL ASSEMBLY TO REMAIN - LOWER CRASH RAIL TO BE REMOVED
30	ENLARGE EXISTING LOUVER OPENING (+/-8'-6"AFF) TO ACCOMMODATE NEW 14X6 LOUVER BETWEEN EXISTING STUDS (V.I.F.). RE: MECH & 4/A-300
31	NEW 14X6 LOUVER OPENING (+/-8'-6"AFF) - FIT BETWEEN EXISTING STUDS (V.I.F.). RE: PLANS, MECH & 4/A-300
32	REMOVE EXISTING PAPER TOWEL DISPENSER AND OTHER ACCESSORIES AS REQUIRED. SAVE FOR RE-INSTALLATION. EXISTING LIGHT SWITCH TO BE RELOCTED.
33	DEMO EXISTING WALL AND FLOOR TILE AND EXISTING SUBSTRATE BEHIND WALL TILE. REMOVE EXISTING LAVATORY AND TOILET. SAVE FOR REINSTALLATION. REMOVE REMAINING ACESSORIES AS REQUIRED FOR NEW SURFACE COATINGS AND SAVE FOR RE-INSTALLATION.
34	CUT AND CAP EXISTING HOSE-BIB PENESTRATION. LEAVE THRU-WALL PIPE IN PLACE. REMOVE HOSE CONNCECTION AND CAP.
35	CUT AND CAP EXISTING SPRINKLER DRAIN PIPE PENESTRATION. LEAVE THRU-WALL PIPE IN PLACE.



2 DEMOLITION PLAN - A WING CORRIDOR
1/8" = 1'-0"





NOTES: 1. 'N' = NEIGHBORHOOD CENTER - i.e. ANA
2. TEXT IN ( ) INDICATES EXIST'G NOMENCLATURE

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
AMY ANN PHILLIPS
NUMBER A-2011008161
ARCHITECT
8/20/25

Architect of Record
License A-2011008161

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

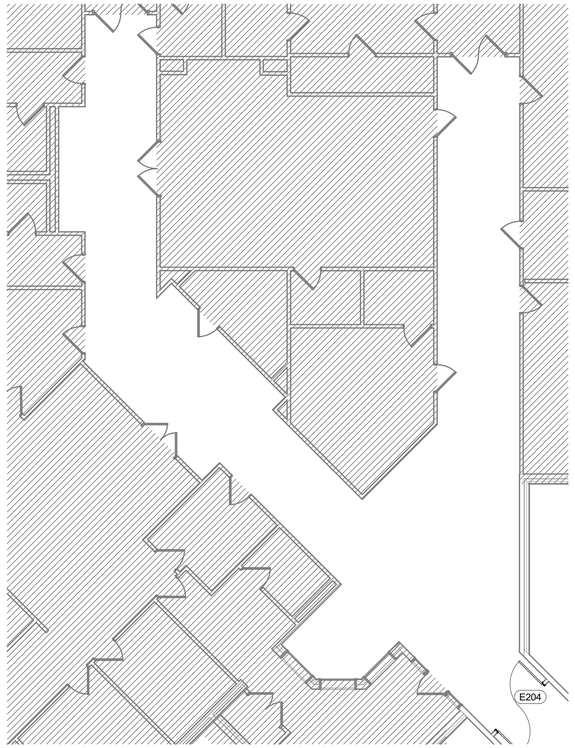
SHEET TITLE:

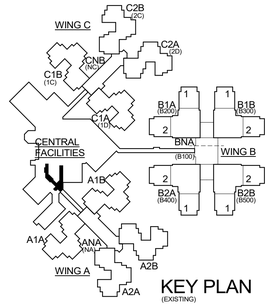
DEMOLITION PLANS - CENTRAL FACILITIES

SHEET NUMBER:

A-011

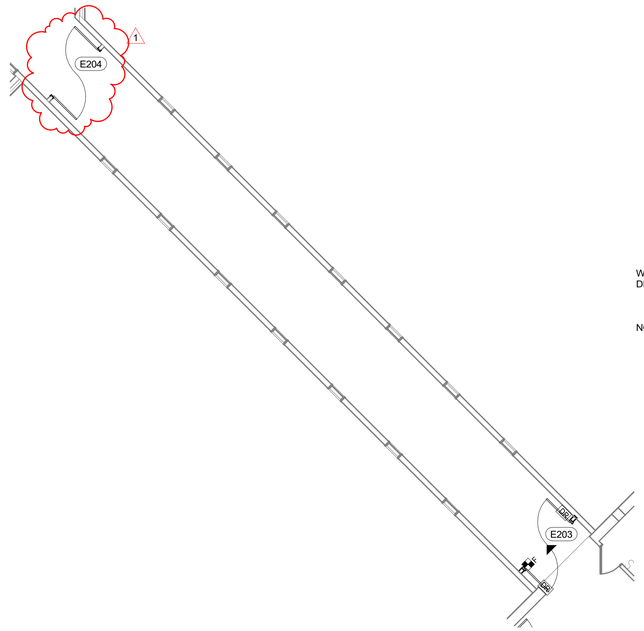
8 OF 93 SHEETS
06/26/2025

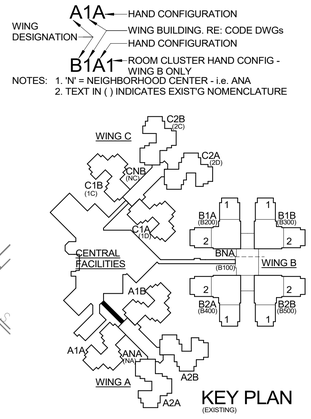




KEY PLAN
(EXISTING)

1 FLOOR PLAN - CENTRAL FACILITIES CORRIDOR
1/8" = 1'-0"





KEY PLAN
(EXISTING)

2 FLOOR PLAN - A WING CORRIDORS
1/8" = 1'-0"

GENERAL NOTES - FLOOR PLANS

1. REFER TO CODE COMPLIANCE PLANS FOR EXTENT OF SMOKE PARTITIONS
2. REFER TO A-001 FOR TYPICAL MOUNTING HEIGHTS FOR ELECTRICAL & TELECOM ITEMS
3. REFER TO A-001 FOR TOILET ACCESSORY AND PLUMBING DIAGRAMS AND CONFIGURATIONS
4. REFER TO A-001 FOR TYPICAL SPACE SIGNAGE DIAGRAM
5. REFER TO SPECIFICATIONS FOR CFCI EQUIPMENT
6. REFER TO A-002 FOR CASEWORK TYPES
7. ALL BUILT-IN CASEWORK TO HAVE 4" RESILIENT BASE U.N.O. AT TOE-KICK. BACKSPLASHES TO BE 4" HIGH U.N.O.
8. THERE IS TO BE NO EXPOSED PIPING IN FINISHED SPACES (EXCEPTION JANITOR'S CLOSETS, MECHANICAL & ELECTRICAL ROOMS
9. REFER TO ELECTRICAL/TECH DRAWINGS FOR POWER & DATA. INDICATED HERE FOR REFERENCE & COORDINATION ONLY.
10. REFER TO 'I' DRAWINGS FOR INTERIOR FINISHES AND WALL PROTECTION
11. LEVEL FLOORS AT ABANDONED FLOOR DRAINS. RE: DEMO PLANS. RE: 033000
12. UNELEVATED RESIDENT TOILET ROOMS ARE SIMILAR TO ELEVATED RESIDENT TOILET ROOMS (INCLUDING TOILET ACCESSORIES)
13. EXISTING OUTLETS ADJACENT TO DESKS IN RESIDENT ROOMS, TO BE RELOCATED TO BE UNDER DESKS, VERIFY LOCATIONS IN FIELD.

KEYED NOTES - FLOOR PLAN	
NUMBER	DESCRIPTION

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
AMY ANN PHILLIPS
NUMBER A-2011008161
REGISTERED ARCHITECT
8/20/25

Architect of Record
License A-2011008161

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

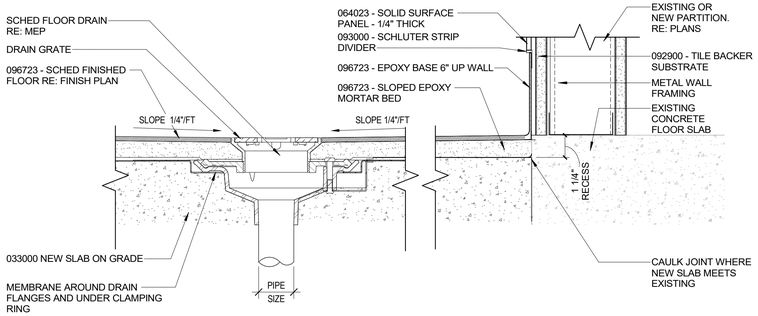
SHEET TITLE:

FLOOR PLANS - CENTRAL FACILITIES

SHEET NUMBER:

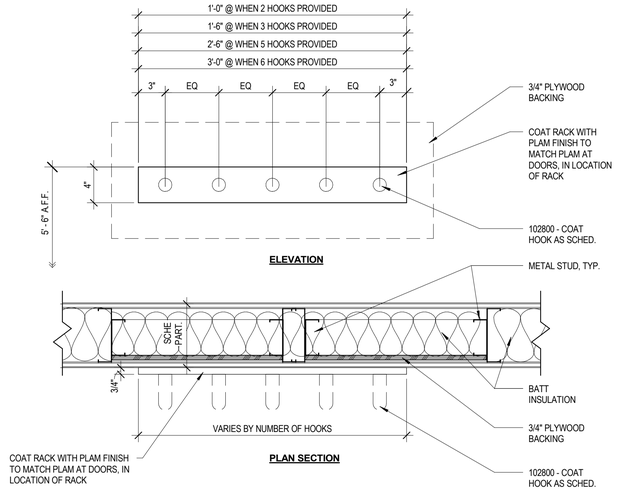
A-102

12 OF 93 SHEETS
06/26/2025



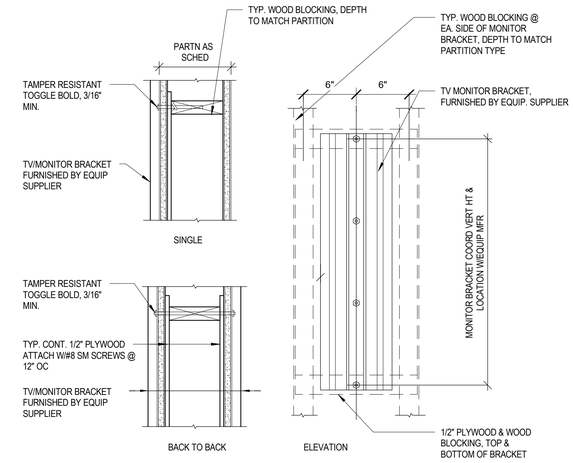
9 TYPICAL FLOOR DRAIN DETAIL

3" = 1'-0"



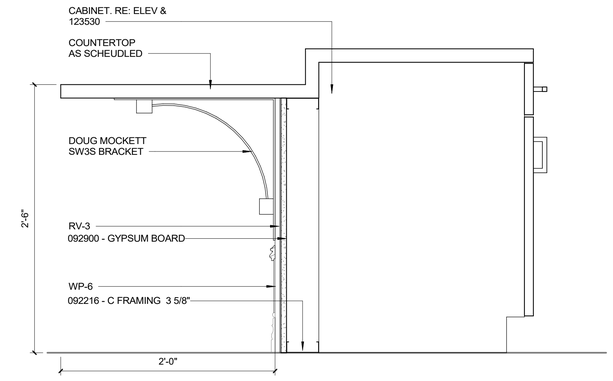
8 COAT RACK

1 1/2" = 1'-0"



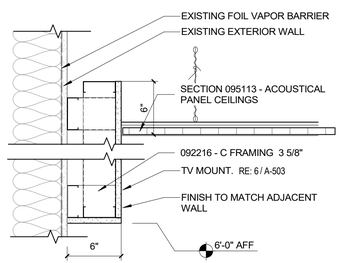
6 WALL MOUNTED TV / MONITOR BRACKET

1 1/2" = 1'-0" BRACKET BY AV PROVIDER. FOR REFERENCE ONLY



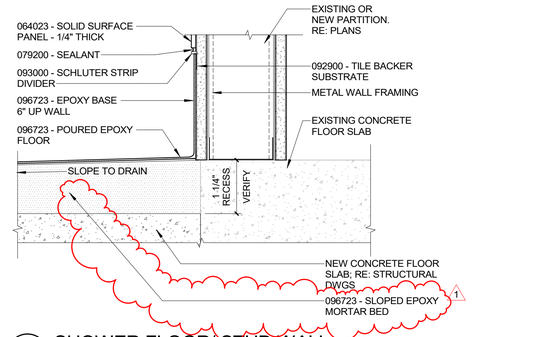
7 SECTION DETAIL AT KITCHENETTE ISLAND

1 1/2" = 1'-0"



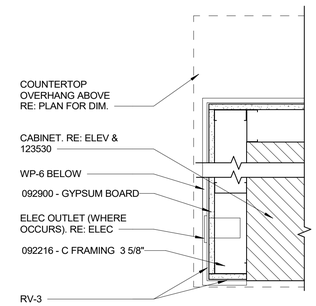
4 SECTION DETAIL AT EXT WALL TV BOX

1 1/2" = 1'-0"



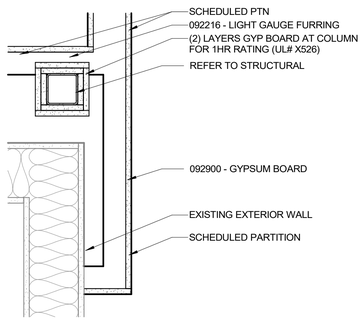
3 SHOWER FLOOR/ STUD WALL

3" = 1'-0"



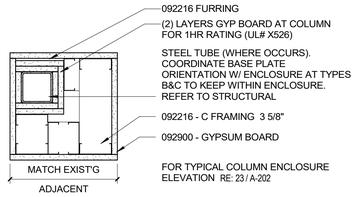
5 PLAN DETAIL AT CASEWORK CORNER

1 1/2" = 1'-0"



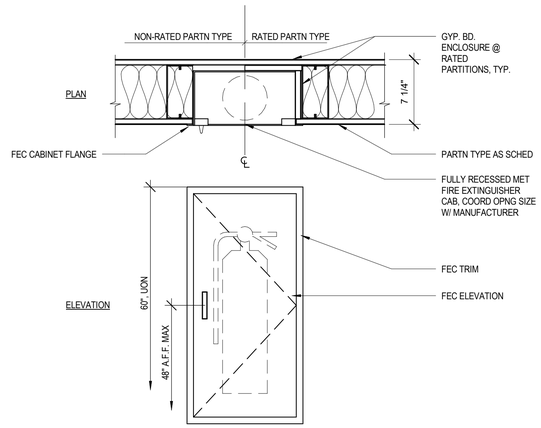
2A PLAN DETAIL AT STRUCT COLUMN

1 1/2" = 1'-0"



2 PLAN DETAIL AT STRUCT COLUMN

1 1/2" = 1'-0"



1 FIRE EXTINGUISHER

1 1/2" = 1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
AMY ANN PHILLIPS
NUMBER A-2011008161
REGISTERED ARCHITECT
8/20/25

Architect of Record
License A-2011008161

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

SHEET TITLE:

INTERIOR DETAILS

SHEET NUMBER:

A-503

21 OF 93 SHEETS
06/26/2025

DOOR SCHEDULE - A NEIGHBORHOOD (1X)

OPENING NUMBER	DOOR									FRAME		SCHEDULE FIRE RATING	STC	HARDWARE GROUP	COMMENTS
	OPENING WIDTH	OPENING HEIGHT	PANEL A TYPE	PANEL A WIDTH	PANEL B TYPE	PANEL B WIDTH	THICKNESS	MATERIAL	GLAZING TYPE	MATERIAL & TYPE	GLAZING TYPE				
200.1	7' - 0"	6' - 8"	NV	3' - 6"	NV		1 3/4"	WD	GLI-2	HM-00-DE	-	45 MIN		23	5, 12
200.2	7' - 0"	6' - 8"	NV	3' - 6"	NV		1 3/4"	WD	GLI-2	HM-00-DE	-	45 MIN		23	5, 12
200.3	7' - 0"	6' - 8"	NV	3' - 6"	NV		1 3/4"	WD	GLI-2	HM-00-DE	-	45 MIN		23	5, 12
200.4	7' - 0"	6' - 8"	NV	3' - 6"	NV		1 3/4"	WD	GLI-2	HM-00-DE	-	45 MIN		23	5, 12
201	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		11	12
202	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		11	12
203	3' - 0"	6' - 8"	NV				1 3/4"	WD	-	HM-00	-	45 MIN		20	12
204	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		16	1
205	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		17	1, 10, 11
206	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
207	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
208	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
209	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
210	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		12	10, 11, 12
221	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		11	8, 12
222	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		17	1, 10, 11
223	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		5	8, 12
224	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		20	10, 12
225.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		19	1, 10
225.2	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		5	1
227	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		24	12
228	7' - 0"	6' - 8"	NV	3' - 6"	NV		1 3/4"	HM	GLI-3	HM-00-DE	-	90 MIN		23	5, 12
229	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		24	10, 12
230	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		24	8, 12
230.1	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		21	8, 12
231	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		15	1
232	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		16	1, 8
233	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		20	10, 12
234	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		20	8, 12
235	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		20	8, 12
237	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		17	1, 10, 11
238	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		12	10, 11, 12
239	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
240	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		18	1, 10
241	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		11	8, 12
242	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		11	8, 12

