

MOODY•NOLAN LTD.
300 SPRUCE STREET
COLUMBUS, OHIO 43215

BID OPENING: May 12, 2022

ADDENDUM DATE: May 5, 2022

ADDENDUM NO. 3

TO THE PLANS AND SPECIFICATIONS FOR:

HARRIET'S HOPE

1581 W. Broad Street
Columbus, Ohio 43222

TO ALL BIDDERS:

Addendum No. 3 to the Drawings and Project Manual, dated April 4, 2022, Harriet's Hope as prepared by Moody Nolan, Inc., 300 Spruce St. Suite 300, Columbus, OH 43215.

This Addendum shall hereby be done and become part of the Contract Documents the same as if originally bound thereto. The following clarifications, amendments, additions, revisions, changes, and modifications change the original Contract Documents only in the amount and to the extent hereinafter specified in this Addendum.

Acknowledge receipt of this Addendum on the Bid Form.

NOTE: Bidders are responsible for becoming familiar with every item of this Addendum.

I. GENERAL REVISIONS

A. Response to Questions

1. *Is there a matrix in the plans somewhere that tells me how many units on each floor and of what kind?*
 - a) **For clarification, a Unit Matrix has been added to the Overall Floor Plan Sheets. See revised sheets A101, A102 and A103.**
2. *Detail 19 on plan page A810 is an alternate for Unit U-101. It has a bypass opening U-UT4 that doesn't show up on the door schedule. What is the size of that bypass door?*
 - a) **Door U-UT4 has been renamed to U-UT3 and added to the Typical Residential Door Schedule. See revised sheet A810.**
3. *Should the \$10,000 allowance shown on general note H on ES101 to be included in base bid by GC or will it be broken out as shown on the bid form of the other allowances?*
 - a) **The \$10,000 allowance will need to be included as the total base bid amount. See revised Section C - Bidding Documents.**

4. *Would a concrete stem wall foundation be an approved equal to a masonry block foundation?*
 - a) **A concrete stem wall is not an acceptable substitution for the masonry block and would require additional re-design and re-submission to the City.**
5. *Will termite control be required for this project?*
 - a) **No termite control is required for this project.**
6. *Can you confirm that the televisions will not be included in construction contract?*
 - a) **Televisions will be Owner-provided and not a part of this contract.**
7. *Will the appliance installation be required to pay the prevailing wages?*
 - a) **If they are contracted to do any work on site in excess of \$2000, they are required to pay Davis Bacon Wage Rates.**
8. *Will the furniture package install also be required to pay the prevailing wages.*
 - a) **If the If they are contracted to do any work on site in excess of \$2000, they are required to pay Davis Bacon Wage Rates.**
9. *Can you clarify the spec "modified medium stile, mid stile single acting door" on the storefront door? Will a cross rail be needed?*
 - a) **Refer to Addendum #2 for change in aluminum entrance doors to a wide stile with no mid stile.**
10. *Will the Record 8100 series operator be an approved equal to the specified LCN Series operator for the automatic entrance?*
 - a) **Record 8100 series is not an acceptable substitution.**
11. *The plans are calling for a lighting control system, however there is no mention of what that want. Can you find clarify? Will a Lutron system be required?*
 - a) **Information on the lighting control requirements can be found on the drawings, including but not necessarily limited to, Sheet ES101, Sheets E101 through E104, and Sheet E503. Also, see Specification Section 26 09 23 – Lighting Control Devices for additional information requirements.**
12. *For the casework can sides be 1/2" or 3/8" thick particle board in lieu of 5/8" thick.*
 - a) **Per OHFA requirements, casework is required to be plywood frame construction. Provide Advanta Extreme Series Construction style cabinets. These cabinets have 1/2" thick plywood end panels. Particle board is not acceptable. See revised Specifications Section 12 32 00.**

13. *For the casework can the top and bottom be 1/2" in lieu of 5/8".*

- a) **The Advanta Extreme Series Construction style cabinets have 1/2" thick plywood top and bottom panels. See revised Specifications Section 12 32 00.**

14. *For the casework can the toe kick be 1/2" in lieu of 5/8"?*

- a) **No. The Advanta Extreme Series Construction style cabinets have 3/4" thick toe kick. See revised Specifications Section 12 32 00.**

15. *For the casework can a line use 1/2" corner blocks instead of support stretchers?*

- a) **No. The Advanta Extreme Series Construction style cabinets have support running the full-depth of the cabinet. See revised Specifications Section 12 32 00.**

16. *For the casework can the standard side mounted epoxy drawer guides be rated for 75 lbs in lieu of 100 lbs?*

- a) **No. The Advanta Extreme Series Construction style cabinet drawer guides feature a 100 lb. rated load capacity. See revised Specifications Section 12 32 00.**

17. *In the 2 bedroom type B rooms can you confirm if a removable front is required at the sink base? None of the standard specified cabinets match when using the universal 32" base cabinet height.*

- a) **All Type B units require removable fronts on sink base cabinets in Bath and Kitchen locations.**

18. *In the 2 bedroom type B will there be a 1/2 wall behind the kitchen sink, or should will there need to be paneling to match cabinets?*

- a) **The location of the partial-height wall in Kitchen islands has been added to the plans. Kitchen island details have been added to the Typical Project Details sheet. See revised sheets A810 and A820.**

19. *In the 2 bedroom type B can the 48" bathroom cabinet have 2 drawers in it instead of no drawers?*

- a) **No, please leave the cabinet as shown.**

20. *Can you confirm the gypsum underlayment to be 1/4" or 1/8" for the Maxxon Acousti-Mat 1. The Maxxon Acousti-Mat 1 does not come in 3/16". Per Maxxon, for if 3/4" gypcrete the only option for Acousti-Mat is the 1/8" Acousti-Mat and if for 1/4" Acousti-Mat the pour depth would be required to be a minimum of 1". Can you clarify?*

- a) **Provide 1/8" thick Acousti-Mat.**

21. *Note L under General Notes on A102 & A103 that the Acoustical Mat shall be provided on all wood floor / ceiling assemblies, can you confirm that the Acoustic-Mat is in fact needed under all Gyp-Crete areas on 2nd & 3rd floors including the halls and each room?*

- a) **The acoustical mat should be provided for all areas on the 2nd and 3rd floors.**

22. *Would a Kone Elevator be an acceptable manufacture for the elevator?*

- a) **Kone electric traction elevator is not an acceptable substitution for the specified hydraulic elevator.**

23. *The site demo specs contains language about demolishing existing structures reference spec 024213, Sect1.04 and 3.03, will the spec be revised to remove requirements that don't appear to applicable to the current project?*

- a) **Section 3.03 is not applicable and has been removed. Section 1.04 is related to existing conditions on the site and may or may not be applicable, and therefore should remain.**

24. *Who will be responsible for providing Geotechnical inspection and testing services and other third party testing services?*

- a) **The Architect will hire an independent testing agency on behalf of the Owner. The GC will have the responsibility, along with any associated costs, to coordinate their work with the specified testing and inspections that are required during construction.**

25. *The asphalt thickness from the specs (321200-3.06.b) does not appear to agree with the drawings (A/C102). Please advise.*

- a) **Referenced spec section states the "Maximum compacted depth of any one layer" and is not listing the thickness based on the pavement section. The "Bituminous Aggregate Base Course" is also referring to 301, not 304. To help clarify Spec Section 32 12 00 has been revised to include maximum thicknesses for 304, which is part of the proposed pavement buildup.**

26. *Item I. under spec 28 31 11 states that: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be, not be connected to fire-alarm system. Please clarify.*

- a) **See Addendum 3 for revised specification language. Note, the design does not currently include any doors in smoke-barrier walls that are controlled by smoke detectors with door hold-open devices.**

27. *Is a metal raceway required for low voltage cabling or can J-hooks be utilized?*

- a) **Comply with the requirements of 27 05 28 – Pathways for Communication Systems. Refer to Addendum 3 for additional clarification.**

28. Please confirm that the sprinkler system is to be designed to NFPA 13

a) Yes, the sprinkler system is to be designed to NFPA 13.

II. SPECIFICATION REVISIONS

A. Front End - SECTION C

1. **REVISE** SECTION C – BIDDING DOCUMENTS

B. 02 41 13 SITE DEMOLITION

1. **REVISE** Specifications Section 02 41 13.
2. Section 1.04 is related to existing conditions on the site and may or may not be applicable, and therefore should remain.
3. Section 3.03 is not applicable and has been removed.

C. 03 54 13 GYPSUM UNDERLAYMENT

1. **REVISE** Specifications Section 03 54 13.
2. Section 2.02.A: Change Sound Mat thickness to 1/8".

D. 12 32 00 MANUFACTURED WOOD CABINETS

1. **REVISE** Specifications Section 12 32 00.
2. Remove references to particle board, which is not acceptable.
3. Adjust thicknesses of material.

E. 27 05 28 – PATHWAYS FOR COMMUNICATIONS SYSTEMS

1. **REVISE** Specification Section 27 05 28.
2. Revise paragraph 3.2(FF)(1) to read, "Hooks are allowed for pathways above accessible drop ceilings and above areas with drywall ceilings. Where hooks are installed above drywall ceilings or in areas with limited access, provide access panels. Coordinate access panel locations and requirements with the Architect prior to installation.

F. 28 31 11 – DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

1. **REVISE** Specification Section 28 31 11
2. Revise paragraph 2.4(I) to read, "I. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system."

G. 32 12 00 FLEXIBLE PAVEMENT

1. **REVISE** Specifications Section 32 12 00.
2. Spec Section 32 12 00 has been revised to include maximum thicknesses for 304, which is part of the proposed pavement buildup.

III. DRAWING REVISIONS

GENERAL

- A. G003 WALL TYPE SCHEDULE
 - 1. **ADD** Fireproofing detail.
- B. G008 UL ASSEMBLIES
 - 1. **ADD** UL Design No. X854.
- C. G101 CODE PLANS & SECTION
 - 1. **ADD** Signage Types.
 - 2. **ADD** Signage location on plans.

ARCHITECTURAL

- A. A101 LEVEL 01 - FLOOR PLAN – OVERALL
 - 1. **ADD** Unit Matrix.
- B. A102 LEVEL 02 - FLOOR PLAN – OVERALL
 - 1. **ADD** Unit Matrix.
- C. A103 LEVEL 03 - FLOOR PLAN – OVERALL
 - 1. **ADD** Unit Matrix.
- D. A701 DOOR & WINDOW SCHEDULES
 - 1. **REVISE** Door L-100, L101, L-200, L-300, and M-101A.
 - 2. **ADD** Door Elevation Type H.
- E. A810 ENLARGED UNIT PLANS – 2-BEDROOM UNITS
 - 1. **REVISE** Door tag on Plan 19.
 - 2. **ADD** Kitchen Island callout.
 - 3. **ADD** Door U-UT3 to Typical Residential Door Schedule.
- F. A812 ENLARGED PLANS – COMMON AREAS
 - 1. **ADD** Coded Notes 31, 32 and 33 to Legend, Plans and Elevations.
 - 2. **REVISE** Enlarged Plans 1 and 13 to indicate wall coverings.
 - 3. **REVISE** Elevations 3, 4, 5, 7 and 12 show wall coverings.
- G. A820 TYPICAL PROJECT DETAILS
 - 1. **ADD** Kitchen Island Details.

H. A900 FINISH LEGEND

1. **ADD** FRP in J-101, J-201, and J-301.
2. **ADD** CW in T-101A and T-101B.

MECHANICAL – Refer to Plans

A. SHEET M001 – GENERAL INFORMATION – MECHANICAL

1. Added note AR regarding installation of Ceiling Radiation Dampers.

B. SHEET M101 – LEVEL 01 – FLOOR PLAN – MECHANICAL

1. Added ductwork sizes in Storage S-101C.
2. Added two Fire Dampers in Storage S-101C.
3. Revised General Note 9 to address AHU ductwork fire dampers.
4. Added sidewall return air grille in Lobby LB-101 for AHU-6, omitted ceiling grille, modified ductwork accordingly, and added related Coded Note 9.
5. Added sidewall return air grille in Laundry L-100, associated ductwork, dampers, and related Coded Note 11.
6. Revised airflows in Laundry L-100 and Corridor C-100, and modified ductwork accordingly.
7. Revised outdoor air duct size serving AHU-4.
8. Revised return air paths for systems AHU-5, AHU-7, and AHU-8; added ductwork and dampers, omitted above ceiling transfer grilles, and modified supply air and outdoor air ducts accordingly, and added related Coded Note 10.

C. SHEET M102 – LEVEL 02 – FLOOR PLAN – MECHANICAL

1. Added General Note 11 to address AHU ductwork fire dampers.
2. Added return air grille to Laundry L-200, associated ductwork, damper, and modified airflows accordingly.

D. SHEET M103 – LEVEL 03 – FLOOR PLAN – MECHANICAL

1. Added General Note 11 to address AHU ductwork fire dampers.
2. Added return air grille to Laundry L-300, associated ductwork, damper, and modified airflows accordingly.

E. SHEET M601 – SCHEDULES – MECHANICAL

1. Revised minimum OA CFM values for AHU-4 and AHU-10 in Air Handling Unit Schedule.

ELECTRICAL – Refer to Plans

A. SHEET ES101 – SITE PLAN - ELECTRICAL

1. Revise Coded Note 5 to refer to General Note G in lieu of General Note F.
2. Revise Coded Note 6 to refer to General Note G in lieu of General Note F.

B. SHEET E401 – ENLARGED UNIT PLANS – 1 BEDROOM UNITS

2. 1A1 - 1 Bedroom, Type A: Revise the entry/hallway, bedroom, kitchen and living room lighting to be on circuit 1A1-21.
3. 1B1 - 1 Bedroom, Type B: Revise the entry/hallway, bedroom, kitchen and living room lighting to be on circuit 1B1-21.
4. Revise Coded Note 14 to read, “CEILING MOUNTED SMOKE ALARM, 120 VOLT WITH BATTERY BACK-UP. BRK #7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.”
5. Revise Coded Note 19 to read, “CEILING MOUNTED COMBO SMOKE/CO ALARM, 120 VOLT WITH BATTERY BACK-UP. BRK #SC7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.”

C. SHEET E402 – ENLARGED UNIT PLANS – 2 BEDROOM UNITS

1. 2A3 - 2 Bedroom, Type A: Revise the entry/hallway, bedroom, kitchen and living room lighting to be on circuit 2A3-23.
2. 2B3 - 2 Bedroom, Type B: Revise the entry/hallway, bedroom, kitchen and living room lighting to be on circuit 2B3-23.
3. Revise Coded Note 14 to read, “CEILING MOUNTED SMOKE ALARM, 120 VOLT WITH BATTERY BACK-UP. BRK #7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.”
4. Revise Coded Note 19 to read, “CEILING MOUNTED COMBO SMOKE/CO ALARM, 120 VOLT WITH BATTERY BACK-UP. BRK #SC7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.”

IV. ATTACHMENTS

- A. SPECIFICATIONS: Section C, 02 41 13, 03 54 13, 12 32 00, 27 05 28, 28 31 11 and 32 12 00.
- B. SHEETS: G003, G008, G101, A101, A102, A103, A701, A810, A812, A820, A900, M001, M101, M102, M103, M601, ES101, E401 and E402

END OF ADDENDUM NO. 3

SECTION C — BIDDING DOCUMENTS

HARRIET'S HOPE — NEW BUILD —

BID DATE & TIME
Thursday, May 12, 2022 @ 11:00 A.M.

NOTE TO CONTRACTORS

- 1) PLEASE READ THOROUGHLY.
- 2) BID FORMS 1 THRU 9 MUST BE SUBMITTED IN YOUR BID PACKAGE.
- 3) CONTRACTOR MUST USE CMHA BID FORMS INCLUDED IN THIS PACKAGE.
- 4) ALL FORMS MUST BE COMPLETELY FILLED, SIGNED/NOTARIZED AS NEEDED.
- 5) PLEASE SUBMIT 1 ORIGINAL AND 1 COPY.
- 6) ALL PAGES MUST BE PUT IN ORDER.
- 7) ALL PAGES MUST BE STAPLED OR BOUND OR PUT IN A 3-RING BINDER.

- Contract will be awarded to the **BEST** bidder submitting the **LOWEST** bid.
- Please refer to Section B, Part III, Page B-14, and Checklists Section B, Part IV, A, B, C & D, Page B-17 to B-21.
- **NOTE TO ALL CONTRACTORS**
Contract award is contingent on Columbus Metropolitan Housing Authority Board of Commissioners approval.

SECTION C — BIDDING DOCUMENTS

PROJECT & BIDDER INFORMATION

ALL CONTRACTORS MUST COMPLETE AS NOTED

PROJECT INFORMATION

Project Name: _____

Project Address: _____

Project Scope of Work: _____

Bid Date & Time: _____

Bid Location: _____

BIDDER INFORMATION

Company Name: _____

Address: _____

Authorized Representative's Name: _____

Tel. #: _____ Fax #: _____

Email: _____

Company is (check all that apply) ☐ MBE ☐ Section 3 ☐ FBE

SECTION C – BIDDING DOCUMENTS

BID FORM No. 1 – Addendum

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

- All contractors must record and acknowledge receipt of all Addenda issued for this project.
- Insert copy of all Addenda after this page.

ADDENDUM TITLE	DATE OF ADDENDUM	NUMBER OF PAGES
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 2 – Bid Form

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

1. The undersigned, having familiarized themselves with the local conditions affecting the cost of the work, and with the Plans and Specifications (including Invitation for Bids, Instructions to Bidders, this Bid Form, the form of Bid Bond, the form of Non-Collusive Affidavit, the form of Contract, and the form of Payment and Performance Bond or Bonds, the General Conditions, the Special Conditions, the General Scope of Work, the Technical Specifications and the Drawings) and Addenda, if any thereto as prepared by the Columbus Metropolitan Housing Authority and on file in the office of the same, hereby proposes to furnish all material, equipment, and perform all labor and services required to construct and complete the work.

- A. CONTRACTOR BASE BID:** Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Total Material, for the sum	_____.....	Dollars.....	(\$ _____)
Total Labor, for the sum	_____.....	Dollars.....	(\$ _____)
Emergency Responder Radio System. See Specification 28 50 00	_____.....	Dollars.....	(\$ <u>\$60,000.00</u>)
Graphics and Signage. See Specification 10 14 10 and 10 14 19. Work includes other developed consultant items to be determined	_____.....	Dollars.....	(\$ <u>\$75,000.00</u>)
Removed Foundations, Removed Soil and Engineered Fill. See Specification 01 22 00 Unit Prices. All quantities to fully documented and submitted	_____.....	Dollars.....	(\$ <u>\$50,000.00</u>)
Aid to Construction Cost for Cable and Telephone Company. See Addendum No. 2	_____.....	Dollars.....	(\$ <u>\$10,000.00</u>)
TOTAL BASE BID AMOUNT (some of the items listed above including Allowances)	_____	(use words)	(\$ _____) (figures)

B. UNIT PRICES

UNIT PRICE A: Existing Foundation Removal.

1. Description: Unit price is for complete existing foundation removal. Comply with specification 02 41 13 Site Demolition and Division 31.
2. Unit Cost: Include material and labor.
3. Unit of Measure: Cubic foot.
4. Quantity of Work: Complete removal, quantity unknown. See Allowance 01 21 13.

UNIT PRICE Cost per Cubic Ft. _____ (\$ _____)
(use words) (figures)

UNIT PRICE B: Existing Soil Removal.

1. Description: Unit price is for soil removal from related foundation removal work and unsuitable soils as determined by soils report. Comply with specification 02 41 13 Site Demolition, Division 31, and 00 31 32 Geotechnical Investigations Report. Base bid is for known soil quantities indicated including pavements.
2. Unit Cost: Include material and labor.
3. Unit of Measure: Cubic foot.
4. Quantity of Work: Complete removal, quantity unknown. See Allowance 01 21 13.

UNIT PRICE Cost per Cubic Ft. _____ (\$ _____)
(use words) (figures)

UNIT PRICE C: Engineered Fill.

1. Description: Unit price is for all new fill required from foundation and soil removal from items A and B above. Base bid is for known quantities indicated. Comply with 00 31 32 Geotechnical Investigations Report.
2. Unit Cost: Include material and labor.
3. Unit of Measure: Cubic foot.
4. Quantity of Work: Complete removal, quantity unknown. See Allowance 01 21 13.

UNIT PRICE Cost per Cubic Ft. _____ (\$ _____)
(use words) (figures)

C. ALTERNATES

ALTERNATE NO. 1: Mill and overlay existing access road as shown on Civil drawings.

LUMP SUM ALT. PRICE: _____ (\$ _____)
(use words) (figures)

ALTERNATE NO. 2: Alternate face brick. See Section 04 00 00.

LUMP SUM ALT. PRICE: _____ (\$ _____)
(use words) (figures)

2. In submitting the bid, the bidder understands that the Columbus Metropolitan Housing Authority reserves the right to reject any and all bids. If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty 60 days after the opening of this bid or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver a contract in the prescribed form and furnish the required bond within ten (10) days after the contract is presented to him/her signed and approved by the Contracting Officer.

3. A bid bond is submitted with this bid in accordance with the specification requirements in the sum of _____ **DOLLARS** (\$_____)

AMOUNT OF BID BOND IN US DOLLARS

The undersigned also agrees to execute and deliver the required Performance and Payment Bond within 10 days after an approved and executed contract by Columbus Metropolitan Housing Authority is mailed to him/her.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to his proposal or any other proposal or the submitting of proposals for the contract for which this proposal is submitted.
5. In reference to the Equal Opportunity and Non-Segregated Facilities present in Section B— paragraph 8 the undersigned represents that he/she _____

HAS / HAS NOT

participated in a previous contract or subcontract subject to the Equal Opportunity Clause prescribed by Executive Orders 10925, 11114, or 11246 or the Secretary of Labor; that he/she _____ filled all required compliance reports; and that

HAS / HAS NOT

representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts, which are exempt from the clause.)

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

Subscribed and sworn to before me this _____ day of _____, 20_____

NOTARY SIGNATURE AND SEAL

SECTION C – BIDDING DOCUMENTS

BID FORM No. 3 – Non-Collusive Affidavit Form

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

DATE: _____

STATE OF: _____
COUNTY OF: _____ } ss.

_____, being first duly sworn, deposes and says
Name

That s/he is _____ the party making certain proposal, quote or bid, that such proposal, quote or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to putting in a sham quote or bid or to refrain from quoting or bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the quote or bid price or affiant or any other bidder, or to fix any overhead, profit or cost element of said quote or bid price, or of that of any other bidder, or to secure advantage against the **COLUMBUS METROPOLITAN HOUSING AUTHORITY** or any person interested in the proposed contract; and that all statements in said proposal, quote or bid are true.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

Subscribed and sworn to before me this _____ day of _____, 20_____

NOTARY SIGNATURE AND SEAL

SECTION C – BIDDING DOCUMENTS

BID FORM No. 4 – Bid Bond

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

- **5% OF THE BID AMOUNT MUST BE SUBMITTED BY ALL BIDDERS**
- **CONTRACTOR MUST USE THIS FORM**
- **BID BOND AMOUNT MUST BE SPELLED OUT**

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

NAME OF PRINCIPAL

NAME OF SURETY / ADDRESS OF SURETY — STREET / CITY / STATE / ZIP

as **SURETY** are held and firmly bound unto **COLUMBUS METROPOLITAN HOUSING AUTHORITY**, hereinafter called the "*Local Authority*" in the penal

sum of \$ _____ (_____ **DOLLARS**)
5% OF TOTAL BID

lawful money of the United States, for payment of which sum well and truly to be made, we bind ourselves our heirs, executors, administrators' successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THE OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying bid, dated, _____
for _____
PROJECT NAME AND ADDRESS

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period specified, within sixty 60 days after the said opening, and shall within the period specified therefore, or, if no period be specified within ten 10 days after the prescribed forms are presented to him for signature, enter into a written contract with the Local Authority in accordance with the bid accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and give such bond within the time specified, then the Principal shall forfeit this bid bond as liquidated damages, and shall pay the Local Authority the difference between the amount specified in the said bid and the amount for which the Local Authority may procure the required work or supplies or both, if the latter amount be in excess of the former, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this _____ day of _____ the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

IN PRESENCE OF:

ATTEST	CORPORATE PRINCIPAL/SEAL – PRINT AND SIGN SIGNATURE _____ NAME _____
ATTEST	BUSINESS ADDRESS — STREET / CITY / STATE / ZIP _____ _____ _____
ATTEST	SURETY /SEAL—PRINT AND SIGN SIGNATURE _____ NAME _____
ATTEST	BUSINESS ADDRESS — STREET / CITY / STATE / ZIP _____ _____ _____
SURETY PHONE No. _____	SURETY FAX No. _____

**POWER- OF- ATTORNEY FOR PERSON SIGNING FOR
SURETY COMPANY MUST BE ATTACHED TO BOND
CERTIFICATE AS TO CORPORATE SURETY**

I, _____, certify that I am the _____ of the corporation named as surety in the within bond; that _____ who signed the bond on behalf of the surety was the _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and on behalf of said corporation by authority of its governing body.

(CORPORATE SEAL)

MBE AND SECTION 3 CERTIFICATION FORMS

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5 – MBE and Section 3 Participation

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

All bidders shall set forth information requested on Forms No. 5, 5A, 5B, 5C, 5D and 5E specifically itemizing:

- all minority and female business enterprises and Section 3 businesses committed to work on the project.
- a description of services or supplies for each minority and female business enterprise and Section 3 business.
- the total dollar value of the contract intended.
- estimates for new employment and training opportunities.

The above-named company recognizes and commits to the following CMHA requirements:

- 20 percent of the total dollar amount of the contract awarded to minority business enterprises.
- best efforts made to award contracts and subcontracts to Section 3 businesses.
- best efforts made to provide employment and training opportunities generated by the project to Section 3 workers.
- 25 percent or more of the total number of labor hours worked by all workers are worked by Section 3 workers.
- 5 percent or more of the total number of labor hours worked by all workers are worked by Targeted Section 3 workers.

The above-named company certifies and commits to the following:

Total Base Bid Amount Entered on Bid Form No. 2	\$
Total Contract Value of Committed MBEs	\$
MBE Participation Percentage	%
Total Contract Value of Committed Section 3 Businesses	\$
Section 3 Business Participation Percentage	%
Total Estimated New Employment and Training Opportunities Entered on Bid Form No. 5D	
Total Number of Section 3 Workers Committed to Hire	

BID FORM No. 5 – MBE and Section 3 Business Participation cont'd

If no minority business enterprises and/or Section 3 businesses are included in this bid package, state “no participation” on this form. Complete Bid Form No. 5B explaining why minority business enterprises and/or Section 3 businesses (contractors and suppliers) are not being engaged.

If the percentages of the total contract values of committed minority business enterprises and/or Section 3 businesses reported on this form are less than the required CMHA goals, complete Bid Form No. 5B and 5C indicating why greater participation is not possible or feasible.

Bidders must show Good Faith Efforts demonstrating outreach to minority business enterprises and Section 3 businesses (contractors and suppliers) on Bid Form No. 5C and as indicated in the Good Faith Efforts detailed in the bid package requirements.

Bidders should include information about the participation of female business enterprises although these businesses are not considered in the CMHA numerical participation goal.

Bidders must ensure that all minority business enterprises and Section 3 businesses (contractors and suppliers) engaged on this project are certified by one of the CMHA approved certifying agencies. Bidders shall submit proof of certification. A business included in this bid package that is not certified will result in the CMHA not considering the business as part of the total minority business enterprise or Section 3 business participation requirements.

Bidders must document the total estimate of new employment and/or training opportunities identified by **all contractors (all contractors regardless of MBE or Section 3 status) included in the bid response** on Bid Form No. 5D.

Bidders must have **all contractors (all contractors regardless of MBE or Section 3 status) included in the bid response** complete Bid Form No. 5E communicating estimates for new employment and/or training opportunities arising as a result of the project's scope of work.

The undersigned will:

- enter into a legal agreement with the minority business enterprises and/or Section 3 businesses (contractors and suppliers) included in the bid package conditioned upon execution of a contract with CMHA.
- demonstrate binding commitments with the minority business enterprises and/or Section 3 businesses (contractors and suppliers) included in the bid package within fourteen (14) working days after receiving an approved contract from CMHA.
- ensure and provide proof of certification of the minority business enterprises and/or Section 3 businesses (contractors and suppliers) included in this bid package.
- provide first consideration for new employment and training opportunities included in the bid package and any that are generated post contract award to Section 3 residents according to the project's priority order.
- contact CMHA if changes are required prior to review and approval.

THE UNDERSIGNED HEREBY CERTIFIES THAT THE TERMS OF THIS COMMITMENT HAVE BEEN READ AND IS AUTHORIZED TO BIND THE BIDDER TO THE COMMITMENTS HEREIN SET FORTH.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5A – MBE and Section 3 Subcontractor/Supplier Utilization Commitment

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

Company Name \$ _____

Address _____ % of Bid

Contact Person Telephone Number MBE _____

FBE _____

Scope of Work Sec3 _____

Company Name \$ _____

Address _____ % of Bid

Contact Person Telephone Number MBE _____

FBE _____

Scope of Work Sec3 _____

Company Name \$ _____

Address _____ % of Bid

Contact Person Telephone Number MBE _____

FBE _____

Scope of Work Sec3 _____

BID FORM No. 5A – MBE and Section 3 Subcontractor/Supplier Utilization Commitment cont'd

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

BID FORM No. 5A – MBE and Section 3 Subcontractor/Supplier Utilization Commitment cont'd

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

_____	\$ _____
Company Name	
_____	_____ % of Bid
Address	
_____	MBE _____
Contact Person	Telephone Number
_____	FBE _____
Scope of Work	Sec3 _____

Use additional sheets as necessary to document all minority business enterprises and Section 3 businesses committed and included in the bid response.

Total Contract Value of Committed MBEs

\$

MBE Participation Percentage

%

Total Contract Value of Committed Section 3 Businesses

\$

Section 3 Business Participation Percentage

%

Bidders shall submit certification for all minority business enterprises and Section 3 businesses committed and included on this form.

I certify and affirm to the best of my knowledge that the information contained here within is true and accurate.

_____	_____
Authorized Representative's Signature	Date
_____	_____
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5B – MBE and Section 3 Business Commitment Statement

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

Efforts were made to reach minority business enterprises and Section 3 businesses (contractors and suppliers). The above-named company is unable to meet CMHA's required business participation goals prior to the time of this bid response submittal.

The above-named company certifies and commits to the following participation percentages

Total Base Bid Amount Entered on Bid Form No. 2

\$

Total Contract Value of Committed MBEs

\$

MBE Participation Percentage

%

Total Contract Value of Committed Section 3 Businesses

\$

Section 3 Business Participation Percentage

%

The above-named company is unable to meet CMHA's minority business enterprise and/or Section 3 business participation requirements for this project due to the following reason(s):

_____ No MBE and/or Section 3 contractor(s) are/were available for work included in the RFP.

_____ No MBE and/or Section 3 supplier(s) have supplies needed for work included in the RFP.

_____ The MBE and/or Section 3 business contractor(s) and/or supplier(s) contacted quoted price(s) beyond acceptable. Documentation provided.

_____ Other: _____

I certify and affirm to the best of my knowledge that the information contained here within is true and accurate.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5C – MBE and Section 3 Business Outreach Good Faith Efforts

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

Bidders are required to list all certified minority business enterprises and Section 3 businesses contacted demonstrating Good Faith Efforts to engage such businesses.

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

BID FORM No. 5C – MBE and Section 3 Business Outreach Good Faith Efforts cont'd

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

BID FORM No. 5C – MBE and Section 3 Business Outreach Good Faith Efforts cont'd

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

MBE_____ Section 3_____

Subcontractor/Supplier Name and Address	Contact Name and Telephone Number
Contact Date(s)	Type of Work/Materials
Reason(s) for Not Accepting	Price Quoted

Use additional sheets as necessary to document all minority business enterprises and Section 3 businesses contacted for inclusion the bid response.

CMHA reserves the right to contact each contractor or supplier included on this form for verification.

I certify and affirm to the best of my knowledge that the information contained here within is true and accurate.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

CONTRACTOR MBE GOOD FAITH EFFORT ATTACHMENTS

**CONTRACTOR TO ATTACH ALL DOCUMENTS
SUBMITTED TO SUPPORT THEIR MBE
“GOOD FAITH EFFORT”
AFTER THIS PAGE**

NOTE

- 1) REFER TO PROPOSED “GOOD FAITH EFFORT”
EXAMPLES.**
- 2) PLEASE TITLE ALL DOCUMENTS SUBMITTED AS
NEEDED FOR CLARIFICATION.**

**PROPOSED
“GOOD FAITH EFFORT” EXAMPLES &
POSSIBLE ATTACHMENTS**

MBE “Good Faith Effort” Examples

1. Contractor made effort to contact MBE firms, Bid Form #5C.
(All MBEs listed were verified) ☐
2. Contractor advertised for MBE in local, and minority newspaper.
(Ads attached) ☐
3. Contractor contacted/used MBE placement and recruiting offices.
(Documentation attached) ☐
4. Contractor requested in writing for MBE firm(s) for quotes on
different portions of work. ☐
(Documentation attached)
5. Contractor discusses portions of work with MBE contacted.
(Documentation attached) ☐
6. Contractor accepted/negotiated in good faith with MBE quote.
(Documentation attached) ☐

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5D – Section 3 Workforce Commitment Statement

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

Bidders are required to document the project's total estimates for new employment and training opportunities identified by all contractors. Section 3 workers should have first preference for openings.

The above-named company certifies and commits to the following Section 3 workforce participation percentage:

**Total Estimated New Employment and Training Opportunities
Calculated from Submitted Bid Forms No. 5E**

--

Work Classifications	Estimated New Positions

Total Number of Section 3 Residents Committed to Hire

--

Section 3 Workforce Participation Percentage

	%
--	---

Bidders must include a completed Bid Form No. 5E from all contractors included in this bid response communicating estimates for new employment and/or training opportunities arising as a result of the project's scope of work.

I certify and affirm to the best of my knowledge that the information contained here within is true and accurate.

Signature	Date
Print Name	Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 5E – Section 3 Workforce Commitment Statement for Contractors

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

All contractors included in the bid response recognize and commit to the following Section 3 workforce requirements:

- **best efforts made to provide employment and training opportunities generated by the project to Section 3 workers.**
- **25 percent or more of the total number of labor hours worked by all workers are worked by Section 3 workers.**
- **5 percent or more of the total number of labor hours worked by all workers are worked by Targeted Section 3 workers.**

This form should be completed by all contractors included in the bid response to communicate estimates for new employment and/or training opportunities arising as a result of the project's scope of work.

- Provide the complete list of work classifications/job titles required for the scope of work.
- Of the work classifications/job titles required for the scope of work, provide the number of workers currently employed to fulfill the scope. *How many workers currently employed to handle this scope of work will work on this project?*
- Of the work classifications/job titles needed for the scope of work, provide the number of individuals that must be hired to fulfill the scope. *How many individuals will need to be hired to handle this scope of work?*

If no number is provided under the "# Must Hire" column, the contractor is communicating that the company has a full team to complete the scope of work and will not need to hire new workers. Should this information change during the duration of the project, the contractor is required to communicate changes to the general contractor and provide hiring preference to Section 3 workers.

Work Classification/Job Title	# Required for the Scope	# Currently Employed	# Must Hire

Use additional sheets as necessary to document all work classifications/job titles needed to fulfill the scope of work.

BID FORM No. 5E – Section 3 Workforce Commitment Statement for Contractors cont’d

The above-named company certifies and commits to the following Section 3 workforce participation percentage:

Total Estimated New Employment and Training Opportunities	
Total Number of Section 3 Residents Committed to Hire	
Section 3 Workforce Participation Percentage	%

NOTE: To confirm the project’s compliance performance against Section 3 goals, all workers working on the project will be asked to provide information to determine status as a Section 3 worker and a Targeted Section 3 worker.

I certify and affirm to the best of my knowledge that the information contained here within is true and accurate.

Signature	Date
Print Name	Title

SECTION C – BIDDING DOCUMENTS

CMHA Section 3 Clause

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

All CMHA Section 3 covered contracts shall include the following clause to comply with Section 3 requirements.

- A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- B. The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 75 regulations.
- C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference and where residents may obtain more information.
- D. The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 75.
- E. The contractor will certify that any vacant employment positions, including training positions, which are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations.
- F. Noncompliance with HUD's regulations in 24 CFR Part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

SECTION C – BIDDING DOCUMENTS

BID FORM No. 6 – Bidder's Qualifications

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

NOTE: USE ADDITIONAL SHEETS IF NEEDED

The Bidder is required to complete Bid Form No. 7: Bidder Qualifications Questionnaire (6 pages) and attach his/her reference on Form No. 7A of what work of a character similar and compatible to that included in the proposed contract he/she has done, to give references and such other detailed information as will enable the Columbus Metropolitan Housing Authority to judge his/her responsibility, experience, skill, and financial standing.

A. Names of Principal Shareholder/s or Parent Company and percentage of ownership:

%

%

%

%

B. Check One:

Corporation ☐

Joint Venture ☐

Limited Liability ☐

Partnership ☐

Individual ☐

Date Established _____

- C. Has any principal shareholder or owner (30% ownership or more) been involved, as owner, employee, or agent, **in any other business** entity engaged in the construction industry within the past 5 years? ☐ Yes ☐ No

If so, provide the following information:

1. Name of each such business entity _____

2. Description of involvement (*e.g., title and duties*) _____

3. Dates of involvement _____

- D. Has your organization ever operated under another name? ☐ Yes ☐ No

1. If so, what name? _____
2. Describe the relationship to the present firm: _____

2. BIDDER'S BACKGROUND INFORMATION

- A. Number of years in business _____
- B. Number of employees at present _____
- C. Geographical area served _____

- D. **Safety Record** — Has your organization been inspected by OSHA within the past 2 years? ☐ Yes ☐ No

1. If so, provide the following information for **EACH INSPECTION** on a separate sheet:
 - A. Project inspected
 - B. Dates of inspection
 - C. Citations issued (number of specifics)
 - D. Penalties paid (not proposed)

2. Attach copies of your OSHA 200 Annual Summary of injuries and illness logs for the preceding 3 years.
3. Has any employee or agent of your organization died or been seriously injured (i.e., requiring in patient hospitalization) due to a workplace accident in the last 2 years?
☐ Yes ☐ No

If yes provide details: _____

4. To put your safety record in perspective, what was the total amount of employee workdays (*not including office / non-field construction employees*) last year?

Number of construction employees _____

Total number of hours of construction employees _____

- E. Has your organization or its agents defaulted on any construction project within the last 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- F. Has your organization or its agents had a construction contract terminated, or been asked to leave a construction project, within the last 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- G. Has your organization or its agents been issued a Stop-Work-Order on any project within the past 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- H. Are you now, or have you been in the past, a party to any litigation or arbitration proceedings arising out of your performance of a construction contract? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- I. Has your organization been assessed any liquidated damages arising from any construction activities in the past 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- J. Has your organization been found not responsive? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- K. Has your organization been cited for any violation of any state or federal prevailing wage requirements in the past 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- L. Has your organization or any of its employees, agents, or affiliates, ever been disbarred or declared ineligible for any government contracts? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- M. Has your organization or any of its employees, agents or affiliates ever been cited and/or issued any violations by any regulatory agency with respect to your construction activities within the last 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- N. Is your organization, or any of its employees, agents, or affiliates currently under investigation or audit, or involved in any proceedings, involving a regulatory agency with respect to your construction activities? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- O. Have any mechanics' liens or bond claims been filed by you, or your subcontractors, suppliers, employees, or materialmen, on any projects on which you have worked in the last 2 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

3. FINANCIAL INFORMATION

- A. Identify the Surety Company that will provide your payment and performance bond/s:

Surety Name	
Surety Address	
Surety Phone No.	Surety Fax No.
Contact Person	Bonding Limits \$

- B. Source of Letter of Credit *(if applicable)*:

Credit Limits: _____

- C. Have any claims been made against your bonding company, as obligator on a bond issued on your behalf, in the past 3 years? ☐ Yes ☐ No

If yes, provide details on separate sheet of paper and attach to this section.

- D. List bank reference/s, stating the name/s of the bank officer, address, and telephone number:

BANK NAME	REFERENCE	TELEPHONE No.
1.		
2.		
3.		
4.		
5.		

- E. List any outstanding liens (*include project name, date, and reason*): _____

- F. Is your company any of the following?

1. Minority Business Enterprise (MBE) ☐ Yes ☐ No

2. Female Business Enterprise (FBE) ☐ Yes ☐ No

4. IMPORTANT NOTICE

The foregoing information must be truthfully, completely, and fully provided. Failure to do so may result, at the owner's discretion, in declaring the bidder's bid non-responsive and therefore not considered. Any falsification, misrepresentation, or untrue response to any of the foregoing shall also be, at the discretion of the owner, cause for the immediate termination of any contract entered into between the owner and the bidder.

If any additional space is necessary to completely answer any of the foregoing, provide all relevant details on a separate, attached sheet. Describe the circumstances, referencing the project, provide the names of involved persons and agencies, and state the results of the incidents in questions. Additional information of facts may be required by the Owner prior to the award of any contract.

This statement, along with any attached sheets, is to be signed by an officer of the bidder organization and notarized. Execution of this form constitutes a representation of the truth and accuracy of all of the statements and answers made in conjunction herewith.

State of _____

County of _____

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

Subscribed and sworn to before me this _____ day of _____, 20_____

NOTARY SIGNATURE AND SEAL

SECTION C – BIDDING DOCUMENTS

BID FORM No. 7 – Previous Similar Project References

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

SIMILAR/COMPATIBLE CONSTRUCTION PROJECTS COMPLETED IN THE LAST 5 YEARS

SIMILAR/COMPATIBLE PROJECT NAME / LOCATION	CONTACT PERSON NAME & TEL. #	CONTRACT AMOUNT	PROJECT DATES	
			START	COMPLETION
1.				
2.				
3.				
4.				

NOTE: USE ADDITIONAL SHEETS IF NEEDED

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 8 – Financial Statement / Contractor Forms

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

The bidder is to provide the most recent audited financial statement, audited if available including contractors latest balance sheet and income statement (*see "Instructions and Information for Bidders"*).

- Submit with this form, the following:
 - 1) Certificate of Insurance
 - 2) Bureau of Workers' Compensation Certificate
 - 3) Contractor License in project

Bidders are to indicate if items listed below are enclosed.

1. Financial Statement: ☐ Yes ☐ No

2. Financial Statement will be submitted if the bidder is the lowest bid. ☐ Yes

If #2 is selected:

Submit Financial Statement within three (3) working days after the Bid Opening if you are the lowest bidder.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

SECTION C – BIDDING DOCUMENTS

BID FORM No. 9 – Certification for Drug Free Workplace

Project Name	Harrier's Hope
Scope of Work	New Build
Bid Date & Time	Thursday, May 12, 2022 @ 11:00 a.m. – Virtual Bid Opening (via Zoom)
Company Name	

Program/Activity Receiving Federal Contract Funding

1. Acting on behalf of the above-named Contractor as its Authorized Official, I make the following certifications and agreements to the Columbus Metropolitan Housing Authority (CMHA) regarding the sites listed below:

I certify that the above-named Contractor will or will continue to provide a drug-free workplace by:

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

b. Establishing an on-going drug-free awareness program to inform employees --

- (1) The dangers of drug abuse in the workplace;
- (2) The Contractor's policy of maintaining a drug-free workplace
- (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
- (4) The penalties that may be imposed upon employees for drug violations occurring in the workplace.

c. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by paragraph a.

d. Notifying the employee in the statement required by paragraph a. that, as a condition of employment under the contract, the employee will --

- (1) Abide by the terms of the statement; and
- (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

e. Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph d.(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every contract officer or other designee on whose contract activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected contract;

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

f. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs a. thru f.

2. Sites for Work Performance. The Contractor shall list (on separate pages) the site(s) for the performance of work done in connection with the CMHA funding of the program/activity shown above: Place of Performance shall include the street address, city, county, State, and zip code. Identify each sheet with the Contractor name and address and the program/activity receiving contract funding.)

Check here ¹ if there are workplaces on file that are not identified on the attached sheets.

I hereby certify that all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.

Warning: CMHA will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties.

Authorized Representative's Signature	Date
Print/Type — Authorized Representative Name	Print/Type — Authorized Representative's Title

END OF BIDDING DOCUMENTS

(This sheet should be included as your last page in your bid package)

SECTION 02 41 13

SITE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Services and equipment required for dismantling, wrecking, and razing of existing construction required to make way for new construction and other work of this Contract. Obtain and pay for all permits and fees required. Work includes, but is not necessarily limited to, the following:
 - 1. Site structures, curbs, sidewalks, and pavement as shown.
 - 2. Site utilities as shown.
 - 3. Other miscellaneous items as indicated on Drawings.
- B. Work Furnished by Owner: See Section 01 11 00, "Summary of Work."
 - 1. Testing and identification of suspected hazardous material.
 - 2. Hazardous material removal or neutralizing.
- C. Related Sections:
 - 1. Section 02 41 19, "Cutting and Patching"
 - 2. Section 01 50 00, "Removal of Trash"
 - 3. Section 01 50 00, "Temporary walls and dust barriers"
 - 4. Plumbing, HVAC and Electrical Demolition: Divisions 20, 21, 22, 23, and 26 as applicable.
- D. Prohibited Methods: See Section 01 61 01, "Product Requirements."

1.02 QUALITY ASSURANCE

- A. Qualifications: Contractor must be experienced in demolition work of the type required; must have personnel and equipment adequate for the work; must be approved by the Architect.
 - 1. All work involving hazardous materials to be performed by the Owner.
- B. Code Compliance: Demolition work to be in compliance with all applicable federal, state, and local codes and regulations including procedures, safety, and material disposal.

1.03 JOB CONDITIONS

- A. Existing Conditions: Visit site and verify requirements for demolition.
- B. Protection:
 - 1. Perform all work in accordance with applicable safety requirements; protect personnel, those portions of existing buildings, adjacent structure, and areas which are to remain.
 - 2. Leave areas, structures, and other construction noted to remain in as good condition as found.
 - 3. Keep street drains and sewers open for free drainage at all times.
 - 4. Do not start work until temporary walls and dust controls are in place as specified elsewhere.

- C. Scheduling: Schedule operations with Owner; perform work only at agreed times and in accordance with approved requirements.

1.04 BUILDING EQUIPMENT AND FURNISHINGS

- A. The Owner will remove loose items, equipment, and furnishings from the demolition areas that he/she wishes to retain except as listed for salvage in Part 3 herein and/or noted on Drawings.
- B. The Contractor must advise the Owner, in writing, seven (7) days prior to commencing of any demolition operations to provide adequate time for removals.
- C. All items, equipment, fixtures, and furnishings not removed, labeled or otherwise provided for to become property of Contractor.
- D. Contractor to protect all labeled or designated items remaining in the demolition area.

PART 2 PRODUCTS - (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL DEMOLITION

- A. Wrecking: Except for items noted for salvage and/or retention, cut, alter, remove, or temporarily remove and replace existing construction and materials as required for completion of new work shown on Drawings and specified.
- B. Utilities: Where existing public utility equipment, poles, guys, meters, traffic controls, signs, and similar equipment are shown to be removed or interfere with the progress of the work, remove or cause to be removed; or temporarily support to perform the work, coordinate removal or support with proper authorities and pay all costs. All utility lines and services to existing structures to remain intact and in operation; obtain permission to disrupt any utilities or services even temporarily.
 - 1. Remove or abandon sewers below building after replacement by new sewers. Fill excavated areas and compact disturbed areas in accordance with Section 31 00 00, "Earthwork."
- C. Sidewalk and Curbs: Where required for removal, saw cut the full pavement depth along preformed joints at construction, control, or expansion joints and/or score lines. Make saw-cuts in uniform, straight lines defining areas to be removed.
- D. Shoring and Underpinning: Provide temporary shoring and/or underpinning of existing construction as required for protection. Remove only when directed.

3.02 HAZARDOUS MATERIALS

- A. Contractors are cautioned to check premises for existence of hazardous materials such as asbestos in the form of pipe insulation or plaster.

- B. In the event materials are encountered during the work which may present a health hazard to workers, occupants, or the public, the Contractor shall take the following actions:
 - 1. Take immediate action to limit the exposure or hazardous condition.
 - 2. Cease work in the area until suspected hazardous material can be identified.
 - 3. Notify Owner of condition. Notification shall be made by the most expedient means with subsequent written confirmation.
- C. Testing, identification, removal, or other processes to render hazardous materials safe within legal limits to be provided by Owner. See SUMMARY in Part 1 above.

3.03 SELECTIVE DEMOLITION - (NOT APPLICABLE)

END OF SECTION

SECTION 03 54 13

GYPSUM UNDERLAYMENT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Section includes gypsum-cement-based, self-leveling underlayment for application below interior floor coverings.

1.02 RELATED SECTIONS

- A. Sustainable Design Requirements: Section 01 81 13.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated
- B. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.
- C. Qualification Data: For qualified Installer.
- B. Special Environmental Requirements: Submit the following in accordance with Section 01 81 13:
 - 1. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 - 2. Laboratory Test Reports: For liquid floor treatments, indicating compliance with requirements for low-emitting materials.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.
- C. Fire-Resistance Ratings: Provide gypsum-cement underlayment systems identical to those of assemblies tested for fire resistance per ASTM E119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

- D. Sound Transmission Characteristics: Where indicated, provide gypsum-cement underlayment systems identical to those of assemblies tested for STC and IIC ratings per ASTM E90 and ASTM E492 by a qualified testing agency.
- E. Coordinate application of underlayment with requirements of floor-covering products and adhesives, to ensure compatibility of products.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Underlayment: Gypsum-cement-based, self-leveling product that can be applied in minimum uniform thickness of 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Thickness 3/4"

- B. Cement Binder: Gypsum or blended gypsum cement as defined by ASTM C219.
- C. Compressive Strength: Not less than 3000 psi at 28 days when tested according to ASTM C 109.
- D. Retain subparagraph below if required. Some manufacturers recommend additives for applications over cutback adhesive or wood and metal substrates.
- E. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
- F. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
 - 1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required
- G. Water: Potable and at a temperature of not more than 70 deg F.
- H. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.
- I. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

2.02 ACCESSORIES

- A. Sound Mat: **1/8"** thick entangled polymeric filament mat.
 - 1. Basis of Design: Manufacturer and Product: MAXXON Acousti-Mat I.

2. Other Acceptable Manufacturers: Sound Mats manufactured by USG CORPORATION or DURACOUSTICS will be considered if materials meet the requirements of the Basis of Design and the performance is an acceptable match as approved by the Architect.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
- B. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
- C. Fill substrate voids to prevent underlayment from leaking.
- D. Wood Substrates: Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings that might impair underlayment bond and remove sanding dust.
- E. Install underlayment reinforcement recommended in writing by manufacturer.
- F. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.
- G. Sound Control Mat: Install sound control materials according to manufacturer's written instructions.
- H. Do not install mechanical fasteners that penetrate through the sound control materials.

3.03 INSTALLATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
 2. Coordinate application of components to provide optimum underlayment-

to-substrate and intercoat adhesion.

3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface in thicknesses indicated.
1. Apply a final layer without aggregate to product surface.
 2. Feather edges to match adjacent floor elevations.
- D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

END OF SECTION

SECTION 12 32 00

MANUFACTURED WOOD CASEWORK

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide base, wall and vanity cabinets as indicated.

1.02 RELATED SECTIONS

- A. Countertops: Section 06 40 00.
- B. Sustainability Requirements: 01 81 13.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's/fabricator's data and installation instructions for each type of casework unit.
- B. Initial Samples: Submit samples of specified finishes.
- C. Shop Drawings
 - 1. Submit shop drawings for casework showing plans, elevations, ends and cross sections.
 - 2. Show details and location of anchorages and fitting to floors, walls and base.
 - 3. Include layout of units with relation to surrounding walls, doors, windows and other building components.
- D. Sample: (1) 15" wide base cabinet sample complete with hardware.
- E. Sustainability Documentation: Demonstrating compliance with EGC low VOC adhesives and sealants and formaldehyde-free construction.

1.04 QUALITY ASSURANCE

- A. Fabricator qualifications: A firm specializing in the fabrication of millwork with a satisfactory record of performance on projects of comparable size and quality. Fabricator shall be acceptable to the Architect.
- B. Installation: Performed only by experienced skilled finish carpenters.
- C. Quality Grade: Materials and fabrication shall be "custom grade" in accordance

with "Quality Standard Illustrated," of the AWI conforming to the following sections:

1. Section 200: Plywood and particleboard.
2. Section 400: Casework.

D. Pre-Installation Conference: Prior to casework installation.

1.05 REFERENCE

- A. All manufactured factory-finished cabinets shall comply with ANSI/KCMA A161.1. All cabinets must bear the identification of the cabinet manufacturer. All cabinets to be KCMA certified and labeled, with labels in place at time of installation and inspection.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Protect casework during delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver casework until concrete, masonry and other similar wet work has been completed and is thoroughly dry, outside door openings are permanently watertight, exterior windows are glazed and, in case of temperature dropping below 60 degrees F., until temporary heating and ventilating systems are in operation.
- C. Store casework in dry, well-ventilated spaces with constant minimum temperature of 60 degrees F., and maximum relative humidity of 55%.

1.07 PROJECT CONDITIONS

- A. Provide and maintain a constant temperature and humidity before, during and after installation as required to maintain optimum moisture content of installed materials.
- B. Obtain measurements and verify dimensions and details before proceeding with finish carpentry.

PART 2 PRODUCTS

2.01 CABINETS

A. Manufacturer

1. Basis of Design: Drawings and specifications are based on ADVANTA – **Extreme Series** - Newbury Slab.
2. Other Acceptable Manufacturers: Casework manufactured by others will be considered if material and construction meet the requirements of the Basis of Design and the types, sizes and colors are an acceptable match as approved by the Architect
 - a. Provide full scale sample for Architects and Owners approval.

- B. Provide complete factory assembled and finished components.
1. Provide wall and base cabinets with standard accessories.
 2. Provide matching filler panels and end panels where indicated or required.
- C. **Components and Fabrication: Casework is required to be plywood frame construction. Particleboard is not acceptable.**
1. **Front Frame:** 3/4" thick kiln dried solid hardwood with stiles 1-1/2" wide, mulls 3" wide, rails 1-3/4" wide
 2. **End Panels:** Nominal 1/2" (12mm) thick, wood based composite panels dadoed to receive tops and bottoms. End panels are not to be edgebanded.
 3. **Top/Bottom Panels:** Nominal 1/2" (12mm) thick wood based composite panel with maple grained or white laminate on exterior and interior surfaces for wall cabinets and interior surface for base cabinets.
 4. **Hanging Rails:** Wall cabinets have nominal 1/2" (12mm) thick x 2-7/8" high multi-ply hardwood plywood hanging rail running full cabinet width at top and bottom. Base cabinets have nominal 1/2" (12mm) thick x 2-7/8" high wood based composite panel hanging rail running full cabinet width at top.
 5. **Back Panel:** Nominal 1/8" (3mm) thick hardboard with maple grained or white interior surface.
 6. **Shelves:** Nominal 5/8" (15mm) thick wood based composite panel with maple grained or white laminate on both faces and matching edgeband on facing edge.
 7. Shelves are adjustable in all standard wall and base cabinets.
 8. **Toe Kick:** Nominal 1/2" (12mm) thick unfinished wood based composite panel captured between end panels. Toe kick is 4" high and recessed 4".
 9. **Base I-Beam Braces:** Two 1/2" thick (12mm) x 2 7/8" wide composite panel braces running full-depth front to back of cabinet, recessed down 1" from top. All braces are to be glued and stapled at top of cabinet to front frame and hang rail, and dadoed into end panel.
 10. **Drawers:** Nominal 1/2" (12mm) thick solid wood front, back, and sides with dovetail construction. Drawer bottoms are nominal 1/4" (6mm) thick multi-ply hardwood inserted and stapled into dado in front, back and sides. Optional upgrade available
 11. **Drawer Guides:** Epoxy coated steel, Cushion-Tec™, side mounted guides, self-adjusting in mounting brackets. Built-in stop, self-closing and stay-closed features with a 75 lb. rated load capacity.
 12. **Hinges:** Heavy-duty, high-quality steel, concealed 6-way adjustable hinge with self-closing feature.
- G. Finish
1. Cabinet Colors: Provide colors as indicated.

H. Adhesive: Low-VOC, FS MMM-A-125C, Type II, water- and mold-resistant; complying with required VOC regulations.

1. VOC Content: The volatile organic compound (VOC) content of adhesives shall not exceed the limits defined in Section 01 81 13.

PART 3 EXECUTION

3.01 INSTALLATION

A. General

1. Install plumb, level, true and straight with no distortions so that doors and drawers will fit openings properly and be accurately aligned.
2. Shim as required using concealed shims.
3. Where casework abuts other finished work, scribe and apply filler strips for accurate fit with concealed fasteners.
4. Where possible, assemble units into one integral unit with joints flush, tight and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16".
5. Anchor cabinet units securely in place with concealed (when doors and drawers are closed) fasteners, anchored into structural support members of wall construction. Comply with manufacturer's instructions and recommendations for support of unit.
6. Adjust casework and hardware so that doors and drawers are centered in openings and operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

B. Base Cabinets

1. Fasten each individual cabinet to floor at toe space, with fasteners spaced at 24" on center.
2. Bolt continuous cabinets together.
3. Secure individual cabinets with not less than 2 fasteners into floor, where they do not adjoin other cabinets.

C. Wall Cabinets

1. Verify that wood blocking has been installed at required locations.
2. Bolt continuous cabinets together.
3. Secure individual cabinets with not less than 2 fasteners into wall (wood blocking), where they do not adjoin other cabinets.

3.02 CLEANING AND PROTECTION

- ##### **A.**
- Repair or remove and replace defective work as directed upon completion of installation.

1. Patch surfaces damaged by installation to prior condition as approved or replace damaged units as directed.
- B. Clean shop-finished surfaces, touch-up as required, and remove or refinish damaged or soiled areas, as acceptable to Architect.
1. Dust cabinet interiors. Clean exterior surfaces to original condition.

END OF SECTION

SECTION 27 05 28

PATHWAYS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Optical-fiber-cable pathways and fittings.
4. Metal wireways and auxiliary gutters.
5. Nonmetallic wireways and auxiliary gutters.
6. Metallic surface pathways.
7. Hooks.
8. Boxes, enclosures, and cabinets.
9. Polymer-concrete handholes and boxes for exterior underground cabling.

1.2 DEFINITIONS

- A. RMC: Rigid Metal Conduit (see also GRC below).
- B. GRC: Galvanized rigid conduit.
- C. IMC: Intermediate metal conduit.
- D. RNC: Rigid nonmetallic conduit

1.3 ACTION SUBMITTALS

- A. Product data for the following:
 1. Wireways and fittings.
 2. Boxes, enclosures, and cabinets.
 3. Underground handholes and boxes.
- B. Shop Drawings: For custom enclosures and cabinets and custom underground handholes and boxes. Include plans, elevations, sections, and attachment details.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Pathway routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of pathway groups with common supports.
2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
3. Underground ducts, piping, and structures in location of underground enclosures and handholes.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Description: Metal raceway of circular cross section with manufacturer-fabricated fittings.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. AFC Cable Systems, Inc.
 2. Allied Tube & Conduit.
 3. O-Z/Gedney.
 4. Robroy Industries.
 5. Southwire Company.
 6. Thomas & Betts Corporation.
 7. Other U.S. Manufacturer
- C. General Requirements for Metal Conduits and Fittings:
 1. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.
 2. Comply with TIA-569-D.
- D. GRC: Comply with ANSI C80.1 and UL 6.
- E. IMC: Comply with ANSI C80.6 and UL 1242.
- F. EMT: Comply with ANSI C80.3 and UL 797.
- G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
 2. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: set-screw.
 3. Expansion Fittings: PVC or steel to match conduit type, complying with UL-467, rated for environmental conditions where installed, and including flexible external bonding jumper.

- H. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS AND FITTINGS

- A. Description: Nonmetallic raceway of circular section with manufacturer-fabricated fittings.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Allied Tube & Conduit.
 - 3. RACO; Hubbell.
 - 4. Thomas & Betts Corporation
 - 5. Carlon.
- C. General Requirements for Nonmetallic Conduits and Fittings:
 - 1. Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
 - 2. Comply with TIA-569-D.
- D. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- E. Fittings: Comply with NEMA TC 3; match to conduit or tubing type and material.
- F. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 OPTICAL-FIBER-CABLE PATHWAYS AND FITTINGS

- A. Description: Comply with UL 2024; flexible-type pathway with a circular cross section, approved for plenum and riser installation unless otherwise indicated.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alpha Wire Company.
 - 2. Arnco Corporation.
 - 3. Endot Industries Inc.
 - 4. IPEX.
 - 5. Lamson & Sessions; Carlon Electrical Products.
- C. Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with TIA-569-D.

2.4 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Description: Sheet metal trough of rectangular cross section fabricated to required size and shape, without holes or knockouts, and with hinged or removable covers.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Legrand – Cablofil.
 - 2. Cooper B-Line.
 - 3. Panduit Corp
 - 4. Hoffman.
- C. General Requirements for Metal Wireways and Auxiliary Gutters:
 - 1. Comply with UL 870 and NEMA 250, Type 1 or Type 3R for wet or damp locations unless otherwise indicated, and sized according to NFPA 70.
 - 2. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
 - 3. Comply with TIA-569-D.
- D. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- E. Wireway Covers: Hinged type, or Flanged-and-gasketed type for wet or damp locations, unless otherwise indicated.
- F. Finish: Manufacturer's standard enamel finish.

2.5 HOOKS

- A. Description: Prefabricated sheet metal cable supports for telecommunications cable.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Legrand – Cablofil.
 - 2. Cooper B-Line.
 - 3. Panduit
- C. Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with TIA-569-D.
- E. Galvanized or stainless steel.
- F. J shape.

2.6 BOXES, ENCLOSURES, AND CABINETS

- A. Description: Enclosures for communications.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper Technologies Company; Cooper Crouse-Hinds.
 - 2. Hoffman.
 - 3. O-Z/Gedney.
 - 4. Quazite:Hubbell Power Systems, Inc.
 - 5. RACO; Hubbell.
 - 6. Thomas & Betts Corporation.
- C. General Requirements for Boxes, Enclosures, and Cabinets:
 - 1. Comply with TIA-569-D.
 - 2. Boxes, enclosures, and cabinets installed in wet locations shall be listed and labeled as defined in NFPA 70, by an NRTL, and marked for use in wet locations.
 - 3. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
 - 4. Device Box Dimensions: 4 inches square by 2-1/8 inches deep
 - 5. Audio / Visual Device Box Dimensions: Per equipment manufacturer requirements or as indicated on drawings.
 - 6. Gangable boxes are prohibited.
- D. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- E. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.
- F. Metal Floor Boxes:
 - 1. Material: Metal
 - 2. Type: Fully adjustable.
 - 3. Shape: Rectangular.
 - 4. Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

2.7 POLYMER-CONCRETE HANDHOLES

- A. Description: Molded of sand and aggregate; bound together with polymer resin; and reinforced with steel, fiberglass, or a combination of the two.
- B. Manufacturers: Subject to compliance with requirements, provide products the following
 - 1. Quazite
 - 2. Oldcastle Hartford Concrete Products.
 - 3. EC Babbert

C. General Requirements for Polymer Concrete Handholes:

1. Boxes and handholes for use in underground systems shall be listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
3. Comply with TIA-569-D and SCTE 77.

D. Configuration: Designed for flush burial with integral closed bottom unless otherwise indicated.

E. Handholes and Manholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

F. All handholes and manholes shall be provided with hardware racking package.

G. All manholes shall be provided with pulling rings, located opposite the conduit entrance on each wall.

H. All hardware shall be corrosion resistant. All steel shall be galvanized, or zinc coated.

2.8 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 PATHWAY APPLICATION

A. Outdoors: Apply pathway products as specified below unless otherwise indicated:

1. Exposed Conduit: Type EPC-40-PVC.
2. Concealed Conduit, Aboveground: GRC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply pathway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.

2. Exposed, Not Subject to Severe Physical Damage: EMT
 3. Exposed and Subject to Severe Physical Damage: GRC. Pathway locations include the following:
 - a. Mechanical rooms.
 4. Concealed in Ceilings and Interior Walls and Partitions: Free-air with support (Refer to Section 27 05 29).
 5. Damp or Wet Locations: GRC.
 6. Pathways for Optical-Fiber or Communications Cable in Spaces Used for Environmental Air: Plenum-type, communications-cable pathway.
 7. Pathways for Optical-Fiber or Communications-Cable Risers in Vertical Shafts: Riser-type, communications-cable pathway.
- C. Minimum Pathway Size: 1-inch trade size communication cables
- D. Pathway Fittings: Compatible with pathways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. EMT: Use steel, set-screw fittings with insulated throats. Comply with NEMA FB 2.10.
- E. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

- A. Comply with the following standards for installation requirements except where requirements on Drawings or in this Section are stricter:
1. NECA 1.
 2. ANSI/BICSI N1.
 3. TIA-569-E.
 4. NECA 101
 5. NECA 102.
 6. NECA 111.
- B. Comply with NFPA 70 limitations for types of pathways allowed in specific occupancies and number of floors.
- C. Provide firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- D. Comply with requirements in Section 270529 "Hangers and Supports for Communications Systems" for hangers and supports.
- E. Comply with requirements in Section 270544 "Sleeves and Sleeve Seals for Communications Pathways and Cabling" for sleeves and sleeve seals for communications.
- F. Pathways shall not exceed 40% fill rate at the completion of the project.

- G. Provide conduits in inaccessible environments, including but not limited to above drywall ceilings, in walls, above HVAC ductwork, fume hoods, lab counters and cabinets
- H. Keep pathways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal pathway runs above water and steam piping.
- I. Complete pathway installation before starting conductor installation.
- J. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- K. Provide pull-box for any conduit run that exceeds 100 feet.
- L. LB fittings are not permitted in lieu of pull boxes.
- M. Install no more than the equivalent of two 90-degree bends in any pathway run. Support within 12 inches of changes in direction. Utilize long radius ells for all optical-fiber cables.
- N. Conceal rigid conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- O. Support conduit within 12 inches of enclosures to which attached.
- P. All conduits shall have insulated bushings.
- Q. Conduits for backbone cabling routed to MTR and TR's shall end adjacent in a corner of room where multiple sheets of plywood backboard are installed. Secure conduits to backboard when entering room from above. Extend conduits from below 4 inches above finished floor.
- R. Maintain the following clearances between pathways and possible sources of electromagnetic interference exceeding 5 KVA:
 - 1. Power lines enclosed in a grounded metal conduit (or equivalent shielding) in proximity to grounded metal conduit pathway: 6"
 - 2. Unshielded power lines or electrical equipment in proximity to a grounded metal conduit pathway: 12"
 - 3. Unshielded power lines or electrical equipment in proximity to open or nonmetal pathways: 24"
 - 4. Electrical motors and transformers: 47"
- S. Raceways Installed Below Slabs:
 - 1. Where pathways are permitted to run below slabs, they should be installed in non-metallic conduit. Provide 6" layer of over fill above conduit.
 - 2. Conduits shall not be installed above the vapor barrier.
- T. Stub-ups to Above Recessed Ceilings:
 - 1. Use EMT for pathways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

- U. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of pathway and fittings before making up joints. Follow compound manufacturer's written instructions.
- V. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install insulated bushings on conduits terminated with locknuts.
- W. Install pathways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus one additional quarter-turn.
- X. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure, to assure a continuous ground path.
- Y. Cut conduit perpendicular to the length. For conduits of 2-inch trade size and larger, use roll cutter or a guide to ensure cut is straight and perpendicular to the length.
- Z. Install pull wires in empty pathways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Secure pull wire, so it cannot fall into conduit. Cap pathways designated as spare alongside pathways in use.
- AA. Surface Pathways:
 - 1. Install surface pathway for surface telecommunications outlet boxes only if indicated on Drawings. No surface pathways are planned for this construction.
- BB. Pathways for Optical-Fiber and Communications Cable: Install pathways, metal and nonmetallic, rigid and flexible, as follows:
 - 1. 1-Inch Trade Size and Larger: Install pathways in maximum lengths of 75 feet.
 - 2. Install with a maximum of two 90-degree bends or equivalent for each length of pathway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.
- CC. For concealed pathways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.
- DD. Install devices to seal pathway interiors at accessible locations. Locate seals, so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all pathways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Where an underground service pathway enters a building or structure.
 - 3. Where otherwise required by NFPA 70.
- EE. Comply with manufacturer's written instructions for solvent welding PVC conduit and fittings.
- FF. Hooks:

1. Hooks are allowed for pathways above accessible drop ceilings and above areas with drywall ceilings. Where hooks are installed above drywall ceilings or in areas with limited access, provide access panels. Coordinate access panel locations and requirements with the Architect prior to installation. (Addendum 3)
 2. Hooks are acceptable as pathways from cable trays to conduit stub-ups located within rooms.
 3. Route hooks to center of room and out to corridor. Do not route hooks along walls.
 4. Minimum clearance between ceiling and hook shall be 6 inches. Do not install hooks more than 18 inches above ceiling.
 5. Shall be supported by dedicated threaded rod supports. Do not use ceiling grid support wire or support rods or supports for other trades.
 6. Hook spacing shall allow no more than 3 inches of slack. The lowest point of the cables shall be no less than 3 inches adjacent to ceilings, and no less than 6 inches adjacent to mechanical ductwork and fittings, luminaires, power conduits, power outlets, and other electrical equipment.
 7. Space hooks no more than 4 feet o.c.
 8. Provide a hook at each change in direction.
 9. Size to allow a minimum of 25 percent future capacity without exceeding design capacity limits.
- GG. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- HH. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surface to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- II. Horizontally separate boxes mounted on opposite sides of walls, so they are not in the same vertical channel.
- JJ. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- KK. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- LL. Set metal floor boxes level and flush with finished floor surface.
- MM. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.
- NN. All pull boxes shall be accessible. Do not place above drywall ceilings, HVAC ductwork or piping.

3.3 FIRESTOPPING

- A.** Install firestopping at penetrations of fire-rated floor and wall assemblies.

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage or deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

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SECTION 28 31 11

DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Air-sampling smoke detectors.
5. Nonsystem smoke detectors.
6. Heat detectors.
7. Notification appliances.
8. Device guards.
9. Firefighters' two-way telephone communication service.
10. Firefighters' smoke-control station.
11. Magnetic door holders.
12. Remote annunciator.
13. Graphic annunciator.
14. Addressable interface device.
15. Digital alarm communicator transmitter.
16. Radio alarm transmitter.
17. Network communications.
18. System printer.

1.2 DEFINITIONS

- A. FACP: Fire Alarm Control Panel.
- B. NICET: National Institute for Certification in Engineering Technologies.
- C. PC: Personal computer.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including furnished options and accessories.
 1. Include construction details, material descriptions, dimensions, profiles, and finishes.
 2. Include rated capacities, operating characteristics, and electrical characteristics.
- B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Provide program report showing that air-sampling detector pipe layout balances pneumatically within the airflow range of the air-sampling detector.
12. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.
 - a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
 - b. Show field wiring required for HVAC unit shutdown on alarm.
 - c. Locate detectors according to manufacturer's written recommendations.
 - d. Show air-sampling detector pipe routing.
13. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.
14. Include floor plans to indicate final outlet locations showing address of each addressable device.

C. General Submittal Requirements:

1. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire-alarm system design.
 - b. NICET-certified, fire-alarm technician; **Level III** minimum.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Seismic Qualification Certificates: For fire-alarm control unit, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Field quality-control reports.
- D. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.
1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following **and deliver copies to authorities having jurisdiction**:
 - a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 - c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
 - d. Riser diagram.
 - e. Device addresses.
 - f. Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.
 - g. Record copy of site-specific software.
 - h. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
 - 1) Equipment tested.
 - 2) Frequency of testing of installed components.
 - 3) Frequency of inspection of installed components.
 - 4) Requirements and recommendations related to results of maintenance.
 - 5) Manufacturer's user training manuals.
 - i. Manufacturer's required maintenance related to system warranty requirements.
 - j. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.
- B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Smoke Detectors, Heat Detectors, **and Flame Detectors**: Quantity equal to **TEN PERCENT** of amount of each type installed, but no fewer than one unit of each type.
 2. Detector Bases: Quantity equal to **TWO PERCENT** of amount of each type installed, but no fewer than one unit of each type.
 3. Manual Fire Alarm Box: **ONE** of each type installed.
 4. Keys and Tools: **ONE** extra set for access to locked or tamper-proofed components.
 5. Audible and Visual Notification Appliances: **THREE** of each type installed.
 6. Addressable interface device: **TWO** of each type installed.
 7. Fuses: **TWO** of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.
 8. Filters for Air-Sampling Detectors: Quantity equal to **TWO percent** of amount of each type installed, but no fewer than one unit of each type.
 9. Air-Sampling Fan: Quantity equal to **ONE** for every five detectors, but no fewer than one unit of each type.

B. ADDITIONAL INSTALLED DEVICES

1. Electrical Contractor shall include in his bid an allowance for the installation of the following:

a. Smoke detectors	One
b. Duct smoke detectors	One
c. Manual fire alarm box	One
d. Audible device	Two
e. Combination audible/visual device	Five
f. Addressable interface device	One
2. The contractor shall include 50'-0" length of conduit and wire for each device, and shall assume that the devices will be installed at the completion of the project as directed by the Architect or Engineer. If not all devices are used, the remaining devices shall be turned over to the Owner. The unused amount of labor, conduit and wire shall be credited to the Owner in a deduct change order.

1.7 QUALITY ASSURANCE

- A. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL (nationally recognized testing laboratory).

1.8 PROJECT CONDITIONS

- A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.
- B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
 - 1. Do not proceed with interruption of fire-alarm service without **A/E's, Construction Manager's, Owner's** written permission.
- C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.9 SEQUENCING AND SCHEDULING

- A. Prior to beginning work to modify an existing fire alarm system, the contractor shall verify at the control panel that the system has no faults, alarms, or trouble conditions. Verification shall occur in the presence of the Owner or Owner's Rep.
- B. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.
- C. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: **FIVE** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. **Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.**

- B. Noncoded, UL-listed addressable system, with multiplexed signal transmission and **voice, horn/strobe** evacuation.
- C. Automatic sensitivity control of certain smoke detectors.
- D. All components provided shall be listed for use with the selected system.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire Alarm Signal:

1. Fire Alarm signal initiation shall be by one or more of the following devices and/or systems:
 - a. Manual stations.
 - b. Heat detectors.
 - c. Flame detectors.
 - d. Smoke detectors.
 - e. Duct smoke detectors.
 - f. Air-sampling smoke-detection system
 - g. Carbon monoxide detectors.
 - h. Combustible gas detectors.
 - i. Automatic sprinkler system water flow.
 - j. Preaction system.
 - k. Fire-extinguishing system operation.
 - l. Fire standpipe system.
 - m. Dry system pressure flow switch.
 - n. Fire pump running.
2. Fire-alarm signal shall initiate the following actions:
 - a. Continuously operate alarm notification appliances, **including voice evacuation notices**.
 - b. Identify alarm and specific initiating device at fire-alarm control units and remote annunciators.
 - c. Identify alarm and specific initiating device at connected network control panels and/or off-premises network control panels.
 - d. Transmit an alarm signal to the remote alarm receiving station.
 - e. Unlock electric door locks in designated egress paths.
 - f. Release fire and smoke doors held open by magnetic door holders.
 - g. Activate voice/alarm communication system.
 - h. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
 - i. Activate smoke-control system (smoke management) at firefighters' smoke-control system panel.
 - j. Activate stairwell and elevator-shaft pressurization systems.
 - k. Close smoke dampers in air ducts of designated air-conditioning duct systems.

- l. Activate preaction system.
- m. Recall elevators to primary or alternate recall floors.
- n. Activate elevator power shunt trip.
- o. Activate emergency lighting control.
- p. Activate emergency shutoffs for gas and fuel supplies.
- q. Record events in the system memory.
- r. Record events by the system printer.
- s. Indicate device in alarm on the graphic annunciator.

B. Supervisory Signal:

1. Supervisory signal initiation shall be by one or more of the following devices and actions:
 - a. Valve supervisory switch.
 - b. High- or low-air-pressure switch of a dry-pipe or pre-action sprinkler system.
 - c. Alert and Action signals of air-sampling detector system.
 - d. Elevator shunt-trip supervision.
 - e. Fire pump running.
 - f. Fire-pump loss of power.
 - g. Fire-pump power phase reversal.
 - h. Independent fire-detection and -suppression systems.
 - i. User disabling of zones or individual devices.
 - j. Loss of communication with any panel on the network.
 - k. Generator running
 - l. Generator abnormal condition (e.g. failure to start, temperature alarms, low fluids, etc.)
2. System Supervisory signal shall initiate the following actions:
 - a. Identify specific device initiating the event at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
 - b. Record the event on system printer.
 - c. After a time delay of **200 seconds**, transmit a trouble or supervisory signal to the remote alarm receiving station.
 - d. Transmit system status to building management system.
 - e. Display system status on graphic annunciator.

C. System Trouble Signal:

1. System trouble signal initiation shall be by one or more of the following devices and actions:
 - a. Open circuits, shorts, and grounds in designated circuits.
 - b. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 - c. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
 - d. Loss of primary power at fire-alarm control unit.
 - e. Ground or a single break in internal circuits of fire-alarm control unit.
 - f. Abnormal ac voltage at fire-alarm control unit.
 - g. Break in standby battery circuitry.

- h. Failure of battery charging.
 - i. Abnormal position of any switch at fire-alarm control unit or annunciator.
 - j. Voice signal amplifier failure.
 - k. Hose cabinet door open.
2. System trouble signal shall initiate the following actions:
- a. Identify specific device initiating the event at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
 - b. Record the event on system printer.
 - c. Transmit system status to building management system.
 - d. Display system status on graphic annunciator.

2.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.
1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified **and the unit will be fully operational after the seismic event.**"

2.4 FIRE-ALARM CONTROL UNIT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers:
- 1. Fire-Lite Alarms.
 - 2. GAMEWELL.
 - 3. GE UTC Fire & Security; A United Technologies Company.
 - 4. Notifier.
 - 5. Siemens Industry, Inc.; Fire Safety Division.
 - 6. Silent Knight.
 - 7. SimplexGrinnell LP.
 - 8. EST Edwards
- B. General Requirements for Fire-Alarm Control Unit:
1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.
- a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
 - b. Include a real-time clock for time annotation of events on the event recorder and printer.
 - c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.

- d. The FACP shall be listed for connection to a central-station signaling system service.
 - e. The FACP shall be listed for use with supervisory signals from other essential building systems.
 - f. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.
 - 2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
 - 3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.
- C. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
- 1. Annunciator and Display: Liquid-crystal type, **two** line(s) of **40** characters, minimum.
 - 2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.
 - 3. **Shall indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.**
- D. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:
- 1. Contractor shall verify quantity of each circuit type required with his approved equipment vendor prior to bidding. Fire alarm riser drawings that may be shown on the drawings are intended to be schematic in nature and may not depict all circuits where multiple circuits are required.
 - 2. Pathway Class Designations: NFPA 72, Class A, **Class B**.
 - 3. Pathway Survivability: Level 0, **Level 1**.
 - 4. Install no more than 50, **100, 256** addressable devices on each signaling-line circuit.
 - 5. Serial Interfaces:
 - a. One dedicated RS 485 port for **central-station remote station** operation using point ID DACT.
 - b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).
 - c. One **USB RS 232** port for PC configuration.
 - d. One RS 232 port for voice evacuation interface.
- E. Stairwell **and Elevator Shaft** Pressurization: Provide an output signal using an addressable relay to start the stairwell **and elevator shaft** pressurization system. Signal shall remain on until alarm conditions are cleared and fire-alarm system is reset. Signal shall not stop in response to alarm acknowledge or signal silence commands.

1. Pressurization starts when any alarm is received at fire-alarm control unit.
2. Alarm signals from smoke detectors at pressurization air supplies have a higher priority than other alarm signals that start the system.

F. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

G. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

H. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:
 - a. Elevator lobby detectors except the lobby detector on the designated floor.
 - b. Smoke detector in elevator machine room.
 - c. Smoke detectors in elevator hoistway.
2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.
 - a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

I. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall **be** connected to fire-alarm system. (Addendum 3)

J. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity

settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

- K. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.
- L. Voice/Alarm Signaling Service: Central emergency communication system with redundant microphones, preamplifiers, amplifiers, and tone generators provided **in a separate cabinet located in the fire command center as a special module that is part of fire-alarm control unit.**
 - 1. Indicate number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the central-control microphone. Amplifiers shall comply with UL 1711.
 - a. Allow the application of, and evacuation signal to, indicated number of zones and, at the same time, allow voice paging to the other zones selectively or in any combination.
 - b. Programmable tone and message sequence selection.
 - c. Standard digitally recorded messages for "Evacuation" and "All Clear."
 - d. Generate tones to be sequenced with audio messages of type recommended by NFPA 72 and that are compatible with tone patterns of notification-appliance circuits of fire-alarm control unit.
 - 2. Status Annunciator: Indicate the status of various voice/alarm speaker zones and the status of firefighters' two-way telephone communication zones.
 - 3. Preamplifiers, amplifiers, and tone generators shall automatically transfer to backup units, on primary equipment failure.
- M. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.
- N. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, **supervisory signals, supervisory and digital alarm communicator transmitters, and digital alarm radio transmitters** shall be powered by 24-V dc source.
 - 1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.
- O. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed, valve-regulated, recombinant lead acid, **Sealed lead calcium, Vented wet-cell pocket plate nickel cadmium.**
- P. Surge Suppression: Provide surge suppression devices at each 120V circuit serving fire alarm equipment. Refer to specification section 26 43 13 – Surge Protection for Low Voltage Electrical Power for requirements.
- Q. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.5 PREACTION SYSTEM

- A. Initiate Presignal Alarm: This function shall cause an audible and visual alarm and indication to be provided at the FACP. Activation of an initiation device connected as part of a preaction system shall be annunciated at the FACP only, without activation of the general evacuation alarm.

2.6 REMOTE FIRE ALARM DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers:
1. Cooper Wheelock.
 2. Fire-Lite Alarms.
 3. GAMEWELL.
 4. GE UTC Fire & Security; A United Technologies Company.
 5. Notifier.
 6. Siemens Industry, Inc.; Fire Safety Division.
 7. Silent Knight.
 8. SimplexGrinnell LP.
 9. System Sensor.
- B. Manual Fire-Alarm Boxes
1. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
 - a. Double-action mechanism requiring two actions to initiate an alarm, breaking-glass or plastic-rod pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
 - b. Station Reset: Key- or wrench-operated switch.
 - c. **Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.**

Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

- d. **Weatherproof Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.**

C. Notification Appliances

1. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.
 - a. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.
2. **Chimes, Low-Level Output: Vibrating type, 75-dBA minimum rated output.**
3. **Chimes, High-Level Output: Vibrating type, 81-dBA minimum rated output.**
4. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.
5. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word **"FIRE"** is engraved in minimum 1-inch-high letters on the lens.
 - a. Rated Light Output minimum:
 - 1) 15 cd. in corridors and transition spaces, unless otherwise noted.
 - 2) 30 cd. in other spaces, unless otherwise noted.
 - b. Mounting: Wall mounted unless otherwise indicated.
 - c. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
 - d. Flashing shall be in a temporal pattern, synchronized with other units.
 - e. Strobe Leads: Factory connected to screw terminals.
 - f. Mounting Faceplate: Factory finished, **RED WHITE**.
6. Voice/Tone Notification Appliances:
 - a. Comply with UL 1480.
 - b. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
 - c. High-Range Units: Rated 2 to 15 W.
 - d. Low-Range Units: Rated 1 to 2 W.
 - e. Mounting: Flush semirecessed or surface mounted and bidirectional.
 - f. Matching Transformers: Tap range matched to acoustical environment of speaker location.
 - g. Mounting Faceplate: Factory finished, **RED WHITE**.
7. Exit Marking Audible Notification Appliance:
 - a. Exit marking audible notification appliances shall meet the audibility requirements in NFPA 72.

- b. Provide exit marking audible notification appliances at the entrance to all building exits.
- c. Provide exit marking audible notification appliances at the entrance to areas of refuge with audible signals distinct from those used for building exit marking.

D. Addressable Interface Device

1. General:
 - a. Include address-setting means on the module.
 - b. Store an internal identifying code for control panel use to identify the module type.
 - c. Listed for controlling HVAC fan motor controllers.
2. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.
3. Integral Relay: Capable of providing a direct signal to elevator controller to initiate elevator recall to circuit-breaker shunt trip for power shutdown .
 - a. Allow the control panel to switch the relay contacts on command.
 - b. Have a minimum of two normally open and two normally closed contacts available for field wiring.
4. Control Module:
 - a. Operate notification devices.
 - b. Operate solenoids for use in sprinkler service.