DOOR SCHEDULE - A NEIGHBORHOOD EGRESS (1X)

OPENING NUMBER	DOOR									FRAME		SCHEDULE FIRE RATING	STC	HARDWARE GROUP	COMMENTS
	OPENING WIDTH	OPENING HEIGHT	PANEL A TYPE	PANEL A WIDTH	PANEL B TYPE	PANEL B WIDTH	THICKNESS	MATERIAL	GLAZING TYPE	MATERIAL & TYPE	GLAZING TYPE				
E201	4' - 0"	7' - 0"	HG				1 3/4"	HM	1/4" TEMP	HM-00	-	-		5	2, 4
E202	4' - 0"	7' - 0"	HG				1 3/4"	HM	1/4" TEMP	HM-12	1/4" TEMP	-		5	2, 4
E203	7' - 4"	6' - 8"	NV	3' - 8"	NV		1 3/4"	WD	GLI	HM-00-DE	-	-		23	5, 12
E204	7' - 4"	7' - 0"	NV	3' - 8"	NV		1 3/4"	HM	GLI-3	HM-00-DE	-	90 MIN		23	5, 12

DOOR SCHEDULE - A HOME EGRESS (4X)

OPENING NUMBER	DOOR									FRAME		SCHEDULE FIRE RATING	STC	HARDWARE GROUP	COMMENTS
	OPENING WIDTH	OPENING HEIGHT	PANEL A TYPE	PANEL A WIDTH	PANEL B TYPE	PANEL B WIDTH	THICKNESS	MATERIAL	GLAZING TYPE	MATERIAL & TYPE	GLAZING TYPE				
E101	4' - 0"	7' - 0"	HG				1 3/4"	HM	1/4" TEMP	HM-12	1/4" TEMP	-		5	2, 4
E102	4' - 0"	7' - 0"	HG				1 3/4"	HM	1/4" TEMP	HM-12	1/4" TEMP	-		5	2, 4
E103	4' - 0"	7' - 0"	HG				1 3/4"	HM	1/4" TEMP	HM-12	1/4" TEMP	-		5	2, 4
E104	3' - 8"	7' - 0"	F				1 3/4"	HM	-	HM-00	-	-		5	2, 4

DOOR SCHEDULE - A HOME (4X)

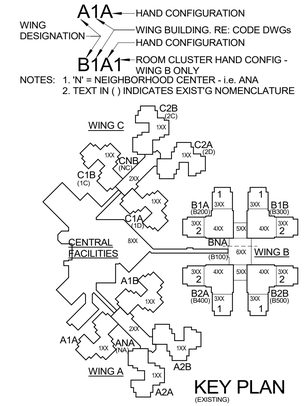
OPENING NUMBER	DOOR									FRAME		SCHEDULE FIRE RATING	STC	HARDWARE GROUP	COMMENTS
	OPENING WIDTH	OPENING HEIGHT	PANEL A TYPE	PANEL A WIDTH	PANEL B TYPE	PANEL B WIDTH	THICKNESS	MATERIAL	GLAZING TYPE	MATERIAL & TYPE	GLAZING TYPE				
100	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
100.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
101	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
101.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
102	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
102.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
103	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
103.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		3	12
104	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
104.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		3	12
106	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
106.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
107	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
107.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
108	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
108.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		3	12
109	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
109.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		2	12
111	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
111.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		3	12
112	4' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		1	12
112.1	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		3	12
151	3' - 6"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		4	12
152	5' - 0"	6' - 8"	F	2' - 6"	F	2' - 6"	1 3/4"	WD	-	HM-00	-	45 MIN		5	12
153	5' - 0"	6' - 8"	F	2' - 6"	F	2' - 6"	1 3/4"	WD	-	HM-00	-	-		6	12
154	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		5	1
155	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	-		7	12
156	5' - 0"	6' - 8"	F	2' - 6"	F	2' - 6"	1 3/4"	WD	-	HM-00	-	-		8	12
157	5' - 0"	6' - 8"	F	2' - 6"	F	2' - 6"	1 3/4"	WD	-	HM-00	-	-		8	12
158	3' - 0"	6' - 8"	F				1 3/4"	WD	-	HM-00	-	45 MIN		9	10, 11, 12, 15

DOOR SCHEDULE GENERAL NOTES

1. REFER TO KEY PLAN FOR PREFIX DESIGNATION CODE - EACH 'HOME' AND 'NEIGHBORHOOD CENTER'. SEE HAND CONFIGURATION NOTES.
2. EACH DOOR LISTED IN SCHEDULE REPRESENTS A UNIQUE NUMBER OF IDENTICAL DOORS (OPP HAND WHERE OCCURS) DENOTED BY 8X, 4X, 2X OR 1X IN TITLE OF SCHEDULE. EACH DOOR GETS A PREFIX FOR THE LOCATION ON KEY PLAN - SEE FOLLOWING NOTES FOR EXAMPLES
   A. A WING 'HOME' DOORS ARE 1XX (i.e. A1A-101)
   B. A WING 'NEIGHBORHOOD CENTER' DOORS ARE 2XX (i.e. ANA-201)
   C. SMOKING LOUNGE DOORS ARE 8XX (i.e. 806)
3. REFER TO CODE COMPLIANCE PLANS FOR SMOKE DOORS AND 1HR RATED SMOKE DOORS
4. ALL EXISTING ACROVYN ARMOR PLATES AT EXISTING TO REMAIN DOORS TO BE REMOVED. INSTALL ARMOR PLATE CONFIGURATION 3 (RE: SHEET A-602)
5. ALL EXISTING TO REMAIN HM FRAMES TO BE PAINTED
6. ALL EXISTING TO REMAIN HM & VINYL DOORS TO BE PAINTED
7. REFER TO ARMOR PLATE LEGEND FOR ADDITIONAL ARMOR PLATES
8. REFER TO SPACE SIGNAGE DIAGRAM ON SHEET A-001 FOR ROOM # AND DIGITAL PICTURE FRAME SIGNAGE
9. ARMOR PLATES INCLUDED IN DOOR SCHEDULE AND ON THIS SHEET ARE TO GOVERN IF THERE ARE DISCREPANCIES WITH 087100

DOOR SCHEDULE COMMENTS

1. EXISTING DOOR & FRAME.
2. EXISTING HM DOOR & FRAME TO REMAIN. PAINT DOOR & FRAME
3. NOT USED
4. EXISTING EXTERIOR DOOR
5. DOOR ON ALARM ACTUATED HOLD OPENS
6. NEW WOOD DOOR WITH NEW HARDWARE.
7. WOOD CLADDING AT HM FRAME - RE: DETAIL 18/A-602
8. ARMOR PLATE CONFIGURATION 1
9. ARMOR PLATE CONFIGURATION 2
10. ARMOR PLATE CONFIGURATION 3
11. ARMOR PLATE CONFIGURATION 4
12. NEW DOOR & NEW FRAME.
13. NOT USED
14.* NEW HM DOOR IN NEW FRAME
15. ARMOR PLATES AT INTERIOR SIDE OF DOOR
16. EXISTING CASED OPENING. PAINT



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

AMY ANN PHILLIPS
NUMBER A-2011008161
ARCHITECT
8/20/25

Architect of Record
License A-2011008161

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

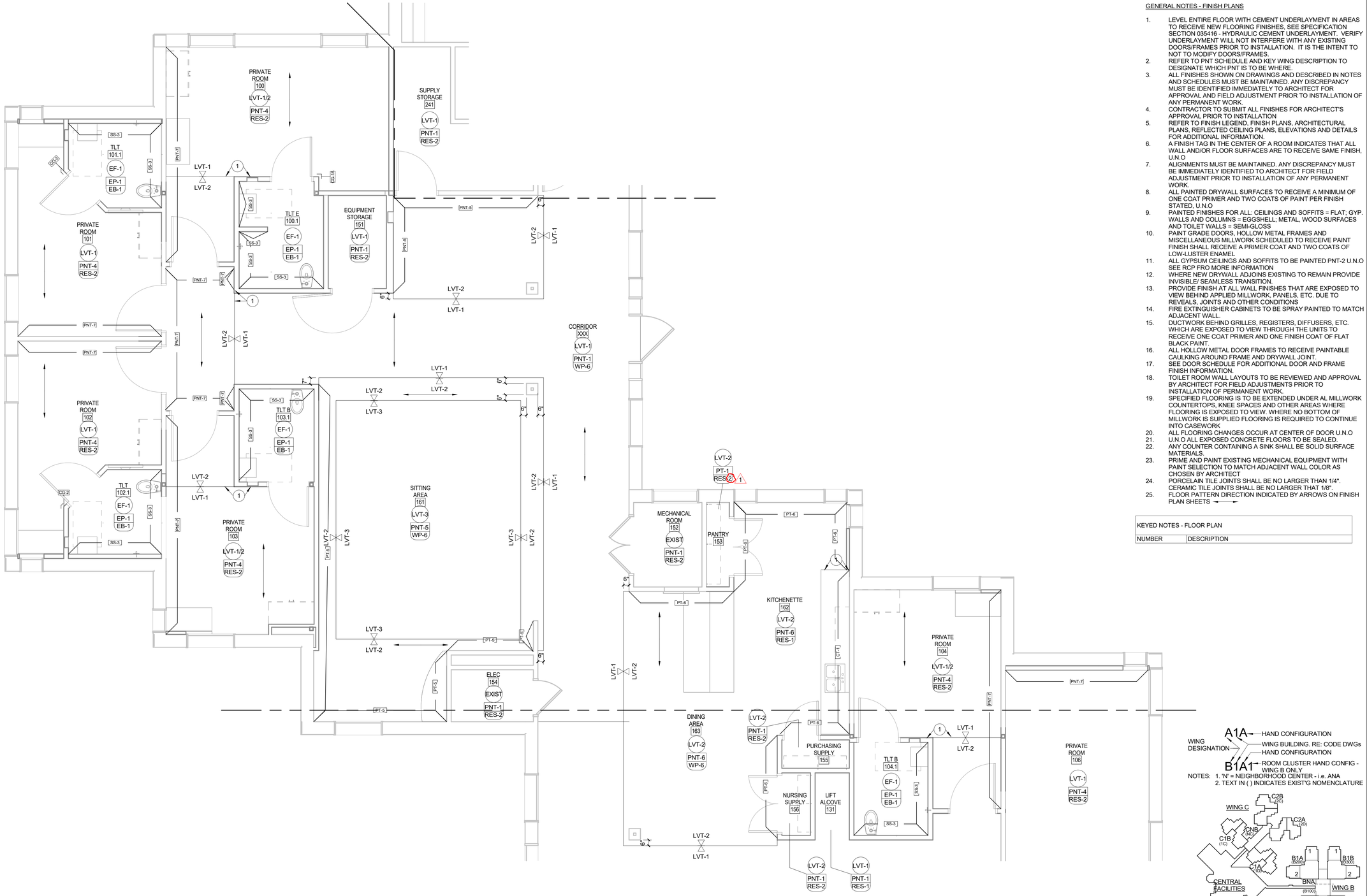
SHEET TITLE:

DOOR SCHEDULES FOR A-WING & STAFF LOUNGE

SHEET NUMBER:

A-603

27 OF 93 SHEETS
06/26/2025



1 FINISH PLAN - A2A HOME 2
1/4" = 1'-0"

GENERAL NOTES - FINISH PLANS

1. LEVEL ENTIRE FLOOR WITH CEMENT UNDERLAYMENT IN AREAS TO RECEIVE NEW FLOORING FINISHES, SEE SPECIFICATION SECTION 035416 - HYDRAULIC CEMENT UNDERLAYMENT. VERIFY UNDERLAYMENT WILL NOT INTERFERE WITH ANY EXISTING DOORS/FRAMES PRIOR TO INSTALLATION. IT IS THE INTENT TO NOT TO MODIFY DOORS/FRAMES.
2. REFER TO PNT SCHEDULE AND KEY WING DESCRIPTION TO DESIGNATE WHICH PNT IS TO BE WHERE.
3. ALL FINISHES SHOWN ON DRAWINGS AND DESCRIBED IN NOTES AND SCHEDULES MUST BE MAINTAINED. ANY DISCREPANCY MUST BE IDENTIFIED IMMEDIATELY TO ARCHITECT FOR APPROVAL AND FIELD ADJUSTMENT PRIOR TO INSTALLATION OF ANY PERMANENT WORK.
4. CONTRACTOR TO SUBMIT ALL FINISHES FOR ARCHITECT'S APPROVAL PRIOR TO INSTALLATION
5. REFER TO FINISH LEGEND, FINISH PLANS, ARCHITECTURAL PLANS, REFLECTED CEILING PLANS, ELEVATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
6. A FINISH TAG IN THE CENTER OF A ROOM INDICATES THAT ALL WALL AND/OR FLOOR SURFACES ARE TO RECEIVE SAME FINISH, U.N.O
7. ALIGNMENTS MUST BE MAINTAINED. ANY DISCREPANCY MUST BE IMMEDIATELY IDENTIFIED TO ARCHITECT FOR FIELD ADJUSTMENT PRIOR TO INSTALLATION OF ANY PERMANENT WORK.
8. ALL PAINTED DRYWALL SURFACES TO RECEIVE A MINIMUM OF ONE COAT PRIMER AND TWO COATS OF PAINT PER FINISH STATED, U.N.O
9. PAINTED FINISHES FOR ALL: CEILINGS AND SOFFITS = FLAT; GYP. WALLS AND COLUMNS = EGGSHELL; METAL, WOOD SURFACES AND TOILET WALLS = SEMI-GLOSS
10. PAINT GRADE DOORS, HOLLOW METAL FRAMES AND MISCELLANEOUS MILLWORK SCHEDULED TO RECEIVE PAINT FINISH SHALL RECEIVE A PRIMER COAT AND TWO COATS OF LOW-LUSTER ENAMEL.
11. ALL GYPSUM CEILINGS AND SOFFITS TO BE PAINTED PNT-2 U.N.O SEE RCP FRO MORE INFORMATION
12. WHERE NEW DRYWALL ADJOINS EXISTING TO REMAIN PROVIDE INVISIBLE/ SEAMLESS TRANSITION
13. PROVIDE FINISH AT ALL WALL FINISHES THAT ARE EXPOSED TO VIEW BEHIND APPLIED MILLWORK, PANELS, ETC. DUE TO REVEALS, JOINTS AND OTHER CONDITIONS
14. FIRE EXTINGUISHER CABINETS TO BE SPRAY PAINTED TO MATCH ADJACENT WALL.
15. DUCTWORK BEHIND GRILLES, REGISTERS, DIFFUSERS, ETC. WHICH ARE EXPOSED TO VIEW THROUGH THE UNITS TO RECEIVE ONE COAT PRIMER AND ONE FINISH COAT OF FLAT BLACK PAINT.
16. ALL HOLLOW METAL DOOR FRAMES TO RECEIVE PAINTABLE CAULKING AROUND FRAME AND DRYWALL JOINT.
17. SEE DOOR SCHEDULE FOR ADDITIONAL DOOR AND FRAME FINISH INFORMATION.
18. TOILET ROOM WALL LAYOUTS TO BE REVIEWED AND APPROVAL BY ARCHITECT FOR FIELD ADJUSTMENTS PRIOR TO INSTALLATION OF PERMANENT WORK.
19. SPECIFIED FLOORING IS TO BE EXTENDED UNDER AL MILLWORK COUNTERTOPS, KNEE SPACES AND OTHER AREAS WHERE FLOORING IS EXPOSED TO VIEW. WHERE NO BOTTOM OF MILLWORK IS SUPPLIED FLOORING IS REQUIRED TO CONTINUE INTO CASEWORK
20. ALL FLOORING CHANGES OCCUR AT CENTER OF DOOR U.N.O
21. U.N.O ALL EXPOSED CONCRETE FLOORS TO BE SEALED.
22. ANY COUNTER CONTAINING A SINK SHALL BE SOLID SURFACE MATERIALS.
23. PRIME AND PAINT EXISTING MECHANICAL EQUIPMENT WITH PAINT SELECTION TO MATCH ADJACENT WALL COLOR AS CHOSEN BY ARCHITECT
24. PORCELAIN TILE JOINTS SHALL BE NO LARGER THAN 1/4". CERAMIC TILE JOINTS SHALL BE NO LARGER THAT 1/8".
25. FLOOR PATTERN DIRECTION INDICATED BY ARROWS ON FINISH PLAN SHEETS →

KEYED NOTES - FLOOR PLAN	
NUMBER	DESCRIPTION

WING DESIGNATION
A1A — HAND CONFIGURATION
WING BUILDING. RE: CODE DWGs
B1A1 — HAND CONFIGURATION
ROOM CLUSTER HAND CONFIG - WING B ONLY
NOTES: 1. 'N' = NEIGHBORHOOD CENTER - i.e. ANA
2. TEXT IN ( ) INDICATES EXIST'G NOMENCLATURE

KEY PLAN (EXISTING)

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
AMY ANN PHILLIPS
NUMBER A-2011008161
ARCHITECT
8/20/25

Architect of Record
License A-2011008161

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

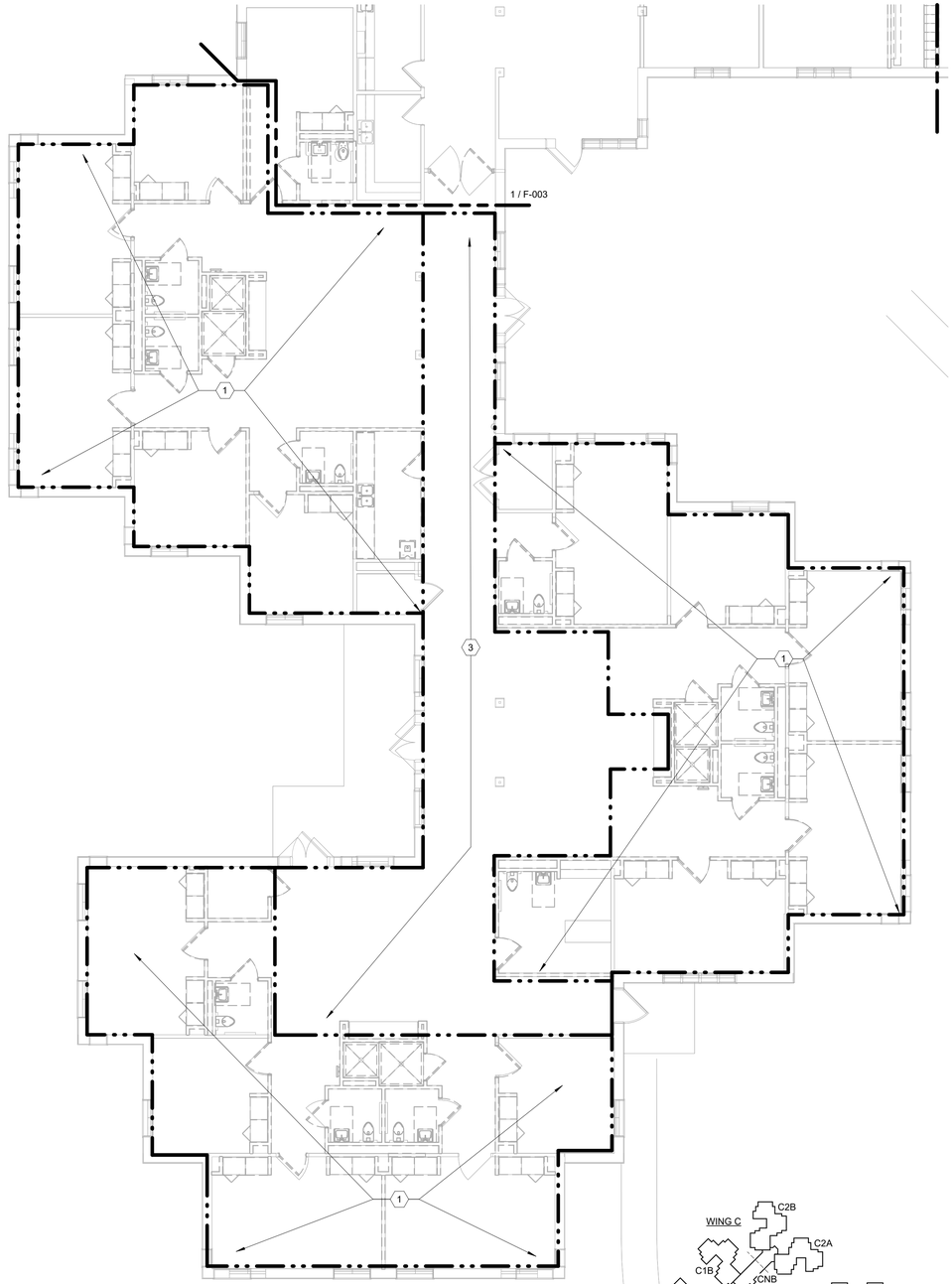
SHEET TITLE:

FINISH PLAN - A HOME 2

SHEET NUMBER:

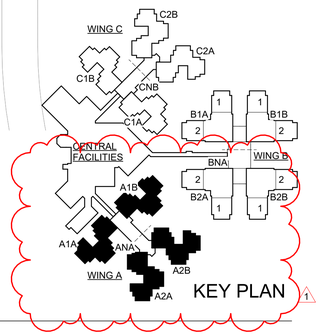
I-103

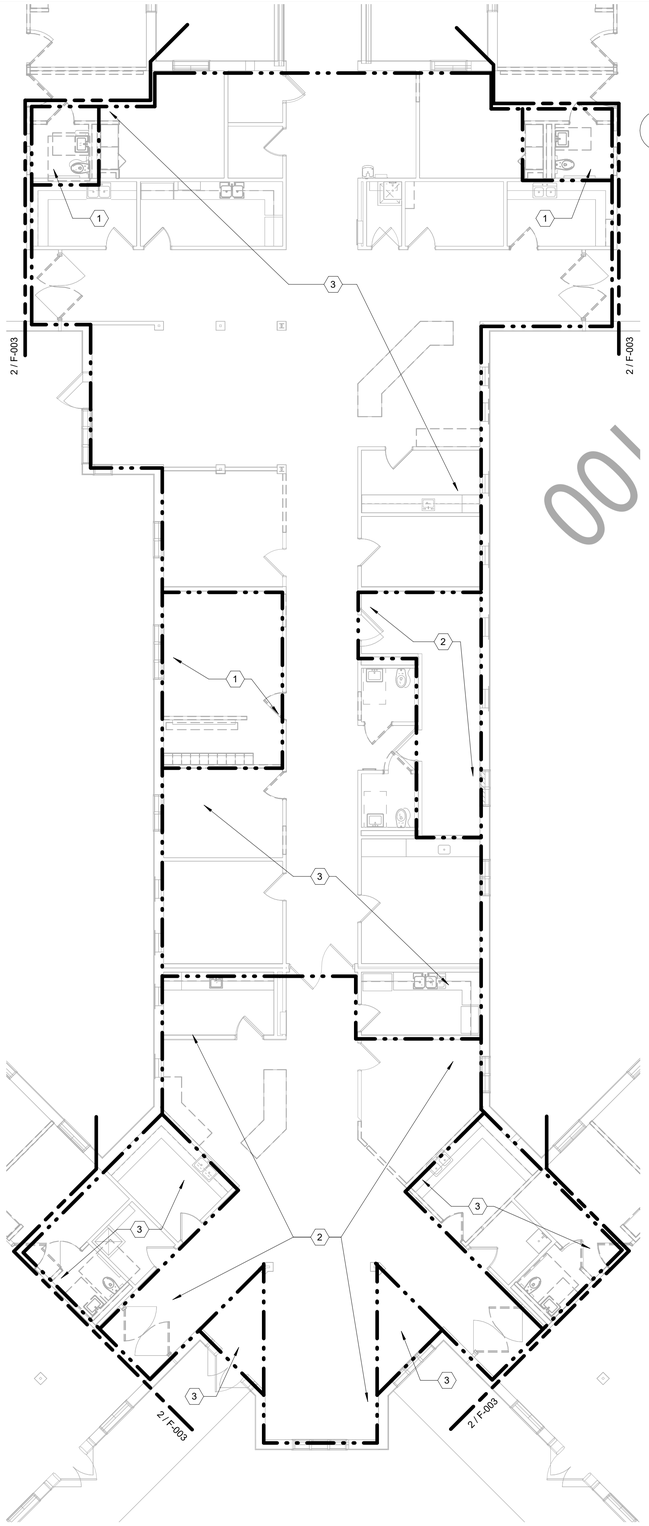
36 OF 93 SHEETS
06/26/2025



2 LEVEL 01 FIRE PROTECTION DEMOLITION PLAN - A HOME

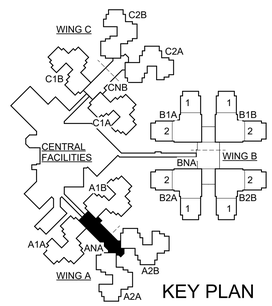
1/8" = 1'-0"





1 LEVEL 01 FIRE PROTECTION DEMOLITION PLAN - A NC

1/8" = 1'-0"



3 KEYED NOTES:

1. DEMOLISH EXISTING SPRINKLER HEADS SERVING AREA SHOWN TO PREPARE FOR NEW ROOM LAYOUT THIS WORK SHALL BE COMPLETED WHILE MAINTAINING SERVICE TO THE REMAINDER OF THE FLOOR. PREPARE FOR NEW WORK.
2. DEMOLISH EXISTING SPRINKLER HEADS SERVING AREA SHOWN. THIS WORK SHALL BE COMPLETED WHILE MAINTAINING SERVICE TO THE REMAINDER OF THE FLOOR. PREPARE FOR NEW WORK. EXISTING CEILING TO REMAIN.
3. DEMOLISH EXISTING SPRINKLER HEADS SERVING AREA SHOWN TO PREPARE FOR NEW CEILING. THIS WORK SHALL BE COMPLETED WHILE MAINTAINING SERVICE TO THE REMAINDER OF THE FLOOR. PREPARE FOR NEW WORK.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

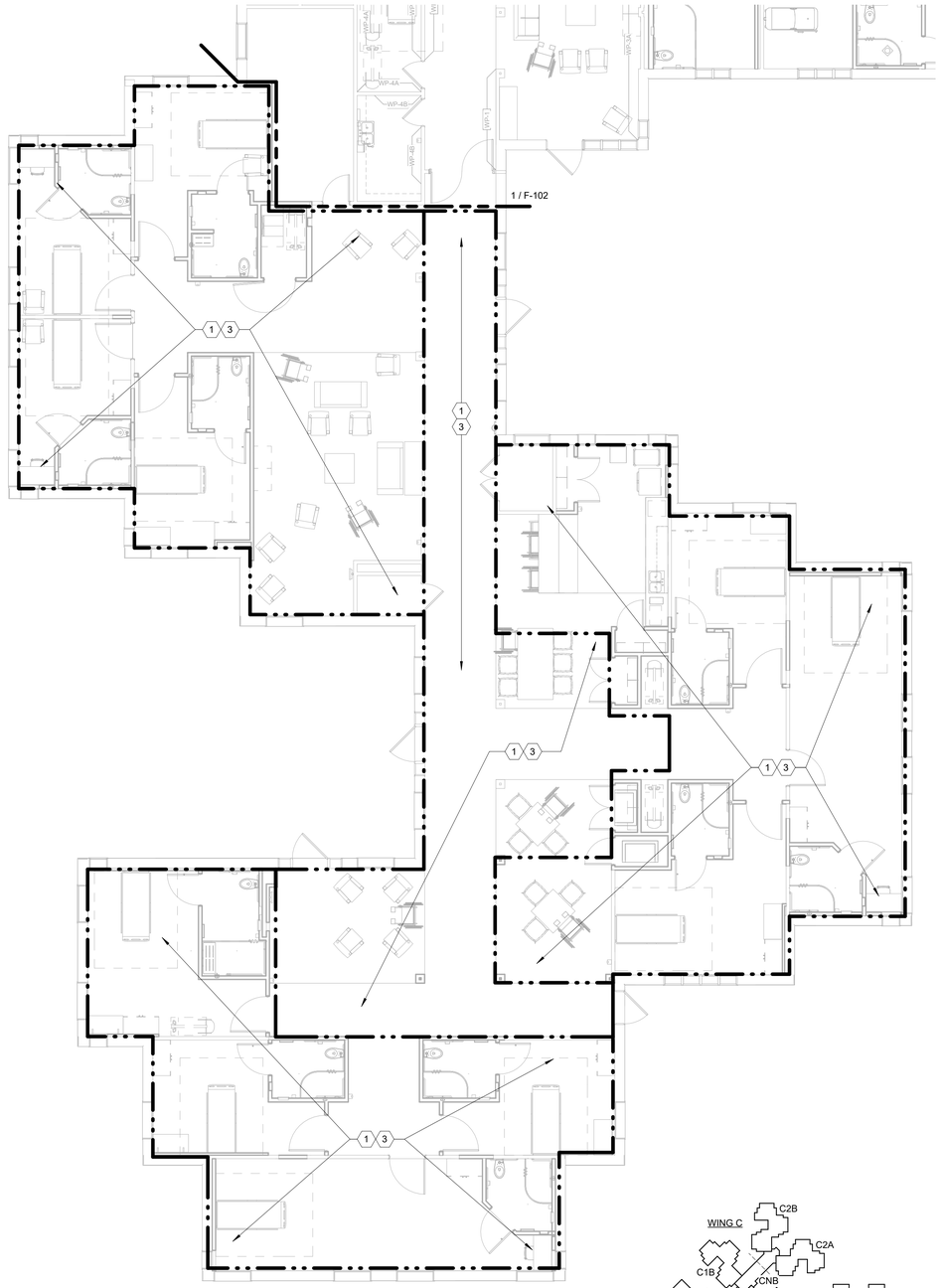
SHEET TITLE:

LEVEL 01 FIRE PROTECTION DEMOLITION PLAN - A WING

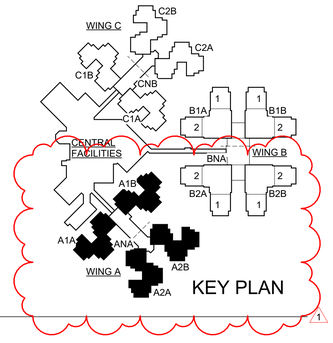
SHEET NUMBER:

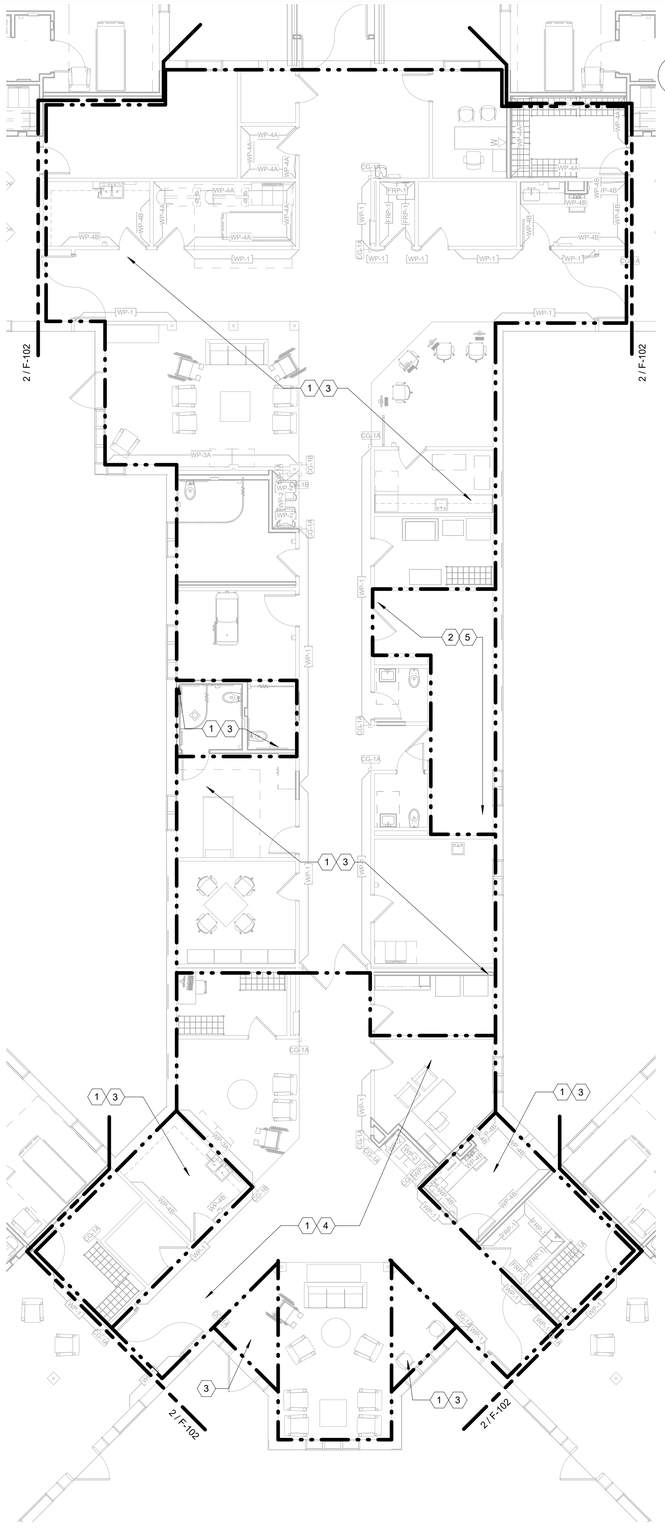
F-003

51 OF 93 SHEETS
06/26/2025

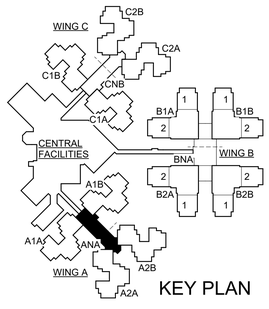


2 LEVEL 01 FIRE PROTECTION PLAN - A HOME
1/8" = 1'-0"





1 LEVEL 01 FIRE PROTECTION PLAN - A NC
1/8" = 1'-0"



3 KEYED NOTES:

1. LIGHT HAZARD: SPRINKLER DENSITY EQUAL TO 0.10 GPM/SF OVER THE MOST REMOTE 1500 SQ. FT. HOSE STREAM ALLOWANCE 250 GPM.
2. ORDINARY HAZARD: SPRINKLER DENSITY EQUAL TO 0.15 GPM/SF OVER THE MOST REMOTE 1500 SQ. FT. HOSE STREAM ALLOWANCE 250 GPM.
3. PROVIDE SEMI-RECESSED SPRINKLER HEADS IN THIS AREA FOR NEW ROOM LAOUT.
4. PROVIDE SEMI-RECESSED SPRINKLER HEADS IN THIS AREA TO FULLY UPDATE SPRINKLERS IN THIS WING. EXISTING CEILING TO REMAIN IN THIS AREA
5. PROVIDE UPRIGHT SPRINKLER HEADS IN THIS AREA TO FULLY UPDATE SPRINKLERS IN THIS WING.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE:06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