E. System Smoke Detectors

1. General Requirements for System Smoke Detectors:
 - a. Comply with UL 268; operating at 24-V dc, nominal.
 - b. Detectors shall be two-wire type.
 - c. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
 - d. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
 - e. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
 - 1) Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
 - 2) Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
 - 3) Multiple levels of detection sensitivity for each sensor.
 - 4) Sensitivity levels based on time of day.
2. Photoelectric Smoke Detectors:

- a. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 - b. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).
- 3. Ionization Smoke Detector:
 - a. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 - b. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).
- 4. Duct Smoke Detectors: Photoelectric type complying with UL 268A.
 - a. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 - b. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).
 - c. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
 - d. Each sensor shall have multiple levels of detection sensitivity.
 - e. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
 - f. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.
- 5. Projected Beam Smoke Detectors
 - a. Projected Beam Light Source and Receiver: Designed to accommodate small angular movements and continue to operate and not cause nuisance alarms.
 - b. Detector Address: Accessible from fire-alarm control unit and able to identify the detector's location within the system and its sensitivity setting.

- c. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).

F. Carbon Monoxide Detectors

- 1. General: Carbon monoxide detector listed for connection to fire-alarm system.
 - a. Mounting: Adapter plate for outlet box mounting.
 - b. Testable by introducing test carbon monoxide into the sensing cell.
 - c. Detector shall provide alarm contacts and trouble contacts.
 - d. Detector shall send trouble alarm when nearing end-of-life, power supply problems, or internal faults.
 - e. Comply with UL 2075.
 - f. Locate, mount, and wire according to manufacturer's written instructions.
 - g. Provide means for addressable connection to fire-alarm system.
 - h. Test button simulates an alarm condition.

G. Multicriteria Detectors

- 1. Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
- 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
- 3. Automatically adjusts its sensitivity by means of drift compensation and smoothing algorithms. The detector shall send trouble alarm if it is incapable of compensating for existing conditions.
- 4. Test button tests all sensors in the detector.
- 5. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present sensitivity selected.
 - d. Sensor range (normal, dirty, etc.).
- 6. Sensors: The detector shall be comprised of four sensing elements including a smoke sensor, a carbon monoxide sensor, an infrared sensor, and a heat sensor.
 - a. Smoke sensor shall be photoelectric type as described in "System Smoke Detectors" Article.
 - b. Carbon monoxide sensor shall be as described in "Carbon Monoxide Detectors" Article.
 - c. Heat sensor shall be as described in "Heat Detectors" Article.
 - d. Each sensor shall be separately listed according to requirements for its detector type.

H. Nonsystem Smoke Detectors

1. General Requirements for Nonsystem Smoke Detectors:
 - a. Nonsystem smoke detectors shall be listed as compatible with the fire-alarm equipment installed or shall have a contact closure interface listed for the connected load.
 - b. Nonsystem smoke detectors shall meet the monitoring for integrity requirements in NFPA 72.
2. Single-Station Smoke Detectors:
 - a. Comply with UL 217; suitable for NFPA 101, residential occupancies; operating at 120-V ac with 9-V dc battery as the secondary power source. Provide with "low" or "missing" battery chirping-sound device.
 - b. Auxiliary Relays: One Form C, rated at 0.5 A Form A and one Form C, both rated at 0.5 A.
 - c. Audible Notification Appliance: Piezoelectric sounder rated at 90 dBA at 10 feet according to UL 464.
 - d. Visible Notification Appliance: 177-cd strobe.
 - e. Heat sensor, 135 deg F combination rate-of-rise and fixed temperature.
 - f. Test Switch: Push to test; simulates smoke at rated obscuration.
 - g. Tandem Connection: Allow tandem connection of number of indicated detectors; alarm on one detector shall actuate notification on all connected detectors.
 - h. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
 - i. Self-Restoring: Detectors shall not require resetting or readjustment after actuation to restore them to normal operation.
 - j. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
3. Single-Station Duct Smoke Detectors:
 - a. Comply with UL 268A; operating at 120-V ac.
 - b. Sensor: LED or infrared light source with matching silicon-cell receiver.
 - 1) Detector Sensitivity: Smoke obscuration between 2.5 and 3.5 percent/foot when tested according to UL 268A.
 - c. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. The fixed base shall be designed for mounting directly to air duct. Provide terminals in the fixed base for connection to building wiring.
 - 1) Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; listed for use with the supplied detector.
 - d. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
 - e. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.

I. Heat Detectors

1. General Requirements for Heat Detectors: Comply with UL 521.

- a. Temperature sensors shall test for and communicate the sensitivity range of the device.
- 2. Heat Detector, Combination Type: Actuated by either a fixed temperature of **135 deg F** or a rate of rise that exceeds **15 deg F** per minute unless otherwise indicated.
 - a. Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
 - b. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
- 3. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of **190 deg F** .
 - a. Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
 - b. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
- 4. Continuous Linear Heat-Detector System:
 - a. Detector Cable: Rated detection temperature **155 deg F**. Listed for "regular" service and a standard environment. Cable includes two steel actuator wires twisted together with spring pressure, wrapped with protective tape, and finished with PVC outer sheath. Each actuator wire is insulated with heat-sensitive material that reacts with heat to allow the cable twist pressure to short circuit wires at the location of elevated temperature.
 - b. Control Unit: Two-zone or multizone unit as indicated. Provide same system power supply, supervision, and alarm features as specified for fire-alarm control unit.
 - c. Signals to Fire-Alarm Control Unit: Any type of local system trouble shall be reported to fire-alarm control unit as a composite "trouble" signal. Alarms on each detection zone shall be individually reported to central fire-alarm control unit as separately identified zones.
 - d. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

J. Air-Sampling Smoke Detector

- 1. General Description:
 - a. Air-sampling smoke detector shall be laser based using a piping system and a fan to transport the particles of combustion to the detector.
 - b. Provide two levels of alarm from each zone covered by the detector and two supervisory levels of alarm from each detector.
 - c. The air being sampled shall pass through filters to remove dust particulates greater than 20 microns before entering the detection chamber.
 - d. Detectors shall have the capability via RS 485 to connect up to 100 detectors in a network.
 - e. Detectors shall communicate with the fire-alarm control unit via addressable, monitored dry contact closures, RS 485, and interface modules. Provide a minimum of six relays, individually programmable remotely for any function.

- f. Pipe airflow balancing calculations shall be performed using approved calculation software.
2. Detector:
 - a. Detector, Filter, Aspirator, and Relays: Housed in a mounting box and arranged in such a way that air is drawn from the detection area and a sample passed through the dual-stage filter and detector by the aspirator.
 - b. Obscuration Sensitivity Range: **0.005 - 6 percent obs/ft.**
 - c. Four independent, field-programmable, smoke-alarm thresholds per sensor pipe and a programmable scan time delay. The threshold set points shall be programmable.
 - 1) The four alarm thresholds may be used as follows:
 - a) Alarm Level 1 (Alert): Activate a visual and an audible supervisory alarm.
 - b) Alarm Level 2 (Action): Activate shutdown of electrical/HVAC equipment and activate a visual and an audible supervisory alarm.
 - c) Alarm Level 3 (Fire 1): Activate building alarm systems and initiate call to fire response unit.
 - d) Alarm Level 4 (Fire 2): Activate suppression system or other countermeasures.
 - 2) Final Detection System Settings: Approved by **Architect Owner**.
 - 3) Initial Detection Alarm Settings:
 - a) Alarm Level 1 (Alert): 0.08 percent obs/ft.
 - b) Alarm Level 2 (Action): 1.0 percent obs/ft.
 - c) Alarm Level 3 (Fire 1): 2.0 percent obs/ft.
 - d) Alarm Level 4 (Fire 2): 4.0 percent obs/ft.
 - d. Power Supply:
 - 1) Regulated 24-V dc, monitored by the fire-alarm control unit, with battery backup.
 - 2) Battery backup shall provide 24 hours' standby, followed by 30 minutes at maximum connected load.
 - e. Detector shall also transmit the following faults:
 - 1) Detector.
 - 2) Airflow.
 - 3) Filter.
 - 4) System.
 - 5) Zone.
 - 6) Network.
 - 7) Power.
 - f. Provide four in-line sample pipe inlets that shall contain a flow sensor for each pipe inlet. The detector shall be capable of identifying the pipe from which smoke was detected.
 - g. Aspirator: Air pump capable of allowing for multiple sampling pipe runs up to 650 feet in total, (four pipe runs per detector) with a transport time of less than 120 seconds from the farthest sample port.
 - h. Air-Sampling Flow Rates Outside Manufacturer's Specified Range: Result in a trouble alarm.

- i. Provide software-programmable relays rated at 2 A at 30-V dc for alarm and fault conditions.
 - j. Provide built-in event and smoke logging; store smoke levels, alarm conditions, operator actions, and faults with date and time of each event. Each detector (zone) shall be capable of storing up to 18,000 events.
 - k. Urgent and Minor Faults. Minor faults shall be designated as trouble alarms. Urgent faults, which indicate the unit may not be able to detect smoke, shall be designated as supervisory alarms.
- 3. Displays:
 - a. Include display module within each detector.
 - b. Each display shall provide the following features at a minimum:
 - 1) A bar-graph display.
 - 2) Four independent, high-intensity alarm indicators (Alert, Action, Fire 1, and Fire 2), corresponding to the four alarm thresholds of the indicated sector.
 - 3) Alarm threshold indicators for Alert, Action, and Fire 1.
 - 4) LED indication that the first alarm sector is established.
 - 5) Detector fault and airflow fault indicators.
 - 6) LED indicators shall be provided for faults originating in the particular zone (Zone Fault), faults produced by the overall smoke-detection system, and faults resulting from network wiring errors (Network Fault).
 - 7) Minor and urgent LED fault indicators.
- 4. Sampling Tubes:
 - a. Smooth bore with a nominal 1-inchOD and a 7/8-inchID. Sampling pipe with between 5/8- and 1-inchID can be used in specifically approved locations when recommended by manufacturer.
 - b. Pipe Material: CPVC and complying with UL 1887, "Safety Fire Test of Plastic Sprinkler Pipe for Visible Flame and Smoke Characteristics."
 - c. Joints in the sampling pipe shall be airtight. Use solvent cement approved by the pipe manufacturer on all joints except at entry to the detector.
 - d. Identify piping with labels reading: "Aspirating Smoke Detector Pipe - Do Not Paint or Disturb" along its entire length at regular intervals according to NFPA 72.
 - e. Support pipes at not more than 60-inchcenters.
 - f. Fit end of each trunk or branch pipe with an end cap and drilled with a hole appropriately sized to achieve the performance as specified and as calculated by the system design.
- 5. Sampling Holes:
 - a. Sampling holes of 5/64 inch, or other sized holes per manufacturer's written instructions, shall be separated by not more than the maximum distance allowable for conventional smoke detectors. Intervals may vary according to calculations.
 - b. Follow manufacturer's written recommendations to determine the number and spacing of sampling points and the distance from sampling points to ceiling or roof structure and to forced ventilation systems.
 - c. Each sampling point shall be identified by an applied decal.

K. Magnetic Door Holders

1. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.
 - a. Electromagnets: Require no more than 3 W to develop 25-lbf holding force.
 - b. Wall-Mounted Units: Flush mounted unless otherwise indicated.
 - c. Rating: 24-V ac or dc. Rating: 120-V ac.
2. Material and Finish: Match door hardware.

L. Graphic Annunciator

1. Graphic Annunciator Panel: Mounted in an aluminum frame with nonglare, minimum 3/16-inch-thick, clear acrylic cover over graphic representation of the facility. Detector locations shall be represented by red LED lamps. Normal system operation shall be indicated by a lighted, green LED. Trouble and supervisory alarms shall be represented by an amber LED.
 - a. Comply with UL 864.
 - b. Operating voltage shall be 24-V dc provided by a local 24-V power supply provided with the annunciator.
 - c. Include built-in voltage regulation, reverse polarity protection, RS 232/422 serial communications, and a lamp test switch.
 - d. **Surface** mounted in a NEMA 250, Type 1 cabinet, with key lock and no exposed screws or hinges.
 - e. Graphic representation of the facility shall be a CAD drawing and each detector shall be represented by an LED in its actual location. CAD drawing shall be at **1/8-inch per foot** scale or larger.
 - f. The LED representing a detector shall flash **two** times per second while detector is an alarm.
2. Graphic Annunciator Workstation: PC-based, with fire-alarm annunciator software with historical logging, report generation, and a graphic interface showing all alarm points in the system. PC with operating system software, minimum 500GB hard drive, 19" digital display monitor, with wireless keyboard and mouse.

M. Remote Annunciator

1. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.
 - a. Mounting: **Flush Surface** cabinet, NEMA 250, Type 1.
2. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.7 FIREFIGHTERS' TWO-WAY TELEPHONE COMMUNICATION SERVICE

- A. Dedicated, two-way, supervised, telephone voice communication links between fire-alarm control unit, **the fire command center**, and remote firefighters' telephone stations. Supervised telephone lines shall be connected to talk circuits by controls in a control module. Provide the following:
1. Common-talk type for firefighter use only Selective-talk type for use by firefighters and fire wardens.
 2. Controls to disconnect phones from talk circuits if too many phones are in use simultaneously. An indicator lamp shall flash if a phone is disconnected from the talk circuits.
 3. Addressable firefighters' phone modules to monitor and control a loop of firefighter phones. Module shall be capable of differentiating between normal, off-hook, and trouble conditions.
 4. Audible Pulse and Tone Generator, and High-Intensity Lamp: When a remote telephone is taken off the hook, it causes an audible signal to sound and a high-intensity lamp to flash at the **fire-alarm control unit fire command center**.
 5. Selector panel controls to provide for simultaneous operation of up to six telephones in selected zones. Indicate ground faults and open or shorted telephone lines on the panel front by individual LEDs.
 6. Display: **Graphic digital** to indicate location of caller.
 7. Remote Telephone Cabinet: Flush- or surface-mounted cabinet as indicated, factory-standard red finish, with handset.
 - a. Install one-piece handset to cabinet with vandal-resistant armored cord. Silk-screened or engraved label on cabinet door, designating **"Fire Warden Phone" or "Fire Emergency Phone."**
 - b. With "break-glass" type door access lock.
 8. Remote Telephone Jack Stations: Single-gang, stainless-steel-plate mounted plug, engraved **"Fire Warden Phone" or "Fire Emergency Phone."**
 9. Handsets: push-to-talk-type sets with noise-canceling microphone stored in a cabinet adjacent to fire-alarm control unit in the fire command center.

2.8 FIREFIGHTERS' SMOKE-CONTROL SYSTEM

- A. Initiate Smoke-Management Sequence of Operation:
1. Comply with sequence of operation as described in Section 230993 "Sequence of Operations for HVAC Controls."
 2. Fire-alarm system shall provide all interfaces and control points required to properly activate smoke-management systems.
 3. First fire-alarm system initiating device to go into alarm condition shall activate the smoke-control functions.
 4. Subsequent devices going into alarm condition shall have no effect on the smoke-control mode.
- B. Addressable Relay Modules:

1. Provide address-setting means on the module. Store an internal identifying code for control panel use to identify the module type.
2. Allow the control panel to switch the relay contacts on command.
3. Have a minimum of two normally open and two normally closed contacts available for field wiring.
4. Listed for controlling HVAC fan motor controllers.

2.9 DIGITAL ALARM COMMUNICATOR TRANSMITTER

- A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.
- B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture **one two** telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.
- C. Local functions and display at the digital alarm communicator transmitter shall include the following:
 1. Verification that both telephone lines are available.
 2. Programming device.
 3. LED display.
 4. Manual test report function and manual transmission clear indication.
 5. Communications failure with the central station or fire-alarm control unit.
- D. Digital data transmission shall include the following:
 1. Address of the alarm-initiating device.
 2. Address of the supervisory signal.
 3. Address of the trouble-initiating device.
 4. Loss of ac supply.
 5. Loss of power.
 6. Low battery.
 7. Abnormal test signal.
 8. Communication bus failure.
- E. Secondary Power: Integral rechargeable battery and automatic charger.
- F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.10 RADIO ALARM TRANSMITTER

- A. Transmitter shall comply with NFPA 1221 and 47 CFR 90.
- B. Description: Manufacturer's standard commercial product; factory assembled, wired, and tested; ready for installation and operation.
 - 1. Packaging: A single, modular, NEMA 250, Type 1 metal enclosure with a tamper-resistant flush tumbler lock.
 - 2. Signal Transmission Mode and Frequency: VHF or UHF 2-W power output, coordinated with operating characteristics of the established remote alarm receiving station designated by Owner.
 - 3. Normal Power Input: 120-V ac.
 - 4. Secondary Power: Integral-sealed, rechargeable, 12-V battery and charger. Comply with NFPA 72 requirements for battery capacity; submit calculations.
 - 5. Antenna: Omnidirectional, coaxial half-wave, dipole type with driving point impedance matched to transmitter and antenna cable output impedance. Wind-load strength of antenna and mounting hardware and supports shall withstand **100 mph** with a gust factor of 1.3 without failure.
 - 6. Antenna Cable: Coaxial cable with impedance matched to the transmitter output impedance.
 - 7. Antenna-Cable Connectors: Weatherproof.
 - 8. Alarm Interface Devices: Circuit boards, modules, and other auxiliary devices, integral to the transmitter, matching fire-alarm and other system outputs to message-generating inputs of the transmitter that produce required message transmissions.
- C. Functional Performance: Unit shall receive alarm, supervisory, or trouble signal from fire-alarm control unit or from its own internal sensors or controls and shall automatically transmit signal along with a unique code that identifies the transmitting station to the remote alarm receiving station. Transmitted messages shall correspond to standard designations for fire-reporting system to which the signal is being transmitted and shall include separately designated messages in response to the following events or conditions:
 - 1. Transmitter Low-Battery Condition: Sent when battery voltage is below 85 percent of rated value.
 - 2. System Test Message: Initiated manually by a test switch within the transmitter cabinet, or automatically at an optionally preselected time, once every 24 hours, with transmission time controlled by a programmed timing device integral to transmitter controls.
 - 3. Transmitter Trouble Message: Actuated by failure, in excess of one-minute duration, of the transmitter normal power source, derangement of the wiring of the transmitter, or any alarm input interface circuit or device connected to it.
 - 4. Local Fire-Alarm-System Trouble Message: Initiated by events or conditions that cause a trouble signal to be indicated on the building system.
 - 5. Local Fire-Alarm-System Alarm Message: Actuated when the building system goes into an alarm state. Identifies device that initiated the alarm.
 - 6. Local Fire-Alarm-System, Supervisory-Alarm Message: **Actuated when the building alarm system indicates a supervisory alarm .**

2.11 NETWORK COMMUNICATIONS

- A. Provide network communications for fire-alarm system according to fire-alarm manufacturer's written requirements.
- B. Provide network communications pathway per manufacturer's written requirements and requirements in NFPA 72 and NFPA 70.
- C. Provide integration gateway using **BACnet Modbus** for connection to building automation system.

2.12 SYSTEM PRINTER

- A. Printer shall be listed and labeled as an integral part of fire-alarm system.

2.13 DEVICE GUARDS

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.
 - 1. Factory fabricated and furnished by device manufacturer.
 - 2. Finish: Paint of color to match the protected device.

2.14 FIRE ALARM CABLE

- A. Furnish only wire recommended by the fire alarm system manufacturer. Coordinate closely with equipment vendor for quantity, type, and size of fire alarm cables required.
- B. Network Riser Cable: Utilize MI type cable, 2-hour fire resistive rating. Applies to all wiring between fire alarm control panels (FACP) and between control panels and notification appliance cabinets (NAC).
- C. SLC Circuit Cable for Addressable Initiation Devices: Power-limited (FPLP) solid or stranded (7 strand minimum) copper, 75 Degrees C insulation, #18 AWG twisted, shielded or unshielded, color-coded vinyl insulation, PVC jacket.
- D. NAC Circuit Cable for Notification Devices: Power-limited (FPLP), solid or stranded (7 strand minimum) copper, 75 Degrees C insulation, #14 AWG twisted, shielded or unshielded, color-coded vinyl insulation, PVC jacket.
- E. **600V THHN shall be suitable for use with SLC and NAC circuits, #18 AWG and #14 AWG, respectively.**
- F. All wiring shall be color coded and labeled at each end. Splicing by way of wire nuts is prohibited.
- G. All fire alarm wiring shall be plenum rated where located in air plenum.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
 - 1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.
- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
 - 1. Devices placed in service before all other trades have completed cleanup shall be replaced.
 - 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
 - 1. Connect new equipment to existing control panel in existing part of the building.
 - 2. Connect new equipment to existing monitoring equipment at the supervising station.
 - 3. Expand, modify, and supplement existing **control monitoring** equipment as necessary to extend existing **control monitoring** functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.
- C. Equipment Mounting: Install fire-alarm control unit on finished floor.
 - 1. Comply with requirements for seismic-restraint devices specified in Section 260548.16 "Seismic Controls for Electrical Systems."
- D. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

1. Comply with requirements for seismic-restraint devices specified in Section 260548.16 "Seismic Controls for Electrical Systems."
- E. Manual Fire-Alarm Boxes:
1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
 2. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.
- F. Smoke- or Heat-Detector Spacing:
1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
 2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
- G. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.
- H. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.
1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.
- I. Air-Sampling Smoke Detectors: If using multiple pipe runs, the runs shall be pneumatically balanced.
- J. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.
- K. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.
- L. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.
- M. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

- N. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.
- O. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- P. Antenna for Radio Alarm Transmitter: Mount to building structure where indicated. Use mounting arrangement and substrate connection that resists **100-mph** wind load with a gust factor of 1.3 without damage.

3.3 PATHWAYS

- A. Fire alarm cable above ceilings and in non-accessible locations may be routed exposed, where supported by j-hooks or other approved method.
 - 1. Exposed fire alarm cable located less than 96 inches above the floor shall be installed in raceway.
- B. Fire alarm cable shall be installed in raceway.**
- C. Where approved for use, THHN shall be installed in raceway.**
- D. Exposed fire alarm raceways shall be painted red enamel.

3.4 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.
 - 1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.
- B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
 - 1. Alarm-initiating connection to smoke-control system (smoke management) at firefighters' smoke-control system panel.
 - 2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
 - 3. Smoke dampers in air ducts of designated HVAC duct systems.
 - 4. Magnetically held-open doors.
 - 5. Electronically locked doors and access gates.
 - 6. Alarm-initiating connection to elevator recall system and components.
 - 7. Alarm-initiating connection to activate emergency lighting control.
 - 8. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
 - 9. Supervisory connections at valve supervisory switches.

10. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
11. Supervisory connections at elevator shunt-trip breaker.
12. Data communication circuits for connection to building management system.
13. Data communication circuits for connection to mass notification system.
14. Supervisory connections at fire-extinguisher locations.
15. Supervisory connections at fire-pump power failure including a dead-phase or phase-reversal condition.
16. Supervisory connections at fire-pump engine control panel.

3.5 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- B. Install framed instructions in a location visible from fire-alarm control unit.

3.6 GROUNDING

- A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.
- B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by **Architect authorities having jurisdiction**.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
- D. Perform the following tests and inspections **with the assistance of a factory-authorized service representative**:
 1. Visual Inspection: Conduct visual inspection prior to testing.
 - a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 - b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
 4. Test audible appliances for the private operating mode according to manufacturer's written instructions.
 5. Test visible appliances for the public operating mode according to manufacturer's written instructions.
 6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
 - F. Fire-alarm system will be considered defective if it does not pass tests and inspections.
 - G. Prepare test and inspection reports.
 - H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
 - I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.8 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include **TWELVE** months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, replacement repair or of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.9 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.

- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for **TWO** years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within **TWO** years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.
 - 1. Upgrade Notice: At least **30** days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

- A. **Engage a factory-authorized service representative to train, Train** Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 28 31 11

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SECTION 32 12 00

FLEXIBLE PAVEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Asphalt concrete pavement shown on the Drawings and required by the Specifications constructed on a prepared surface in reasonably close conformity with the lines, grades, and typical cross sections shown on the plans or otherwise specified.
- B. Coordinate work of other trades who will be working adjacent to paving areas. Coordinate work with Contractor providing compacted base for paving materials.
- C. Inspection and Testing Services required by this Section are to be performed by an Agency retained by the Contractor and approved by the Owner. This includes all field sampling and testing required by the Field Quality Control Section of this Specification.
- D. Related Sections:
 - 1. Section 31 00 00, "Earthwork"
 - 2. Section 31 23 33, "Piped Utilities - Basic Methods"
 - 3. Section 32 13 00, "Rigid Pavement"
 - 4. Section 03 30 00, "Cast-in-Place Concrete"
- E. Do not place asphalt surface course until site work has been completed and construction traffic has been reduced to a minimum.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. The Asphalt Institute – Manual MS-2 – Mix Design Methods.
 - 2. The Asphalt Institute – Manual MS-4 – The Asphalt Handbook.
 - 3. The Asphalt Institute – Manual MS-13 – Asphalt Surface Treatments and Asphalt Penetration Macadam.
 - 4. ASTM D946 – Asphalt Cement for Use in Pavement Construction.
 - 5. ASTM D1188 – Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures using Paraffin Coated Specimens.
 - 6. ASTM D2041 – Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
 - 7. ASTM D2950 – Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
 - 8. State of Ohio, Department of Transportation – Construction and Materials Specifications (CMS) 2019.
 - 9. City of Columbus, Ohio - Construction and Material Specifications (CCMS) 2018.
- B. Regulatory Requirements:
 - 1. Conform to applicable City standards for paving work on public property. In the event of a conflict between the Drawings and Specifications and the City standards, the City standards shall govern. No extra charges will be allowed for any changes necessary for compliance with City standards.

2. Perform work in accordance with State of Ohio, City of Columbus, Department of Transportation Construction and Material Specifications, 2019.
 3. Mixing Plant: Conform to State of Ohio, City of Columbus, Department of Transportation, Construction and Material Specifications, 2019.
- C. Weather Limitations:
1. Place bituminous pavement only when the surface is dry and when weather conditions are such that proper handling, finishing and compaction can be accomplished. In no case, however, shall bituminous pavement be placed when the surface temperature is below the minimum established in the following table:

COURSE THICKNESS	MINIMUM SURFACE TEMPERATURE
1.5 Inches and Over	40°F
1.0 to 1.4 Inches	50°F
Less than 1.0 Inches	60°F

1.03 SUBMITTALS

- A. Submit for approval the mixing plant to be used.
- B. Submit approved job mix formulas for each asphalt concrete pavement prior to preparation of the mixture.
- C. Submit all aggregate and asphalt binder test data, as required.
- D. Submit product data and manufacturer's instructions, including traffic paint.
- E. Submit for approval the name of agency proposed for the required inspection and testing services. All of the required field testing and sampling is to be performed by personnel employed by the proposed agency.
- F. Submit reports of all required testing and inspection.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Surface Course: Asphalt Concrete Surface Course, Type 1, medium or light traffic, PG 70-22M CCMS Item 441.
 1. Refer to drawings and details for extent of medium and light traffic designations.
- B. Intermediate Course: Asphalt Concrete Surface Course, Type 2, medium or light traffic, PG 70-22M CCMS Item 441.
 1. Refer to drawings and details for extent of medium and light traffic designations.
- C. Tack Coat: CCMS Item 407.
- D. Bituminous Aggregate Base Course: Asphalt Concrete Base, PG 64-22 CCMS Item 301.
- E. Aggregate Base Course: CCMS Item 304.

2.02 EQUIPMENT

- A. Spreading Equipment: Provide self-contained spreading equipment of sufficient size, power, and stability to receive, distribute, and strike-off the bituminous mixture at rates and widths commensurate with the typical sections and other details shown on the plans. Provide equipment with automatic control systems which maintain the screed in a constant position relative to profile and cross-slope references. These references shall be such that control of the screed position is reasonably independent of irregularities in the underlying surface and of the spreader operation.
- B. Rollers: Provide rollers of the standard steel wheel and pneumatic tire types and meeting the requirements of CCMS Item 401.12.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify compacted subgrade base is dry and ready to support paving and imposed loads.
- B. Proof roll subgrade and correct any areas determined unacceptable to Testing Agency, in accordance with the Agency's recommendations immediately prior to placement of asphalt pavement.
- C. Verify gradients and elevations of base are correct.
- D. Beginning of installation means acceptance of substrate.
- E. Protect existing surfaces and structures adjacent to paving. Repair any damage caused by paving operations at no additional cost to the Owner.

3.02 CONDITIONING EXISTING SURFACE

- A. Immediately prior to the arrival of pavement mixtures, thoroughly clear the pavement base, leveling course, or old pavement of all soil, grass, dirt, or other foreign materials.
- B. When the surface of the existing pavement is irregular, bring to uniform grade as directed using the material specified. Paint contact surfaces of curbing, gutters, manholes, and other structures with a thin, uniform coating of bituminous material prior to the bituminous mixture being placed against them.
- C. Where mixture is to be placed against the vertical face of rigid pavement, clean vertical face of foreign material and give an application of bituminous material in a manner which results in a coating of approximately 1/4 gallon per square yard.
- D. Coat surfaces of catch basin frames with oil to prevent bond with asphalt paving.

3.03 PAVEMENT REPAIR

- A. Saw cut perimeter of pavement repair. Extend saw cut fully through the existing surface and asphaltic base material, enabling the removal of the existing failed pavement, leaving a neat and straight edge.

- B. Completely excavate the existing pavement section in areas of repair and remove from the site. Use excavating equipment which shall not damage existing pavement to remain.
- C. In the event that the entire pavement section is removed, proof roll the area. Undercut and replace any existing subbase that is soft and yielding with CCMS Item 304. Remove all unsuitable subgrade material excavated from the pavement repair area from the site. Proof roll in the presence of the Testing Agency. Payment shall be made per contract conditions relative to changes in work.
- D. Where mixture is to be placed against the vertical face of an existing pavement structure, clean the vertical face of foreign material and give an application of tack coat.

3.04 PAVEMENT RESURFACING

- A. Coordinate junction of new and existing pavement. Where new overlay abuts existing pavement, scarify a minimum of 4 feet wide and depth equal to overlay thickness to provide butt joint. Feathering will not be permitted.
- B. Scarify areas around existing structures 4'-0" wide, such that the new overlay will be placed to meeting existing surface level. Maintain positive drainage slopes.
- C. Scarify by milling, grinding or cold planning the existing pavement surface to establish a new surface profile and cross section in preparation for the asphaltic overlay. Provide a surface after grinding that is grooved or ridged finish uniform and resistant to raveling or traffic displacement. Provided a textured surface that has grooves of 0.25 inches in width.
- D. Include grinding around utility castings in the area of the pavement scarified. The At Contractor's option remove the entire existing bituminous pavement around the castings where grinding is not completed and replace it with bituminous surface course placed and compacted in 3 inch lifts. Vertically cut the limits of the area to be patched, mechanically compact the existing base course, and prime the bottom and vertical edges before backfilling.
- E. Provide a power operated, self-propelled grinding machine with a cutting drum with lacing patterns that will attain a grooved surface and produce a pressurized watering system for dust control.
- F. Thoroughly clean all areas to be resurfaced. Do not flush cleanup water into the storm sewer system. Remove waste debris cleaned from the site.
- G. Provide asphaltic concrete overlay in areas of resurfacing according to the Drawings and this entire Specification Section, as applicable.

3.05 PREPARATION, MIXING, AND HAULING OF MIXTURE:

- A. Preparation:
 - 1. Bituminous Material Preparation: Heat bituminous material and deliver to the mixer within the temperature range specified in CCMS Item 702. Do not use foaming bituminous materials.

2. Aggregate Preparation: Feed aggregates to the cold elevator in their proper proportions at a rate permitting correct and uniform control of heating and drying. Remove all aggregates in the hot bins that will produce a mix outside the temperature limits or that contain sufficient moisture or expanding gases to cause foaming in the mixture and return to the proper stockpiles.
- B. Mixing:
1. After all of the aggregate is in the mixer, add bituminous material in an evenly spread sheet over the full length of the mixer. The mixing time shall be the time interval between the start of the application of the bituminous material and the opening of the mixer gate. Mix bituminous material for a minimum of 30 seconds. Discharge all bituminous material in no more than 30 seconds.
 2. Maintain temperatures of the mixture at the plant in order to be placed at the temperatures specified in Paragraph 3.06.
- C. Hauling:
1. Use trucks for hauling bituminous mixtures that have tight, clean, smooth metal beds which have been thinly coated with a minimum amount of approved material to prevent the mixture from adhering to the beds. Provide each truck a securely fastened, waterproof cover of suitable material to adequately protect the mixture from the wind and weather. Remove covers prior to dumping mixture into the paver.
 2. When hot mixtures are being transported at prevailing air temperatures below 50° F or when the length of haul exceeds 20 miles, insulate all truck beds to maintain the specified temperature of the mixture. Do not haul distances in excess of 50 miles unless specifically approved by the Engineer.

3.06 SPREADING

- A. Place tack coat prior to placing surface course or intermediate course per CCMS Item 407.
- B. Spread the pavement mixture on an approved surface with bituminous pavers or spreaders to achieve the specified thickness and compaction. Maximum compacted depth of any one layer shall be as follows:
1. Aggregate Base Course: 8 inches
 2. Bituminous Aggregate Base Course: 6 inches
 3. Intermediate Course: 3 inches
 4. Surface Course: 3 inches
- C. Immediately after the mixture is spread, correct irregularities in grade and alignment by the addition or removal of the mixture before compaction has started.
- D. Remove and replace any areas showing an excess or deficiency of bituminous material before or after compaction.
- E. In areas where irregularities or unavoidable obstacles make the use of mechanical spreading equipment impracticable, spread or rake the mixture with hand tools. For such areas, dump, spread, and screen the mixture to give the specified thickness and compaction.

3.07 COMPACTION

- A. Provide a bituminous mixture with a minimum temperature of 270 degrees F prior to placing in the paver. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, thoroughly and uniformly compact by rolling.
- B. Coordinate the spreading of the mixture with the required roller coverage, considering the rate of cooling of the mixture as affected by lift thickness and environmental conditions. Complete final rolling before the pavement reaches a temperature of 180 degrees F.
- C. Along curbs, headers, walls, and in other areas not accessible to rollers, thoroughly compact the mixture with hot, hand tampers or with mechanical tampers.
- D. For all hot bituminous mixtures, provide the number and type of rollers sufficient to compact the mixture at the rate of spreading without exceeding the capacity of the rollers in operation. Compact base, intermediate, and surface courses with a combination of both steel and Type I pneumatic tire rollers, except in small areas which may be compacted by hand tools.
- E. Unless otherwise directed, begin rolling at the outer edges and proceed longitudinally at a slow, uniform speed. After each coverage or complete round trip, progress the roller by overlapping the previous pass by at least half of the width of the roller.
- F. Continue rolling until full coverage of the course has been completed and all roller marks are eliminated.
- G. Replace mixture that becomes loose, broken, contaminated, or otherwise defective with fresh, hot mixture compacted to conform with the surrounding area.
- H. After compaction of the surface course, seal curbs and gutters with asphalt binder. Apply mixture at a uniform width and at a rate just sufficient to fill surface voids.
- I. Do not allow traffic to travel on the compacted pavement until it has cooled sufficiently to prevent glazing.

3.08 JOINTS

- A. Place bituminous paving as continuously as possible. Make longitudinal and transverse joints as a vertical face. Set up joints at the proper height above the adjacent finished pavement to receive maximum compaction.
- B. Provide a well bonded and sealed joint. Coated joint with a 4 inch wide strip of asphalt material along the entire length of the joint.

3.09 TRAFFIC PAINT

- A. Paint all lines, arrows and other markings in accordance with CCMS Section 640 as required to define parking spaces and traffic flow on pavement as indicated on Drawings. Provide handicapped logos at all handicapped parking spaces.
- B. Paint lines approximately 4 inches wide with even, clean edges and neat, sharp lines.

- C. Apply by highway-type applicator machine in heavy one-coat application in method and coverage recommended by paint manufacturer. Do not hand paint any lines.
- D. Apply traffic paint at the completion of the project when no more construction traffic is expected in the area.

3.10 SPREADING AND SURFACE TOLERANCES

- A. Maintain the rate of spreading within a tolerance of 5 percent of the required calculated weight to achieve proper course depth and compaction.
- B. Do not vary elevation of finished surface course from true elevation by more than 1/4 inch.
- C. Do not vary transverse slope of the surface of the completed course from the specified slope by more than 3/8 inch in 10 feet.
- D. Do not vary transverse slope of the surface of the completed course from the testing edge of a 10 foot straightedge by more than the tolerance specified:
 - 1. Bituminous Aggregate Base course: 3/8 inch.
 - 2. Intermediate course: 1/4 inch.
 - 3. Surface course: 1/4 inch.
- E. Remove and replace portions of the completed pavement that are defective in surface, compression, or composition or otherwise correct in a manner satisfactory to the Engineer.

3.11 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Division 1.
- B. Bituminous Thickness Testing: Provide thickness measurement of field core samples per ASTM D1188 within 48 hours after the pavement is placed. Perform tests as follows:
 - 1. One passing thickness test for each 500 square yards or each lift, whichever is less.
 - 2. Provide random locations of cores or as directed by the Testing Agency. Clearly identify horizontal location at each test core on test reports.
 - 3. Allowable compacted pavement thickness shall be within + 0.25 inches of specified thickness.
 - 4. Fill core holes by the next working day. Before filling, ensure the holes are dry and tack with asphalt material conforming to CCMS Item 407.02. Properly compact the asphalt concrete used to fill the hole leave flush with adjacent pavement.
- C. Bituminous Density Testing: Provide density testing of placed bituminous pavement per ASTM D1188 and ASTM D2950 within 48 hours after the pavement is placed. Theoretical average Maximum Specific Gravity (MSG) shall be determined per ASTM D2041. Perform tests as follows:
 - 1. One passing density test for each 500 sq. or each lift, whichever is less.
 - 2. Provide random locations of tests or as directed by Testing Agency. Test reports shall clearly identify horizontal location at each test location.
 - 3. Provide compaction ranging from 90.0 to 97.9 percent of the average Maximum Specific Gravity (MSG) for Surface Course and 90.0 to 96.9 percent for Intermediate Course. Remove and replace any material placed outside of said ranges. Provide replacement pavement and quality assurance testing at no additional cost to the Owner.

4. Fill core holes by the next working day. Before filling, ensure the holes are dry and tack with asphalt material conforming to CCMS Item 407.02. The asphalt concrete used to fill the hole shall be properly compacted and shall be left flush with adjacent pavement.

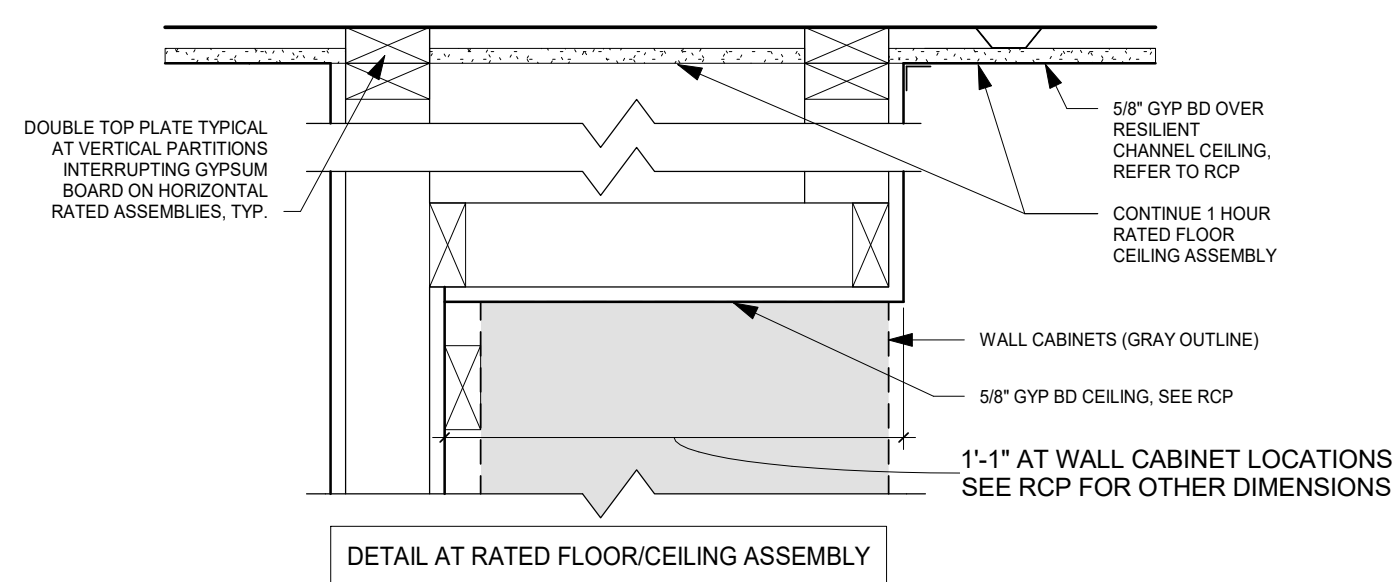
3.12 ACCEPTANCE

- A. Asphalt surface not conforming to sections "Spreading and Surface Tolerances" and "Field Quality Control" and/or exhibiting ponding after rain events are subject to rejection and removal and replacement at no cost to the Owner.
- B. When Field Quality Control testing or observations indicate that the Contract requirements have not been met, the Contractor is to bear the costs of any additional testing any analysis to determine acceptability and also the cost of removal and replacement, if such is required.

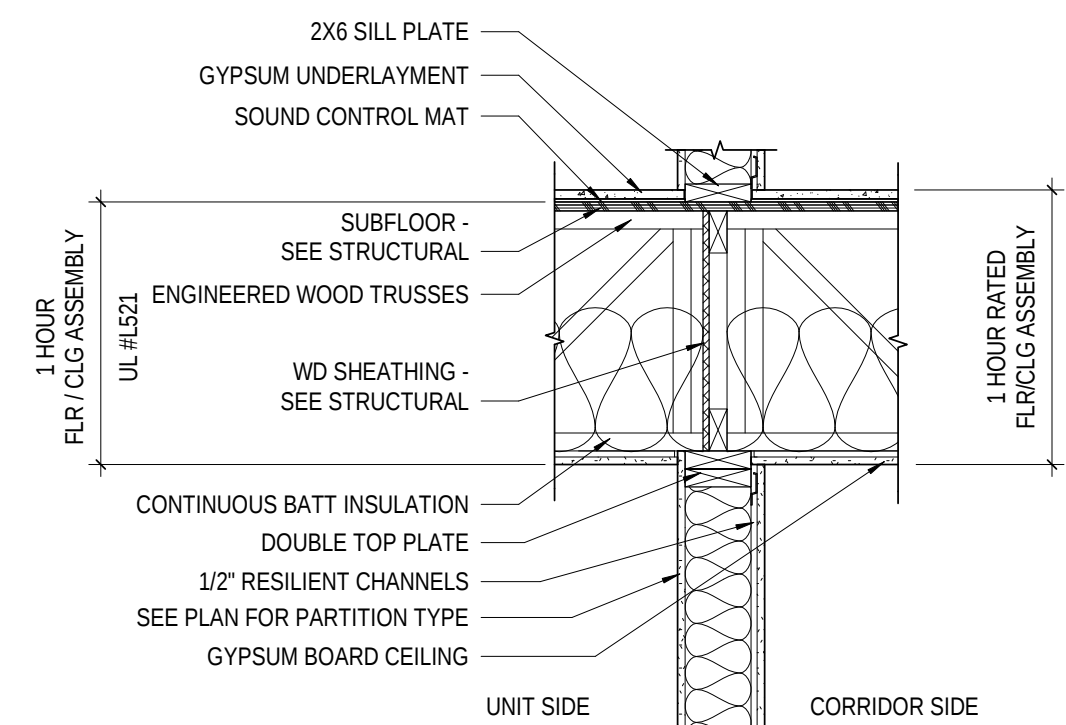
3.13 PROTECTION

- A. Immediately after placement, protect pavement under provisions of Division 1 from mechanical injury. Maintain clean pavement surface throughout the remainder of the project. Immediately remove any construction debris or soil tracked on new asphalt.
- B. If pavement surface becomes faded or dirty prior to completion of project, clean and seal parking lot prior to applying traffic paint.
- C. Protection of Work by Others: Protect all work by others such manholes, catch basins, sewer cleanouts, lighting posts and bases, sidewalks, etc. Damage to same shall be repaired at the Paving Contractor's expense.