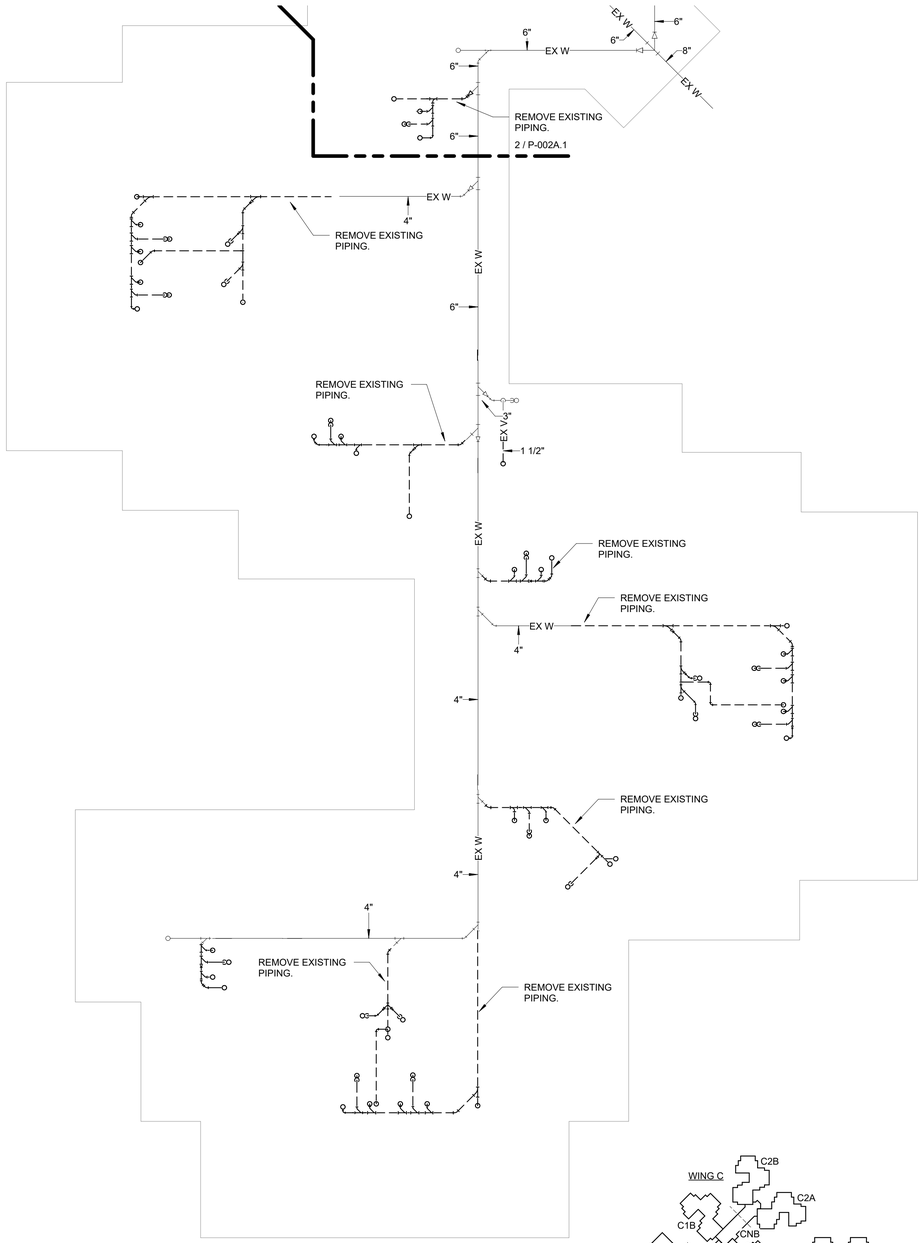
SHEET TITLE:

LEVEL 01 FIRE PROTECTION PLAN - A WING

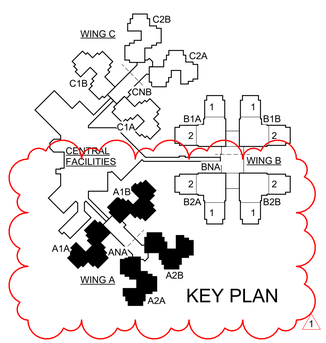
SHEET NUMBER:

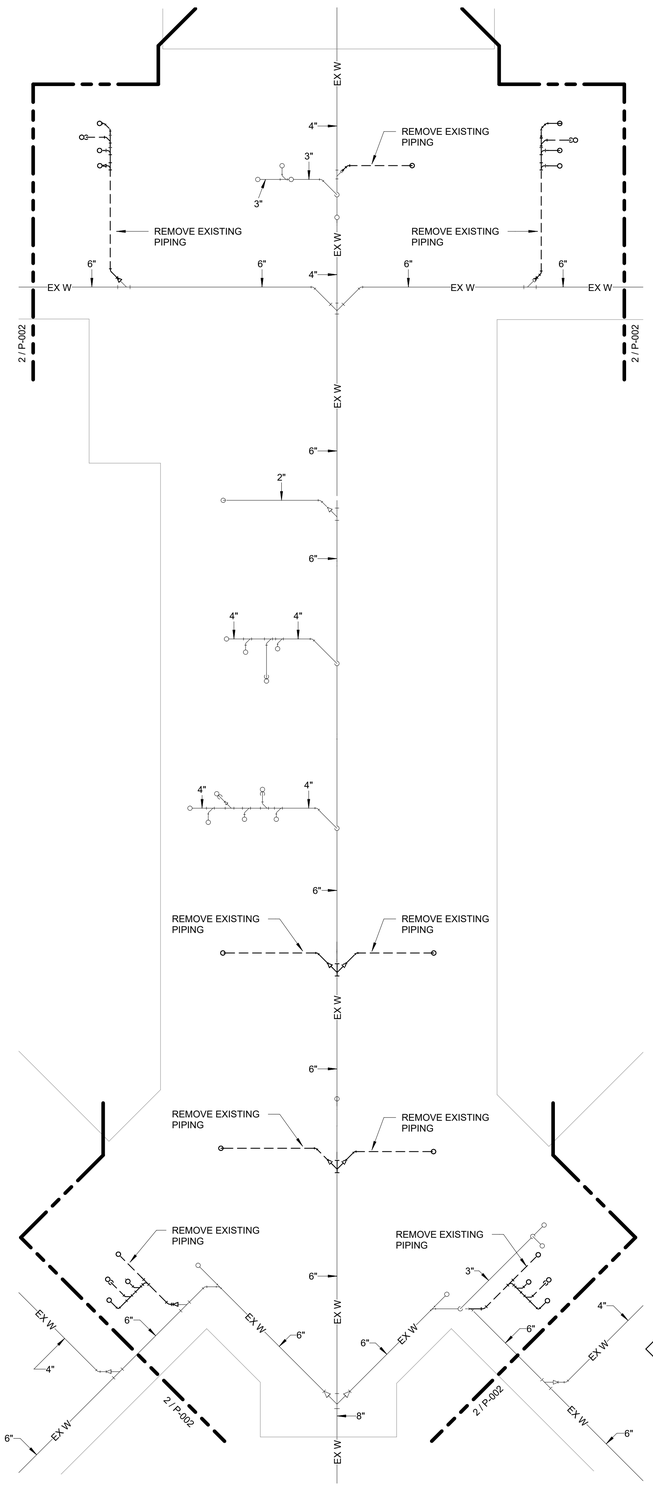
F-102

52 OF 93 SHEETS
06/26/2025

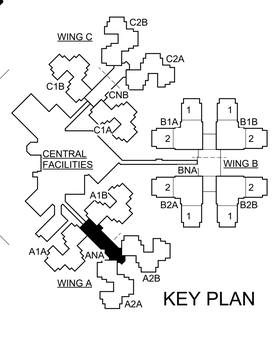


2 UNDERFLOOR DEMOLITION PLAN - A HOME
1/8" = 1'-0"





1 UNDERFLOOR DEMOLITION PLAN - A NC
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE:06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

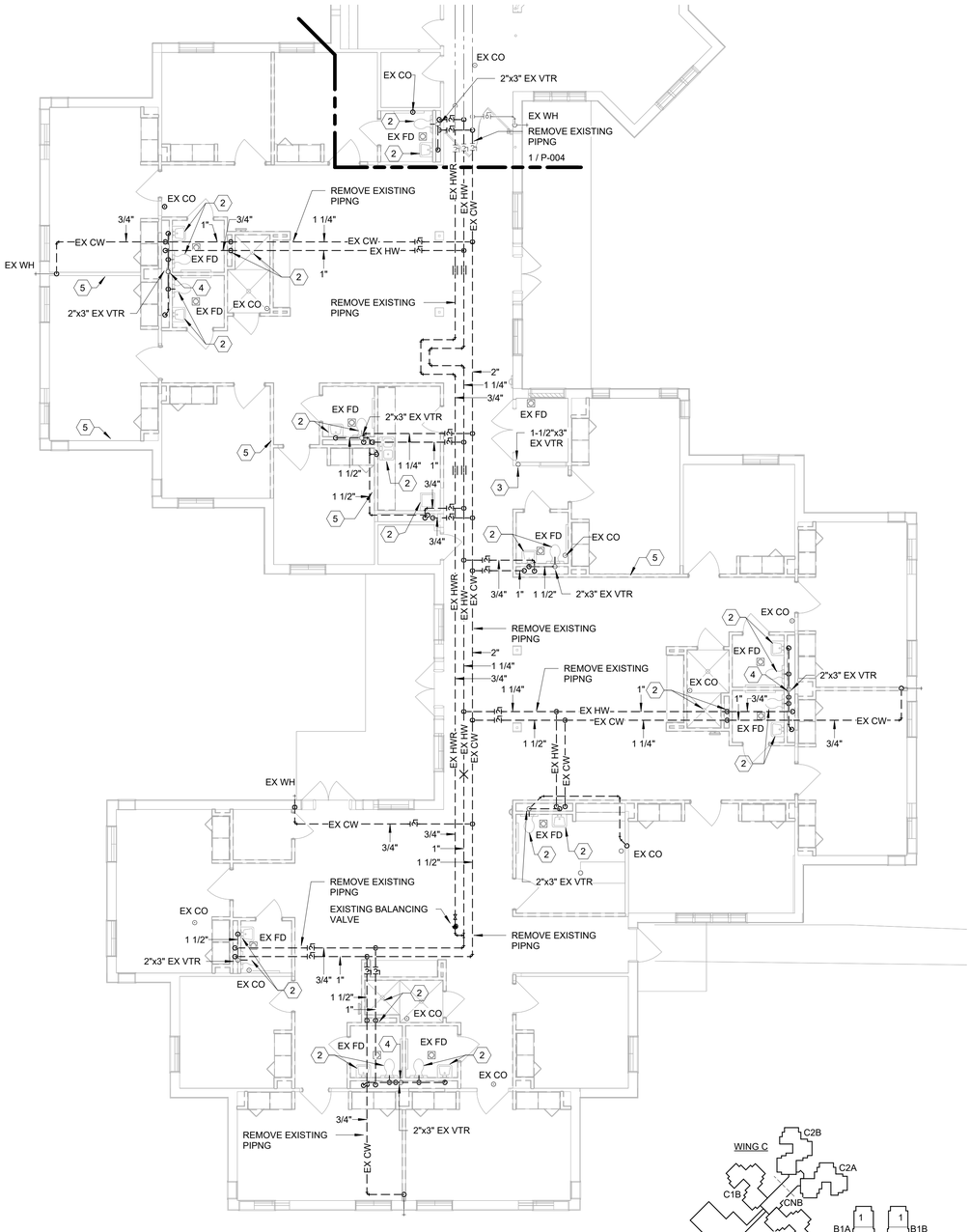
SHEET TITLE:

UNDERFLOOR PLUMBING DEMOLTION PLAN - A WING

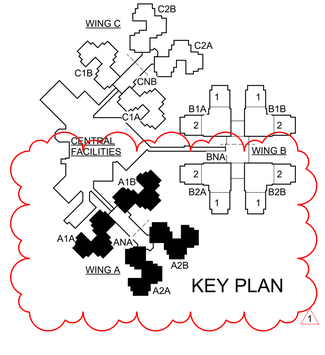
SHEET NUMBER:

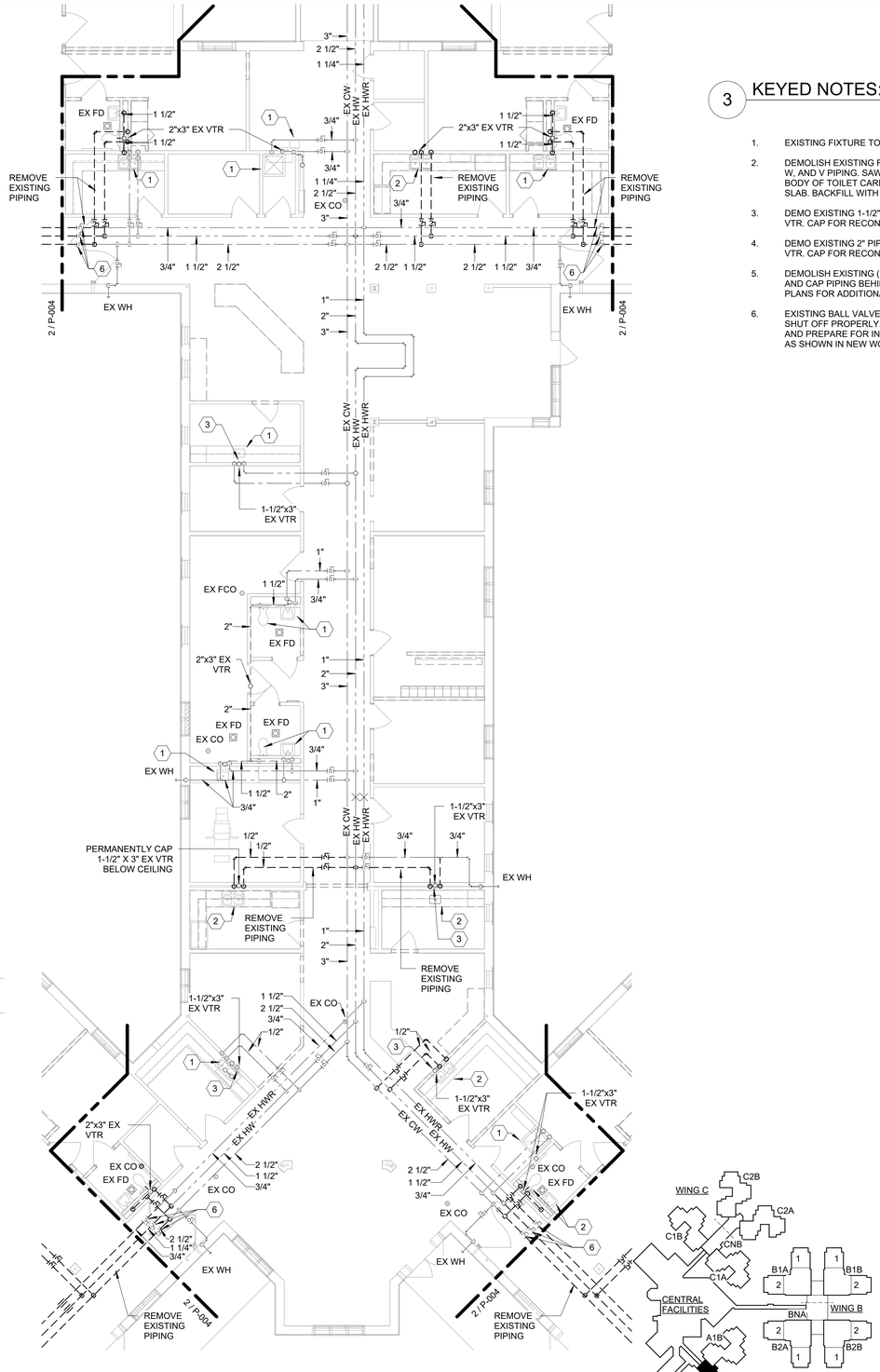
P-002

54 OF 93 SHEETS
06/26/2025



2 LEVEL 01 DEMOLITION PLAN - A HOME
1/8" = 1'-0"





1 LEVEL 01 DEMOLITION PLAN - A NC
1/8" = 1'-0"

3 KEYED NOTES:

1. EXISTING FIXTURE TO REMAIN.
2. DEMOLISH EXISTING FIXTURE AND ASSOCIATED CW, HW, W, AND V PIPING. SAWCUT SLAB AND REMOVE CAST IRON BODY OF TOILET CARRIER THAT IS CAST INTO EXISTING SLAB. BACKFILL WITH CONCRETE TO MATCH EXISTING.
3. DEMO EXISTING 1-1/2" PIPE CONNECTION TO EXISTING 3" VTR. CAP FOR RECONNECTION UNDER NEW WORK.
4. DEMO EXISTING 2" PIPE CONNECTION TO EXISTING 3" VTR. CAP FOR RECONNECTION UNDER NEW WORK.
5. DEMOLISH EXISTING (2) MEDICAL GAS OUTLETS. VALVE AND CAP PIPING BEHIND WALL. SEE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION ON LOCATIONS.
6. EXISTING BALL VALVES SERVING WINGS NO LONGER SHUT OFF PROPERLY. DEMOLISH EXISTING BALL VALVES AND PREPARE FOR INSTALLATION OF NEW BALL VALVES AS SHOWN IN NEW WORK.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

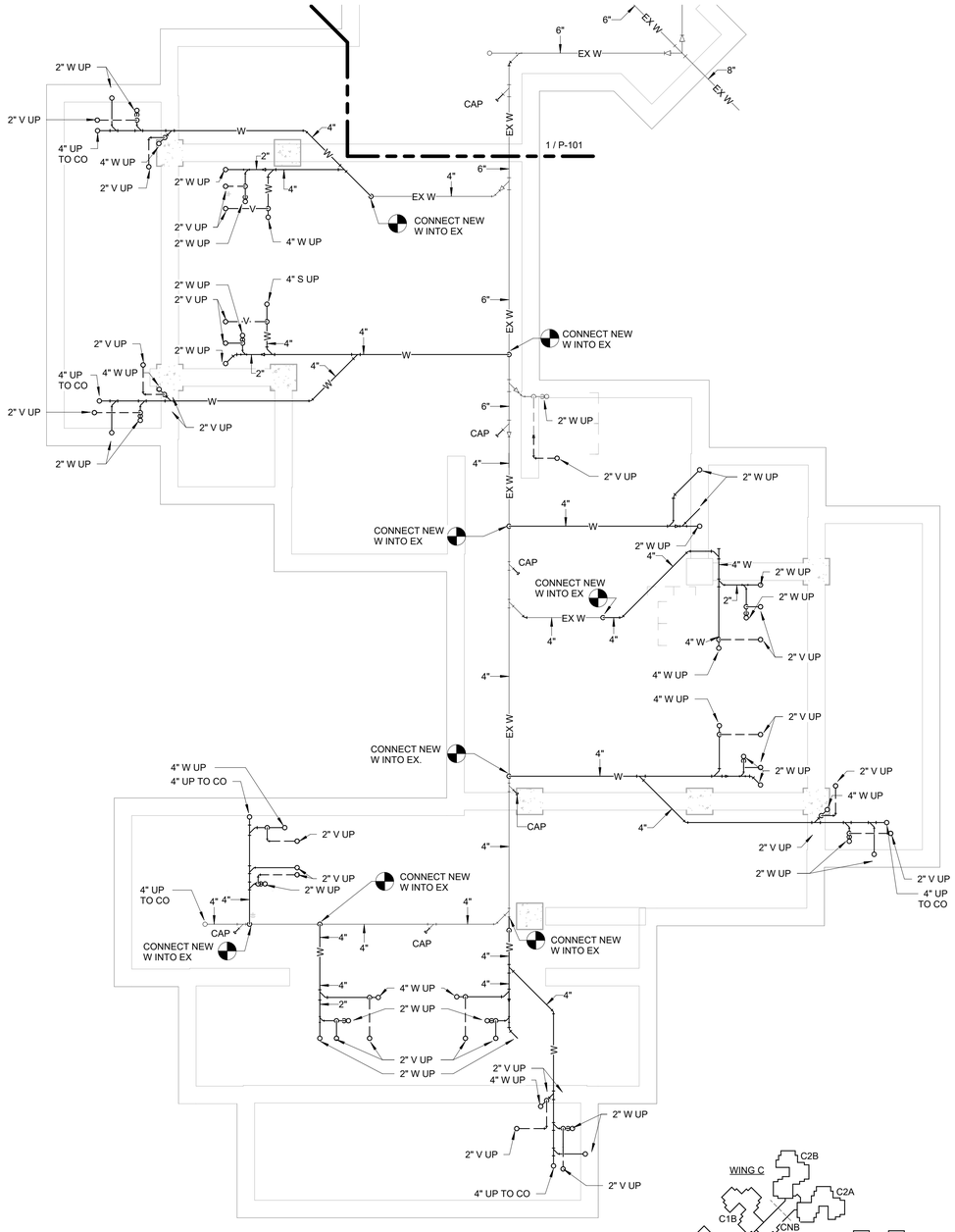
SHEET TITLE:

LEVEL 01 PLUMBING DEMOLITION PLAN - A WING

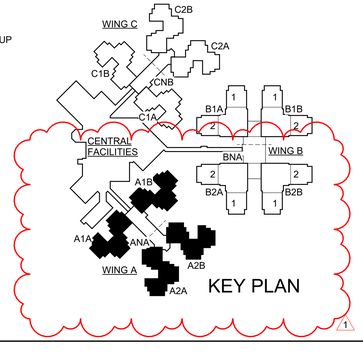
SHEET NUMBER:

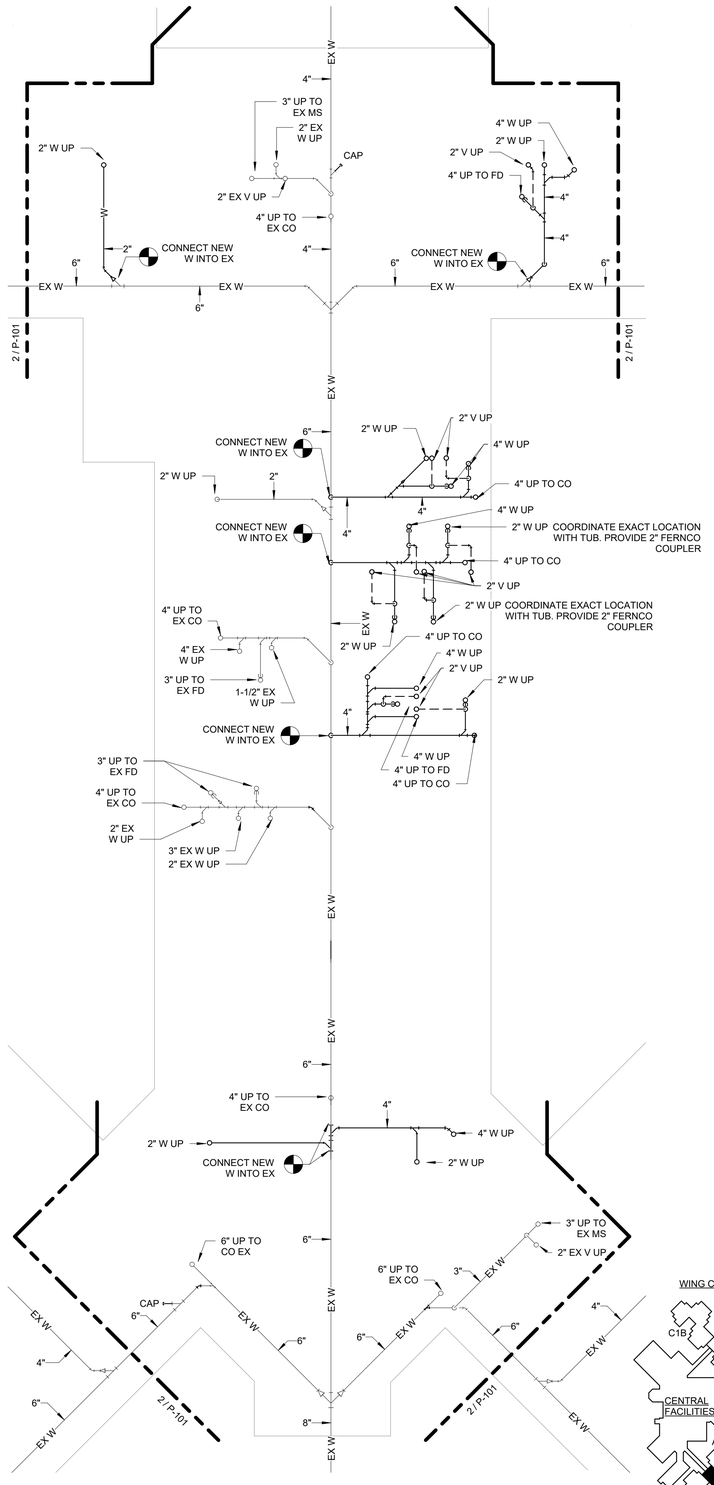
P-004

55 OF 93 SHEETS
06/26/2025

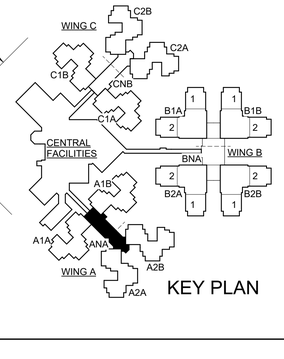


2 UNDERFLOOR PLAN - A HOME
1/8" = 1'-0"





1 UNDERFLOOR PLAN - A NC
1/8" = 1'-0"



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

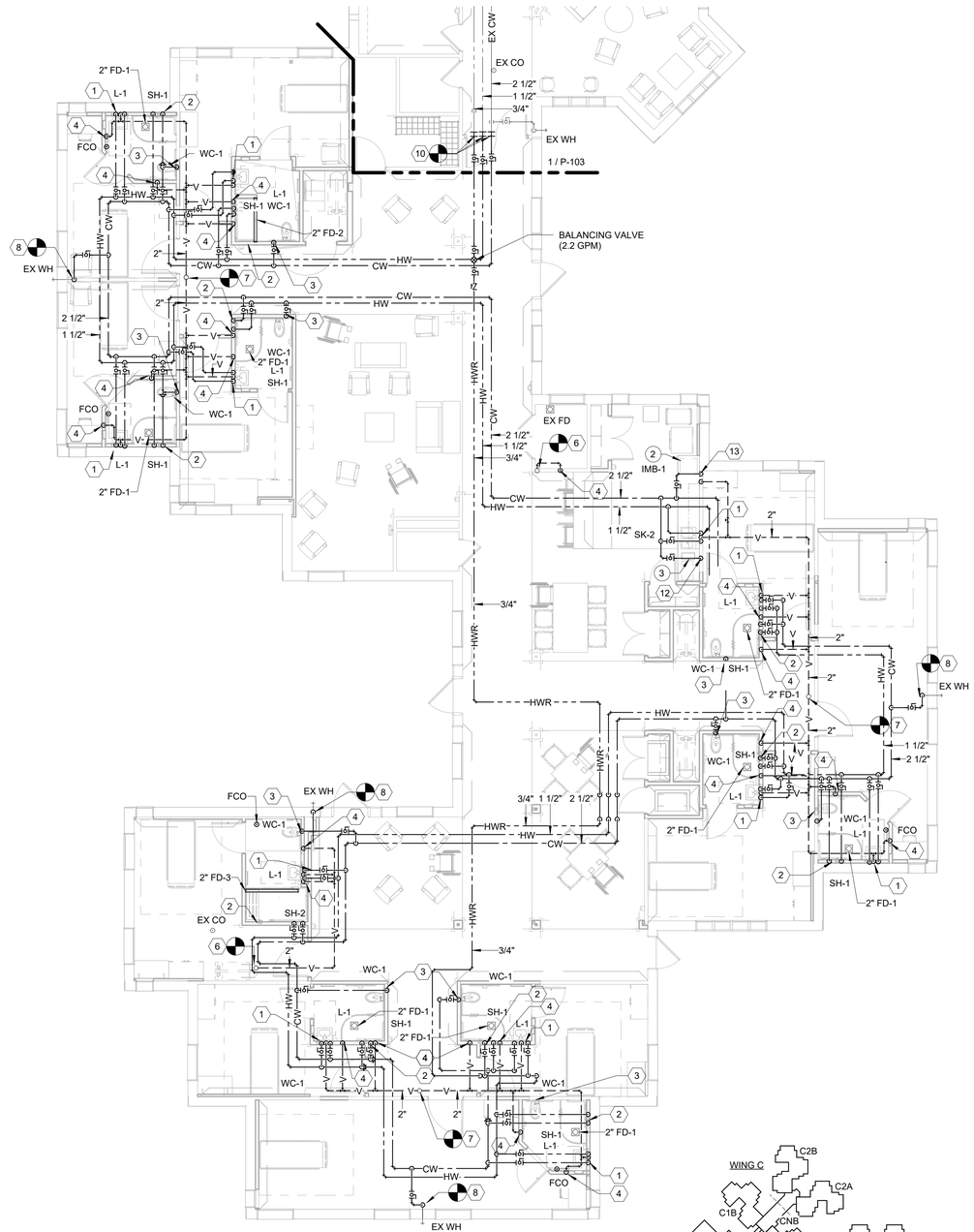
SHEET TITLE:

UNDERFLOOR PLUMBING PLAN - A WING

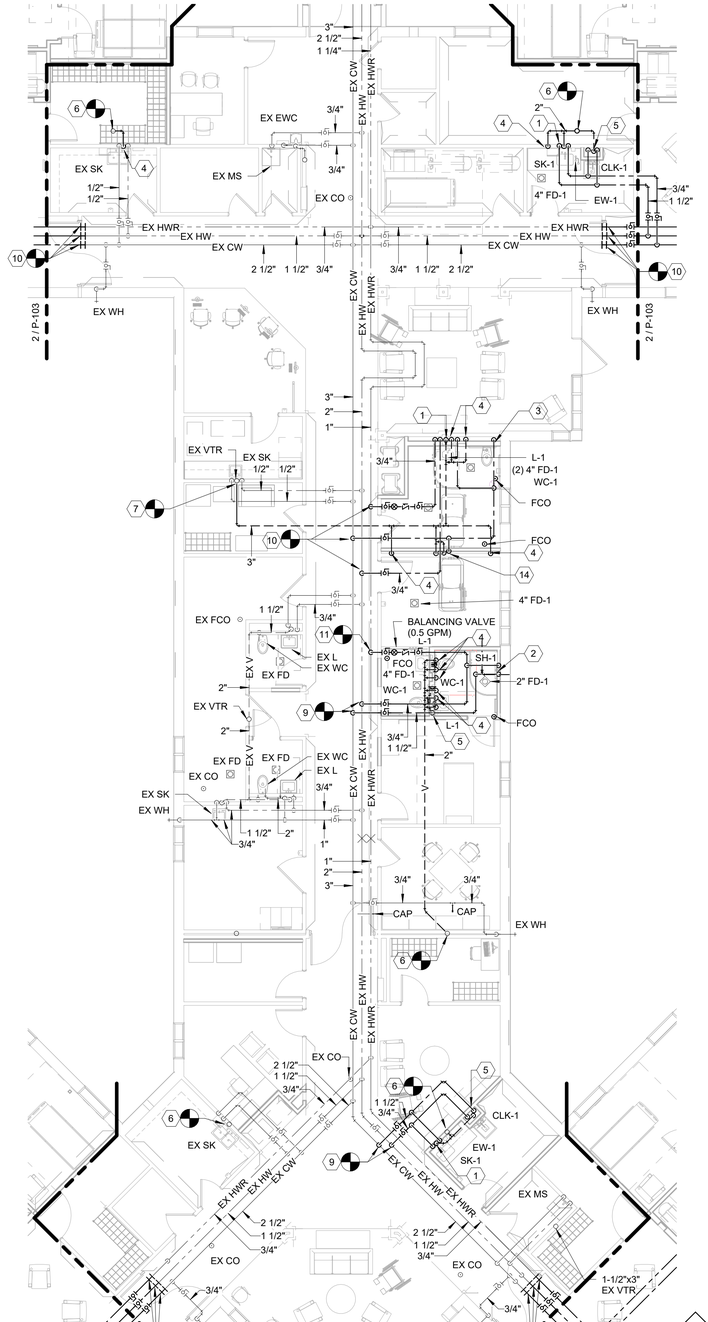
SHEET NUMBER:

P-101

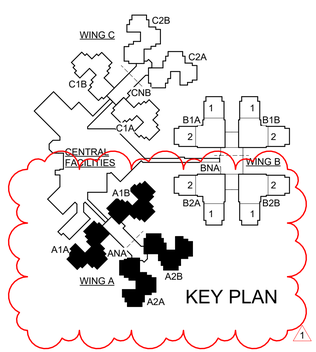
56 OF 93 SHEETS
06/26/2025

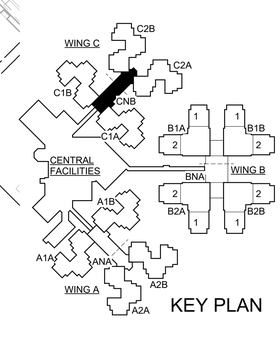


2 LEVEL 01 PLAN - A HOME
1/8" = 1'-0"



1 LEVEL 01 PLAN - A NC
1/8" = 1'-0"





3 KEYED NOTES:

1. 1/2" CW DN, 1/2" HW DN, 2" V DN, 2" W DN
2. 1/2" CW DN, 1/2" HW DN
3. 1-1/4" CW DN
4. 2" V DN
5. 1-1/2" CW DN, 3/4" HW DN, 2" V DN, 4" W DN.
6. NEW 2" V CONNECTION INTO EX 3" VTR.
7. NEW 3" V CONNECTION INTO EX 3" VTR.
8. NEW CW CONNECTION INTO EX.
9. NEW CW AND HW CONNECTION INTO EX.
10. NEW CW, HW, AND HWR CONNECTION INTO EX.
11. NEW HWR CONNECTION INTO EX.
12. 1/2" CW DN
13. 1/2" CW DN, 2" V DN, 2" W DN
14. 3/4" CW DN, 3/4" HW DN TO TUB PROVIDED BY OTHERS. PROVIDE (2) 16" AND (2) 26" FALCON STAINLESS MEGAFLOW FEXIBLE FIP TO FIP HOSES VERIFY ALL WATER AND WASTE CONNECTIONS PRIOR TO INSTALLATION.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER
ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE:06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