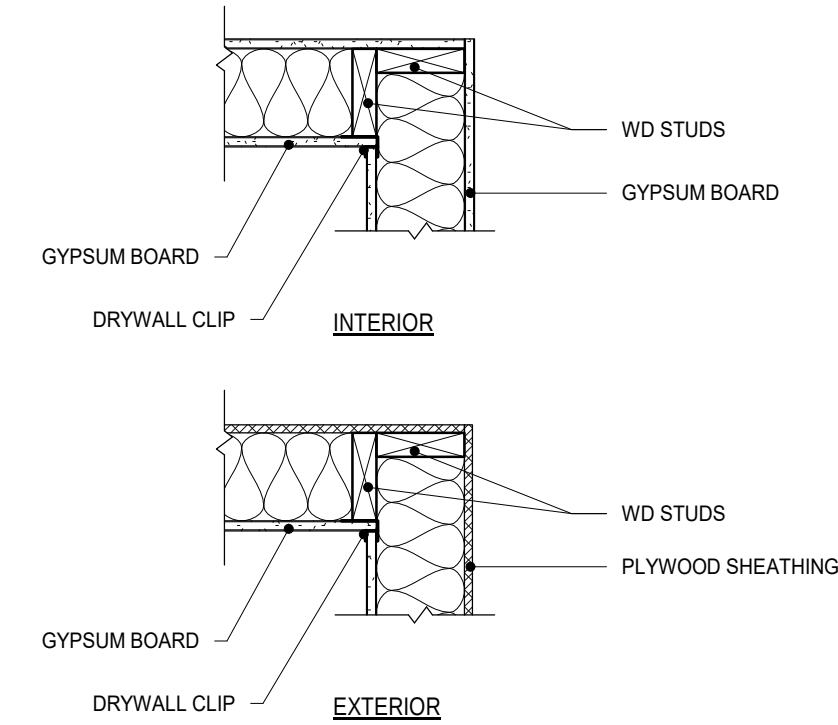
END OF SECTION



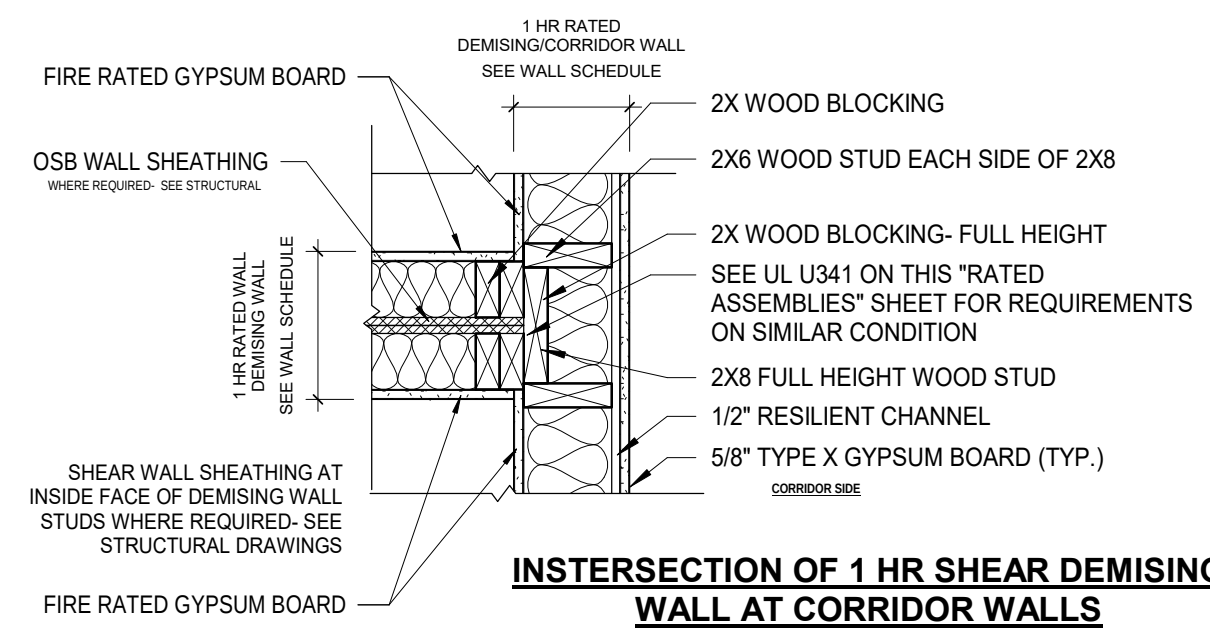
9 DETAIL TYPICAL SOFFIT
1 1/2" = 1'-0"



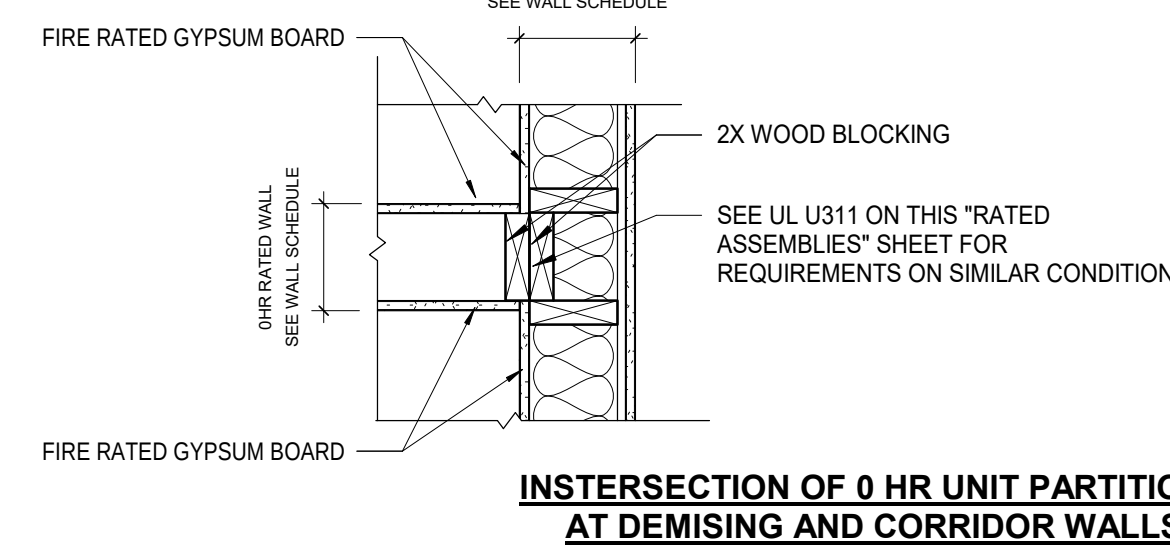
7 DETAIL TOP OF CORRIDOR WALL
3/4" = 1'-0"



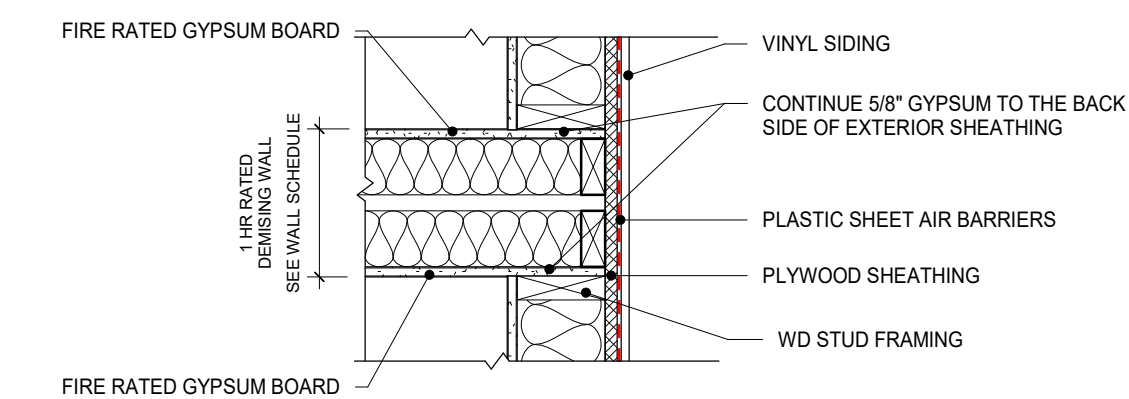
4 DETAIL TWO-STUD CORNERS - TYPICAL
1" = 1'-0"



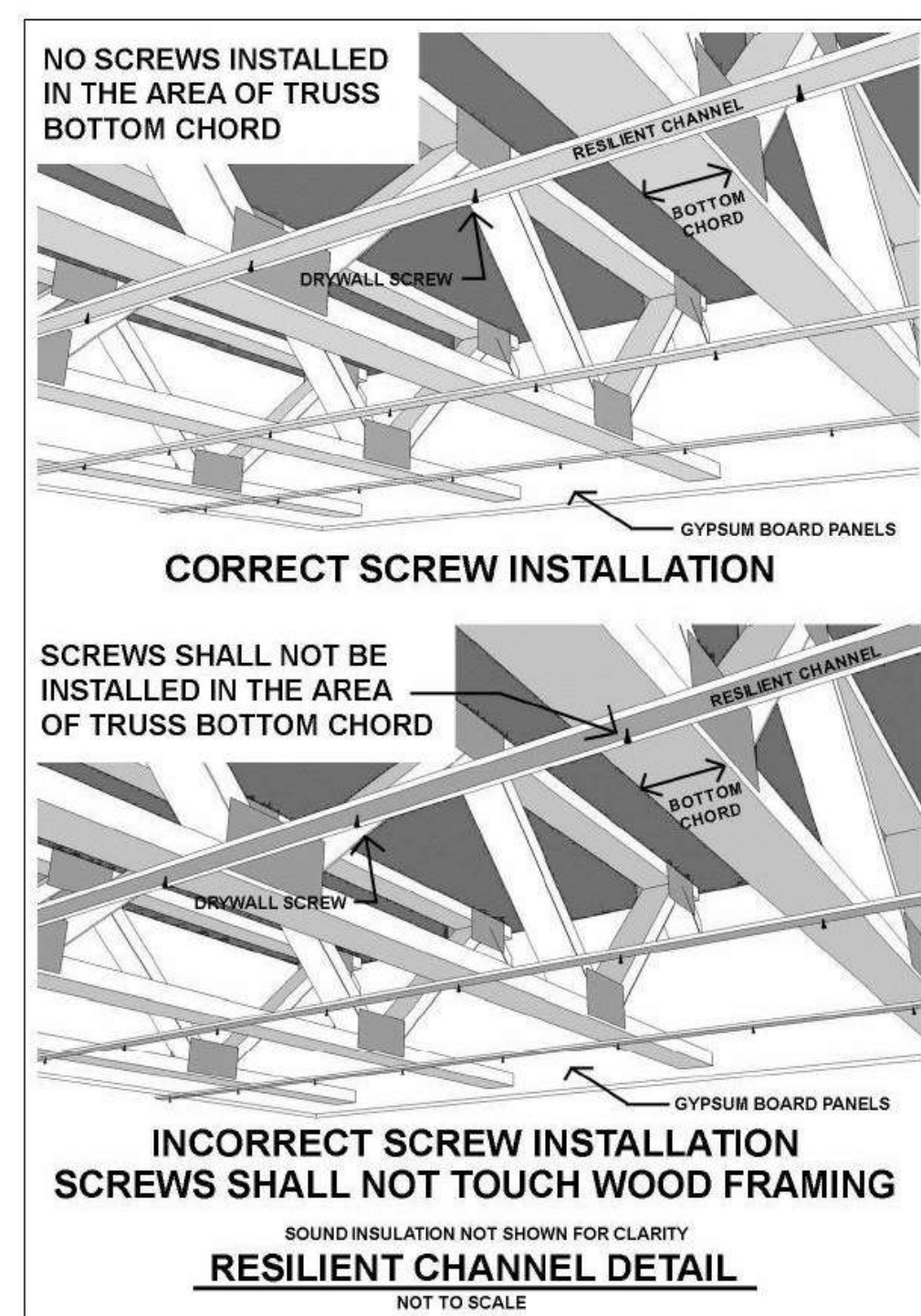
3 DETAIL INTERSECTION OF SHEAR DEMISING WALL AT CORRIDOR
1" = 1'-0"



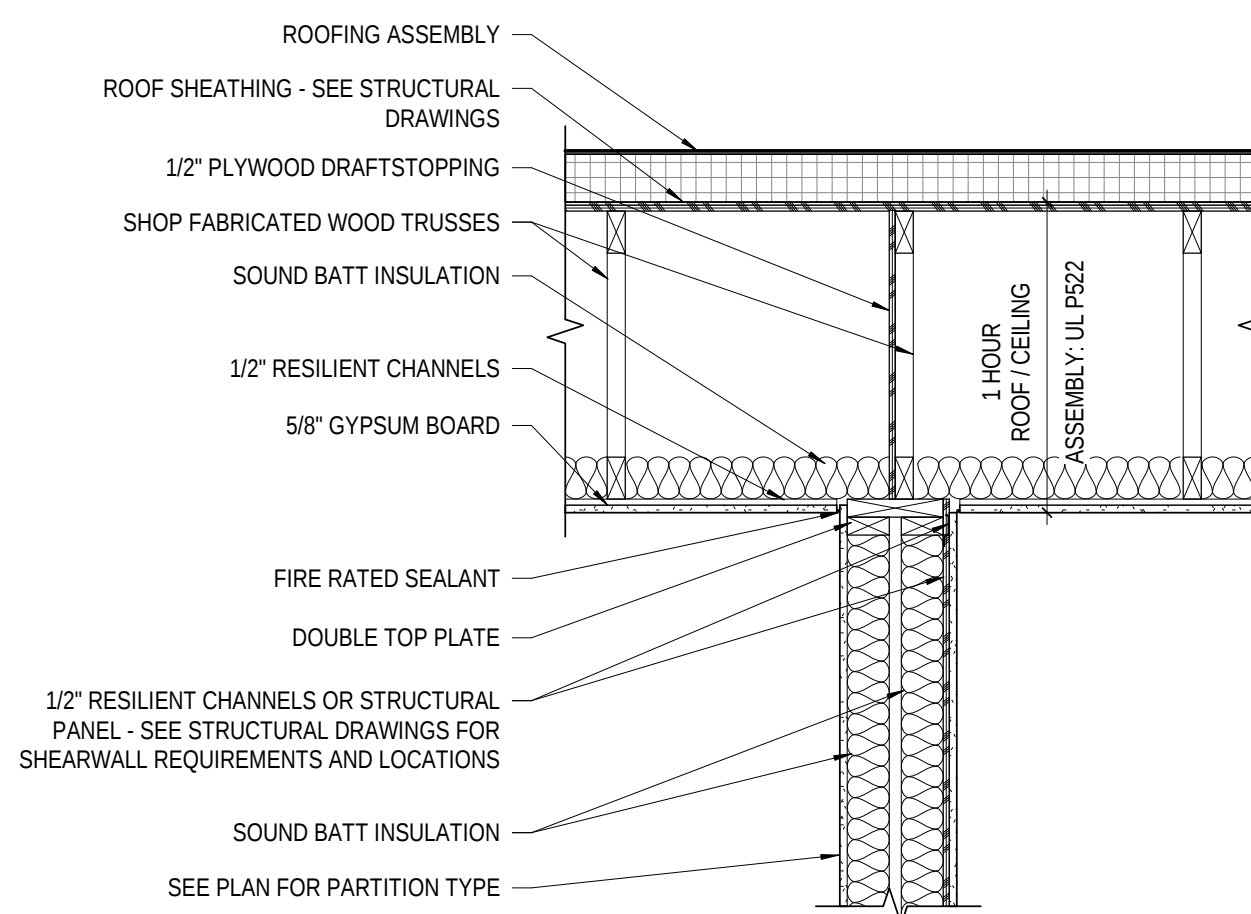
2 DETAIL INTERSECTION OF DEMISING WALL AT INTERIOR PARTITION
1" = 1'-0"



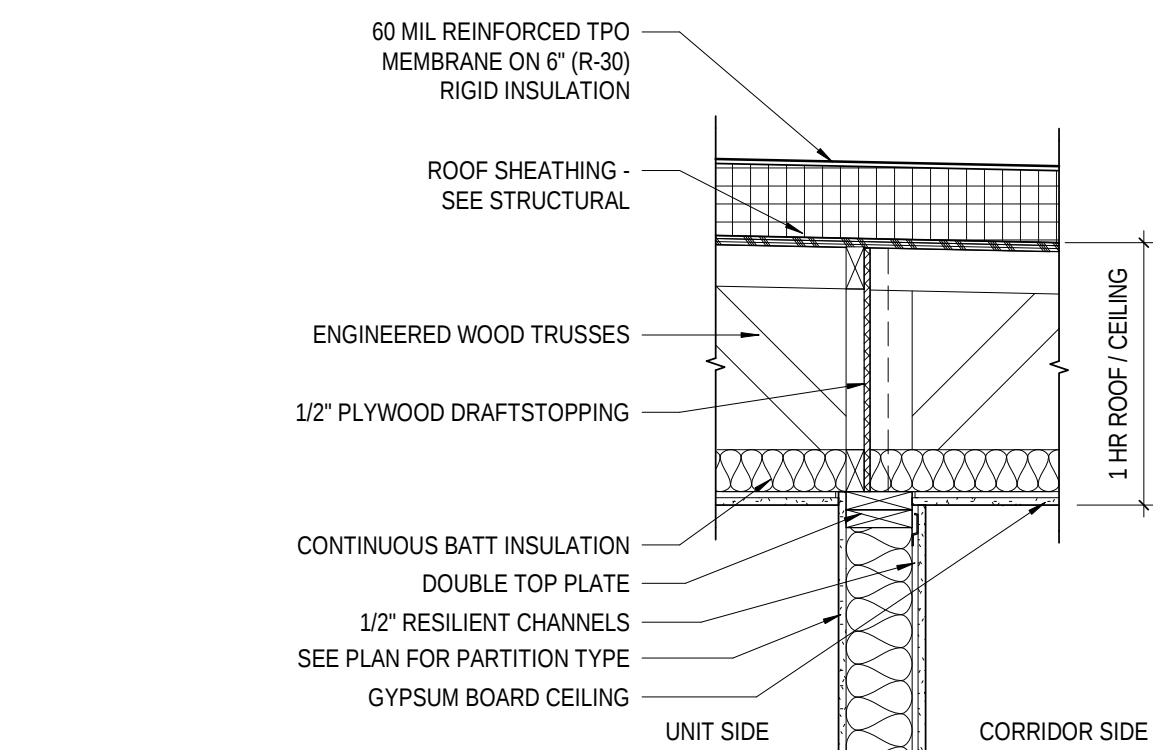
1 DETAIL INTERSECTION OF DEMISING WALL AT EXTERIOR WALL
1" = 1'-0"



8 DETAIL RESILIENT CHANNEL - SCREW INSTALLATION
3/16" = 1'-0"

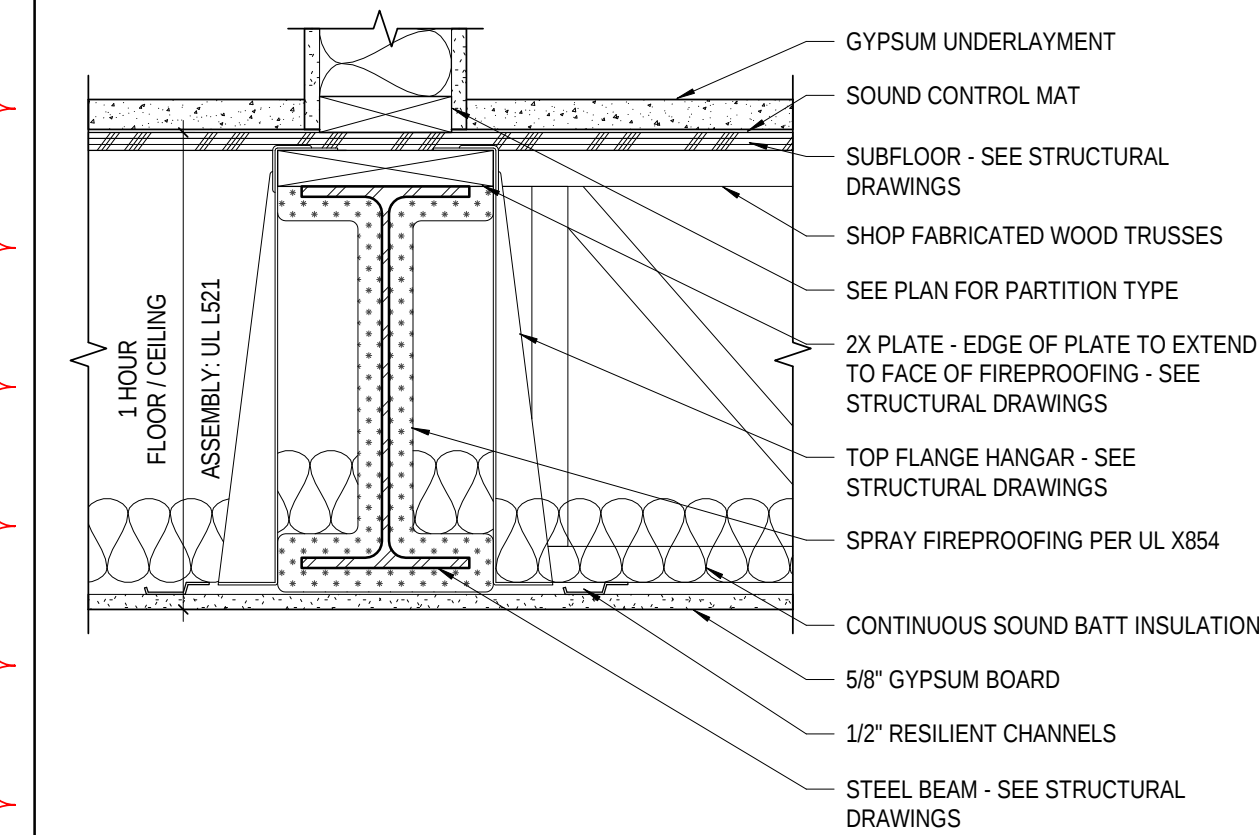


6 DETAIL ROOF FRAMING @ DEMISING WALL
3/4" = 1'-0"

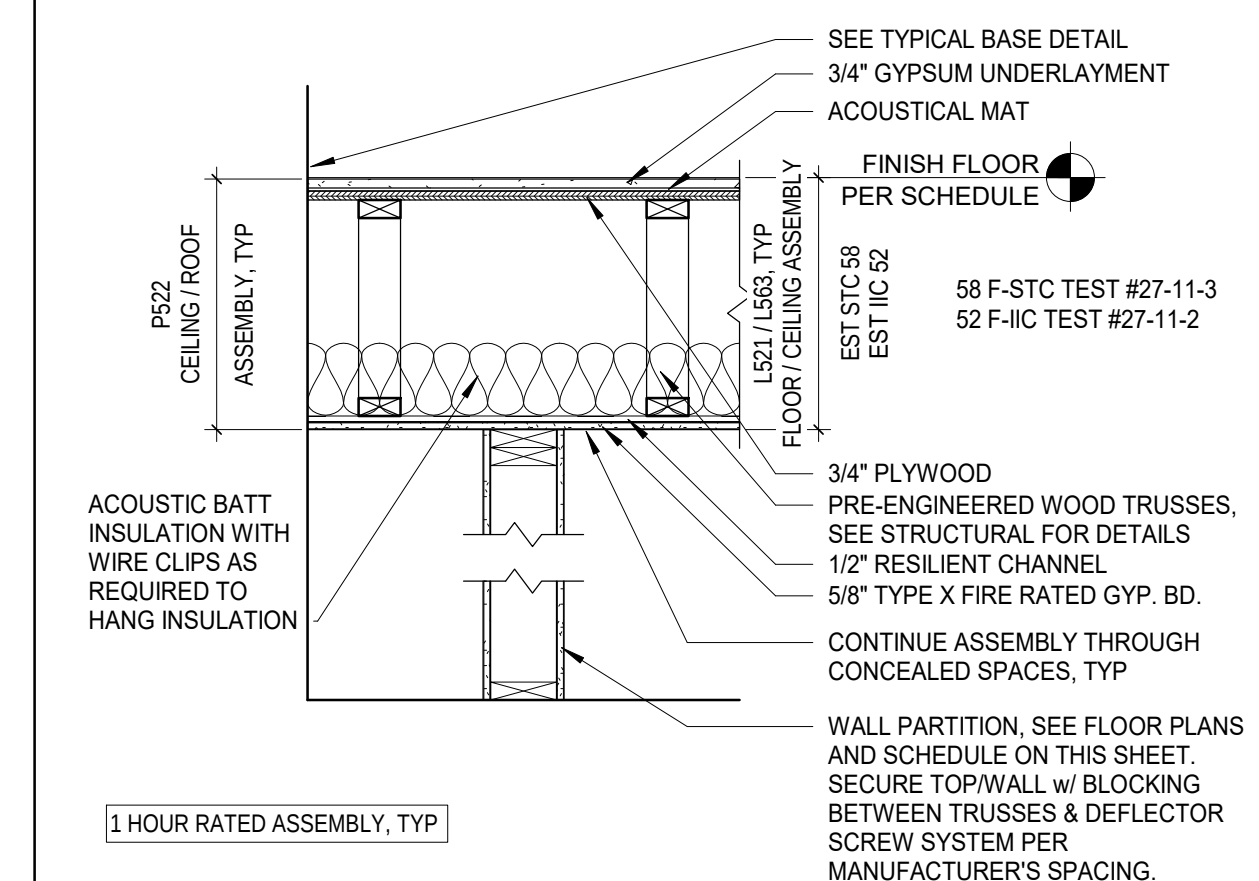


5 DETAIL ROOF FRAMING @ CORRIDOR WALL
3/4" = 1'-0"

FIREPROOFING OF BEAM @ WOOD FLOOR



TYPICAL RATED FLOOR/CEILING



AT CORRIDORS USE L563. ALL CORRIDORS TO BE GYPSUM BOARD INSTALLED ON STRUCTURAL WOOD MEMBERS. PROVIDE A MINIMUM OF 1 HOUR RATED FIRE ASSEMBLY. STC REQUIREMENTS DO NOT APPLY AT SEPARATIONS BETWEEN CORRIDORS.

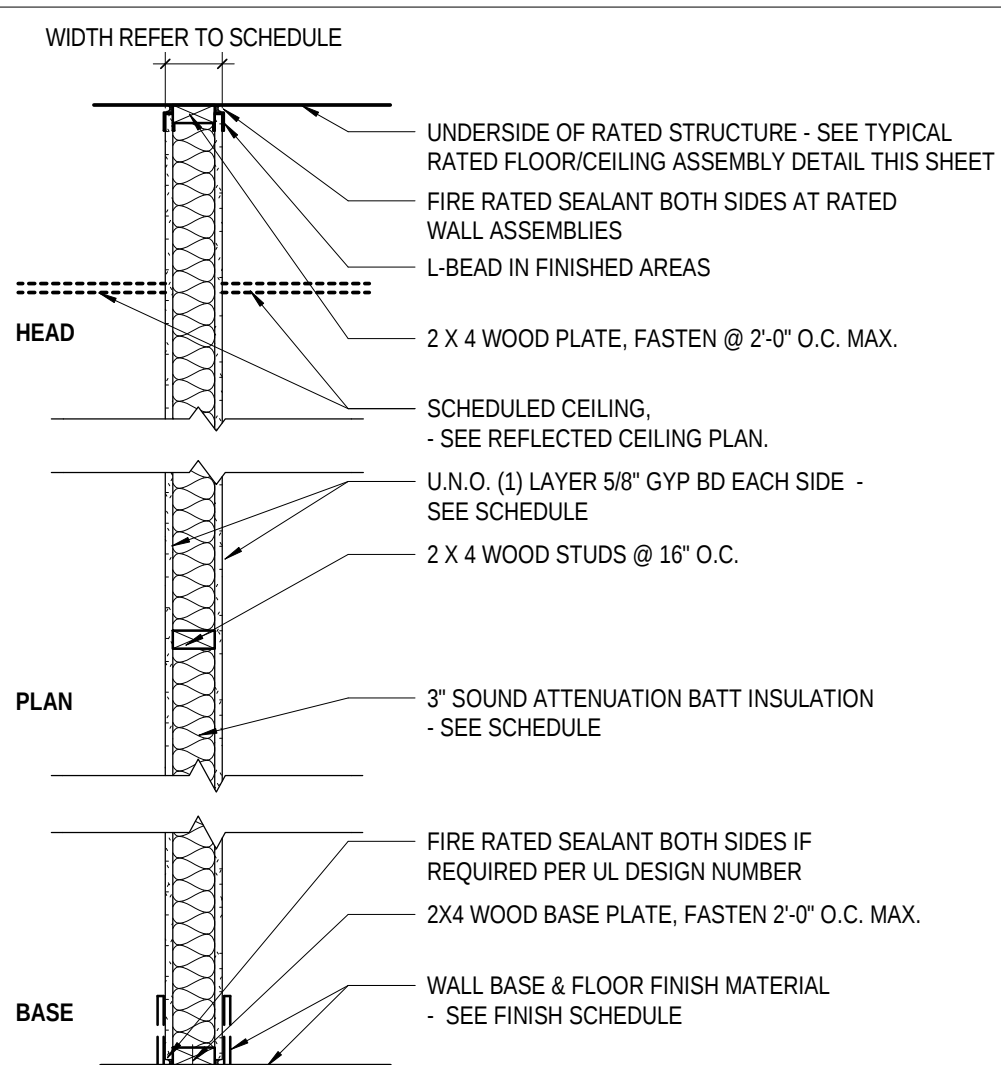
GENERAL NOTES - WALL TYPE

- ALL DIMENSIONS TO FACE OF WALL U.N.O.
- USE 5/8" WATER RESISTANT GYP. BD. ON ALL WET WALLS, UNO.
- USE CEMENT BOARD FOR ALL WALLS TO RECEIVE CERAMIC TILE, UNO.
- FIRE SAFE ALL JOINTS AND PENETRATIONS AT FIRE RATED PARTITIONS.
- UL NUMBERS LISTED APPLY ONLY TO THE TESTED MANUFACTURERS. EQUAL MANUFACTURERS' EQUIVALENT ASSEMBLY INFORMATION MUST BE APPROVED BY ARCHITECT.
- INSULATION MUST EXTEND FULL HEIGHT OF PARTITION, WHERE SOUND ATTENUATION BATTS ARE INDICATED IN PARTITIONS, INSTALL ACOUSTIC SEALANT AT BOTH SIDES, ALONG THE TOP AND BOTTOM, AND AT INTERSECTING PARTITIONS.
- WHERE 3 5/8", 4" OR 6" STUD WALLS ARE INDICATED, SEE SPECIFICATIONS FOR HEIGHT LIMITS.
- REFER TO FINISH SCHEDULE FOR FINISHES.
- SEAL TOP & BOTTOM OF PARTITION WITH ACOUSTIC SEALANT AS REQUIRED BY STC RATING.

CODED NOTE LEGEND

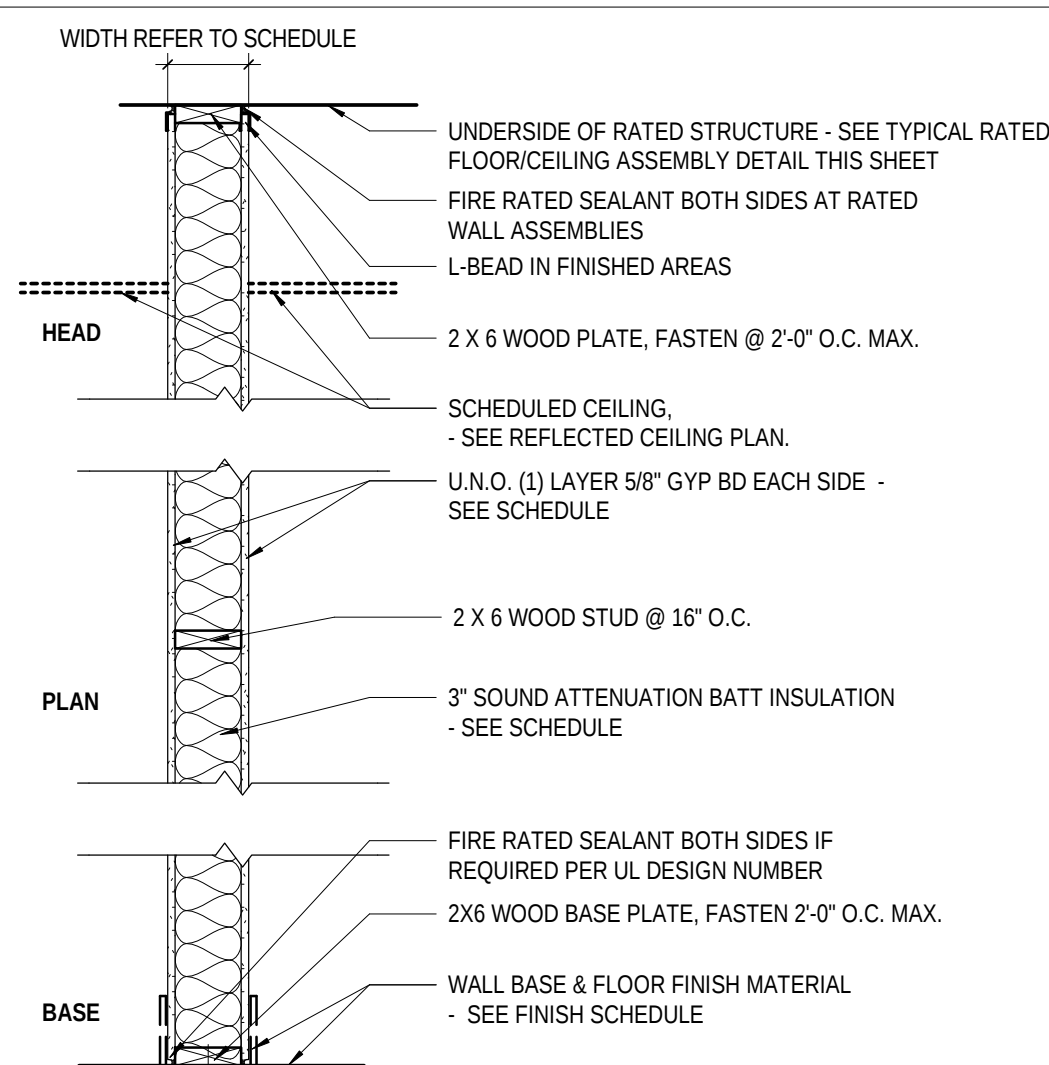
- ① FULL HEIGHT PARTITION. TERMINATE GYP. BD. AND STUDS AT FLOOR SHEATHING ABOVE.

TYPE 11 - 2 X 4 WOOD STUD WALL TYPES



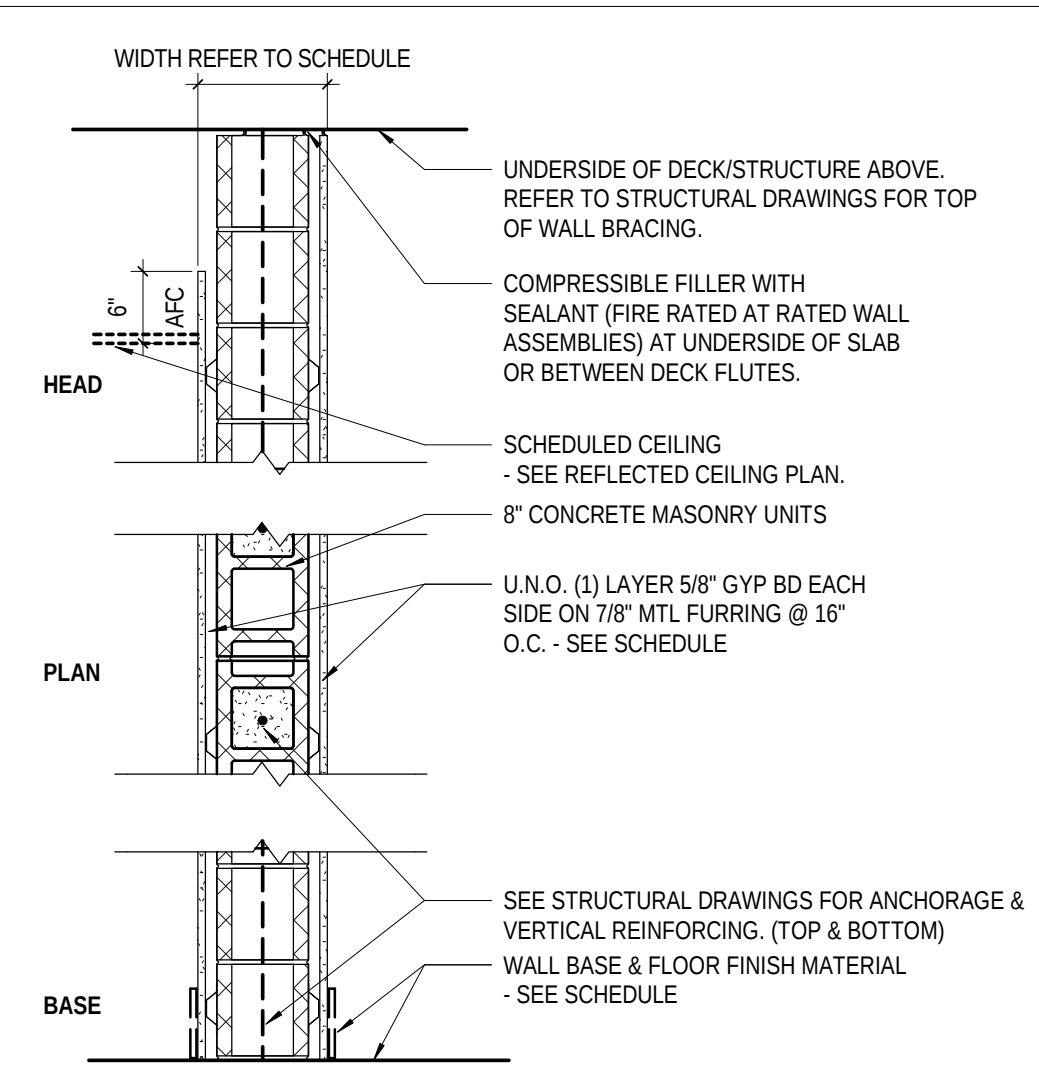
TYPE	WIDTH	STUD WIDTH	GYP. BD - 1 SIDE	GYP. BD - 2 SIDES	"TYPE X" GYP. BD.	FIRE RATING	UL #	STC RATING	SOUND INSUL.	CODED NOTES	COMMENTS
11B	4 3/4"	2x4	No	Yes	1HR	UL1 U305	45	Yes	01		
11C	4 3/4"	2x4	No	Yes	No	0HR	46	Yes	01		
11D	4 3/4"	2x4	No	Yes	No	0HR	35	No			
11F	4 3/4"	2x4	No	Yes	No	0HR	No	No			
11J	4 1/8"	2x4	Yes	No	No	0HR		Yes			
11K	4 1/8"	2x4	Yes	No	No	0HR		0	No		

TYPE 12 - 2 X 6 WOOD STUD WALL TYPES



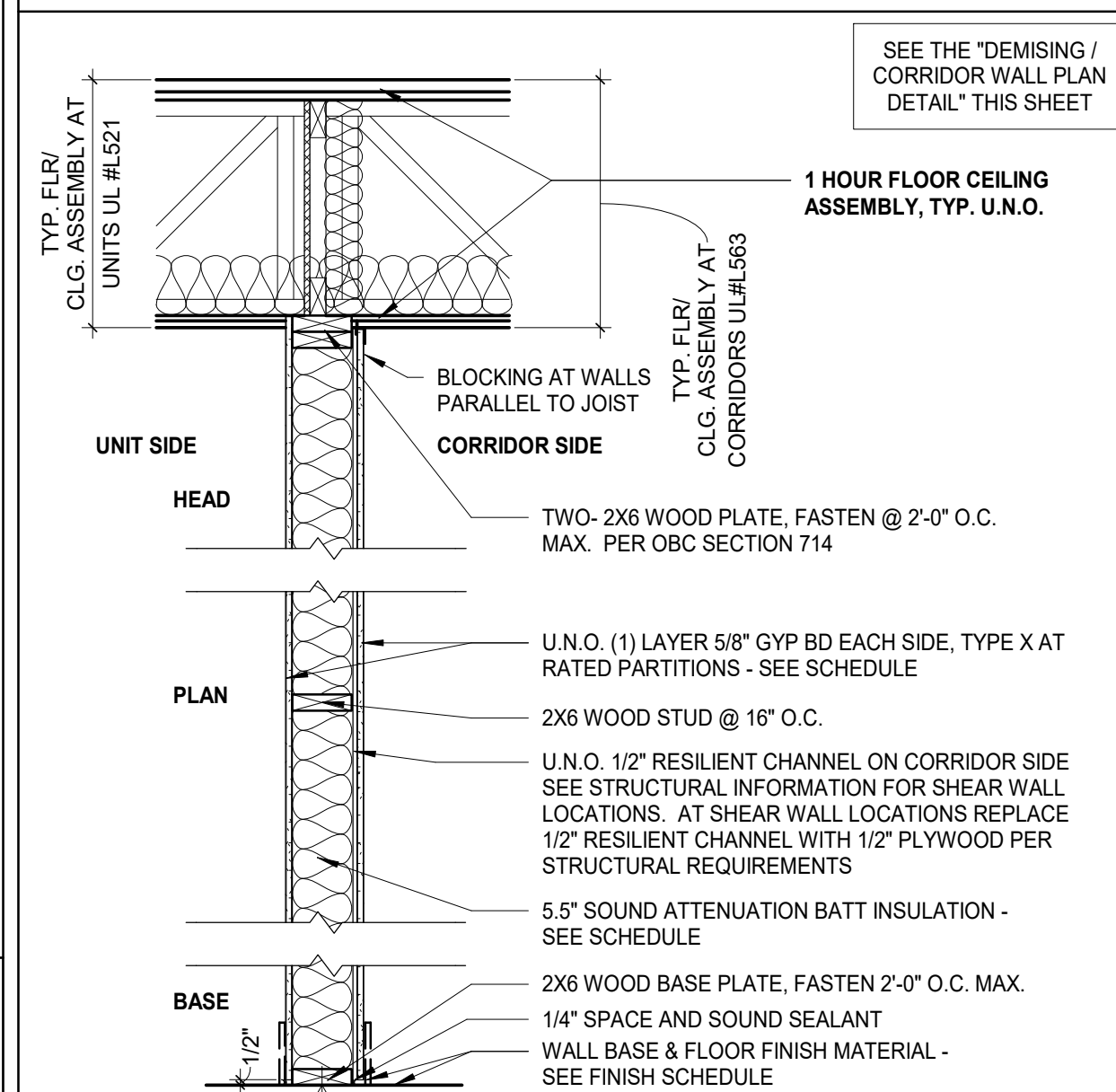
TYPE	WIDTH	STUD WIDTH	GYP. BD - 1 SIDE	GYP. BD - 2 SIDES	"TYPE X" GYP. BD.	FIRE RATING	UL #	STC RATING	SOUND INSUL.	CODED NOTES	COMMENTS
12A	6 3/4"	2x6	No	Yes	Yes	1HR	UL1 U305	45	Yes	01	
12B	6 3/4"	2x6	No	Yes	Yes	1HR	UL1 U305	46	Yes	01	
12C	6 3/4"	2x6	No	Yes	No	0HR	46	Yes	01		
12D	6 3/4"	2x6	No	Yes	No	0HR	35	EST.	No		
12F	6 3/4"	2x6	No	Yes	No	0HR	UL1 U301	40	EST.		
12G	8"	2x6	No	Yes	Yes	2HR	UL1 U301	46	EST.		2 LAYERS TYPE "X" GYPSUM BOARD
12J	6 1/8"	2x6	Yes	No	No	0HR		46	EST.		
12K	6 1/8"	2x6	Yes	No	No	0HR		46	EST.		