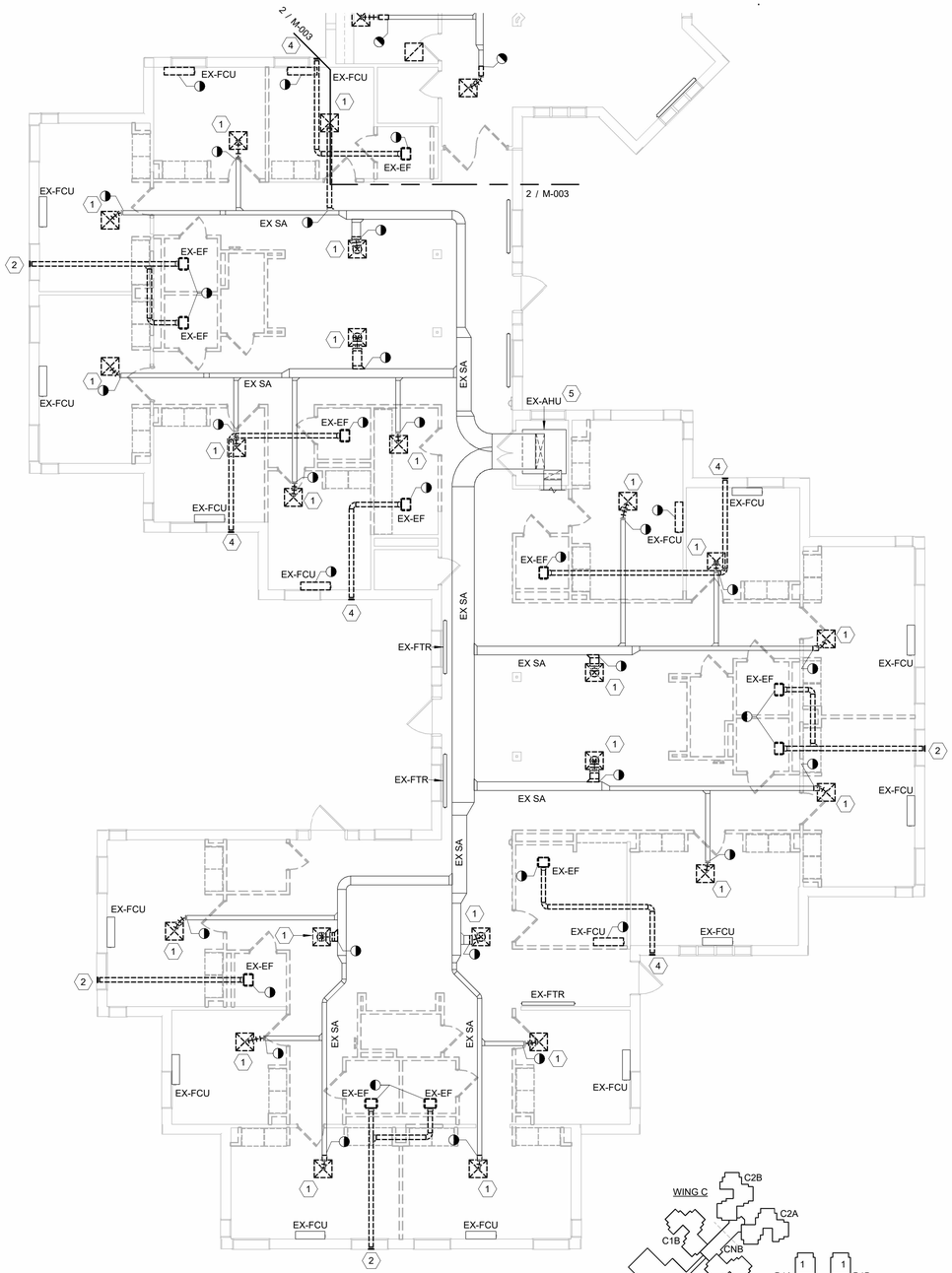
SHEET TITLE:

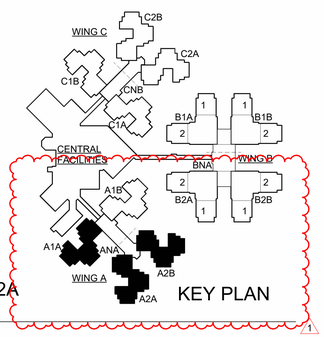
LEVEL 01 PLUMBING PLAN - A WING

SHEET NUMBER:

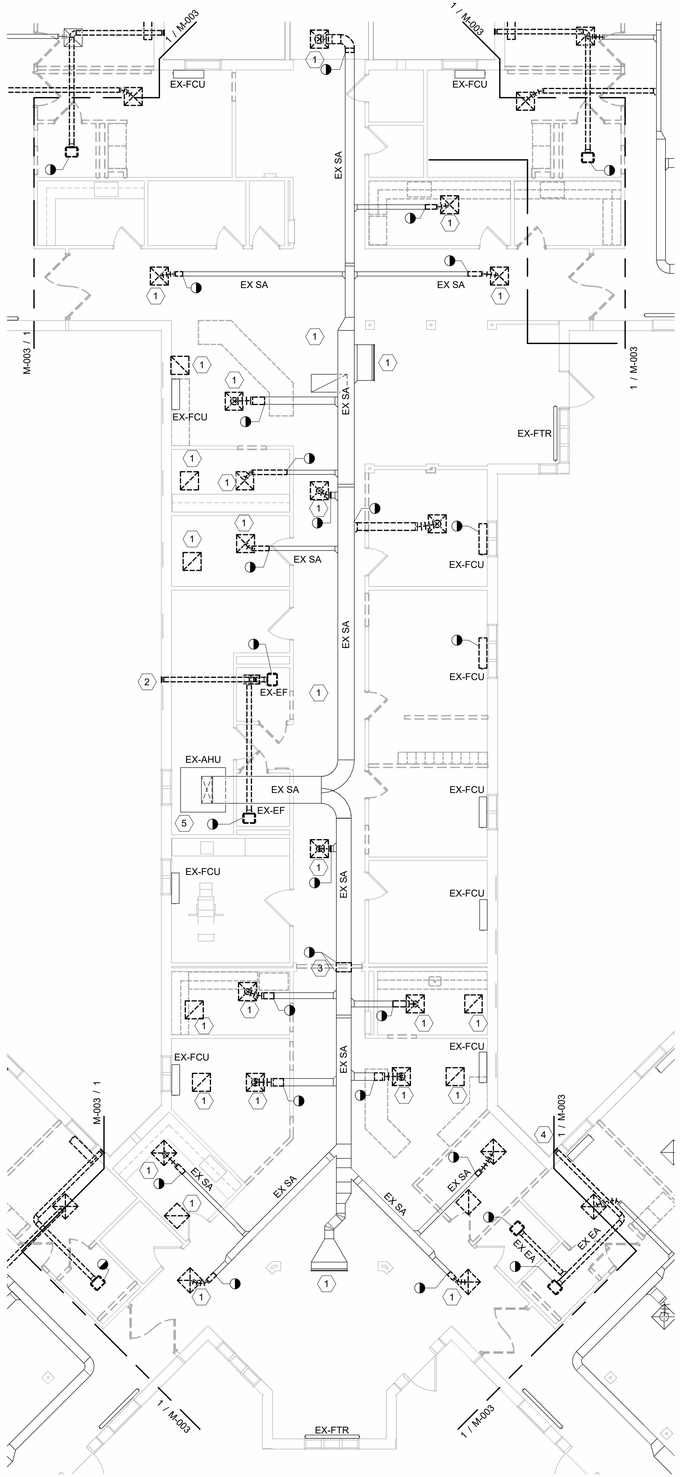
P-103

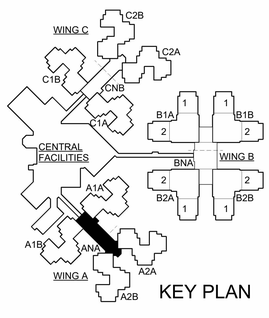
57 OF 93 SHEETS
06/26/2025





1 A WING HOME - DUCTWORK DUCTWORK DEMOLITION PLAN - A2A SHOWN
1/8" = 1'-0"





2 A WING NBHD CENTER - DUCTWORK DEMOLITION PLAN - ANA SHOWN
1/8" = 1'-0"

KEYED NOTES:

1. MEASURE AND RECORD AIRFLOW PRIOR TO REMOVAL. PROVIDE PRE-TAB REPORT FOR REVIEW BY ENGINEER.
2. CAP AND PRESERVE WALL PENETRATION FOR FUTURE USE. PROVIDE TEMPORARY PROTECTION OF OPENING DURING CONSTRUCTION.
3. COORDINATE NECESSARY SHUTDOWN OF SYSTEMS WITH OWNER'S OPERATIONAL REQUIREMENTS.
4. REFERENCE ARCHITECTURAL PLANS FOR CAP AND INSULATION AT ABANDONED LOUVER.
5. MEASURE AND RECORD SUPPLY AND RETURN AIRFLOWS OF EXISTING AHU.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

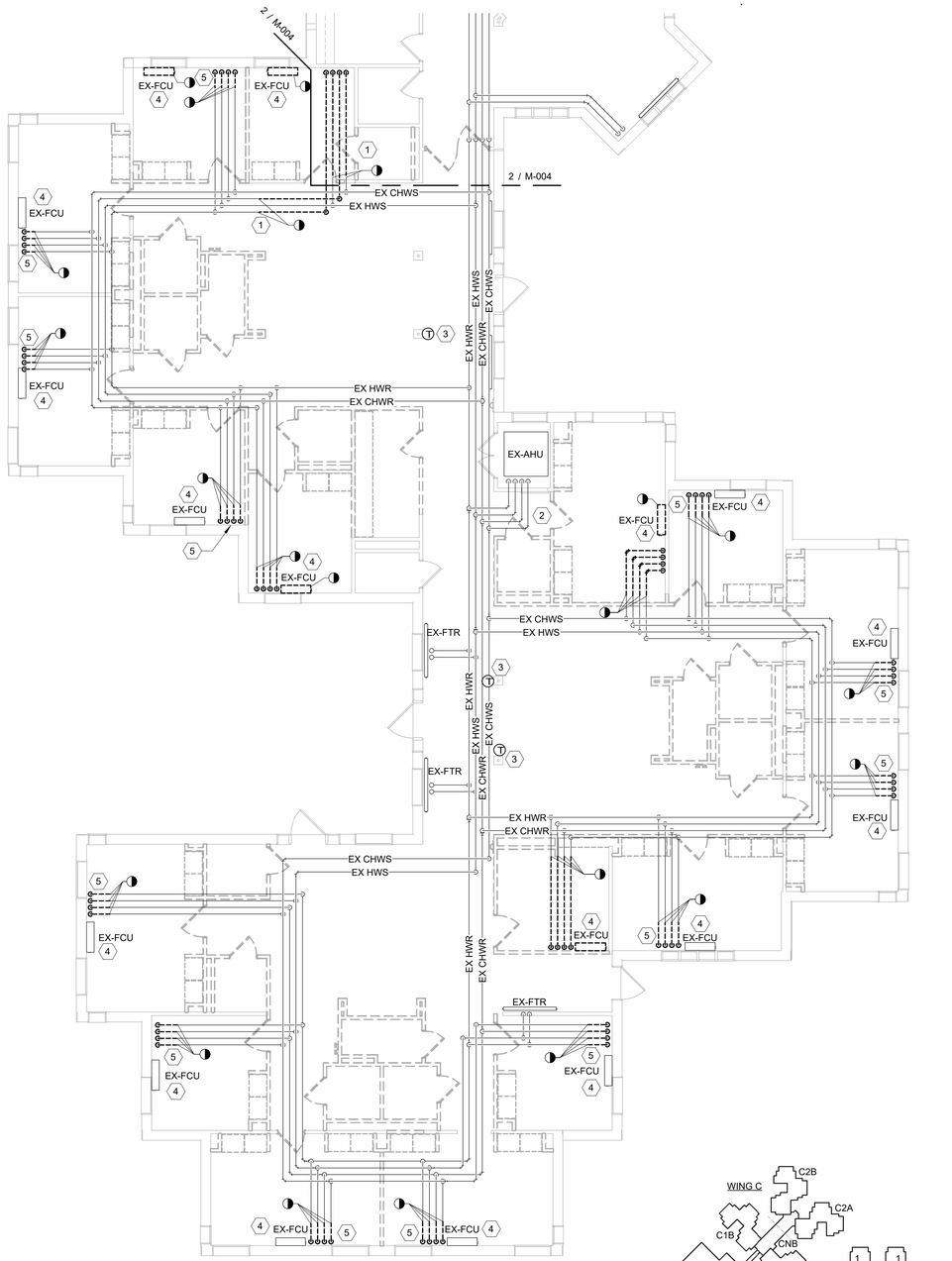
SHEET TITLE:

LEVEL 01 DUCTWORK DEMOLITION PLAN - A WING

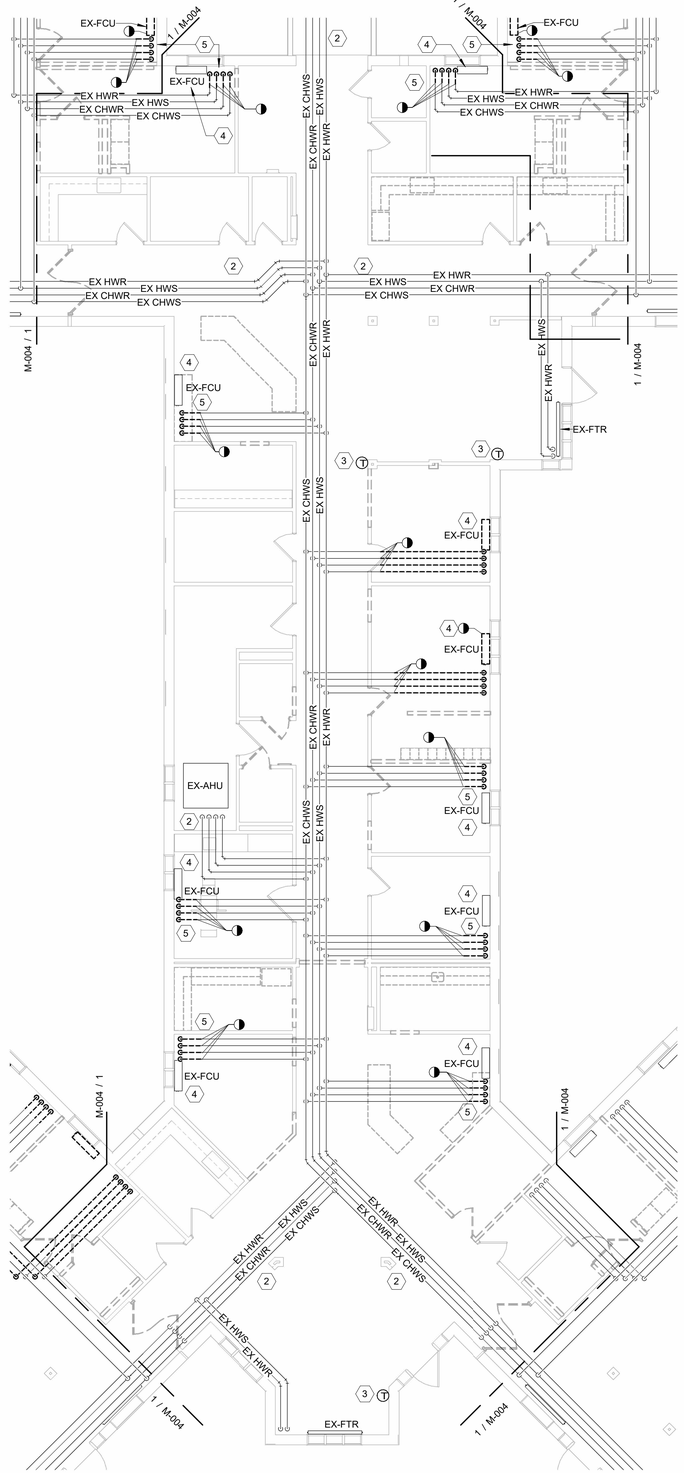
SHEET NUMBER:

M-003

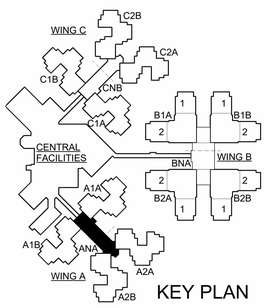
65 OF 93 SHEETS
06/26/2025



1 A WING HOME - PIPING DEMOLTION PLAN - A2A SHOWN
1/8" = 1'-0"



2 A WING NHBD CTR - PIPING DEMOLTION PLAN - ANA SHOWN
1/8" = 1'-0"



KEYED NOTES:

1. CAP AND VALVE EXISTING CHWS, CHWR, HWS, AND HWR.
2. MEASURE AND RECORD WATERFLOWS PRIOR TO DEMOLITION. PROVIDE PRE-TAB REPORT FOR REVIEW BY ENGINEER.
3. DEMOLISH THERMOSTAT AND CONTROL WIRING ASSOCIATED WITH EQUIPMENT. FIELD VERIFY LOCATION OF EXISTING THERMOSTAT.
4. EXISTING FAN COIL UNIT TO REMAIN. REMOVE EXISTING DDC CONTROLLER.
5. DEMOLISH CHWS, CHWR, HWS, AND HWR FROM EX-FCU TO WALL. ONLY DEMOLISH PIPING TO ELBOW ABOVE CEILING IF WATER DAMAGE IS OBSERVED AT WALL OR PIPING INSULATION.