TYPE 8 - 8" CONCRETE MASONRY WALLS



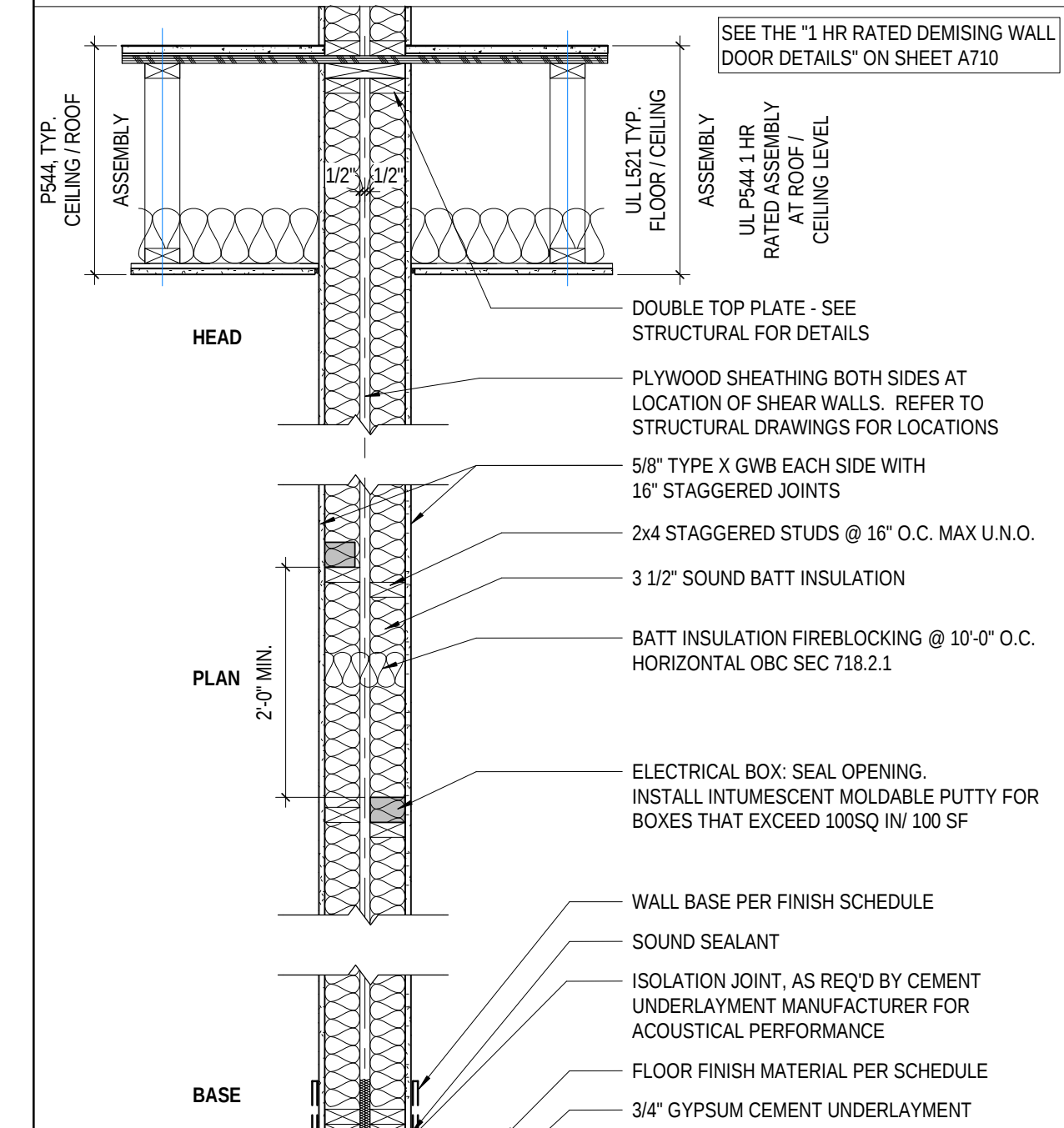
TYPE	WIDTH	GYP. BD - 1 SIDE	GYP. BD - 2 SIDES	"TYPE X" GYP. BD.	FIRE RATING	UL #	STC RATING	SOUND INSUL.	CODED NOTES	COMMENTS
8A	7 5/8"	No	No	No	1HR	UL1 U305	46	No		CMU WALLS RATED UP TO 2 HRS

TYPE CW- 2x6 WD STUD CORRIDOR / DEMISING WALL TYPES



TYPE	WIDTH	STUD WIDTH	GYP. BD - 1 SIDE	GYP. BD - 2 SIDES	"TYPE X" GYP. BD.	FIRE RATING	UL #	STC RATING	SOUND INSUL.	CODED NOTES	COMMENTS
CW	7 1/4"	5 1/2"	No	Yes	1 HR	UL1 U311	56	Yes			

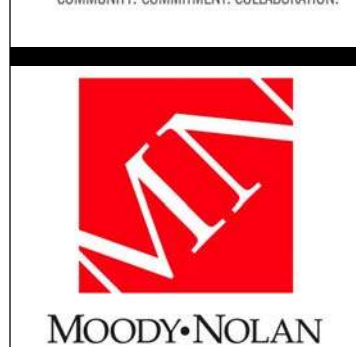
TYPE DW- WD STUD DEMISING WALL TYPES



TYPE	WIDTH	STUD WIDTH	GYP. BD - 1 SIDE	GYP. BD - 2 SIDES	"TYPE X" GYP. BD.	FIRE RATING	UL #	STC RATING	SOUND INSUL.	CODED NOTES	COMMENTS
DW	9 1/4"	3 1/2"	No	Yes	1 HR	UL1 U341	56	Yes			SOUND REQUIREMENTS PER RAL TL02-34. MIN IIC 50.

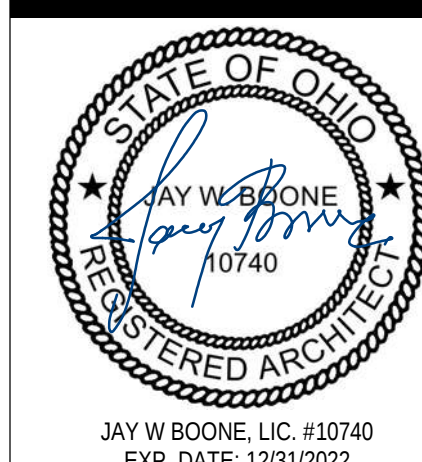
CHANGE DESCRIPTION

#	DATE	CHANGE DESCRIPTION
1	05/05/2022	ADDENDUM #03



DRAWING TITLE:

WALL TYPE SCHEDULE



APRIL 4, 2022

DRAWN BY: XXX CHECKED BY: XXX

Proj. #20643

G003

PERMIT & BID SET

JAY W BOONE, LIC. #10740
EXP. DATE: 12/31/2022

Design No. P522

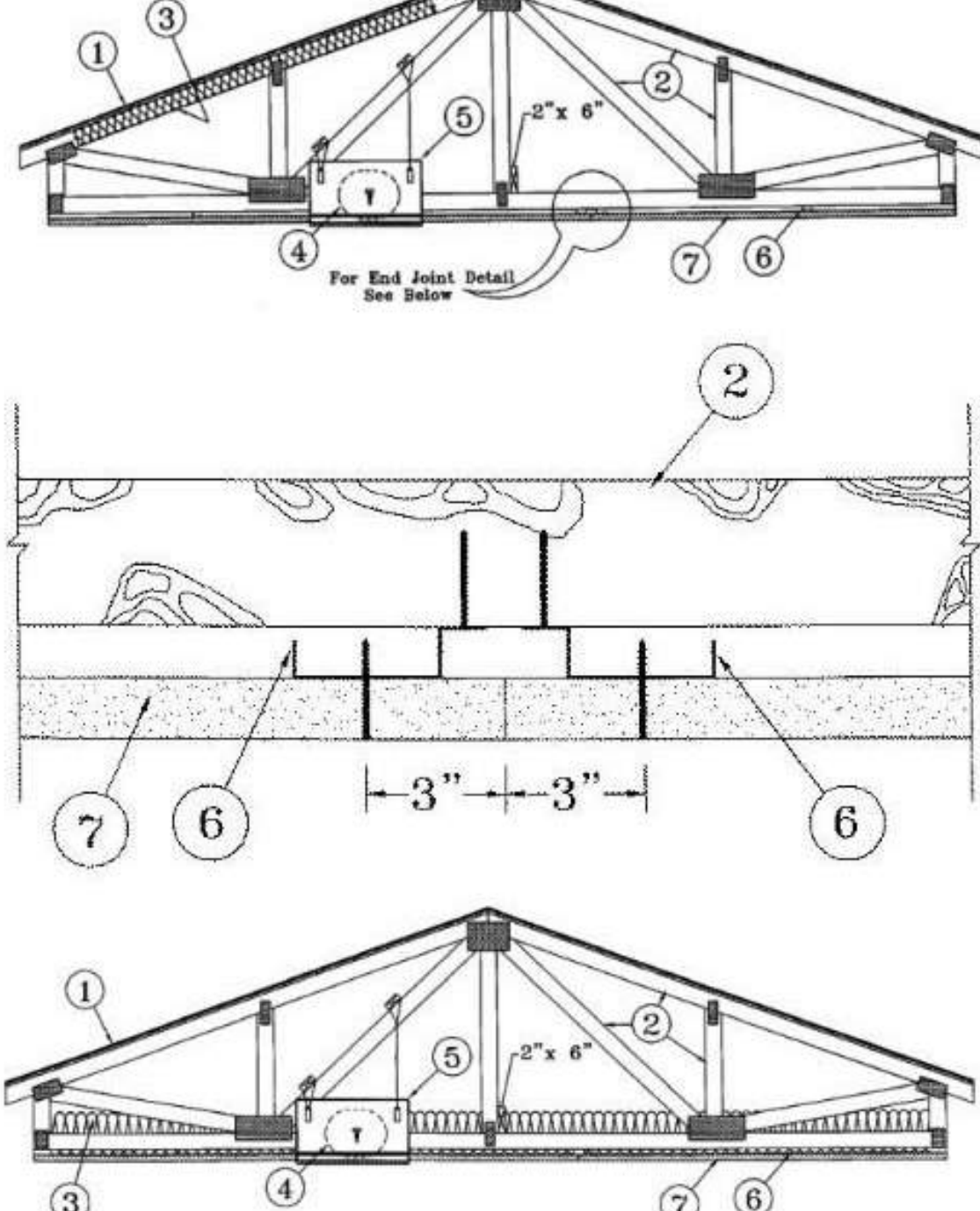
April 05, 2018

Unrestrained Assembly Rating — 1 H

Finish Rating — 25 Min (See Items 3 or 3A)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide E309 or E3097.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



Alternate Insulation Placement

1. Roofing System* — Any UL Class A, B or C Roofing System (TFRU) or Prepared Roof Covering (FRWZ) acceptable for use over non 15/12 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Non 15/12 in. thick wood structural panels secured to trusses with No. 6d ringed shank nails spaced 12 in. OC along cross tees. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails. Construction adhesive may be used with either the nails or staples.

2. Trusses — Pitched or parallel chord wood trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Truss members secured together with min. 0.035 in. thick galy steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chest point on its outside edge. These points are diagonally opposite each other for each pair. The tip half of each chest has a twist for stiffness. The pairs are repeated on approximately 18 in. centers with four rows of teeth per inch of plate width. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 5-1/4 in. with a min roof slope of 3/12 and a min. area in the plane of the truss of 21 sqft. Where the truss intersects with the interior face of the exterior walls, the min truss depth may be reduced to 3 in. If the batts and blankets (Item 3) are used as shown in the above illustration (Alternate Insulation Placement) and are firmly packed against the intersection of the bottom chords and the plywood sheathing.

3. Batts and Blankets* — (Optional) — Required when item 6 is used — Glass fiber insulation, secured to the wood structural panels with staples spaced 12 in. OC or to the trusses with 0.090 in. diam galy steel wires spaced 12 in. OC. Any glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance, having a min density of 0.5 pcf. As an option, the insulation may be fitted in the concealed space, draped over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. When Steel Framing Members (Item 8B) are used, max 3-1/2 in. thick insulation shall be draped over the furring channels (Item 6B) and gypsum board ceiling membrane, and friction-fitted between trusses and Steel Framing Members (Item 6B). The finished rating has only been determined when the insulation is secured to the decking.

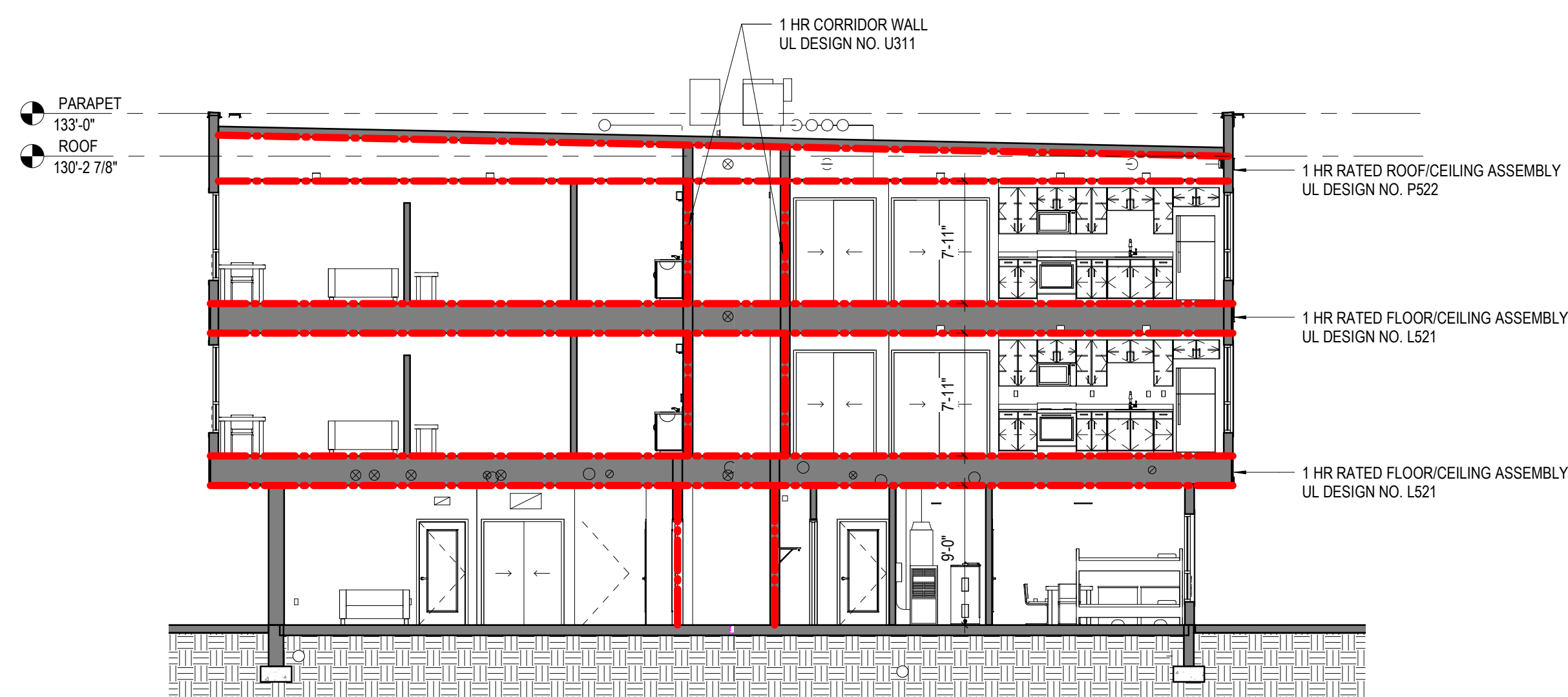
3A. Fiber, Spray* — As an alternate to Item 3 (not evaluated for use with Item 6B) — Any thickness of spray-applied cellulose insulation material, having a min density of 0.5 lb/ft³, applied with water, over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Fiber, Spray* is applied with moisture in accordance with the application instructions supplied with the product. The finish rating when Fiber Spray is used has not been determined. Alternate application method: The fiber is applied without water or adhesive in accordance with the application instructions supplied with a minimum density of 0.5 lb/ft³ over the resilient channel/gypsum board ceiling membrane when resilient channels and gypsum board attachment is modified as specified in Items 6 and 7. Alternate application method: The fiber is applied without water or adhesive to a nominal density of 3.5 lb/ft³ behind netting (Item 9) stapled to the rafters. The netting is stapled at both lower edges of the rafters creating a cavity to accept the cellulose fiber. U.S. GREENBAIER L.L.C. — INST575, INST576, INST577, INST578, INST579, INST580, INST581, INST582, INST583, INST584, INST585, INST586, INST587, INST588, INST589, INST590, INST591, INST592, INST593, INST594, INST595, INST596, INST597, INST598, INST599, INST600, INST601, INST602, INST603, INST604, INST605, INST606, INST607, INST608, INST609, INST610, INST611, INST612, INST613, INST614, INST615, INST616, INST617, INST618, INST619, INST620, INST621, INST622, INST623, INST624, INST625, INST626, INST627, INST628, INST629, INST630, INST631, INST632, INST633, INST634, INST635, INST636, INST637, INST638, INST639, INST640, INST641, INST642, INST643, INST644, INST645, INST646, INST647, INST648, INST649, INST650, INST651, INST652, INST653, INST654, INST655, INST656, INST657, INST658, INST659, INST660, INST661, INST662, INST663, INST664, INST665, INST666, INST667, INST668, INST669, INST670, INST671, INST672, INST673, INST674, INST675, INST676, INST677, INST678, INST679, INST680, INST681, INST682, 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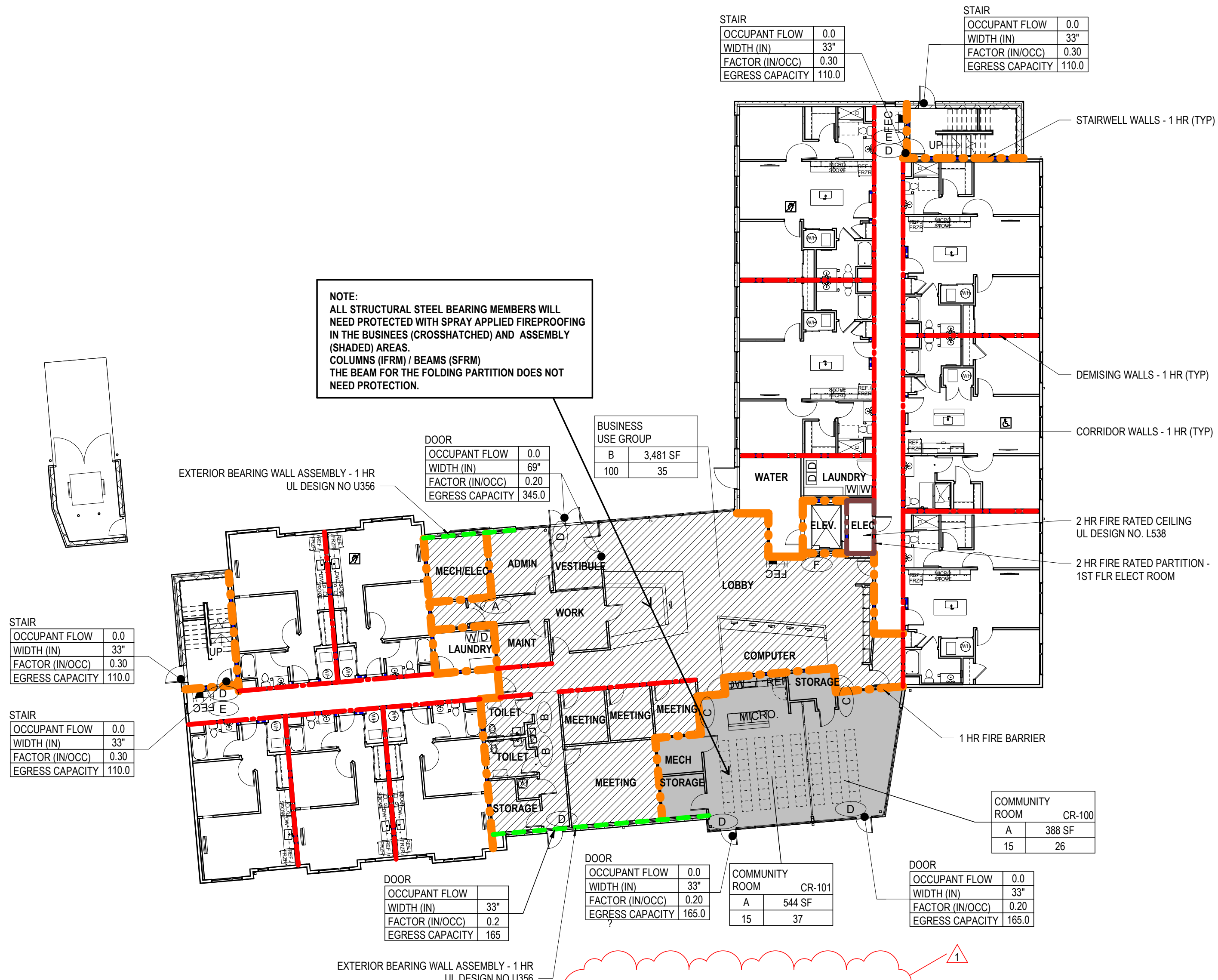
3 PLAN LEVEL 03 - CODE PLAN
1/16" = 1'-0"



2 PLAN LEVEL 02 - CODE PLAN
1/16" = 1'-0"



4 SECTION BUILDING SECTION - TYPICAL
1/8" = 1'-0"



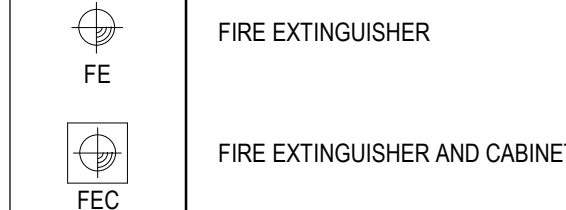
1 PLAN LEVEL 01 - CODE PLAN
1/16" = 1'-0"

OCCUPANCY TAGS

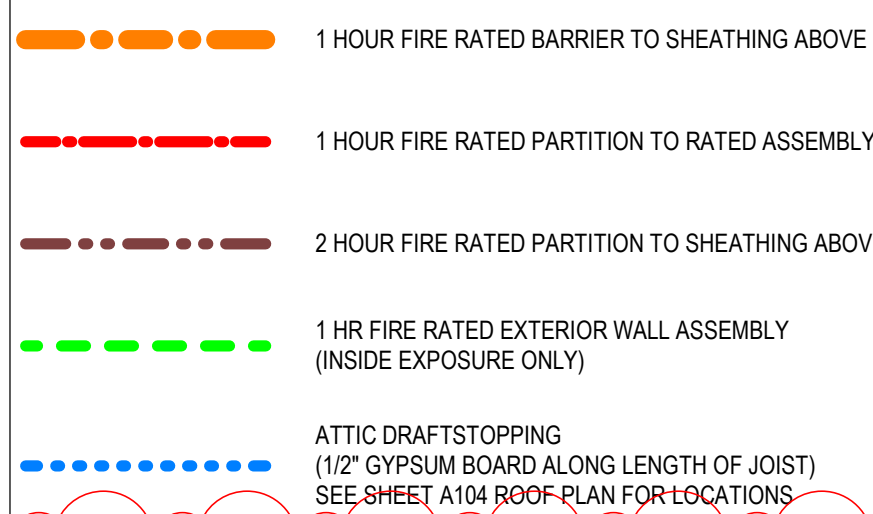
STAIR	OCCUPANT FLOW	0.0	DOOR	OCCUPANT FLOW	0
WIDTH (IN)	33"		WIDTH (IN)	0"	
FACTOR (IN/OCC)	0.20		FACTOR (IN/OCC)	0.2	
EGRESS CAPACITY	165.0		EGRESS CAPACITY	0	

ROOM	NAME	101	ROOM SF
OCCUPANT GROUP	A-1	150 SF	
OCCUPANT LOAD	OCC	OCC LOAD	OCCUPANT LOAD FACTOR

FIRE EQUIPMENT LEGEND

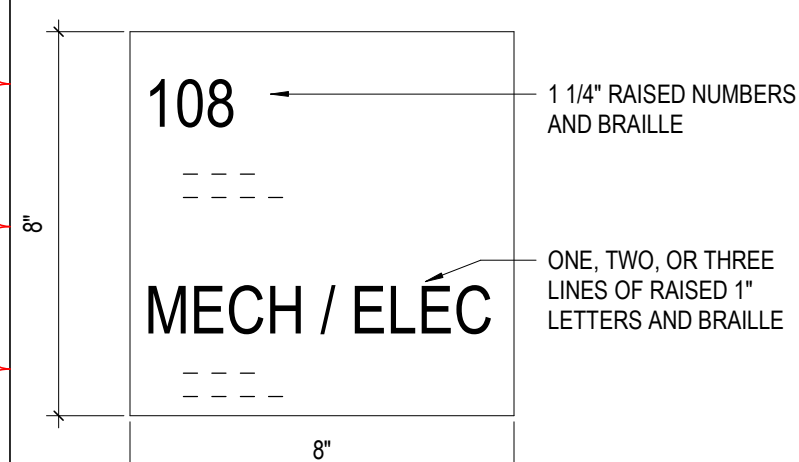


RATED WALL LEGEND

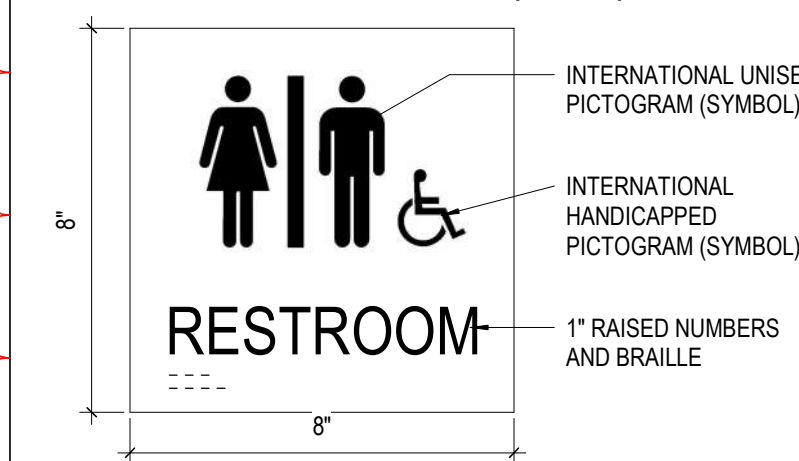


SIGNAGE TYPES

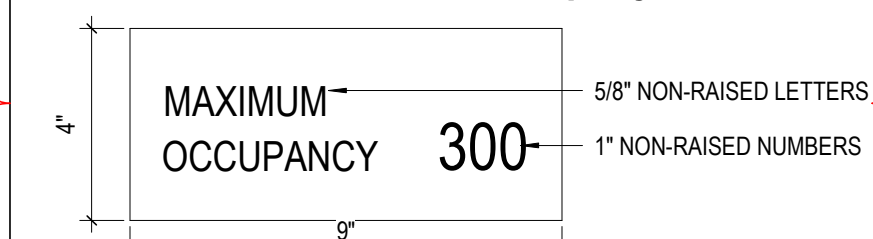
SIGN TYPE A - Mech / Elec



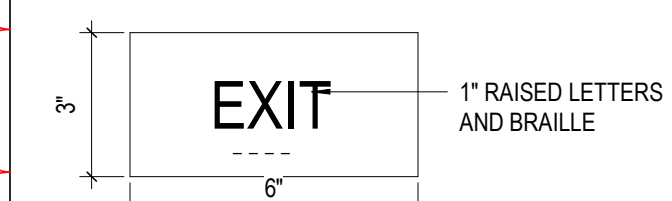
SIGN TYPE B - Restrooms (Unisex)



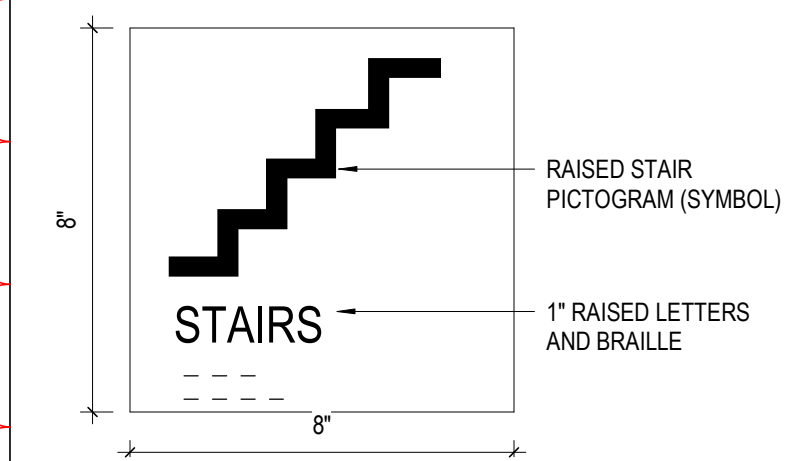
SIGN TYPE C - Maximum Occupancy



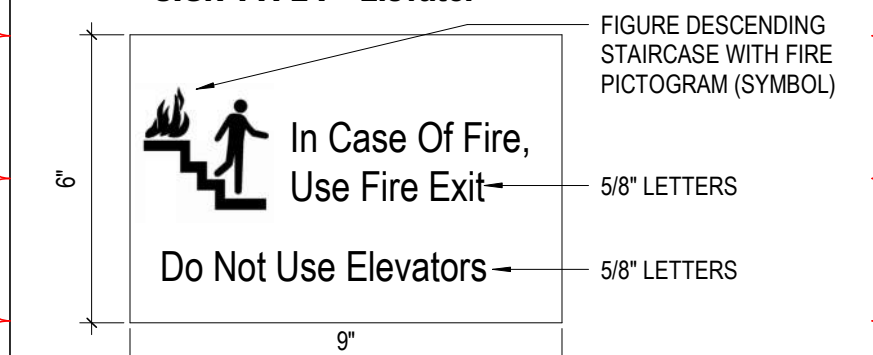
SIGN TYPE D - Exit



SIGN TYPE E - Stair



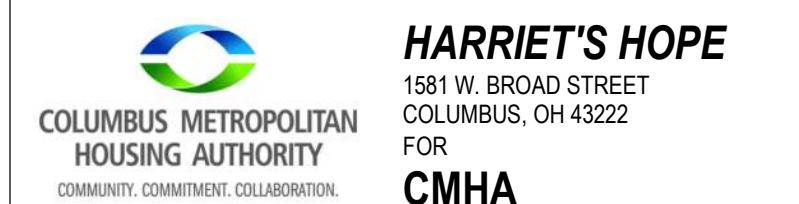
SIGN TYPE F - Elevator



A - SIGNAGE TYPE SYMBOL

NOTE: SIGNAGE BY OWNER, WITH THE EXCEPTION OF MAXIMUM OCCUPANCY SIGNAGE. OWNER TO PROVIDE FINAL TYPE FACE AND COLOR SELECTIONS FOR SIGNAGE PRIOR TO FABRICATION

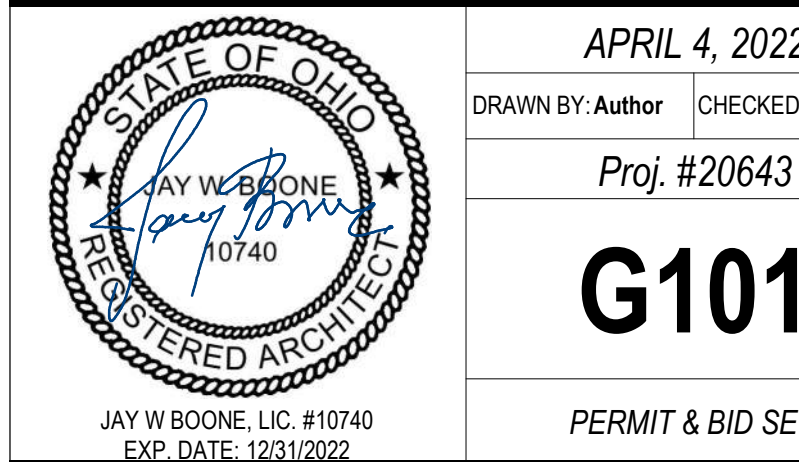
#	DATE	CHANGE DESCRIPTION
1	05/05/2022	ADDENDUM #03



300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:

CODE PLANS & SECTION



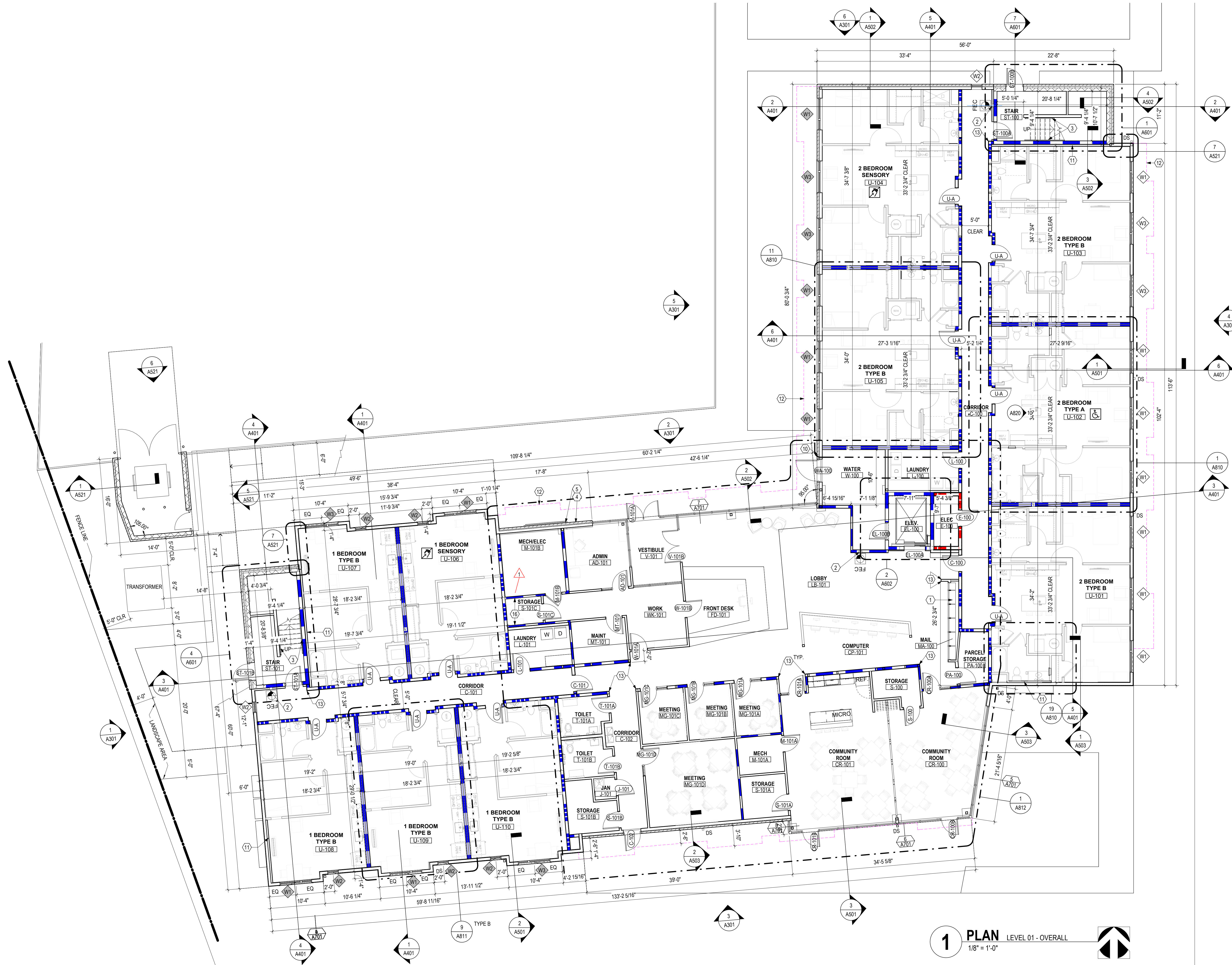
APRIL 4, 2022

DRAWN BY: Author CHECKED BY: Checker

Proj. #20643

G101

PERMIT & BID SET



UNIT MATRIX						
	2 BEDROOM			1 BEDROOM		
	TYPE A	TYPE B	TYPE B	TYPE A	TYPE B	TYPE B
LEVEL 01	1	3	1	0	4	1
LEVEL 02	0	0	0	0	1	0
LEVEL 03	0	0	0	0	1	0
	1	3	1	2	4	1
		5			47	

GENERAL NOTES:
A. REFER TO "ENLARGED UNIT PLANS" FOR ADDITIONAL INFORMATION.

- CODED NOTE LEGEND**
- METAL MAILBOXES AND PARCEL BOXES AS SHOWN IN FLOORS PLANS. DESIGN BASED ON THE MAILBOX BOX OR EQUAL. PROVIDE ONE MAILBOX PER UNIT AND ONE PARCEL BOX PER EVERY FIVE MAILBOXES. BOTTOM OF UNIT SHALL NOT BE MOUNTED LOWER THAN 15 INCHES AFF AND TOP OF THE HIGHEST KEY HOLE SHALL NOT BE MOUNTED HIGHER THAN 48 INCHES AFF. SEE DETAIL FOR MORE INFORMATION.
 - INSTALL SEMI-RECESSED FIRE EXTINGUISHERS CABINETS SO THE INTEGRITY OF THE RATED WALL IS MAINTAINED. PROVIDE RATED CABINETS AT RATED WALL LOCATIONS.
 - PAINTED METAL RAILING AT STAIRS.
 - SEMI-RECESSED SIPHON. COORDINATE EXACT LOCATION WITH ARCHITECT AND MOUNT NO HIGHER THAN 4 FEET AFF. SEE ELECTRICAL INFORMATION.
 - KNOX BOX. COORDINATE FINAL LOCATION WITH FIRE DEPARTMENT.
 - NOT USED.
 - DRINKING FOUNTAIN. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - JANITORS SINK. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - ROOF HATCH ABOVE. LOCKABLE FROM STAIR SIDE.
 - FIRE DEPARTMENT CONNECTION. SEE FIRE PROTECTION AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - FIRE CUT WALL WITH PARTITION TYPE 11.11 W/ SOUND BATT INSULATION AT THIS LOCATION.
 - PROJECTION OF FLOOR ABOVE (DASHED)
 - CORNER GUARDS. TYPICAL
 - 48" x 96" WHITEBOARD. TYPICAL. SEE SPECIFICATIONS.
 - 48" x 48" TACKBOARD. TYPICAL. SEE SPECIFICATIONS.
 - PROVIDE 1/2" PLYWOOD BEHIND ENTIRE WALL NOTED IN STORAGE.