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

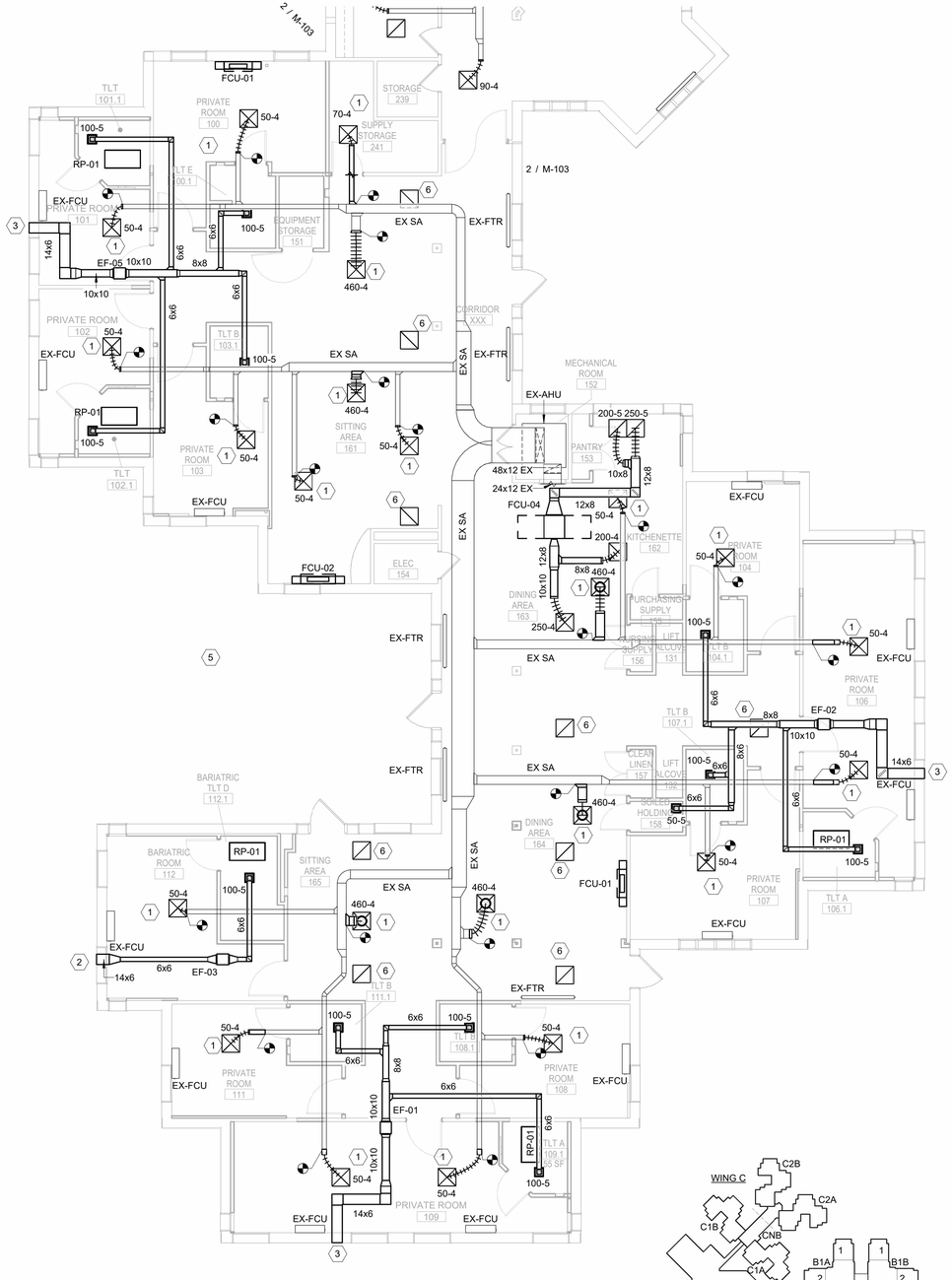
SHEET TITLE:

LEVEL 01 PIPING DEMOLITION PLAN - A WING

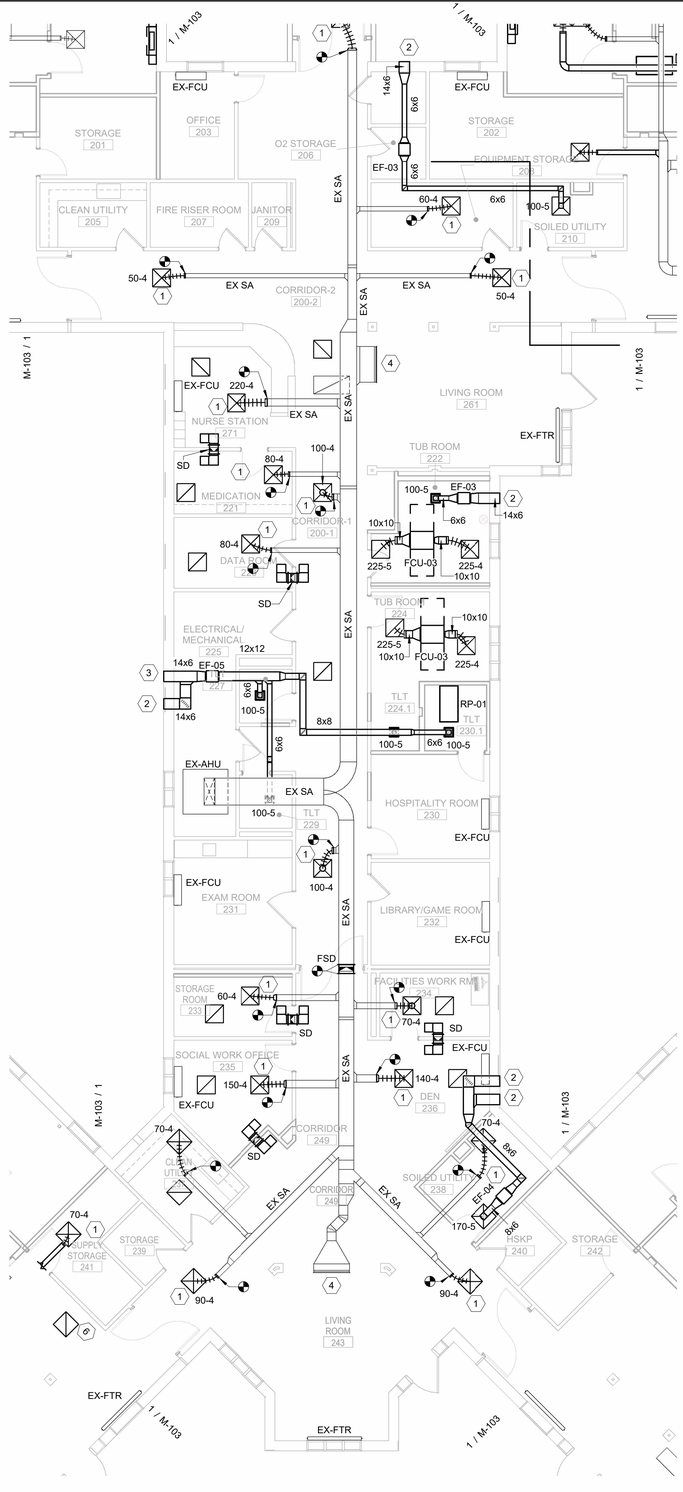
SHEET NUMBER:

M-004

66 OF 93 SHEETS
06/26/2025



1 A WING HOME DUCTWORK PLAN - A2A SHOWN
1/8" = 1'-0"



2 A WING NHBD CENTER DUCTWORK PLAN - ANA SHOWN
1/8" = 1'-0"

KEYED NOTES:

1. INSTALL NEW REGISTER AND RE-BALANCE TO PREVIOUSLY RECORDED VALUES UNLESS DIRECTED OTHERWISE. PROVIDE ALL NEW RIGID AND FLEXIBLE DUCTWORK, SUPPORTS, AND INSULATION FOR FULLY FUNCTIONING SYSTEM.
2. NEW EXHAUST LOUVER. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.
3. REUSE EXTERIOR PENETRATION FOR NEW EXHAUST DUCT. PROVIDE NEW LOUVERS AT THESE PENETRATIONS.
4. SUPPLY GRILLE, EXISTING TO REMAIN. REBALANCE TO PREVIOUSLY MEASURED AIRFLOW.
5. WING A2A IS SIMILAR TO ISOLATION WING A1B - SEE SHEET M-103A FOR ISOLATION WING A1B.
6. CEILING MOUNTED PLENUM TRANSFER AIR DIFFUSER PROVIDED FOR ISOLATION MODE OPERATION OF FAN FILTER UNIT. PROVIDE 24X24 TYPE 5 TRANSFER AIR GRILLE WITH OPEN ENDED DUCT. SEE M-0501 DETAIL 10.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
ALEXANDER RYAN OLIVER
NUMBER PE-2016001282
PROFESSIONAL ENGINEER
ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE:06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

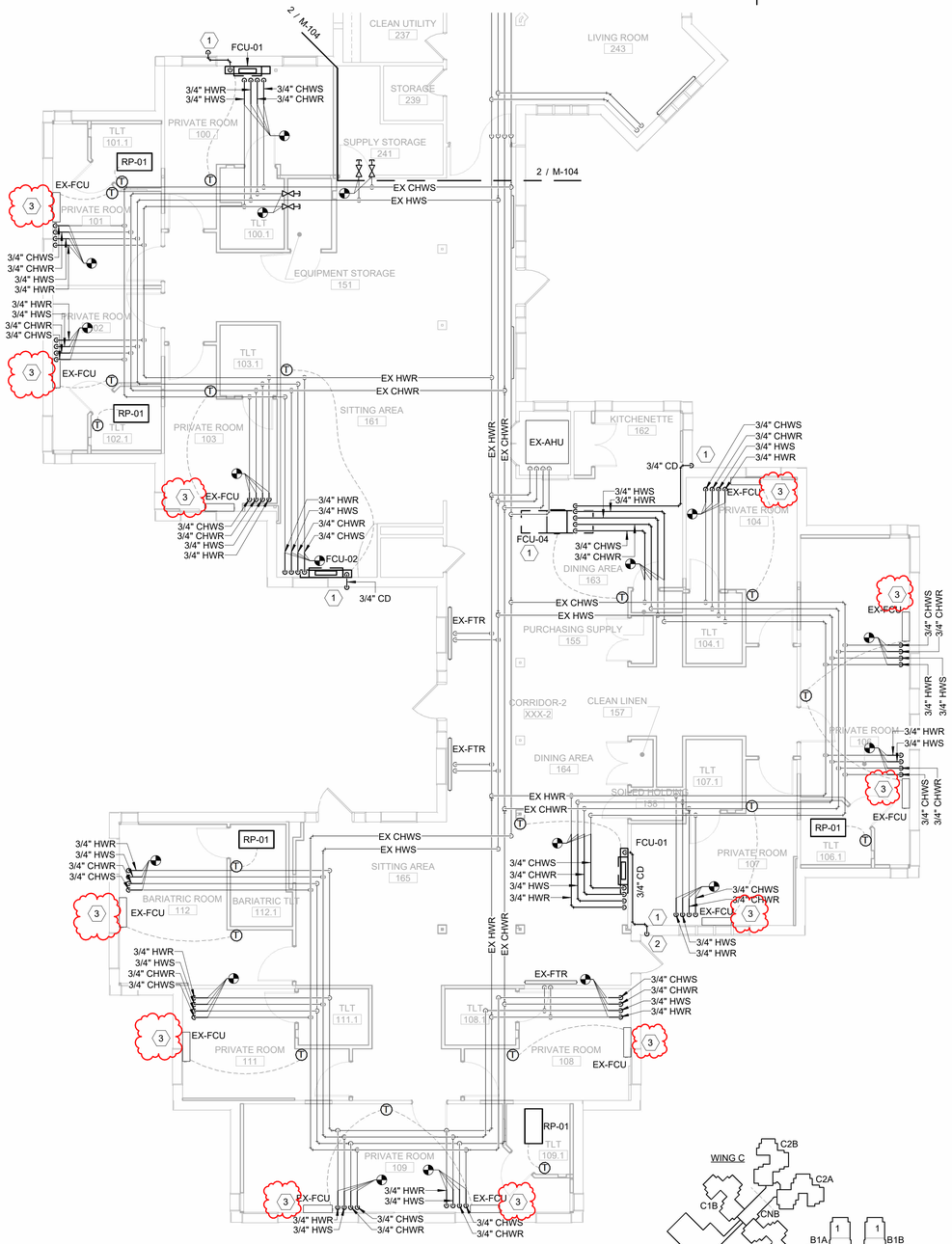
SHEET TITLE:

LEVEL 01 DUCTWORK PLAN - A WING

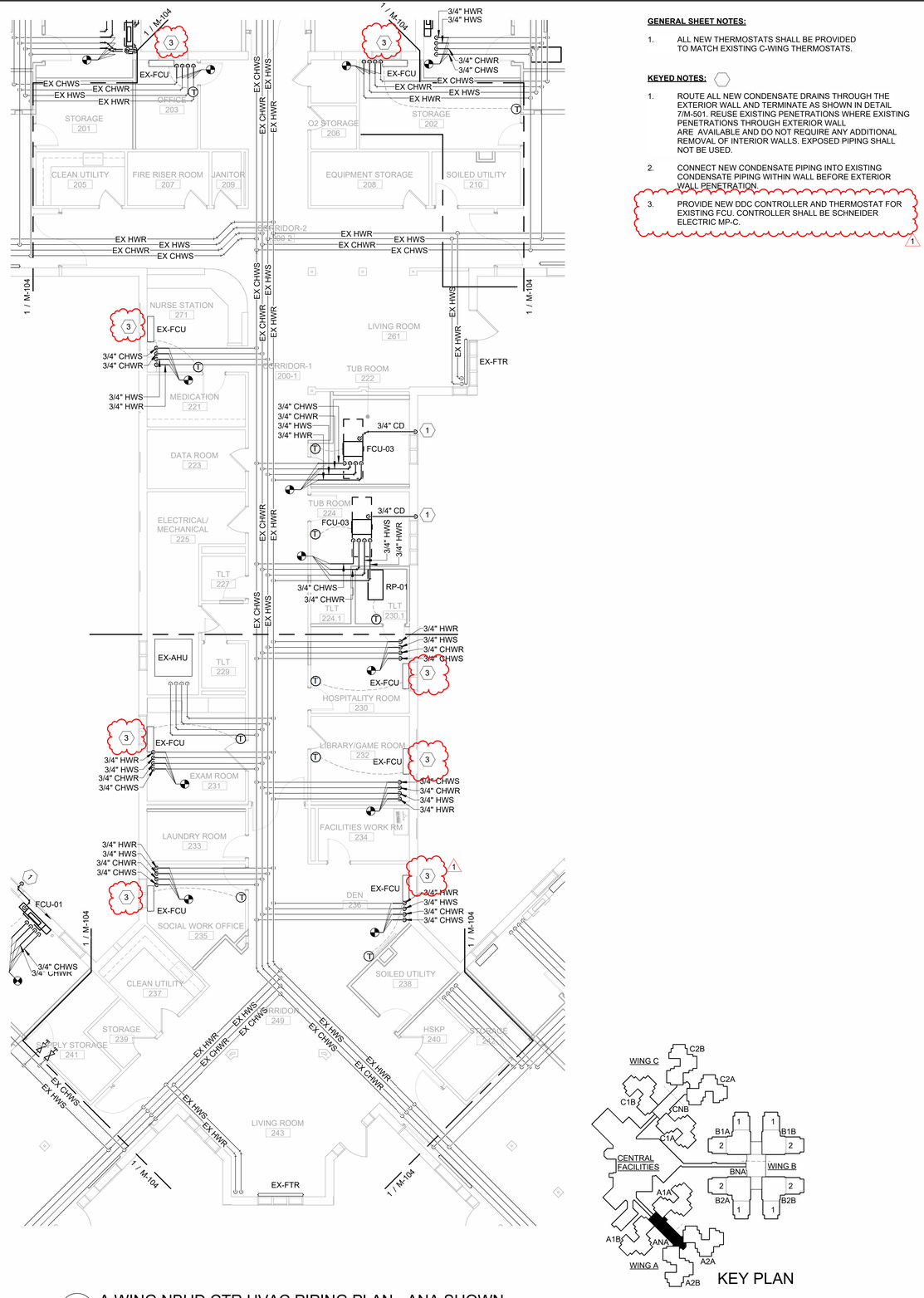
SHEET NUMBER:

M-103

67 OF 93 SHEETS
06/26/2025



1 A WING HOME HVAC PIPING PLAN - A2A SHOWN
1/8" = 1'-0"



2 A WING NBHD CTR HVAC PIPING PLAN - ANA SHOWN
1/8" = 1'-0"

GENERAL SHEET NOTES:

1. ALL NEW THERMOSTATS SHALL BE PROVIDED TO MATCH EXISTING C-WING THERMOSTATS.

KEYED NOTES:

1. ROUTE ALL NEW CONDENSATE DRAINS THROUGH THE EXTERIOR WALL AND TERMINATE AS SHOWN IN DETAIL 7/M-501. REUSE EXISTING PENETRATIONS WHERE EXISTING PENETRATIONS THROUGH EXTERIOR WALL ARE AVAILABLE AND DO NOT REQUIRE ANY ADDITIONAL REMOVAL OF INTERIOR WALLS. EXPOSED PIPING SHALL NOT BE USED.
2. CONNECT NEW CONDENSATE PIPING INTO EXISTING CONDENSATE PIPING WITHIN WALL BEFORE EXTERIOR WALL PENETRATION.
3. PROVIDE NEW DDC CONTROLLER AND THERMOSTAT FOR EXISTING FCU. CONTROLLER SHALL BE SCHNEIDER ELECTRIC MP-C.