- GENERAL NOTES - FLOOR PLAN**
- EXTERIOR WALL DIMENSIONS ARE TO EXTERIOR FACE OF EXTERIOR SHEATHING OR EXTERIOR FACE OF BRICK. ALL OTHER DIMENSIONS ARE TO FACE OF STUD (UNLESS NOTED OTHERWISE).
 - SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF ALL STEEL REINFORCING IN WALL & FLOOR CONSTRUCTION.
 - SEE ENLARGED PLANS AND FINISH SCHEDULE FOR ADDITIONAL INFORMATION OF LOCATIONS AND TYPES OF FINISH MATERIALS.
 - SEE ELEVATIONS & STRUCTURAL DRAWINGS FOR LOCATIONS OF EXPANSION & CONTROL JOINTS. CONTRACTOR SHALL PROVIDE ADDITIONAL INTERIOR CONTROL JOINTS AS REQUIRED TO COMPLY WITH MAXIMUM SPACING REQUIREMENTS IN SPECIFICATIONS AND NATIONAL MASONRY INSTITUTE.
 - MECHANICAL & ELECTRICAL EQUIPMENT SHALL BE ON HOUSEKEEPING PADS. PADS ARE TO BE PROVIDED BY THE TRADE SUPPLYING THE EQUIPMENT. SEE MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION. WORK TO BE COORDINATED THROUGH THE GENERAL TRADES CONTRACTOR PADS - MIN 4" THICK W/ W.F. UNLESS NOTED OTHERWISE. FURNITURE IS INCLUDED IN CONTRACT. SEE FIRE DRAWINGS FOR ADDITIONAL INFO. PROVIDE RESIDENTIAL APPLIANCES IN RESIDENTIAL UNITS AND PUBLIC AREAS UNLESS NOTED OTHERWISE. ALL APPLIANCES TO BE PROVIDED AND INSTALLED BY GC.
 - ALL INTERIOR GYPSUM BOARD PARTITIONS TO INCLUDE THE USE OF 5/8" GYPSUM BOARD. WHERE NEW TUBS, SHOWERS & SURROUNDS. ALL SINKS, WATER HEATERS AND CLOTHES WASHERS ARE BEING PROVIDED AND INSTALLED. GYPSUM BOARD / SUBSTRATE IS TO BE MOISTURE-RESISTANT SUBSTRATE (NON-PAPER FACED). WITHIN 4 FEET OF ANY WATER SOURCES WHERE DRYWALL CAN BE SPLASHED.
 - FOR 1-PIECE TUBSHOWER UNIT, IT IS NOT REQUIRED TO INSTALL DRYWALL OR TYVEK BEHIND UNIT EXCEPT AT FIRE RATED WALL ASSEMBLIES. INSTALL GYPSUM BOARD AS REQUIRED.
 - ALL DOORS LOCATED FOR PUBLIC ACCESS. ALL RESIDENTIAL ENTRANCES AND ALL USABLE DOORS IN ANSI TYPE A UNITS SHALL BE INSTALLED TO MAINTAIN THE DOOR CLEARANCE REQUIREMENTS OUTLINED ON THE TYPICAL PROJECT DETAILS SHEETS.
 - THRESHOLDS, IF PROVIDED AT PUBLIC DOORWAYS AND IN ANSI TYPE A UNITS, MUST BE 12 INCH HIGH MAXIMUM. CHANGES IN LEVEL OF 1/4 INCH HIGH MAXIMUM ARE PERMITTED TO BE VERTICAL. CHANGES IN LEVEL BETWEEN 1/4 INCH HIGH MINIMUM AND 1/2 INCH HIGH MAXIMUM MUST BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
 - GYPSUM UNDERLAYMENT SHALL BE PROVIDED AT ALL FLOOR / CEILING ASSEMBLIES EXCEPT STAIR TREADS. ALL GYPSUM UNDERLAYMENT SHALL RECEIVE A FLOORING MATERIAL. GYPSUM UNDERLAYMENT SHALL NOT BE VISIBLE TO VIEW. FLOORING MATERIAL IS NOT REQUIRED UNDERNEATH BASE CABINETS BUT REQUIRED UNDER REMOVABLE BASE CABINETS.
 - ACOUSTICAL MAT SHALL BE PROVIDED ON ALL WOOD FLOOR / CEILING ASSEMBLIES.
 - WHERE TUBS ARE LOCATED, PROVIDE AND INSTALL WOOD BLOCKING IN WALLS AROUND TUBS FOR FUTURE INSTALLATION OF GRAB BARS. WHERE ROLL-IN SHOWERS ARE LOCATED, PROVIDE AND INSTALL WOOD BLOCKING AND GRAB BARS IN WALLS AROUND SHOWER. SEE TYPICAL PROJECT DETAILS AND MEP DRAWINGS FOR ADDITIONAL INFORMATION.
 - PROVIDE BLOCKING FOR CURVED SHOWER RODS, LOCATED DIRECTLY ABOVE THE TOP OF THE SHOWER ENCLOSURE.
 - REFER TO MOUNTING HEIGHTS SCHEDULE FOR MOUNTING HEIGHTS.
 - PROVIDE AND INSTALL WINDOW COVERINGS AND HEAVY DUTY WINDOW SCREENS AT ALL RESIDENTIAL UNIT WINDOWS. PROVIDE AND INSTALL WINDOW COVERINGS AT COMMUNITY ROOMS CR-100 AND CR-101.
 - CALL OUT ALL EXTERIOR PENETRATIONS. REFER TO SPEC SECTION 07 92 00 JOINT SEALANTS FOR DETAILS.
 - ANY PENETRATIONS AT FIRE RATED WALLS ARE TO BE FIRESTOPPED.
 - PROVIDE AND INSTALL PASSIVE RADON REDUCTION SYSTEM AS NOTED. REFER TO TYPICAL PROJECT DETAILS, PLUMBING PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - PROVIDE AND INSTALL CORNER GUARDS AT ALL WALL CORNER LOCATIONS IN CORRIDORS AND PUBLIC AREAS.

- LEGEND - FLOOR PLAN**
- 2 HR FIRE RATED WALLS
 - 1 HR FIRE RATING - INCLUDING BUT NOT LIMITED TO STAIR WALLS, ELEVATOR WALLS AND UNIT DEMISING WALLS
 - 1 HR FIRE RATED CORRIDOR WALLS
 - INTERIOR PARTITION
 - SENSORY (HEARING / VISUALLY IMPAIRED) UNIT - SEE OVERALL FLOOR PLANS FOR LOCATIONS. LOCATE MEP EQUIPMENT AND DEVICES TO MAINTAIN CLEARANCES AS NOTED AND AS DASHED IN FLOOR PLANS. SEE MEP DRAWINGS FOR ADDITIONAL INFO.
 - ANSI TYPE A UNIT - SEE OVERALL FLOOR PLANS FOR LOCATIONS. LOCATE MEP EQUIPMENT AND DEVICES TO MAINTAIN CLEARANCES AS NOTED AND AS DASHED IN FLOOR PLANS. UNITS TO ALSO INCLUDE SENSORY (HEARING / VISUALLY IMPAIRED) UNIT FEATURES. SEE MEP DRAWINGS FOR ADDITIONAL INFO.
 - PLAN ELEVATION
 - SEMI-RECESSED, RATED FIRE EXTINGUISHER CABINET (F.E.C.) AND FIRE EXTINGUISHER. UNIT SHALL NOT ENCRUMORE MORE THAN 4" INTO THE PATH OF EGRESS.
 - DIRECTION OF INSTALLATION OF LVT FLOORING. SEE A800 SERIES SHEETS FOR FINISH SCHEDULE.
 - DOOR TYPE
 - REQUIRED 30"x48" CLEAR FLOOR SPACE - 48" SHALL BE CLEARED AT APPLIANCES AND SINKS
 - ACCESSIBLE ROUTE, MINIMUM 36" CLEAR
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY.
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY. (NOISE MITIGATION = OITC 27)

#	DATE	CHANGE DESCRIPTION
1	04/21/2022	ADDENDUM #02
2	05/05/2022	ADDENDUM #03

COLUMBUS METROPOLITAN HOUSING AUTHORITY
COMMUNITY. COMMITMENT. COLLABORATION.

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
LEVEL 01 - FLOOR PLAN - OVERALL

APRIL 4, 2022
DRAWN BY: XXXX
CHECKED BY: XXXX
Proj. #20643
A101
PERMIT & BID SET
JAY W BOONE, LIC. #10740
EXP. DATE: 12/31/2022

UNIT MATRIX						
	2 BEDROOM			1 BEDROOM		
	TYPE A	TYPE B TYPICAL	TYPE B SENSORY	TYPE A	TYPE B TYPICAL	TYPE B SENSORY
LEVEL 01	1	3	1	0	4	1
LEVEL 02	0	0	0	0	1	20
LEVEL 03	0	0	0	1	20	0
	1	3	1	2	44	1
		5			47	

GENERAL NOTES:
A. REFER TO "ENLARGED UNIT PLANS" FOR ADDITIONAL INFORMATION.

- CODED NOTE LEGEND**
- METAL MAILBOXES AND PARCEL BOXES AS SHOWN IN FLOORS PLANS. DESIGN BASED ON THE MAILBOX WORKS OR EQUAL. PROVIDE ONE MAILBOX PER UNIT AND ONE PARCEL BOX PER EVERY FIVE MAILBOXES. BOTTOM OF UNIT SHALL NOT BE MOUNTED LOWER THAN 15 INCHES AFF AND TOP OF THE HIGHEST KEY HOLE SHALL NOT BE MOUNTED HIGHER THAN 48 INCHES AFF. SEE DETAIL FOR MORE INFORMATION.
 - INSTALL SEMI-RECESSED FIRE EXTINGUISHERS CABINETS SO THE INTEGRITY OF THE RATED WALL IS MAINTAINED. PROVIDE RATED CABINETS AT RATED WALL LOCATIONS.
 - PAINTED METAL RAILING AT STAIRS.
 - SEMI-RECESSED ALPHONE. COORDINATE EXACT LOCATION WITH ARCHITECT AND MOUNT NO HIGHER THAN 4 FEET AFF. SEE ELECTRICAL INFORMATION.
 - KNOX BOX. COORDINATE FINAL LOCATION WITH FIRE DEPARTMENT.
 - NOT USED.
 - DRINKING FOUNTAIN. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - JANITOR'S SINK. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - ROOF HATCH ABOVE. LOCKABLE FROM STAIR SIDE.
 - FIRE DEPARTMENT CONNECTION. SEE FIRE PROTECTION AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - FIRE CUT WALL W/ PARTITION TYPE 11.11 W/ SOUND BATT INSULATION AT THIS LOCATION.
 - PROJECTION OF FLOOR ABOVE (DASHED)
 - CORNER GUARDS. TYPICAL.
 - 48" X 96" WHITEBOARD. TYPICAL. SEE SPECIFICATIONS.
 - 48" X 48" TACKBOARD. TYPICAL. SEE SPECIFICATIONS.
 - PROVIDE 1/2" PLYWOOD BEHIND ENTIRE WALL NOTED IN STORAGE.



1 PLAN LEVEL 02 - OVERALL
1/8" = 1'-0"

- GENERAL NOTES - FLOOR PLAN**
- EXTERIOR WALL DIMENSIONS ARE TO EXTERIOR FACE OF EXTERIOR SHEATHING OR EXTERIOR FACE OF BRICK. ALL OTHER DIMENSIONS ARE TO FACE OF STUD (UNLESS NOTED OTHERWISE).
 - SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF ALL STEEL REINFORCING IN WALL & FLOOR CONSTRUCTION.
 - SEE ENLARGED PLANS AND FINISH SCHEDULE FOR ADDITIONAL INFORMATION OF LOCATIONS AND TYPES OF FINISH MATERIALS.
 - SEE ELEVATIONS & STRUCTURAL DRAWINGS FOR LOCATIONS OF EXPANSION & CONTROL JOINTS. CONTRACTOR SHALL PROVIDE ADDITIONAL INTERIOR CONTROL JOINTS AS REQUIRED TO COMPLY WITH MAXIMUM SPACING REQUIREMENTS IN SPECIFICATIONS AND NATIONAL MASONRY INSTITUTE.
 - MECHANICAL & ELECTRICAL EQUIPMENT SHALL BE ON HOUSEKEEPING PADS. PADS ARE TO BE PROVIDED BY THE TRADE SUPPLYING THE EQUIPMENT. SEE MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION. WORK TO BE COORDINATED THROUGH THE GENERAL TRADES CONTRACTOR. PADS + MIN. 4" THICK W/ W.W.F. UNLESS NOTED OTHERWISE. FURNITURE IS INCLUDED IN CONTRACT. SEE FINE DRAWINGS FOR ADDITIONAL INFO. PROVIDE RESIDENTIAL APPLIANCES IN RESIDENTIAL UNITS AND PUBLIC AREAS UNLESS NOTED OTHERWISE. ALL APPLIANCES TO BE PROVIDED AND INSTALLED BY GC.
 - ALL INTERIOR GYPSUM BOARD PARTITIONS TO INCLUDE THE USE OF 5/8" GYPSUM BOARD. WHERE NEW TUBS, SHOWERS & SURROUNDS. ALL SINKS, WATER HEATERS AND CLOTHES WASHERS ARE BEING PROVIDED AND INSTALLED. GYPSUM BOARD / SUBSTRATE IS TO BE MOISTURE-RESISTANT SUBSTRATE (NON-PAPER FACED). WITHIN 4 FEET OF ANY WATER SOURCES WHERE DRYWALL CAN BE SPLASHED.
 - FOR 1-PIECE TUB/SHOWER UNIT, IT IS NOT REQUIRED TO INSTALL DRYWALL OR TYVEK BEHIND UNIT EXCEPT AT FIRE RATED WALL ASSEMBLIES. INSTALL GYPSUM BOARD AS REQUIRED.
 - ALL DOORS LOCATED FOR PUBLIC ACCESS. ALL RESIDENTIAL ENTRANCES AND ALL USABLE DOORS IN ANSI TYPE A UNITS SHALL BE INSTALLED TO MAINTAIN THE DOOR CLEARANCE REQUIREMENTS OUTLINED ON THE TYPICAL PROJECT DETAILS SHEETS.
 - THRESHOLDS, IF PROVIDED AT PUBLIC DOORWAYS AND IN ANSI TYPE A UNITS, MUST BE 1/2 INCH HIGH MAXIMUM. CHANGES IN LEVEL OF 1/4 INCH HIGH MAXIMUM ARE PERMITTED TO BE VERTICAL. CHANGES IN LEVEL BETWEEN 1/4 INCH HIGH MINIMUM AND 1/2 INCH HIGH MAXIMUM MUST BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
 - GYPSUM UNDERLAYMENT SHALL BE PROVIDED AT ALL FLOOR / CEILING ASSEMBLIES EXCEPT STAIR TREADS. ALL GYPSUM UNDERLAYMENT SHALL RECEIVE A FLOORING MATERIAL. GYPSUM UNDERLAYMENT SHALL NOT BE VISIBLE TO VIEW. FLOORING MATERIAL IS NOT REQUIRED UNDERNEATH BASE CABINETS BUT REQUIRED UNDER REMOVABLE BASE CABINETS.
 - ACOUSTICAL MAT SHALL BE PROVIDED ON ALL WOOD FLOOR / CEILING ASSEMBLIES.
 - WHERE TUBS ARE LOCATED, PROVIDE AND INSTALL WOOD BLOCKING IN WALLS AROUND TUBS FOR FUTURE INSTALLATION OF GRAB BARS. WHERE ROLL-IN SHOWERS ARE LOCATED, PROVIDE AND INSTALL WOOD BLOCKING AND GRAB BARS IN WALLS AROUND SHOWER. SEE TYPICAL PROJECT DETAILS AND MEP DRAWINGS FOR ADDITIONAL INFORMATION.
 - PROVIDE BLOCKING FOR CURVED SHOWER RODS, LOCATED DIRECTLY ABOVE THE TOP OF THE SHOWER ENCLOSURE.
 - REFER TO MOUNTING HEIGHTS SCHEDULE FOR MOUNTING HEIGHTS. PROVIDE AND INSTALL WINDOW COVERINGS AND HEAVY DUTY WINDOW SCREENS AT ALL RESIDENTIAL UNIT WINDOWS. PROVIDE AND INSTALL WINDOW COVERINGS AT COMMUNITY ROOMS CR-100 AND CR-101.
 - CALL OUT ALL EXTERIOR PENETRATIONS. REFER TO SPEC SECTION 07 92 00 JOINT SEALANTS FOR DETAILS.
 - ANY PENETRATIONS AT FIRE RATED WALLS ARE TO BE FIRESTOPPED. PROVIDE AND INSTALL PASSIVE RADON REMEDIATION SYSTEM AS NOTED. REFER TO TYPICAL PROJECT DETAILS. PLUMBING PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - PROVIDE AND INSTALL CORNER GUARDS AT ALL WALL CORNER LOCATIONS IN CORRIDORS AND PUBLIC AREAS.

- LEGEND - FLOOR PLAN**
- 2 HR FIRE RATED WALLS
 - 1 HR FIRE RATING - INCLUDING BUT NOT LIMITED TO STAIR WALLS, ELEVATOR WALLS AND UNIT DEMISING WALLS
 - 1 HR FIRE RATED CORRIDOR WALLS
 - INTERIOR PARTITION
 - SENSORY (HEARING / VISUALLY IMPAIRED) UNIT - SEE OVERALL FLOOR PLANS FOR LOCATIONS. LOCATE MEP EQUIPMENT AND DEVICES TO MAINTAIN CLEARANCES AS NOTED AND AS DASHED IN FLOOR PLANS. SEE MEP DRAWINGS FOR ADDITIONAL INFO.
 - ANSI TYPE A UNIT - SEE OVERALL FLOOR PLANS FOR LOCATIONS. LOCATE MEP EQUIPMENT AND DEVICES TO MAINTAIN CLEARANCES AS NOTED AND AS DASHED IN FLOOR PLANS. UNITS TO ALSO INCLUDE SENSORY (HEARING / VISUALLY IMPAIRED) UNIT FEATURES. SEE MEP DRAWINGS FOR ADDITIONAL INFO.
 - PLAN ELEVATION
 - F.E.C. SEMI-RECESSED, RATED FIRE EXTINGUISHER CABINET (F.E.C.) AND FIRE EXTINGUISHER UNIT SHALL NOT ENCROACH MORE THAN 4" INTO THE PATH OF EGRESS.
 - DIRECTION OF INSTALLATION OF LVT FLOORING. SEE A800 SERIES SHEETS FOR FINISH SCHEDULE.
 - DOOR TYPE
 - REQUIRED 30"x48" CLEAR FLOOR SPACE - 48" SHALL BE CENTERED AT APPLIANCES AND SINKS
 - ACCESSIBLE ROUTE, MINIMUM 36" CLEAR
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY.
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY. (NOISE MITIGATION = OITC 27)

#	DATE	CHANGE DESCRIPTION
1	05/05/2022	ADDENDUM #03

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
LEVEL 02 - FLOOR PLAN - OVERALL

JAY W. BOONE, LIC. #10740
EXP. DATE: 12/31/2022

APRIL 4, 2022

DRAWN BY: XXXX CHECKED BY: XXXX

Proj. #20643

A102

PERMIT & BID SET

	UNIT MATRIX						TOTAL
	TYPE A	TYPE B	TYPE B	TYPE A	TYPE B	TYPE B	
LEVEL 01	1	3	1	0	4	1	10
LEVEL 02	0	0	0	0	1	0	1
LEVEL 03	0	0	0	1	20	0	21
	1	3	1	2	44	1	52
		5			47		

GENERAL NOTES:
A. REFER TO "ENLARGED UNIT PLANS" FOR ADDITIONAL INFORMATION.

- CODED NOTE LEGEND**
- METAL MAILBOXES AND PARCEL BOXES AS SHOWN IN FLOORS PLANS. DESIGN BASED ON THE MAILBOX WORKS OR EQUAL. PROVIDE ONE MAILBOX PER UNIT AND ONE PARCEL BOX PER EVERY FIVE MAILBOXES. BOTTOM OF UNIT SHALL NOT BE MOUNTED LOWER THAN 15 INCHES AFF AND TOP OF THE HIGHEST KEY HOLE SHALL NOT BE MOUNTED HIGHER THAN 48 INCHES AFF. SEE DETAIL FOR MORE INFORMATION.
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 - PAINTED METAL RAILING AT STAIRS.
 - SEMI-RECESSED APHONE. COORDINATE EXACT LOCATION WITH ARCHITECT AND MOUNT NO HIGHER THAN 4 FEET AFF. SEE ELECTRICAL INFORMATION.
 - KNOX BOX. COORDINATE FINAL LOCATION WITH FIRE DEPARTMENT.
 - NOT USED.
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 - JANITORS SINK. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - ROOF HATCH ABOVE. LOCKABLE FROM STAIR SIDE.
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 - FIRE CUT WALL W/ PARTITION TYPE 11.11 W/ SOUND BATT INSULATION AT THIS LOCATION.
 - PROJECTION OF FLOOR ABOVE (DASHED)
 - CORNER GUARDS. TYPICAL
 - 48" X 96" WHITEBOARD. TYPICAL. SEE SPECIFICATIONS.
 - 48" X 48" TACKBOARD. TYPICAL. SEE SPECIFICATIONS.
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1 PLAN LEVEL 03 - OVERALL
1/8" = 1'-0"

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 - CONTRACTOR PADS: MIN 4" THICK W/ W.F. UNLESS NOTED OTHERWISE. FURNITURE IS INCLUDED IN CONTRACT. SEE FINE DRAWINGS FOR ADDITIONAL INFO. PROVIDE RESIDENTIAL APPLIANCES IN RESIDENTIAL UNITS AND PUBLIC AREAS UNLESS NOTED OTHERWISE. ALL APPLIANCES TO BE PROVIDED AND INSTALLED BY GC.
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 - 1 HR FIRE RATING - INCLUDING BUT NOT LIMITED TO STAIR WALLS, ELEVATOR WALLS AND UNIT DEMISING WALLS.
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 - F.E.C. SEMI-RECESSED, RATED FIRE EXTINGUISHER CABINET (F.E.C.) AND FIRE EXTINGUISHER UNIT SHALL NOT ENCRoACH MORE THAN 4" INTO THE PATH OF EGRESS.
 - DIR. DIRECTION OF INSTALLATION OF LVT FLOORING. SEE A800 SERIES SHEETS FOR FINISH SCHEDULE.
 - X DOOR TYPE
 - REQUIRED 30"x48" CLEAR FLOOR SPACE - 48" SHALL BE CENTERED AT APPLIANCES AND SINKS
 - ACCESSIBLE ROUTE, MINIMUM 36" CLEAR
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY.
 - WINDOW TYPE. SEE A700 SERIES SHEETS FOR SIZES, SIZES & LOCATIONS SHOWN FOR REFERENCE ONLY. (NOISE MITIGATION = OITC 27)

#	DATE	CHANGE DESCRIPTION
1	05/05/2022	ADDENDUM #03

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

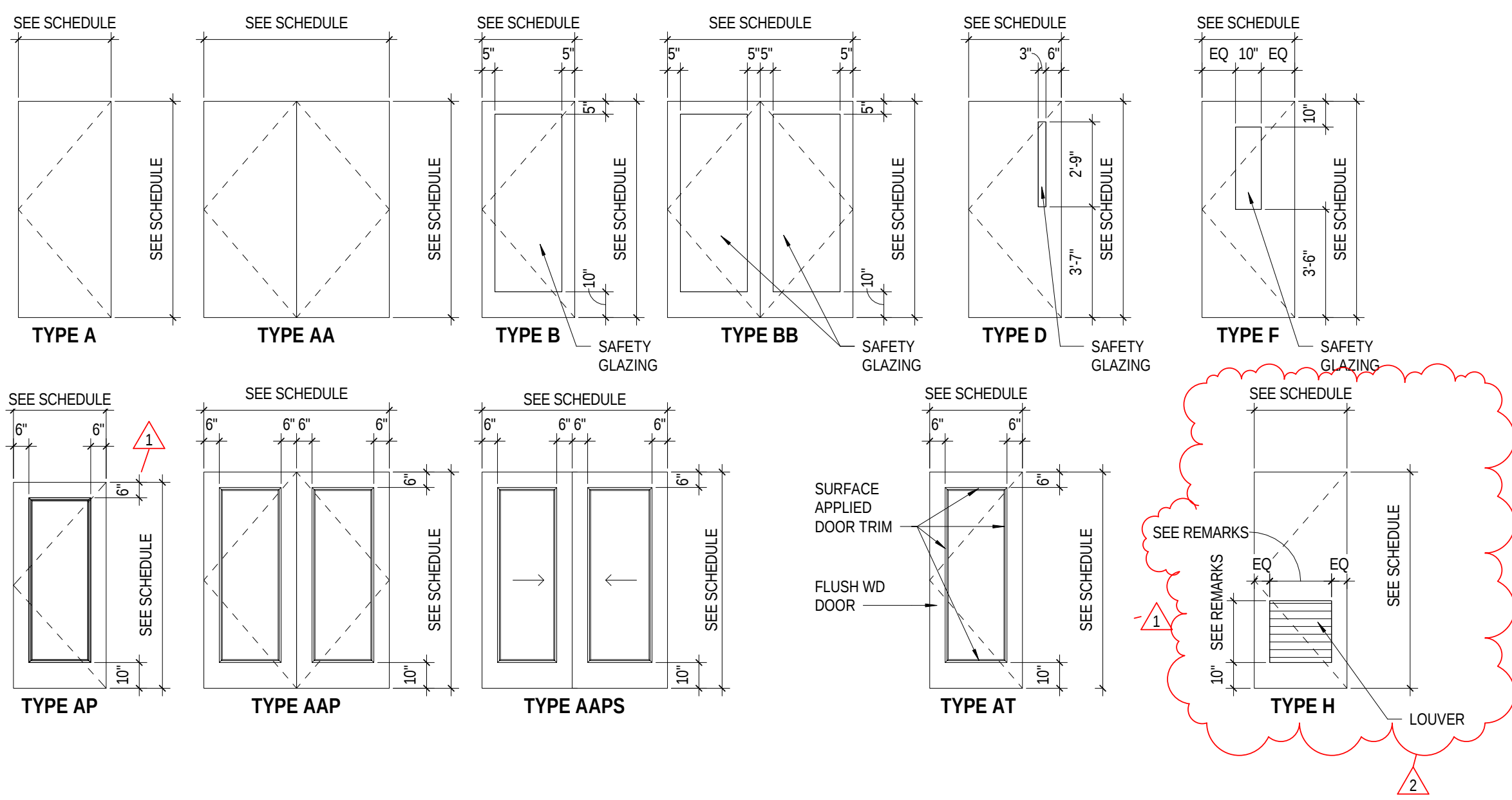
MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
LEVEL 03 - FLOOR PLAN - OVERALL

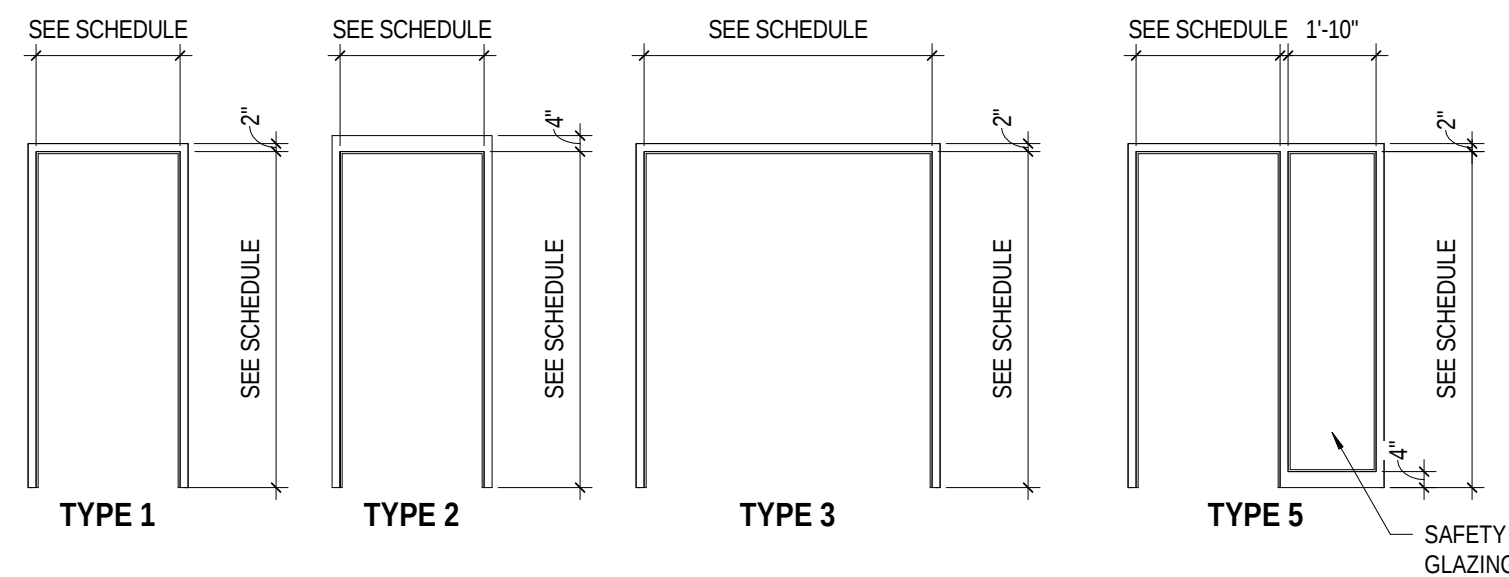
APRIL 4, 2022
DRAWN BY: XXXX
CHECKED BY: XXXX
Proj. #20643
A103
PERMIT & BID SET

JAY W BOONE, LIC. #10740
EXP. DATE: 12/31/2022

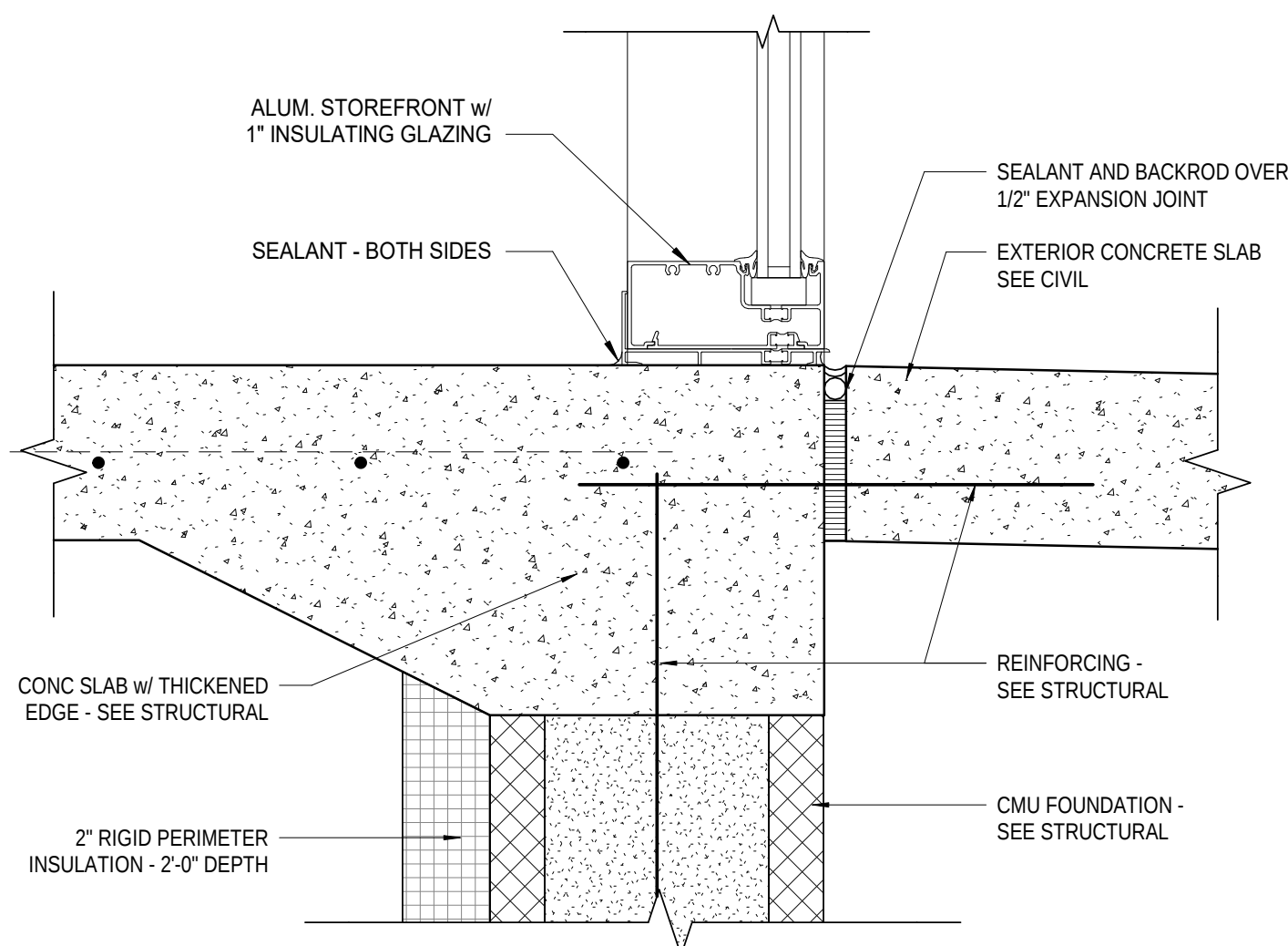
DOOR PANEL TYPE LEGEND



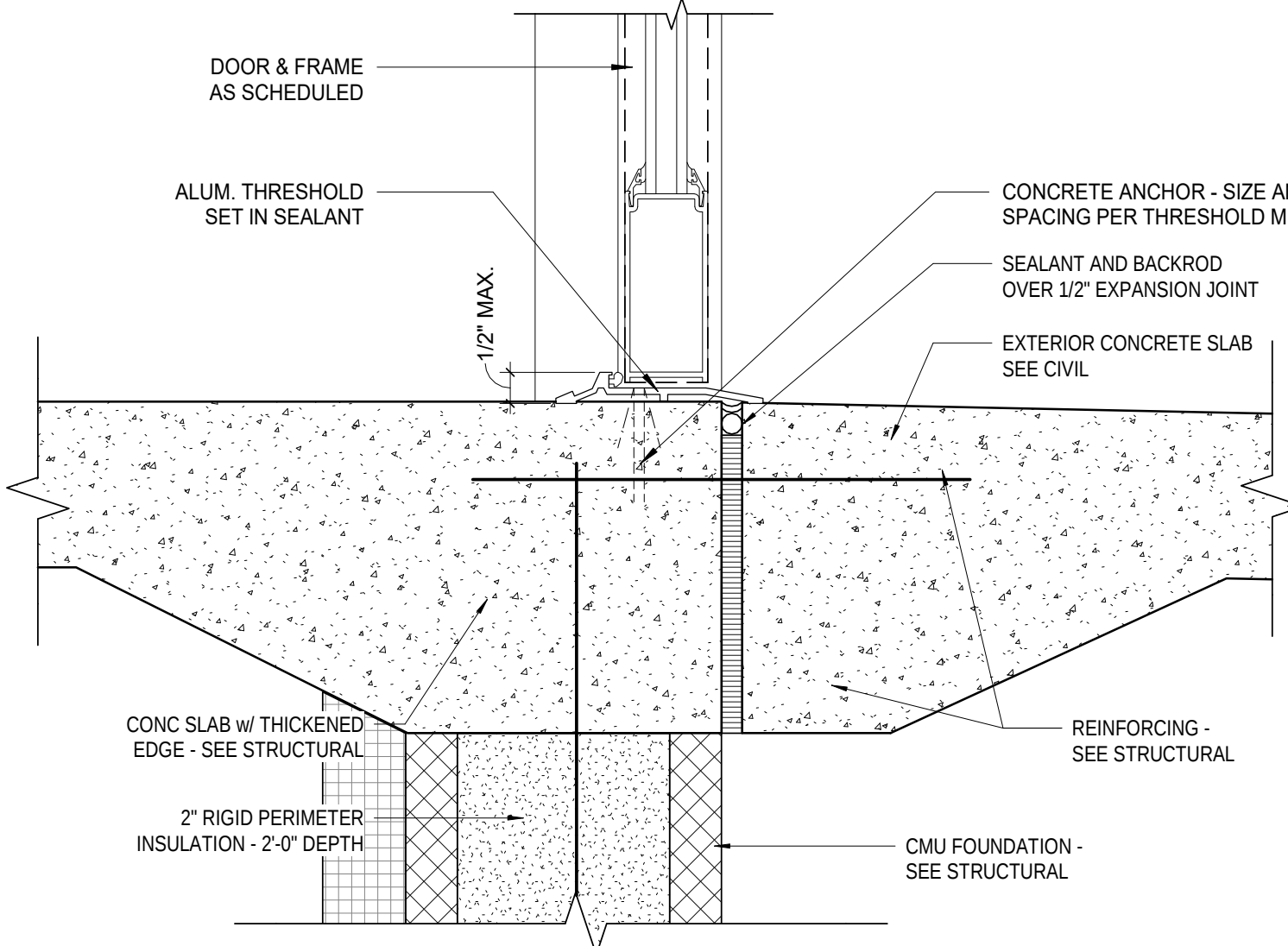
DOOR FRAME TYPE LEGEND



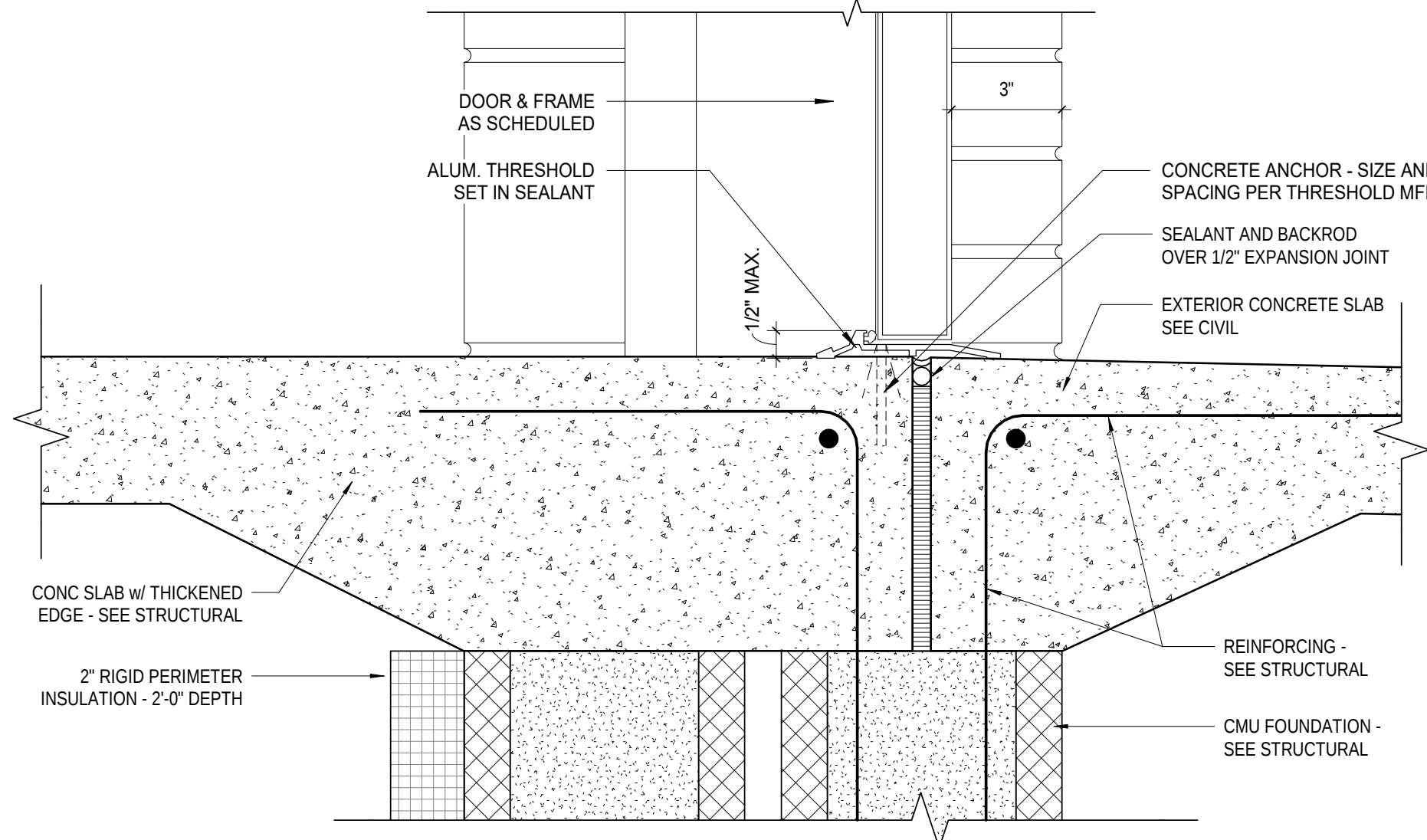
DOOR SCHEDULE												
DOOR				FRAME		FIRE RATING (MINUTES)		DETAILS - SHEET A710				
NUMBER	ROOM NAME	WIDTH	HEIGHT	MATERIAL	ELEV	MATERIAL	ELEV	HOW SET	HEAD	JAMB	SILL	REMARKS
AD-101	ADMIN	3'-0"	7'-0"	WD	A	HM	5	-	3	2	1	-
C-100	CORRIDOR	3'-0"	7'-0"	WD	A	HM	1	60	8	10	9	-
C-101	CORRIDOR	3'-0"	7'-0"	WD	A	HM	1	60	8	10	9	-
C-102	CORRIDOR	3'-0"	7'-0"	HM	A	HM	2	-	20	20	19	2/A701
CR-100A	COMMUNITY ROOM	3'-0"	7'-0"	WD	A	HM	5	60	16	10	9	60 MIN FIRE RATED GLAZING & FRAME
CR-100B	COMMUNITY ROOM	3'-0"	7'-0"	ALUM	B	ALUM	6/A701	-	14	28	27	1/A701
CR-101A	COMMUNITY ROOM	3'-0"	7'-0"	WD	A	HM	5	60	16	10	9	60 MIN FIRE RATED GLAZING & FRAME
CR-101B	COMMUNITY ROOM	3'-0"	7'-0"	ALUM	B	ALUM	6/A701	-	14	28	27	1/A701
E-100	ELEC	3'-0"	7'-0"	HM	A	HM	1	90	17	30	29	-
E-200	ELEC	3'-0"	7'-0"	HM	A	HM	1	60	17	10	9	-
E-300	ELEC	3'-0"	7'-0"	HM	A	HM	1	60	17	10	9	-
EL-100A	ELEV.	4'-0"	7'-0"	SS	BY MFR	SS	BY MFR	60	18	8/A620	7/A620	9/A620
EL-100B	ELEV.	3'-0"	7'-0"	HM	A	HM	2	60	12	4	3	DETAILS SIMILAR WITH NO FURRING
EL-200	ELEV	4'-0"	7'-0"	SS	BY MFR	SS	BY MFR	60	18	8/A620	7/A620	9/A620
EL-300	ELEV	4'-0"	7'-0"	SS	BY MFR	SS	BY MFR	60	18	8/A620	7/A620	9/A620
J-101	JAN	3'-0"	7'-0"	HM	A	HM	1	-	9	2	1	-
J-201	JAN	3'-0"	7'-0"	HM	A	HM	1	-	10	2	1	-
J-301	JAN	3'-0"	7'-0"	HM	A	HM	1	-	10	2	1	-
L-100	LAUNDRY	3'-0"	7'-0"	HM	A	HM	1	20	4	10	9	-
L-101	LAUNDRY	3'-0"	7'-0"	HM	A	HM	1	45	4	10	9	-
L-200	LAUNDRY	3'-0"	7'-0"	HM	A	HM	1	20	4	10	9	-
L-300	LAUNDRY	3'-0"	7'-0"	HM	A	HM	1	20	4	10	9	-
M-101A	MECH	3'-0"	7'-0"	HM	H	HM	1	9	2	1	1	30" X 30" LOUVER
M-101B	MECHELEC	3'-0"	7'-0"	HM	A	HM	1	60	15	10	9	-
M-200	MECH	6'-0"	7'-0"	HM	AA	HM	3	20	13	10	9	-
M-300	MECH	6'-0"	7'-0"	HM	AA	HM	3	20	13	10	9	-
MG-101A	MEETING	3'-0"	7'-0"	WD	A	HM	5	-	1	24	18	-
MG-101B	MEETING	3'-0"	7'-0"	WD	A	HM	5	-	1	24	18	-
MG-101C	MEETING	3'-0"	7'-0"	WD	A	HM	5	-	1	24	18	-
MG-101D	MEETING	3'-0"	7'-0"	WD	A	HM	5	-	1	2	1	-
MT-101	MAINT	3'-0"	7'-0"	WD	F	HM	1	-	3	2	1	-
PA-100	PARCEL STORAGE	3'-0"	7'-0"	HM	A	HM	1	-	6	2	1	3/4" UNDERCUT @ DOOR
S-100	STORAGE	3'-0"	7'-0"	HM	A	HM	1	-	9	2	1	3/4" UNDERCUT @ DOOR
S-101A	STORAGE	3'-0"	7'-0"	HM	A	HM	1	-	5	2	1	3/4" UNDERCUT @ DOOR
S-101B	STORAGE	3'-0"	7'-0"	HM	A	HM	1	-	5	2	1	3/4" UNDERCUT @ DOOR
S-101C	STORAGE	3'-0"	7'-0"	HM	A	HM	1	-	7	2	1	3/4" UNDERCUT @ DOOR
ST-100A	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	-
ST-100B	STAIR	3'-0"	7'-0"	HM	A	HM	2	20	26	25	2	2/A701
ST-101A	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	2/A701
ST-101B	STAIR	3'-0"	7'-0"	HM	A	HM	2	20	26	25	2	-
ST-200	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	-
ST-201	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	-
ST-300	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	-
ST-301	STAIR	3'-0"	7'-0"	HM	D	HM	2	60	22	4	3	-
T-101A	TOILET	3'-0"	7'-0"	WD	A	HM	1	-	24	2	1	3/4" UNDERCUT @ DOOR
T-101B	TOILET	3'-0"	7'-0"	WD	A	HM	1	-	24	2	1	3/4" UNDERCUT @ DOOR
V-101A	VESTIBULE	6'-0"	7'-0"	ALUM	BB	ALUM	7/A701	-	19	28	27	1/A701
V-101B	VESTIBULE	6'-0"	7'-0"	ALUM	BB	ALUM	8/A701	-	21	22	21	KEYED REMOVABLE CENTER MULLION KEYED REMOVABLE CENTER MULLION
W-101A	WORK	3'-0"	7'-0"	WD	A	HM	1	-	2	2	1	-
W-101B	WORK	3'-0"	7'-0"	WD	A	HM	1	-	2	2	1	-
WA-100	WATER	4'-0"	7'-0"	HM	A	HM	2	-	11	20	19	2/A701