1

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

SHEET TITLE:

LEVEL 01 HVAC PIPING PLAN - A WING

SHEET NUMBER:

M-104

69 OF 93 SHEETS
06/26/2025

FAN COIL UNIT SCHEDULE

UNIT NO	QTY	CONFIG	TOTAL CFM	COOLING COIL									HEATING COIL								ELECTRICAL DATA						EMERGENCY POWER	WEIGHT (LBS)	DIMENSIONS HxWxL (IN)	FILTER	BASIS OF DESIGN			REMARKS
				TOTAL COOLING (MBH)	SENSIBLE CAPACITY	MIN ROWS	EAT DB/WB (°F)	LAT DB/WB (°F)	GPM	EWT (°F)	LWT (°F)	MAX WPD (FT)	CAPACITY (MBH)	MIN ROWS	EAT DB (°F)	LAT DB (°F)	GPM	EWT (°F)	LWT (°F)	MAX WPD (FT)	HP	V/PH/HZ	MOPD	FLA	MCA					MERV	MANUFACTURER	MODEL	
FCU-01	8	FLOOR MOUNTED	430	10.1	9.3	4	75/63	55/55	1.9	45	55	4.0	20.0	1	60	103	1.9	180	160	10.2	0.25	115/1/60	15	-	4.4	NO	108	25x46x10	8	DAIKIN	FCVC104	1,2,3,4,5,6,7
FCU-02	4	FLOOR MOUNTED	435	10.1	8.8	3	75/63	56/55	2.0	45	55	4.5	34.4	2	60	132	3.5	180	160	16.9	0.25	115/1/60	15	-	4.4	NO	131	25x57x10	8	DAIKIN	FCVC106	1,2,3,4,5,6,7
FCU-03	2	HORIZONTAL CONCEALED	485	13.9	11.2	4	75/63	54/53	2.8	45	55	8.9	23.5	1	60	115	1.2	180	140	6.9	0.25	115/1/60	15	-	4.4	NO	94	10x47x20	8	DAIKIN	FCHH206	1,2,3,4,5,6,7
FCU-04	4	HORIZONTAL CONCEALED	485	14.6	11.4	4	75/63	53/53	3.0	45	55	7	16.5	1	60	101	1.0	180	140	3.9	0.25	115/1/60	15	-	4.4	NO	94	10x47x20	8	DAIKIN	FCC-10	1,2,3,4,5,6,7

REMARKS:
1. PROVIDE WITH 120V CONDENSATE PUMP, BASIS OF DESIGN: DIVERSITECH CLEARVUE PUMP IQP-120.
2. PROVIDE WITH ECM MOTOR.
3. PROVIDE WITH LOCAL DISCONNECT.
4. PROVIDE WITH 24V CONTROL TRANSFORMER.
5. PROVIDE WITH 0-10VDC CONTROL VALVES.
6. COORDINATE CONTROL VALVES AND ACTUATOR PROCUREMENT BETWEEN MANUFACTURER AND DDC CONTRACTOR.
7. COORDINATE UNIT PIPING CONNECTION LOCATIONS WITH PIPING DROP LOCATIONS IN WALL.

FAN SCHEDULE

UNIT NO	QTY	TYPE	NOMINAL AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN. WC)	DRIVE	MOTOR						EMERGENCY POWER	WEIGHT	BASIS OF DESIGN		REMARKS
						BHP	HP	RPM	VFD	V/PH/HZ				MANUFACTURER	MODEL	
EF-01	4	INLINE	300	1.0	DIRECT	0.24	3/4	1815	NO	120/1/60		NO	60	GREENHECK	SQ-98-VG	1, 2, 3
EF-02	4	INLINE	350	1.0	DIRECT	0.23	1/4	1715	NO	120/1/60		NO	50	GREENHECK	SQ-98-VG	1, 2, 3
EF-03	6	INLINE	100	1.0	DIRECT	0.14	1/2	1730	NO	120/1/60		NO	50	GREENHECK	SQ-97-VG	1, 2, 3
EF-04	1	INLINE	170	1.0	DIRECT	0.2	1/2	1880	NO	120/1/60		NO	50	GREENHECK	SQ-97-VG	1, 2, 3
EF-05	5	INLINE	400	1.0	DIRECT	0.24	3/4	1815	NO	120/1/60		NO	60	GREENHECK	SQ-98-VG	1, 2, 3

REMARKS:
1. PROVIDE 24V TO 10V TRANSFORMERS FOR EACH FAN.
2. PROVIDE WITH ECM MOTOR.
3. PROVIDE WITH LOCAL DISCONNECT.

RADIANT PANEL SCHEDULE

UNIT NO	QTY	TYPE	ELECTRICAL DATA			WEIGHT (LBS)	BASIS OF DESIGN		REMARKS
			KW	V/PH/HZ	FLA		MANUFACTURER	MODEL	
RP-01	21	RADIANT ELECTRIC	0.75	120/1/60	6.3	28	QMARK	CP751F	1

REMARKS:
1. SEE FLOOR PLANS FOR QUANTITY OF UNITS.

AIR DEVICE SCHEDULE

TYPE	SERVICE	STYLE	FACE SIZE (IN)	NECK SIZE (IN)	AIR FLOW RANGE (CFM)	NUMBER OF SLOTS & SLOT WIDTH	REMARKS
1, 2, 3, 4	SUPPLY	PLAQUE	24 x 24	6" Ø	0 - 100	--	1
1, 2, 3, 4	SUPPLY	PLAQUE	24 x 24	8" Ø	101 - 175	--	1
1, 2, 3, 4	SUPPLY	PLAQUE	24 x 24	10" Ø	176 - 250	--	1
1, 2, 3, 4	SUPPLY	PLAQUE	24 x 24	12" Ø	251 - 350	--	1
1, 2, 3, 4	SUPPLY	PLAQUE	24 x 24	14" Ø	351 - 450	--	1
5	RETURN/EXHAUST	PLAQUE	12 x 12	6" Ø	0 - 100	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	6" Ø	0 - 100	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	8" Ø	101 - 200	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	10" Ø	201 - 325	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	12" Ø	326 - 450	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	14" Ø	451 - 600	--	1
5	RETURN/EXHAUST	PLAQUE	24 x 24	15" Ø	601 - 950	--	1

REMARKS:
1. WHERE NEW DIFFUSERS/REGISTERS ARE BEING ADDED TO A SPACE WITH EXISTING TO REMAIN REGISTERS, MATCH NEW DIFFUSERS/REGISTERS TO EXISTING STYLE.

MAKE UP AIR HANDLING UNIT SCHEDULE

UNIT NO.	SUPPLY FAN					COOLING SECTION						DX REHEAT		ELECTRIC HEATING				FILTERS		ELECTRICAL DATA			EMERGENCY POWER	UNIT DIMENSIONS	UNIT WEIGHT	BASIS OF DESIGN		REMARKS
	TOTAL/ OA CFM	TSP (IN WC)	ESP (IN WC)	BHP	HP	CAPACITY (MBH)		EAT		LAT		REFRIG. TYPE	CAPACITY (MBH)	LAT (°F)	CAPACITY (KW)	CONTROL	EAT DB (°F)	LAT DB (°F)	PREFILTER MERV	FINAL FILTER MERV	V/PH/HZ	MCA	MOCP				MANUFACTURER	MODEL	
						TOTAL	SENSIBLE	DB °F	WB °F	DB °F	WB °F																		
MAU-01	4360	1.22	1	2 @ 0.64	2 @ 1	370.6	208.2	96.2	76.7	52	51.8	R454B	214.6	70.0	120	SCR	7	70.0	8	13	208/3/60	310.2	350	NO	155x98x110	5069	GREENHECK	RV-75-30-1	1,2,3,4,5,6

REMARKS:
1. PROVIDE WITH WEATHERPROOF MAIN DISCONNECT SWITCH, SINGLE POINT CONNECTION.
2. PROVIDE WITH CONTROLS COMPATIBLE WITH FACILITY BMS. (SCHNEIDER-ELECTRIC BACnet IP)
3. PROVIDE WITH DIGITAL COMPRESSOR AND HOT GAS REHEAT COIL.
4. PROVIDE WITH FREEZESTAT.
5. UNIT SHALL HAVE A MAXIMUM OUTDOOR SOUND LEVEL OF 96 Db.
6. BALANCE UNIT AIRFLOW TO 3,900 CFM.

1

FAN FILTER UNIT SCHEDULE

UNIT	UNIT SIZE	MAX CFM	ELECTRICAL DATA		CFM AT 90 FPM	SOUND AT 90 FPM (dBA)	WEIGHT	BASIS OF DESIGN		REMARKS
			WATTS	V/PH/HZ				MANUFACTURER	MODEL	
FFU-01	24" x 48"	750	185	120/60/1	480	54	74	PRICE	PURA-FLO RSR - REVERSE FLOW	1,2,3,4,5,6

REMARKS:
1. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH.
2. PROVIDE HANGER BRAKETS
3. PROVIDE BACnet FLOW CONTROLLER WITH MOTOR AND FILTER STATUS.
4. ROOMSIDE ACCESS FOR FILTER REPLACEMENT AND MAINTENANCE.
5. UNIT SHALL BE REVERSE FLOW TYPE WITH 2 OUTLETS. CONNECT 1 OUTLET TO EXHAUST DUCT TO EXTERIOR AND 2ND OUTLET BE OPEN TO CEILING PLENUM.
6. SEE FLOOR PLANS FOR QUANTITY OF UNITS.

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

ALEXANDER RYAN OLIVER
License PE-2016001282

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
PUBLIC SAFETY, MISSOURI
VETERANS COMMISSION

ST. LOUIS VETERANS
HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION	DATE
1 ADD 1	8/20/25

ISSUE DATE: 06/26/2025

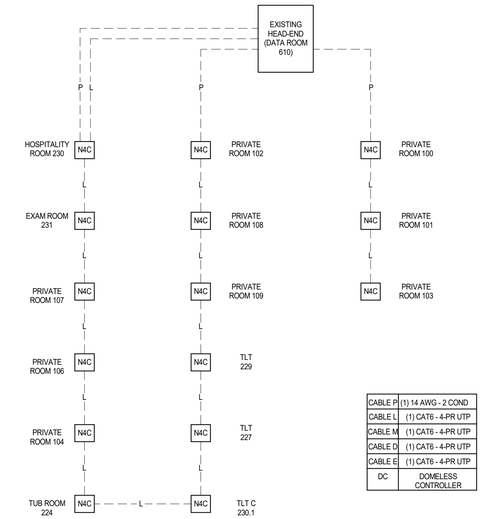
CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

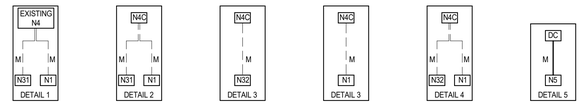
SHEET TITLE:
SCHEDULES

SHEET NUMBER:
M-601

1

Room #	Room Name	Dome Light (N4C)	Code Blue (N32)	Shower (N31)	Patient Station (N1)	Zone Dome Light (N7C)	Domeless Controller	Duty Station (N5)	Toilet/Dressing (N3)	Detail Type
205	Clean Utility						x	x		R5-003
210	Soiled Utility						x	x		R5-003
200	Corridor					x				
221	Medication						x	x		R5-003
224	Tub Room	x		x						
224.1	TLT								x	
230.1	TLT C	x		x					x	
230	Hospitality Room	x			x					R5-002
227	TLT	x							x	
229	TLT	x							x	
231	Exam Room	x			x					R5-002
232	Laundry/Game Room		x							R5-002
234	Facilities Work RM						x	x		R5-002
158	Soiled Utility						x	x		R5-003
237	Clean Utility						x	x		R5-003
238	Soiled Utility						x	x		R5-003
108	Private Room	x		x	x				x	R5-002
107	Private Room	x		x	x				x	R5-002
106	Private Room	x		x	x				x	
104	Private Room	x		x	x				x	
109	Private Room	x		x	x				x	
108	Private Room	x		x	x				x	
XXX	Corridor					x		x		5
161	Sitting Area							x		
100	Private Room	x		x	x				x	R5-002
101	Private Room	x		x	x				x	
102	Private Room	x		x	x				x	
103	Private Room	x		x	x				x	





1 NURSE CALL/CODE BLUE TRUNK RISER
NTS

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
JOCELYN N. WILDMAN
NUMBER PE-2020000098
PROFESSIONAL ENGINEER
08/20/2025

JOCELYN N. WILDMAN - ELECTRICAL ENGINEER
MO# PE-202000098

ISSUED FOR BID

CANNONDESIGN
1100 Clark Ave
St. Louis, MO 63102
P: 314.241.6250
F: 314.241.2570

Missouri State Certificate of Authority
Architecture: # 000051
Missouri State Certificate of Authority
Engineering: #000847

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF PUBLIC SAFETY, MISSOURI VETERANS COMMISSION

ST. LOUIS VETERANS HOME RENOVATION

ST. LOUIS, MISSOURI

PROJECT # U2307-01

FACULTY # 8136804001

REVISION		DATE
1	ADD 1	8/20/25

ISSUE DATE: 06/26/2025

CAD DWG FILE:
DRAWN BY: CD
CHECKED BY: CD
DESIGNED BY: CD

SHEET TITLE:
SYSTEMS DETAILS

SHEET NUMBER:
E-502

86 OF 93 SHEETS
06/26/2025

Pre-Bid Meeting Attendance Sheet
St. Louis Veterans Home
Interior Renovations, A-Wing
St. Louis, Missouri

Project No. U2307-01
August 11, 2025 11:30AM

Name & Title	Company Name & Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee & E-Mail Address of Individual filling out Bid Documents
Fred L. Decker Jr. Project Manager	OA-FMDC		573-751-8521	fred.decker@oa.mo.gov
Amy Phillips Architect	Cannon Design		314-241-6250	APhillips@cannondesign.com
Josh Bond CI Coordinator	OA-FMDC		573-526-6772	josh.bond@oa.mo.gov
Michael Howard Construction Admin.	OA-FMDC		636-524-8503	mike.howard@oa.mo.gov
Kevin Onstott Operations	OA-FMDC		573-690-7718	kevin.onstott@oa.mo.gov
Ron Leible Construction Supervisor	DPS-MVC		573-522-1417	Ronald.Leible@mvc.dps.mo.gov

Pre-Bid Meeting Attendance Sheet
St. Louis Veterans Home
Interior Renovations, A-Wing
St. Louis, Missouri

Project No. U2307-01
August 11, 2025 11:30AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Justin Rogers PM /GC	Brown & Root		573 301 4995	Justin.Rogers@ Brownandroot.com
Alan Langlois	Cannon Design		515-822-3438	alanglois@ cannondesign.com
Danny Snyder	Cannon Design		618 972 1794	dsnyder@cannondesign.com
Rod Smith	CANNON DESIGN		6184204058	RLSmith@ CANNONDESIGN.com
"Scotty" Michael Finch	MVC STL		618-979-0801	michael.finch@mvc.dps.mo.gov
Bert Adkins	CNJ Mechanical	MBE WBE	314 351-1562	Bert@CNJmechanical.com

Pre-Bid Meeting Attendance Sheet
St. Louis Veterans Home
Interior Renovations, A-Wing
St. Louis, Missouri

Project No. U2307-01
August 11, 2025 11:30AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Roy Bone	CWS mechanical	MBE/WBE	314 356 0498	roye@cwsmechanical.com
Tate Macarthy	CannonDesign		314.680.6031	tmacarthy@cannondesign.com
Devin Olds	Aspire Const.		(636) 262-8142	dolds@aspire-stl.com
MELINA MCDONALD	SMITHPRO PAINTING		314.330.3719	MELINAMCDONALD@SMITHPRO PAINTING.COM
Josh Lundak	Accurate Fire	MBE/DV	314-616-0609	josh@accuratefireprotection.com
Bryan Meehan	A. Eilers Construction		720-252-5256	bids@eilersconstruction.com

Pre-Bid Meeting Attendance Sheet
St. Louis Veterans Home
Interior Renovations, A-Wing
St. Louis, Missouri

Project No. U2307-01
August 11, 2025 11:30AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
W. T. Milligan	CARDINAL ENVIRO OPER	WBE/ DBE	314-870-2088	WMilligan@CALLCARDINAL.com office@CALLCARDINAL.com
AARON FRENELL SR. PM	WAYNE CONTRACTING		314.858.0118	aaron@waynecontracting.com
Christopher Rossi/ President	Zetnom Contracting	MBE/ DBE	314.783. 9595	Zetnomcontracting@gmail.com
Bob Moske ESTIMATOR	RAINERI Construction GC	WBE	314 850-0990	bmoske@raineri construction.com
Andrew Sonneland	Aalco Wrecking Co.		314-991-3255	demo@aalcowrecking.com
JAKE VERBLE SMYTH	INTEGRA INC.		636 946 3000	BIDS@ICCSTLMO.COM JVERBLE-SMYTH@ICCSTLMO.com

Pre-Bid Meeting Attendance Sheet
St. Louis Veterans Home
Interior Renovations, A-Wing
St. Louis, Missouri

Project No. U2307-01
August 11, 2025 11:30AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Erik Hankins Est / Pm	Hankins Const. Co. GC	NA	(314) 426-7030	ErikH@HankinsMidwest.com
Michael Ray Salesman	H-G Door	NA	314-718-8378	Michael.Ray@H-gSales.com
Steve Wunnenbers Vice President	CVC Group	No	(314)722-9823	swunnenberg@C-cgroup.com
Willard Nedick Estimator	FCI Demo	N A	573-705-2527	willardh@fcistl.com