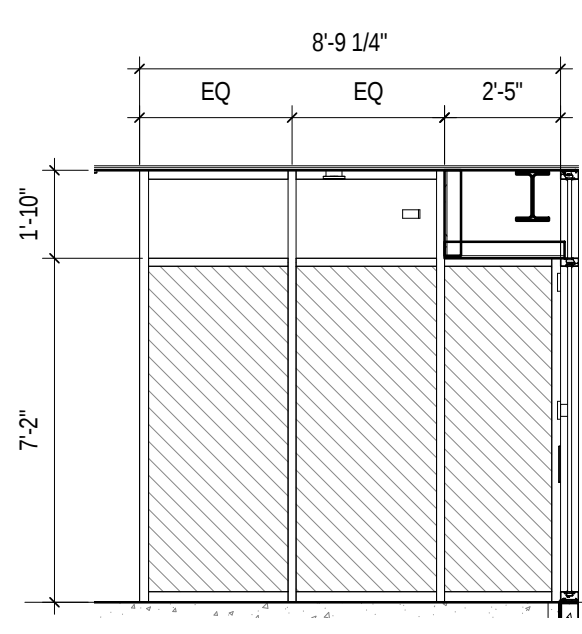
3 DETAIL ALUM STOREFRONT SILL
3" = 1'-0"
REF: 3 / A501



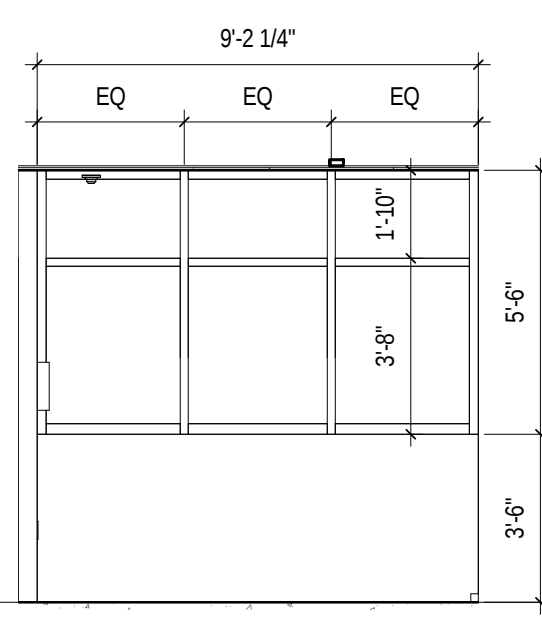
2 DETAIL ALUM THRESHOLD
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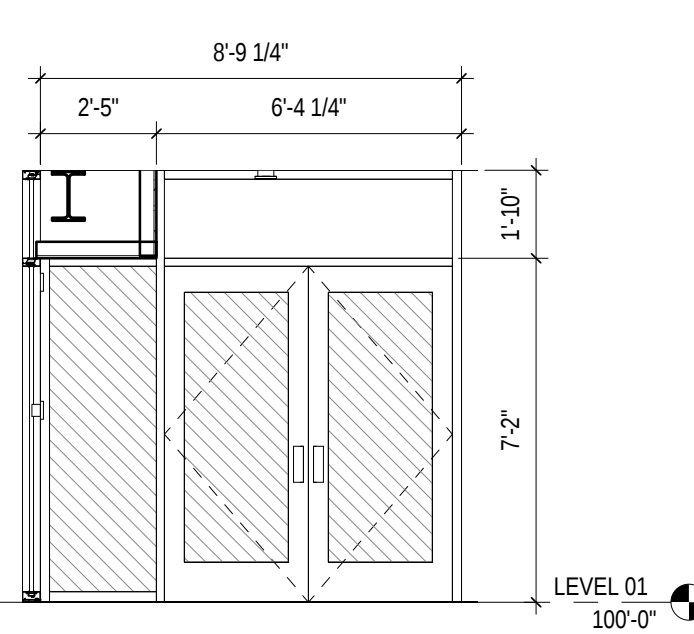
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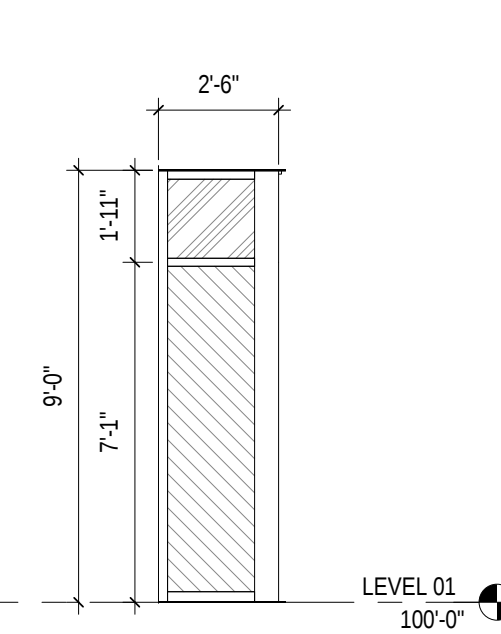
11 ELEVATION STOREFRONT - VESTIBULE WEST
1/4" = 1'-0"
REF: 1 / A812



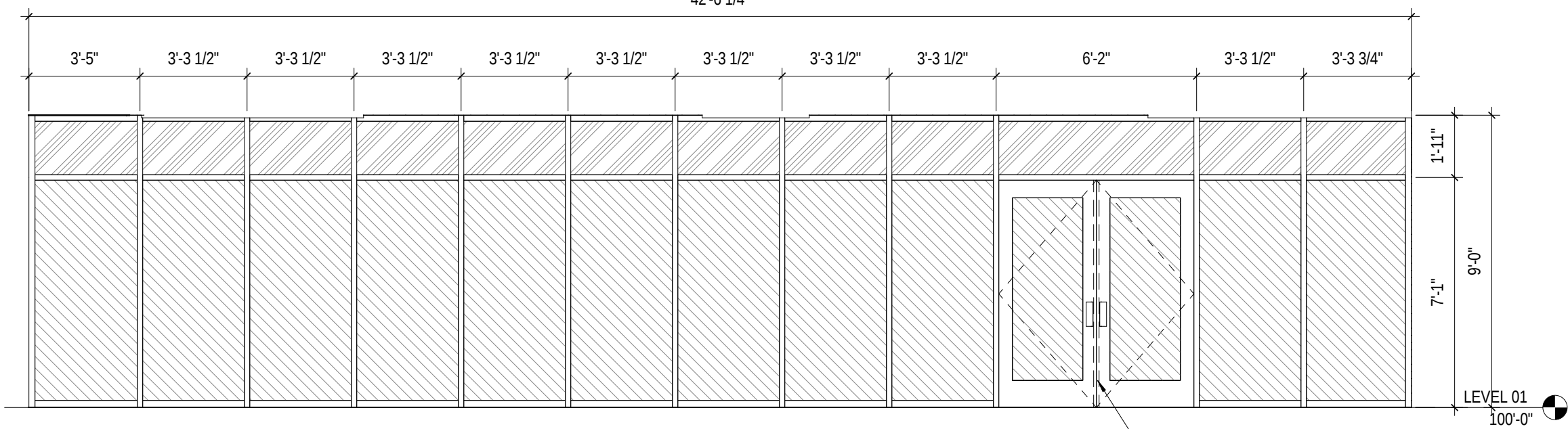
10 ELEVATION STOREFRONT - VESTIBULE SOUTH
1/4" = 1'-0"
REF: 1 / A812



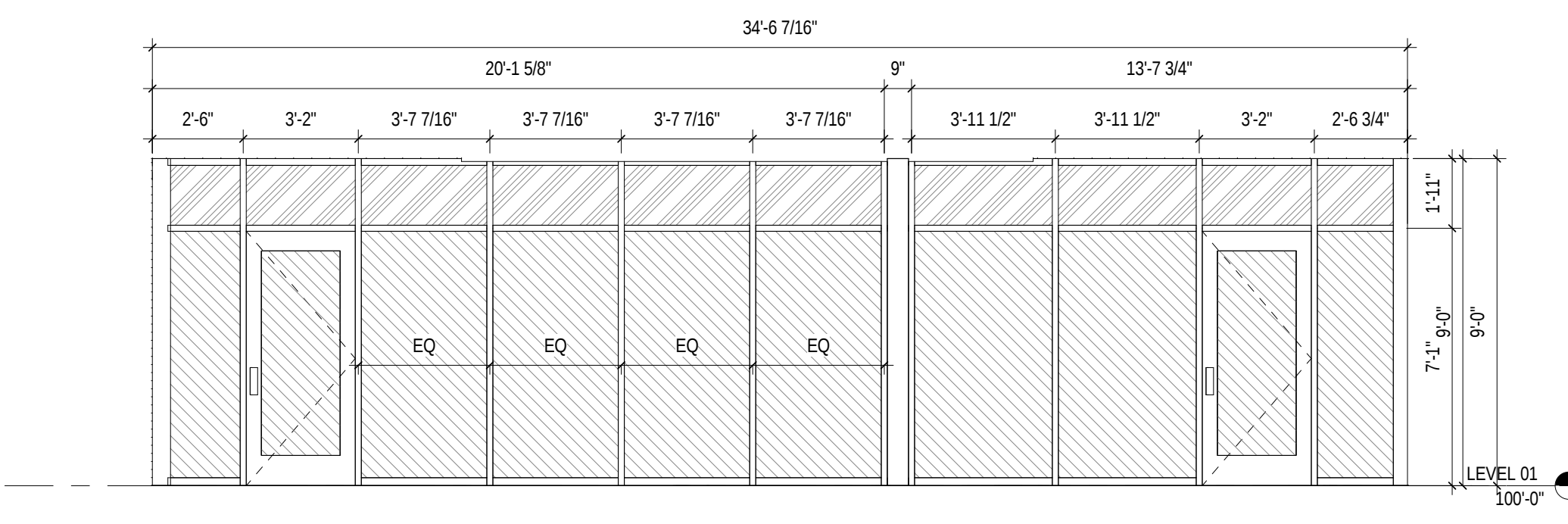
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1/4" = 1'-0"
REF: 1 / A812



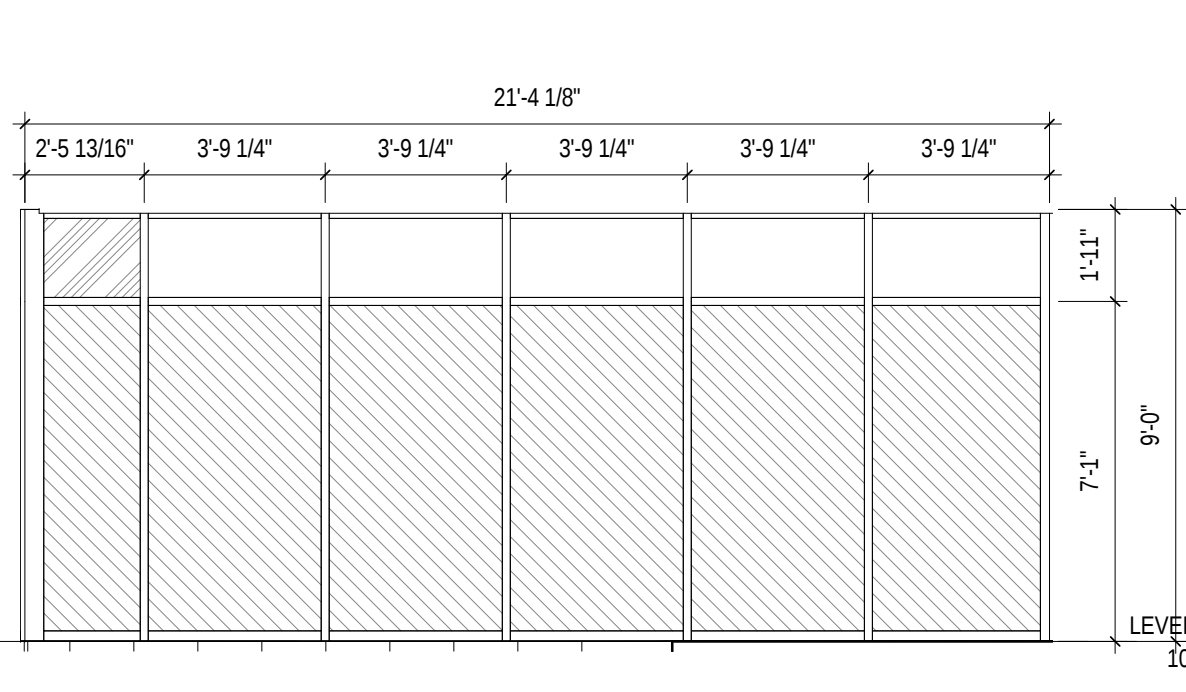
8 ELEVATION STOREFRONT - SIDE
1/4" = 1'-0"
REF: 1 / A101



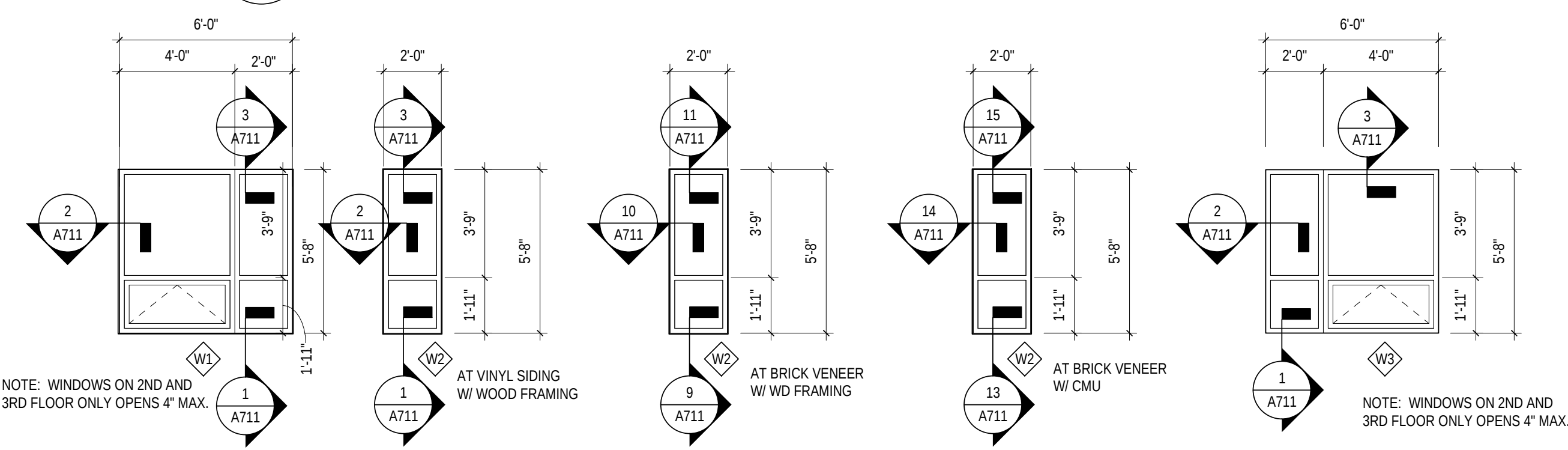
7 ELEVATION STOREFRONT - NORTH ENTRY
1/4" = 1'-0"
REF: 1 / A10



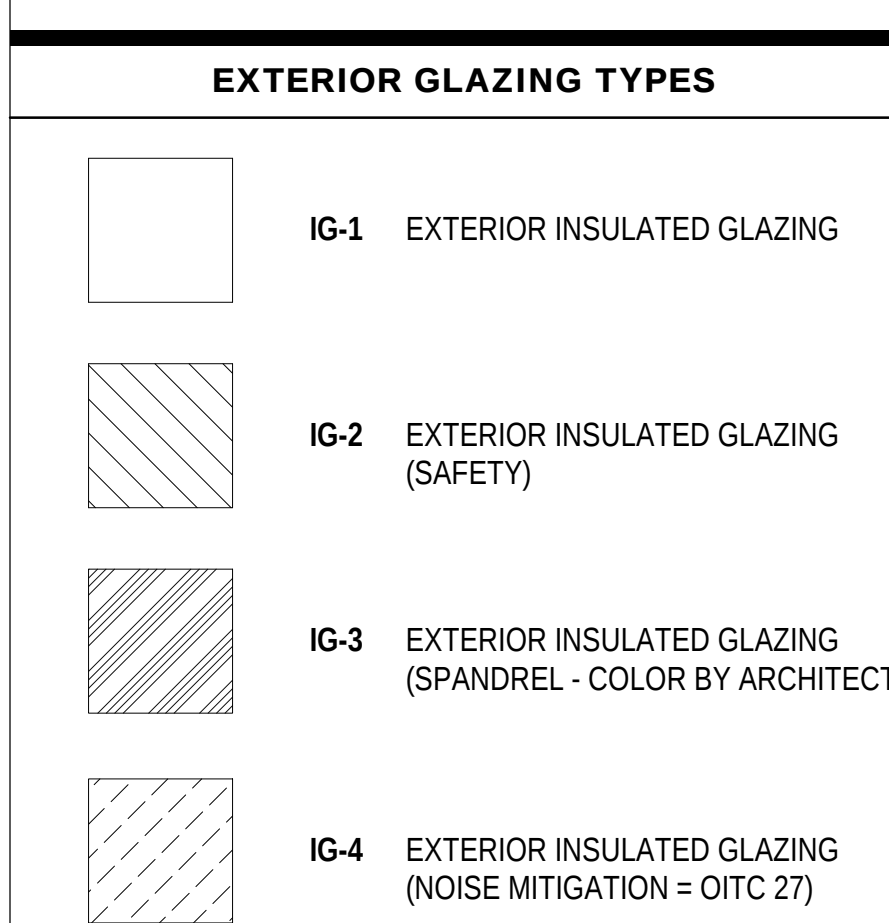
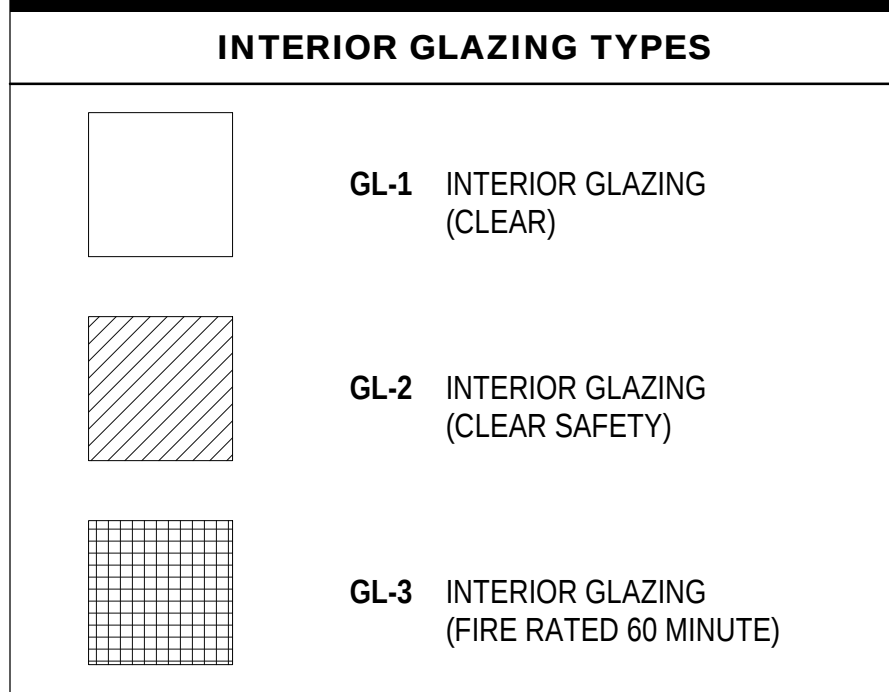
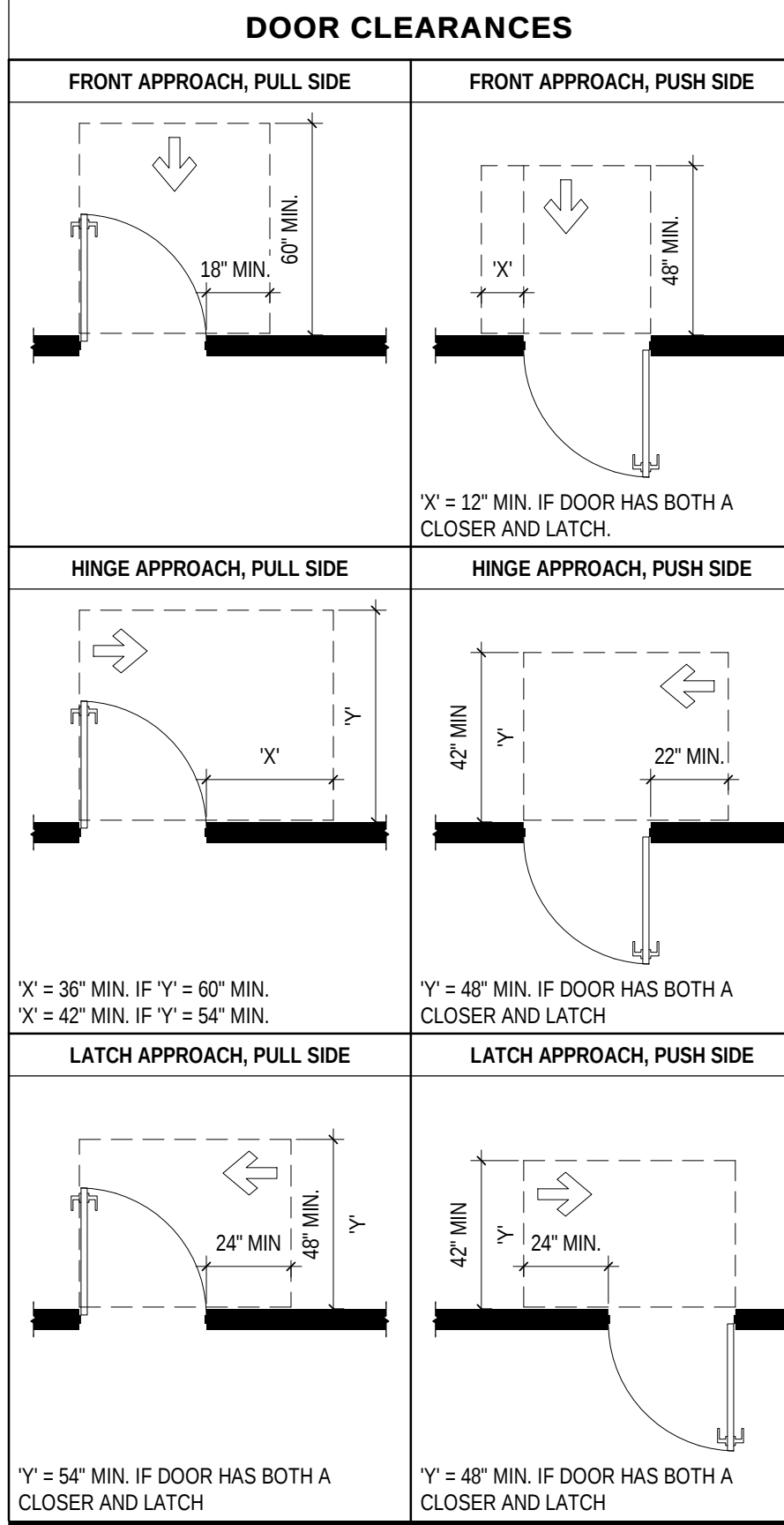
6 ELEVATION STOREFRONT COMMUNITY ROOM - SOUTH
1/4" = 1'-0"
REF: 1 / A10



5 ELEVATION STOREFRONT COMMUNITY ROOM - EASTa
1/4" = 1'-0"
REF: 1 / A10



4 ELEVATION VINYL WINDOWS - TYP
1/4" = 1'-0"
REF: 1 / A10



SAFETY GLAZING
Based on 2006 IBC

All glazing, including plastic glazing shall meet all applicable Codes and regulations. As a MINIMUM all glazing at the following locations shall be safety glazing.

DOORS - Glazing in doors (swinging, sliding, storm, or other, except curved glazing at revolving doors).

SIDELIGHTS - Glazing in sidelights adjacent to a door.

ADJACENT TO DOORS - All glazing within 2'4" of a closed door if the glazing is within 60" of the floor measured vertically.

WALKING SURFACE - Glazing greater than 9 square feet in area if the bottom of the glazing is less than 18" AFF, and the top of the glazing is more than 36" AFF, and there is a walking surface within 36" of the glazing measured horizontally.

MIRRORS - Glazing at mirrors without continuous backing.

ELEVATORS - All glazing at elevator shafts and elevator cabs shall be laminated safety glazing.

#	DATE	CHANGE DESCRIPTION
1	04/21/2022	ADDENDUM #02
2	05/05/2022	ADDENDUM #03

COLUMBUS METROPOLITAN HOUSING AUTHORITY
COMMUNITY. COMMITMENT. COLLABORATION.

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:

DOOR & WINDOW SCHEDULES

JAY W. BOONE, LIC. #10740
EXP. DATE: 12/31/2022

APRIL 4, 2022

DRAWN BY: XXX CHECKED BY: XXX

Proj. #20643

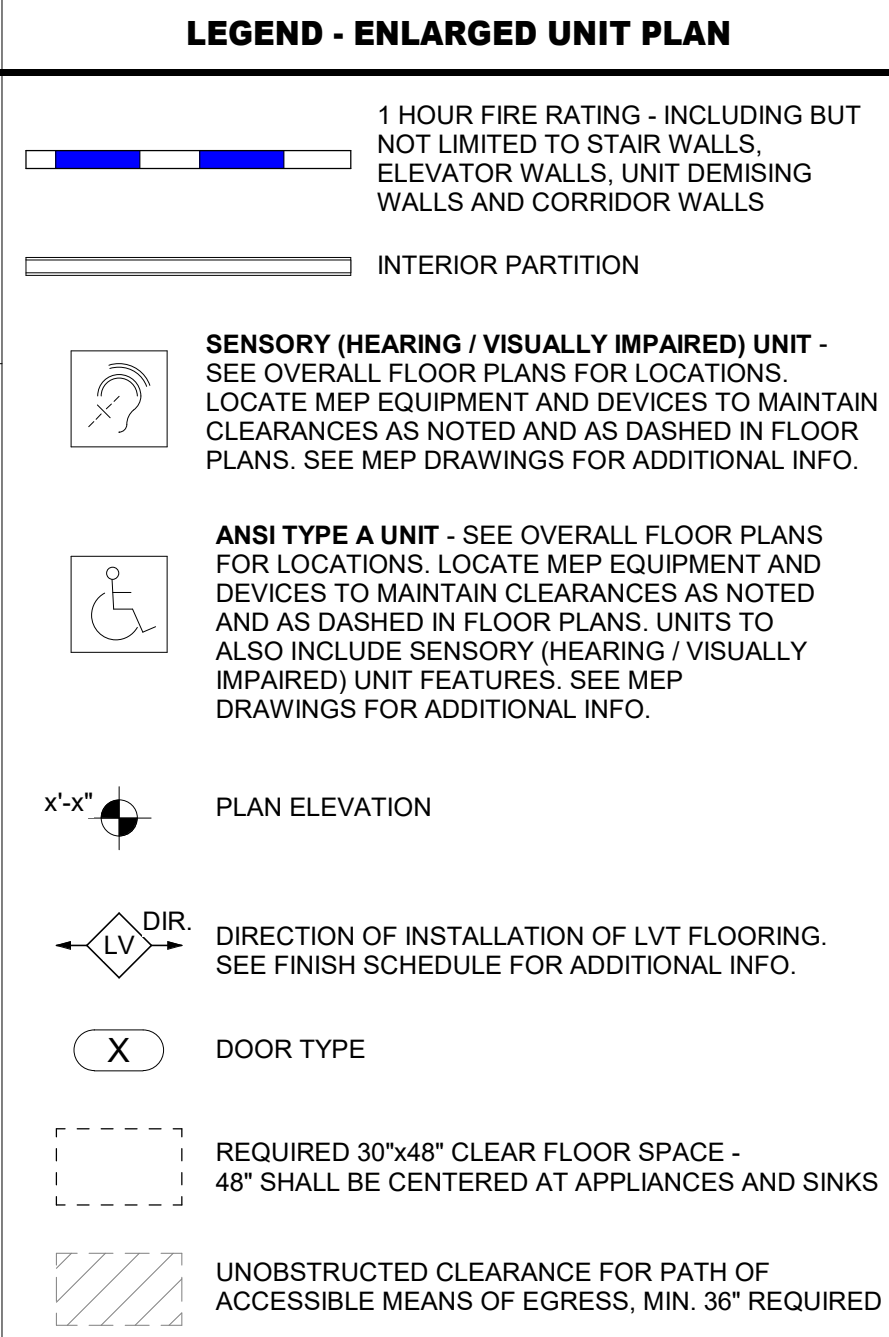
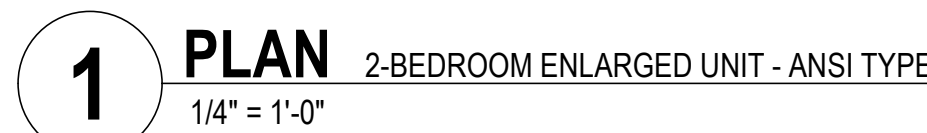
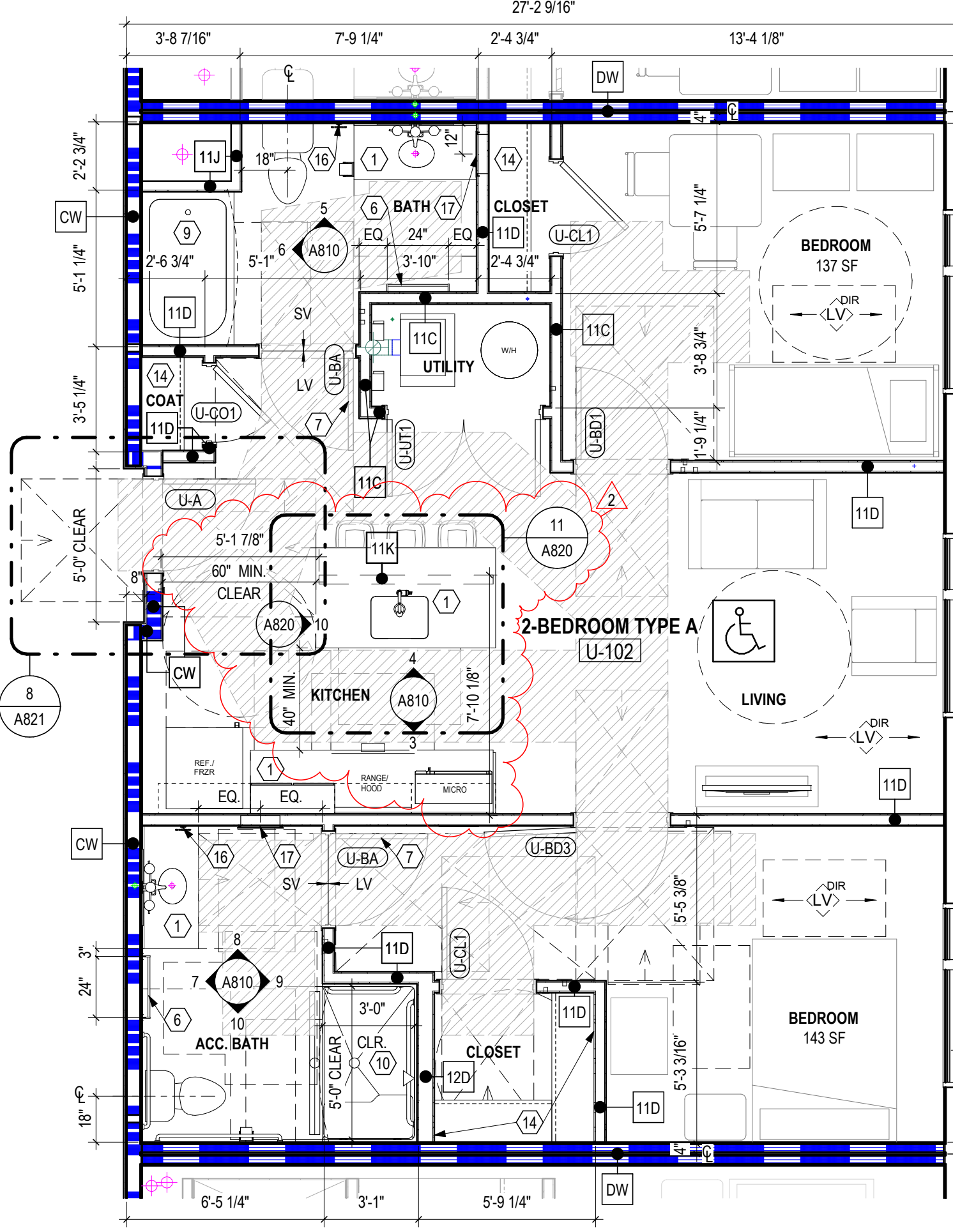
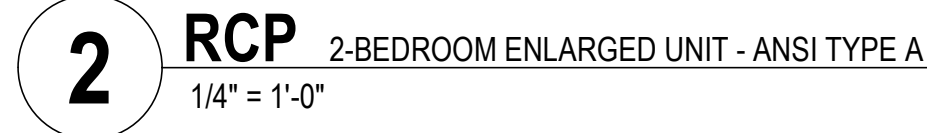
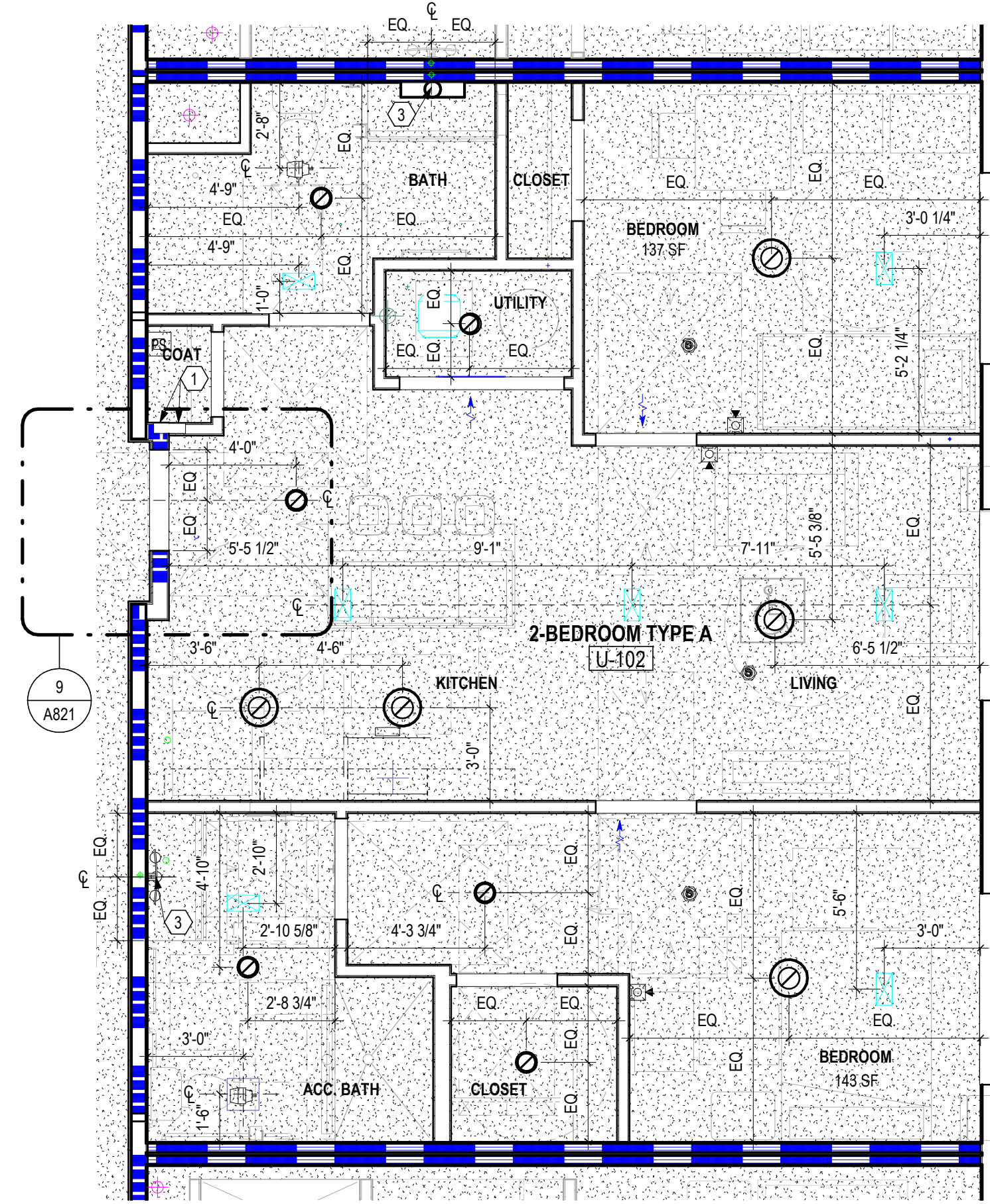
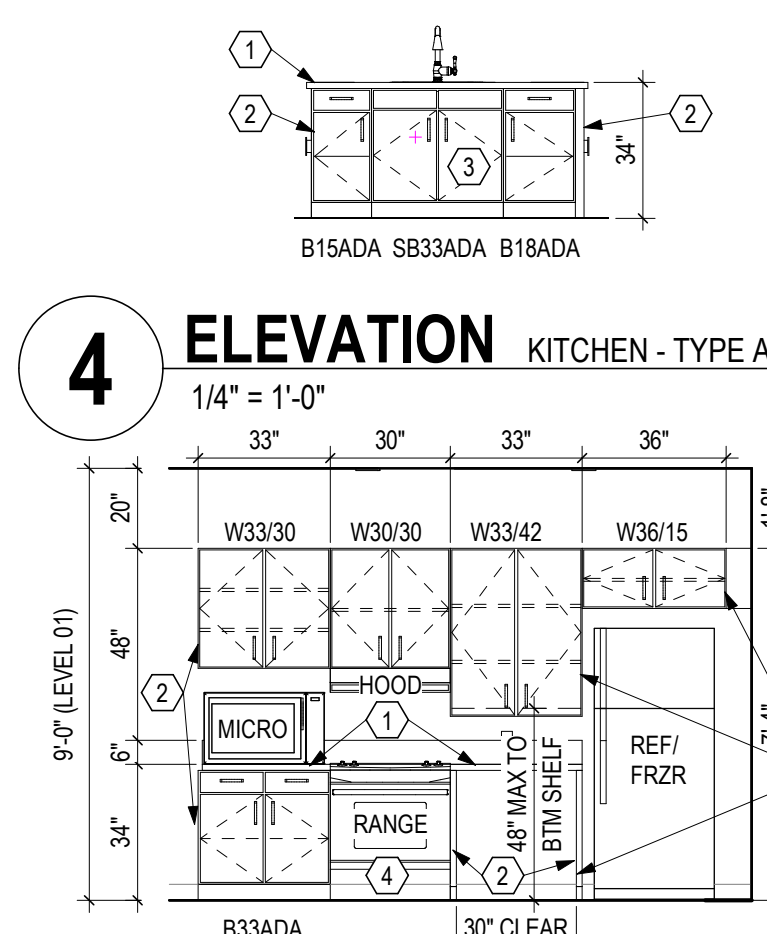
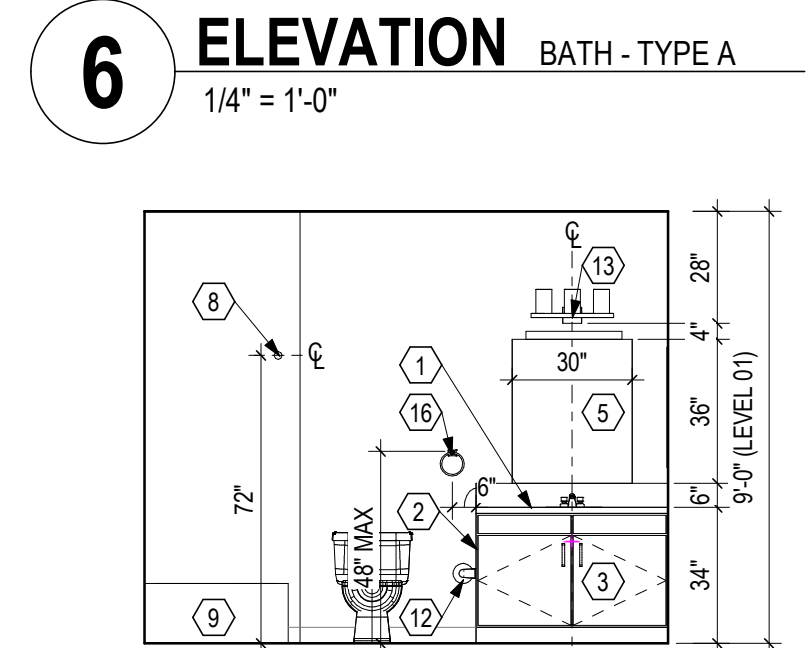
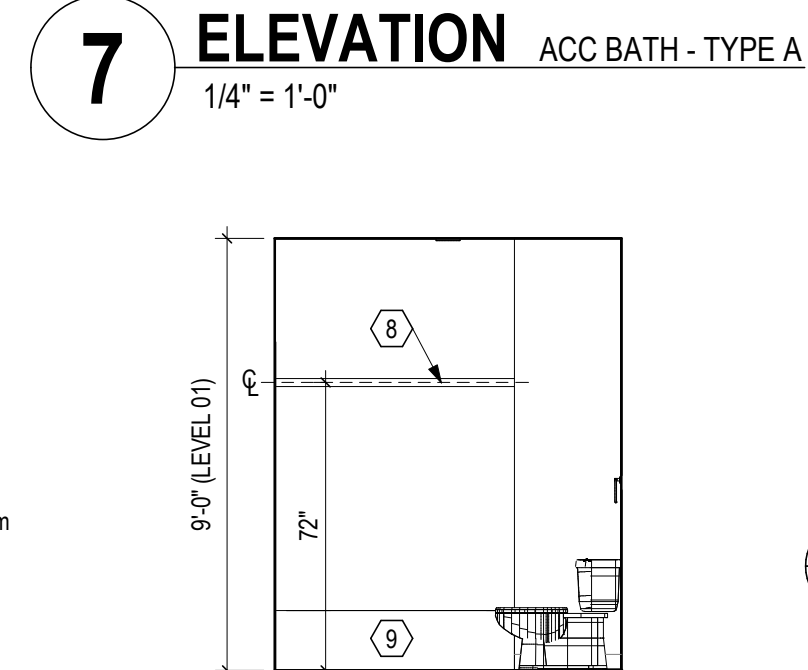
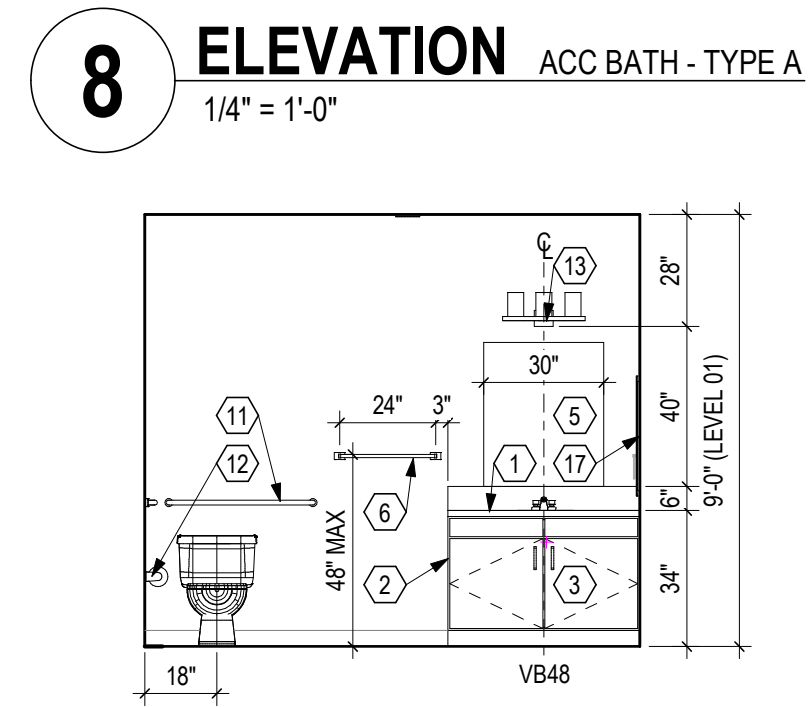
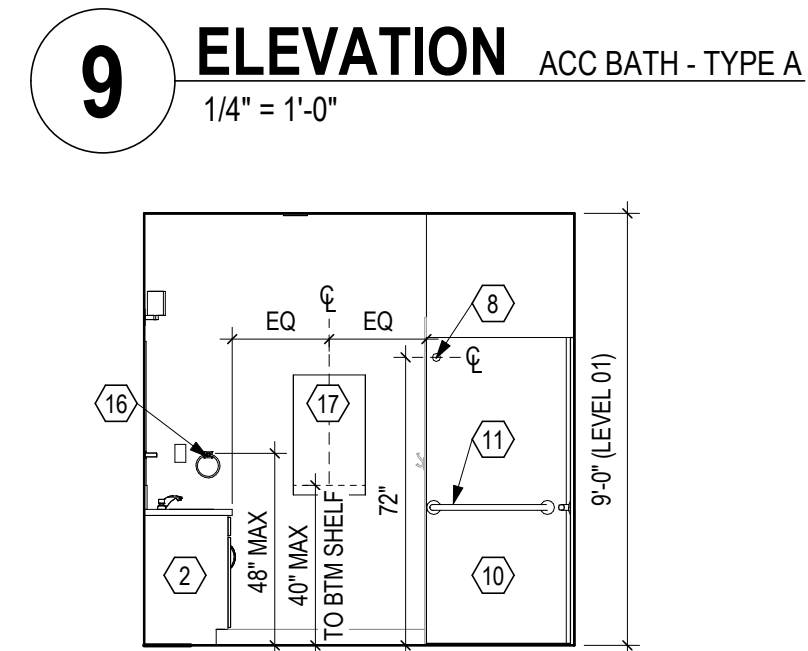
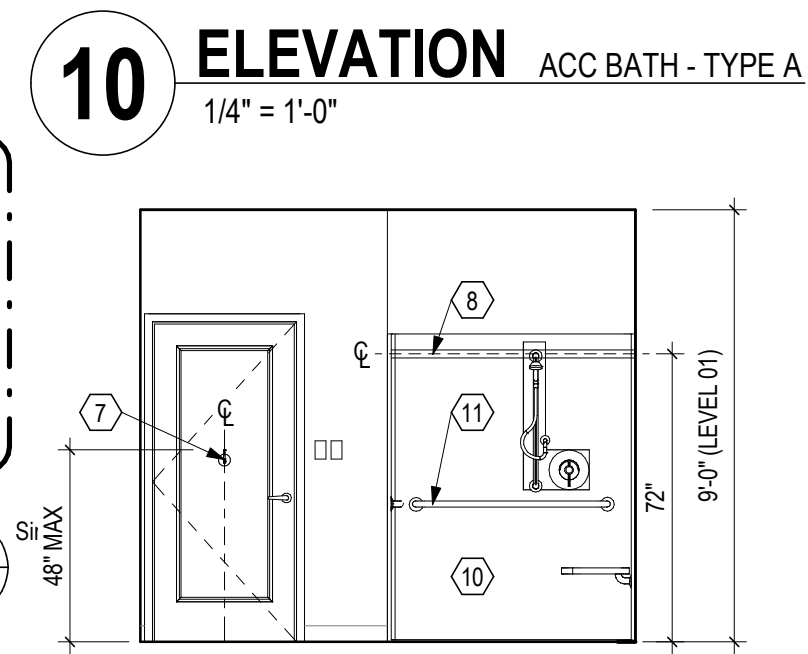
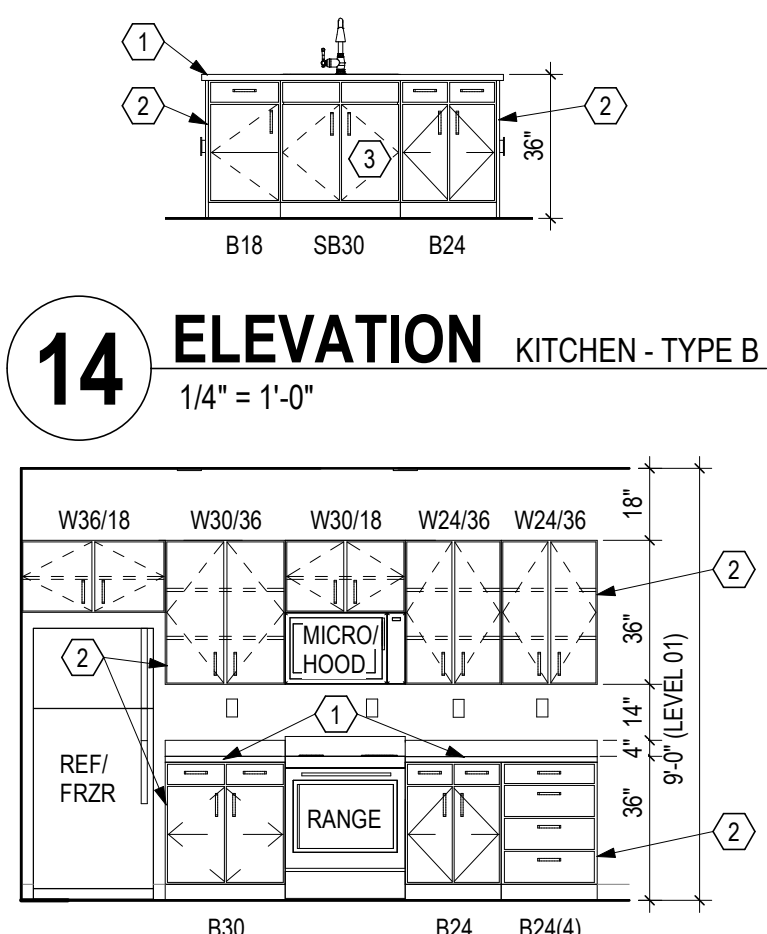
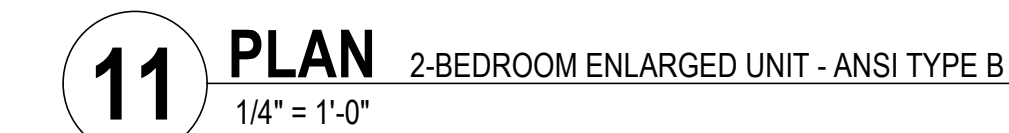
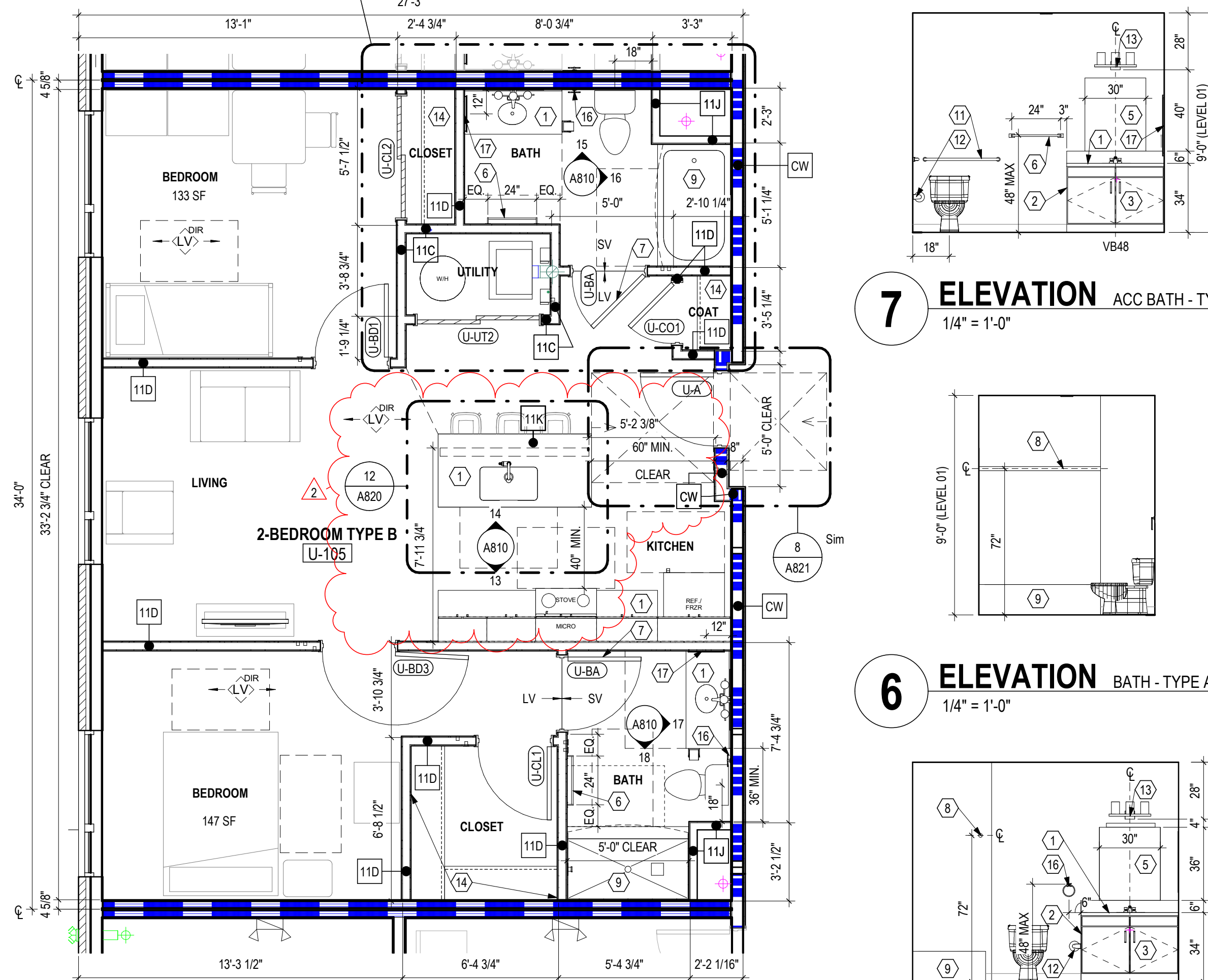
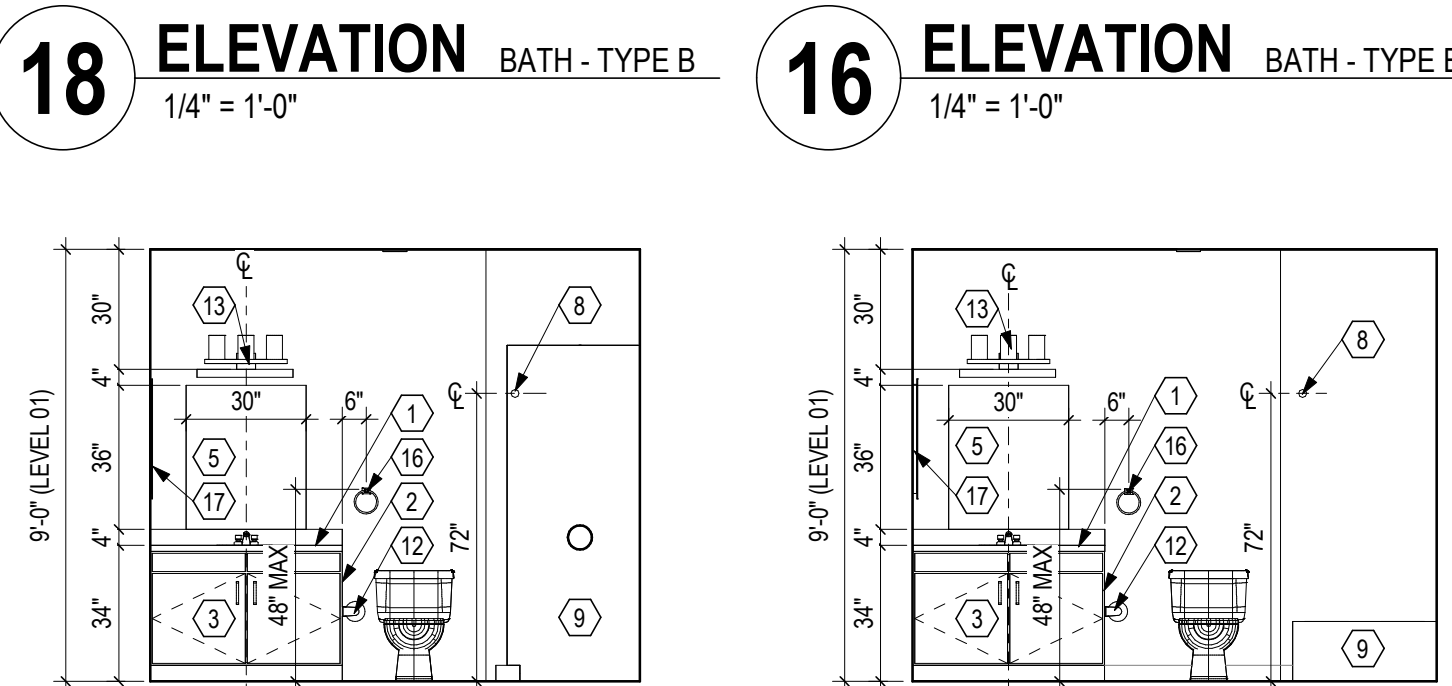
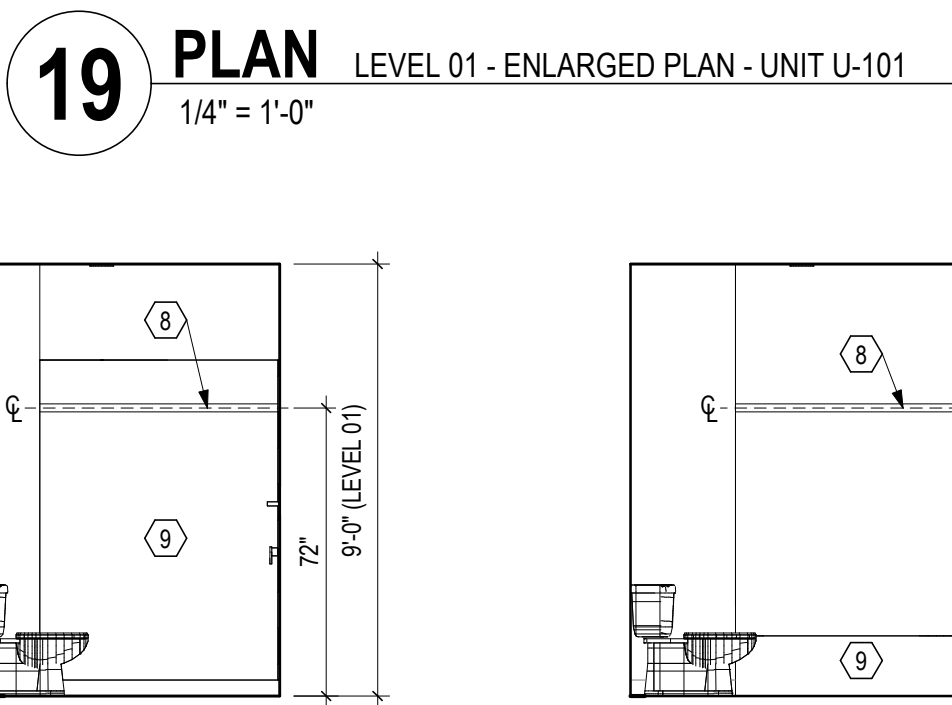
A701

PERMIT & BID SET

TYPICAL RESIDENTIAL UNIT FINISH SCHEDULE						
ROOM NAME	FLOOR		WALLS		SPACE DESCRIPTION	KEYED REMARKS
	FINISH	COLOR	FINISH	COLOR		
HALL	LV	1	PT	4		
COAT	LV	1	PT	4	APPLIES TO COAT CLOSET	1
LIVING	LV	1	PT	4		
DINING	LV	1	PT	4		
KITCHEN	LV	1	PT	4		
BEDROOM	LV	1	PT	4	APPLIES TO BEDROOM CLOSETS	3, 4
CLOSET	LV	1	PT	4		2
BATH	SV	1	PT	4		5
UTILITY	LV	1	PT	4		2

KEYED REMARKS:

1. COAT ROD AND SHELF SPAN FULL WIDTH OF CLOSET.
2. WIRE SHELVING: TYPE A OR B TO SPAN FULL WIDTH OF CLOSET.
3. KITCHEN COUNTERTOP TO BE PL-2 / KITCHEN CABINETS TO BE CB-1 (SINGLE UNIT) AND CB-2 (FAMILY UNIT).
4. TYPE A KITCHEN TO HAVE A 6" HIGH X 3/4" THICK SQUARE EDGE BACKSPLASH LENGTH OF BASE CABINETS. RECEPTACLES TO BE MOUNTED HORIZONTALLY IN THE BACKSPLASH.
5. BATH VANITY COUNTERTOP TO BE CULTURED MARBLE / CABINETS TO BE CB-1 (SINGLE UNIT) AND CB-2 (FAMILY UNIT).



 **CODED NOTE LEGEND - ENLARGED
UNIT PLANS / ELEVATIONS**

- SEE TYPICAL PROJECT DETAILS SHEETS FOR ADDITIONAL INFORMATION.
INCLUDING ALL MOUNTING HEIGHT REQUIREMENTS.
1. PLUM COUNTER WITH COUNTERTOP MATE. SUPPORTS. TOP OF COUNTER AT 36 INCHES A.F.F. IN TYPE A UNIT KITCHENS AND 34 INCHES MAX A.F.F. AT TYPE B UNIT KITCHENS. TYPE A AND B VANITY COUNTERTOPS TO BE 34 INCHES MAX A.F.F. IN TYPE A UNIT WORK AREAS PROVIDE INTERMEDIATE SUPPORTS AND AT TYPE A UNIT SINKS PROVIDE VALANCE.
 2. CROWN MOLD 2" TYPICAL.
 3. REMOVABLE CABINET FRONT AND BASE AT TYPE A AND TYPE B UNITS. MATCH ADJACENT CABINETS. SEE GENERAL NOTES.
 4. PROVIDE 1" MIN. ADJUSTED COUNTERS AT TYPE A UNIT KITCHENS. PROVIDE SKIRT AS NEEDED TO MOUNT COOKTOP AT 34 INCHES A.F.F. TO MATCH ADJACENT COUNTER HEIGHT.
 5. TYPICAL MIRROR, FULL WIDTH OF VANITY.
 6. TOWEL BAR.
 7. ROBE HOOK.
 8. SHOWER CURTAIN ROD.
 9. PREFABRICATED TUB / SHOWER. SEE PLUMBING PLANS.
 10. ROLL-IN SHOWER WITH LINEAR FLOOR DRAIN AT TYPE A UNITS ONLY. REF. TO PLUMBING DRAWINGS.
 11. GRAB BARS.
 12. TOILET PAPER HOLDER.
 13. LIGHT FIXTURE. CENTER ABOVE MIRROR. REFER TO ELECTRICAL DRAWINGS. SEE GENERAL NOTES.
 14. FURR OUT EXTERIOR WALL W/ PARTITION TYPE 11J AT LIVING ROOM LOCATION IN UNIT U-108 ONLY. SEE OVERALL PLANS FOR LOCATION.
 15. TOWEL RINGS.
 16. MEDICINE CABINET.

GENERAL NOTES - ENLARGED UNIT RC

- A. PANEL DESIGNATED FOR EXPOSED OVERHEAD STRUCTURE IS TO INCLUDE ALL EXPOSED COMPONENTS INCLUDING (BUT NOT EXCLUSIVE TO) DECKING, STRUCTURAL MEMBERS, MECHANICAL AND ELECTRICAL EQUIPMENT, PIPING, FIRE PROTECTION, AND HANGING SPRING (HEADS), AND OTHER MISCELLANEOUS BUILDING SYSTEMS LOCATED OVERHEAD. EACH OF THE ABOVEMENTIONED CATEGORIES IS TO INCLUDE ALL ACCESSORIES, FASTENERS, FASTENINGS, HANGERS, STRUTS, BRACES, BRACKETS, ETC.
- B. LIGHT FIXTURES SHOWN TO INDICATE PROPOSED FIXTURES AND GENERAL LIGHTING SCHEME.
- C. FINISHED CEILING HEIGHTS ARE FROM TOP OF FINISH FLOOR. U.N.O.
- D. COORDINATE LOCATION OF FIXTURES WITH STRUCTURAL, MECHANICAL, ELECTRICAL, PIPING AND FIRE PROTECTION. IF THERE IS A CONFLICT BETWEEN TRADES, NOTIFY ARCHITECT PRIOR TO INSTALLATION.
- E. FACE OF BULKHEADS SHALL ALIGN WITH FACE OF ADJACENT WALLS TO MAINTAIN A UNIFORM CEILING LINE.
- F. PAINT WORKTOP INSIDE AIR GRILLES FLAT COLOR.
- G. ALL GYPSUM BOARD SOFFITS AND CEILINGS TO BE UNPAINTED FLAT CEILING WHITE (U.N.O.).
- H. ALL CEILING DEVICES ARE CENTERED ON ROOF, U.N.O. OR DIMENSIONED.
- I. ALL CEILING DEVICES TO BE CENTERED IN LINE.
- J. WHERE EXT. SINGS OCCUR OVER A DOOR OR PAIR OF DOORS, CENTER SIGN OVER DOOR.
- K. GYPSUM BOARD CEILINGS FRAMED TO THE UNDERSIDE OF WOOD TRUSSES SHALL BE INSTALLED TIGHT TO THE BOTTOM CHORD WITH A 1/2 IN. GAP BETWEEN TRUSSES.
- L. CEILING ASSEMBLIES AND WALLS MUST MAINTAIN THE SAME HEIGHT OF THE CEILING BELONG THE WOOD TRUSSES UNLESS NOTED OTHERWISE. ALL CEILING ASSEMBLIES AND WALLS MUST MAINTAIN THE SAME FIRST FLOOR FINISH FLOOR ELEVATION.
- M. SEE ELECTRICAL DRAWINGS FOR THE REQUIRED ELECTRICAL DEVICES. FIRST AND SECOND FLOOR REFLECTED CEILING PLANS SHOW GENERAL LOCATION OF ALL LIGHTING FIXTURES.
- N. CONTINUE RATED GYPSUM BOARD ABOVE ANY DROP CEILINGS AND SOFFITS. PROVIDE A RATED ACCESS PANEL AT ALL SMOKE DAMPER LOCATIONS.
- O. PROVIDE A RATED ACCESS PANEL AT ALL OPENINGS IN THE FIRST ACCESS PANEL PER FLOOR AT ALL SHUT LOCATIONS. ACCESS PANEL TO BE ON THE PUBLIC CORRIDOR SIDE. ON OPEN UNOCCUPIED SHUT ENCLOSURES PROVIDE A RATED ONE ACCESS PANEL PER FLOOR FOR FUTURE INSTALLATION OF MECHANICAL SYSTEMS.
- O. COORDINATE FINAL SOFFIT LOCATION WITH FINAL CABINET LAYOUT.

RCP LEGEND

- | | |
|--|--|
| | G1 GYPSUM BOARD CEILING OR SOFFIT
(INSTALLED DIRECT TO STRUCTURE) |
| | G2 GYPSUM BOARD CEILING OR SOFFIT
(ADDITIONAL LOWER CEILING) |
| | 2x2 LIGHT FIXTURE |
| | 1w4 LIGHT FIXTURE
(SHADING DENOTES EMERGENCY FIXTURE) |
| | SURFACE MOUNTED LIGHT
(SHADING DENOTES EMERGENCY FIXTURE) |
| | WALL MOUNTED VANITY LIGHT |
| | SUPPLY DIFFUSER |
| | LINEAR DIFFUSER |
| | EXHAUST/RETURN GRILLE |
| | ACCESS PANEL |
| | CEILING TAG WITH HEIGHT |

NOTE: COORDINATE ARCHITECTURAL REFLECTED CEILING PLANS WITH THE MECHANICAL AND ELECTRICAL DRAWINGS FOR NUMBER OF, AND LOCATIONS, OF, AND TYPES OF FIXTURES AND GRILLES. NOT ALL ITEMS SHOWN ON LEGEND MAY BE PRESENT IN PROJECT.

CODED NOTE LEGEND - ENL. UNIT RCF

1. ALIGN FEATURES
2. OPEN TO ABOVE
3. CENTER FIXTURE ABOVE VANITY, TYPICAL

A. ALL DIMENSIONS ARE TO FACE OF STUDY UNLESS NOTED OTHERWISE.

B. WALLS ARE 24" MINIMUM THICK U.N.O. SEE SECTION 05000 FOR PARTIAL INFO.

C. FLOOR FINISH SHALL BE 2" THICK CERAMIC TILES TO OVERLAP 1" FLOOR PLAN FINISH.

D. RESIDENTIAL UNITS: TYPE 1 DENOTES ANY TYPE B AND TYPE A DENOTES ANY TYPE C. SHALL BE USED TO IDENTIFY THE TYPE OF UNIT. SEE THE REQUIREMENTS REFERENCED ON THE CODE INFORMATION, THIS INCLUDES BUT IS NOT LIMITED TO ADD AND ASIDE 2009.

E. ALL DIMENSIONS ARE TO FACE OF STUDY UNITS. TYPE 1 AND TYPE B UNITS IN BATHS AND AS INDICATED ON "TYPICAL UNIT DETAILS" SHEET. SEE A100 SERIES AND A600 SERIES SHEETS FOR TYPE A & B UNIT LOCATIONS AND DIMENSIONS. TYPE C UNITS SHALL BE IDENTIFIED ON "TYPICAL UNIT DETAILS" SHEET. SEE A100 AND FUTURE GRAB BARS (TYPE B UNITS). SEE "TYPICAL UNIT LOCATIONS" SHEET FOR LENGTHS AND LOCATIONS OF GRAB BARS.

F. PROVIDE WOOD BLOCKING TO SHOW OR SHOWN AS REQUIRED TO MEET LEAD AND LEAD-PAINT REMEDIATION REQUIREMENTS.

G. ALL DOOR OPENINGS INTO UNOCCUPIED ROOMS IN RESIDENTIAL AND PUBLIC AREAS SHALL BE MINIMUM 8" MINUS CLEAR OR GREATER.

H. PROVIDE WOOD BLOCKING AND REASONABLE MECHANICAL, ELECTRICAL AND PLUMBING LAYOUT PRIOR TO INSTALLATION. TRUSS SHIP DRAWINGS SHALL INDICATE PLUMBING LINES AND HVAC DUCTS. PROVIDE WOOD BLOCKING TO SHOW OR SHOWN AS REQUIRED TO MEET LEAD AND LEAD-PAINT REMEDIATION REQUIREMENTS. COORDINATE TRUSS FRAMING AS REQUIRED TO ACCOMMODATE SANITARY LINES AND OTHER MEP EQUIPMENT / FIXTURES.

I. INSTALL ACUSTIC BATT INSULATION AT PARTITIONS WITH PLUMBING STACKS.

J. WATER SUPPLY AND DRAIN PIPES UNDER LAVATORIES AND SINKS SHALL BE INSULATED TO PROTECT AGAINST CORROSION, INCLUDING COLD WATER UNDER SINKS. PROVIDE INSULATION TO PROTECT AGAINST CORROSION AT LOCATIONS AROUND PLUMBING INSTALLATIONS. PROVIDE A VALANCE AT AREAS WITH EXPOSED SINK DRAINS. SEE "TYPICAL PROJECT DETAILS" SHEET FOR MORE INFORMATION.

K. HORIZONTAL OFFSETS IN PLUMBING DRAIN PIPES: PROVIDE ACUSTIC PIPE INSULATION, REFER TO PLUMBING DRAWINGS.

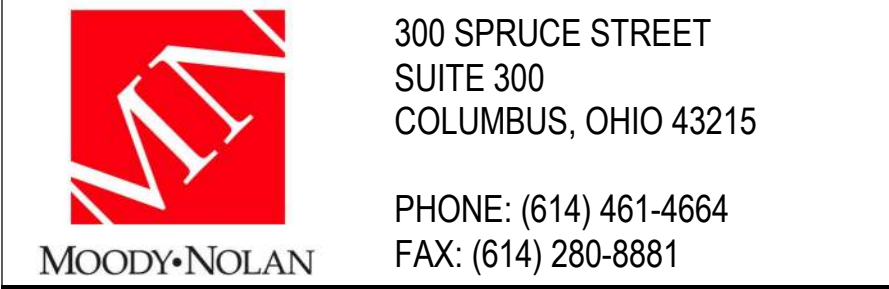
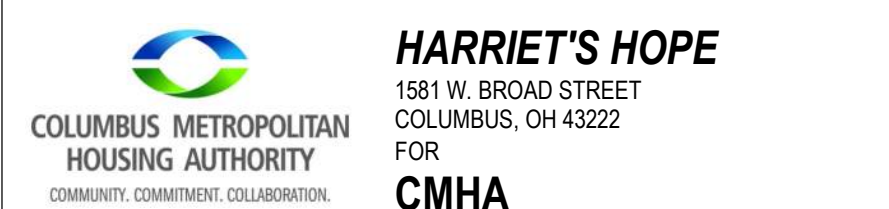
L. HORIZONTAL OFFSETS IN PLUMBING WATER PIPES: TYPE 1 UNIT (TYPE UNIT AND NON-ACCESSIBLE BATH IN TYPE A UNITS) OR ROLL-IN SHOWER (ACCESSIBLE BATHS IN TYPE A UNITS): BLOCKING FOR INSTALLATION OF PRE-CAST BATH FACTORY. TYPE 2 UNITS: BLOCKING FOR INSTALLATION OF PRE-CAST BATH FACTORY. SEE PLUMBING INFORMATION, WALL ROUGH FRAMING DIMENSION REQUIREMENTS MUST BE COORDINATED WITH SELECTED TUB SHOWER UNIT. NOTE THAT THESE DIMENSIONS TEND TO BE OVERLAP DIMENSIONS. PROVIDE DIMENSIONS FOR TYPE 1 UNIT SHOWER BLOCKING AND FIXTURES. SEE PLUMBING DRAWINGS FOR EXACT DIMENSIONS REQUIRED.

M. ALL DIMENSIONS ARE TO FACE OF STUDY UNITS. SHALL BE COORDINATED WITH

N. RANGES IN TYPE A UNITS ARE DROP IN TYPE- SEE SPECIFICATIONS. PROVIDE CABINET BASE TO MOUNT THE APPLIANCE AS REQUIRED TO ALIGN RANGE

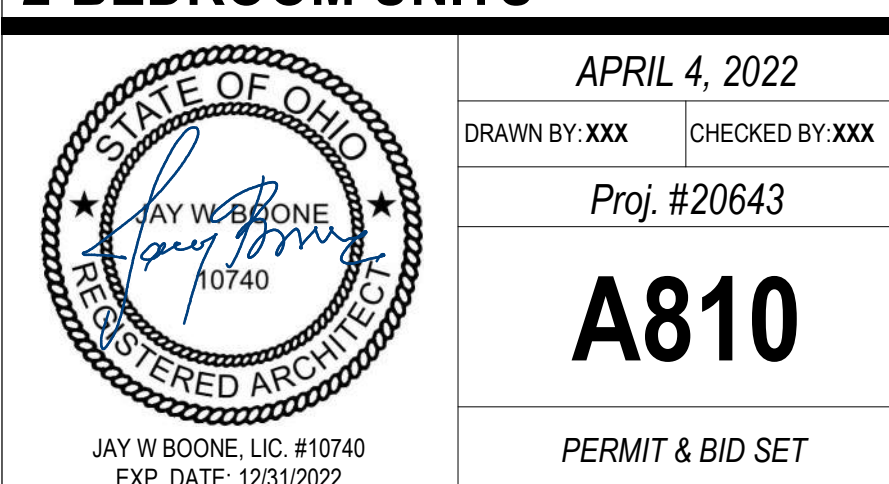
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#	DATE	CHANGE DESCRIPTION
1	04/21/2022	ADDENDUM #02
2	05/05/2022	ADDENDUM #03



DRAWING TITLE:

ENLARGED UNIT PLANS -



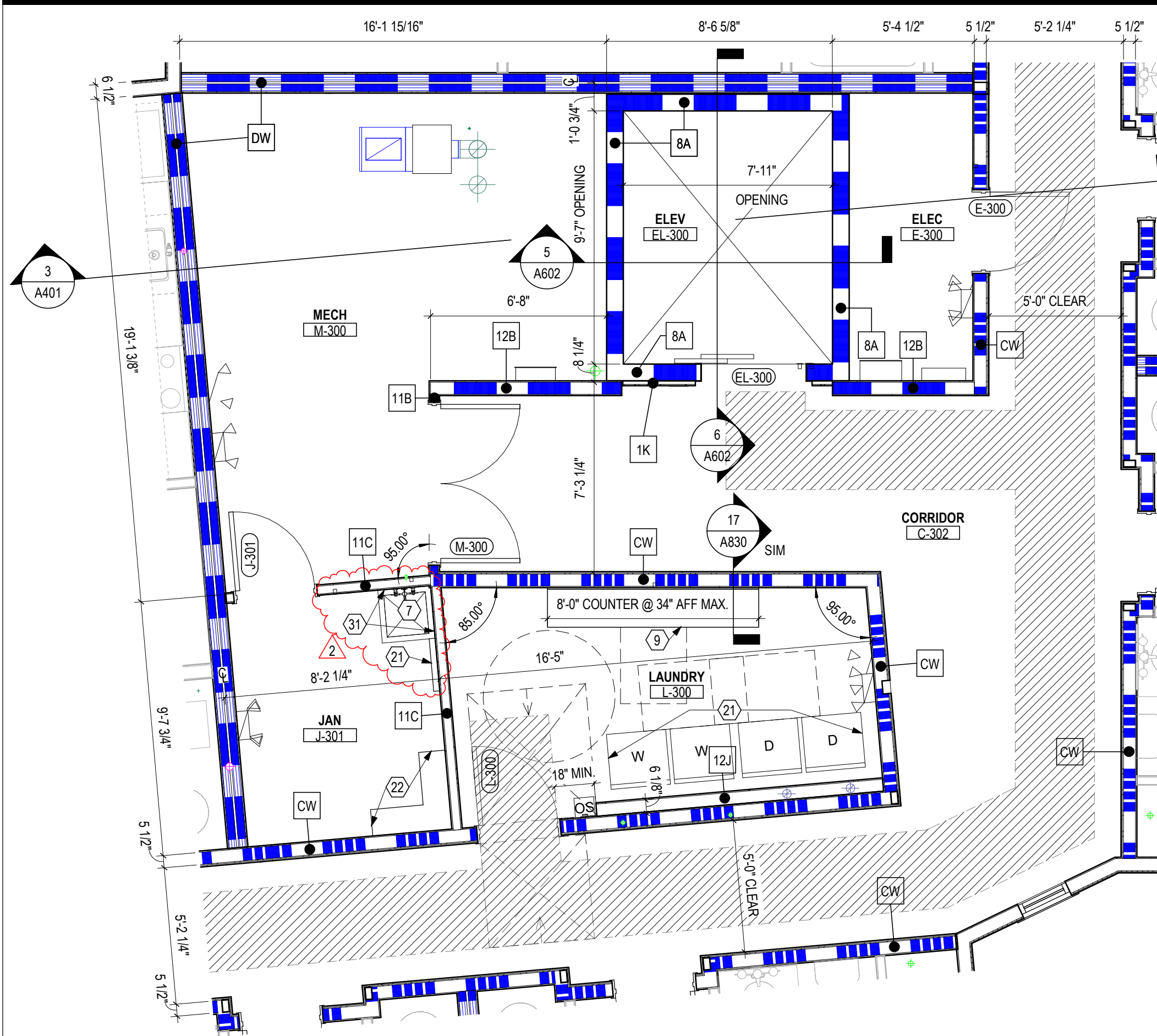
APRIL 4, 2022

IN BY: XXX	CHECKED BY: XXX
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Proj. #20643

A810

PERMIT & BID SET



7 ELEVATION DRINKING FOUNTAIN
1/4" = 1'-0"

5 ELEVATION PUBLIC TOILET - DOOR
1/4" = 1'-0"

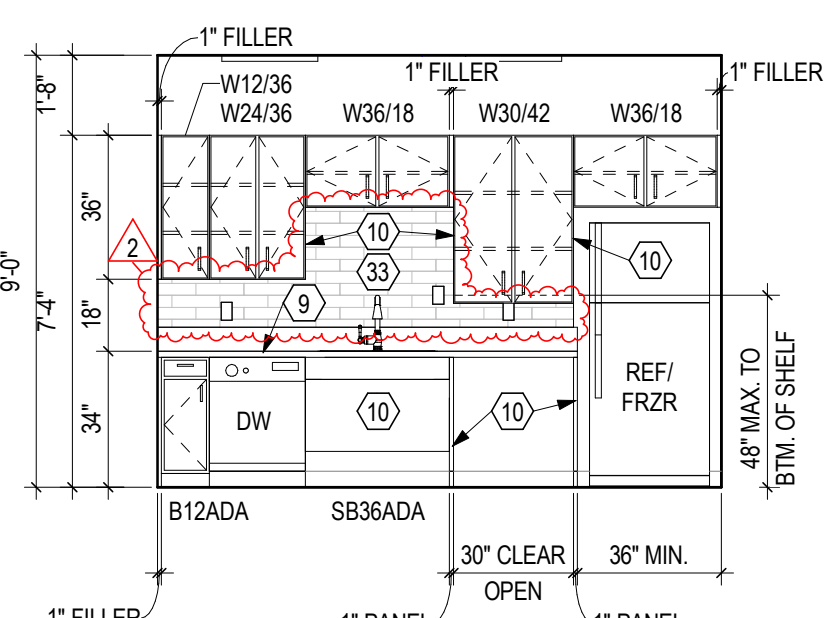
3 ELEVATION PUBLIC TOILET - TOILET
1/4" = 1'-0"

6 ELEVATION PUBLIC TOILET - CHANGING TABLE
1/4" = 1'-0"

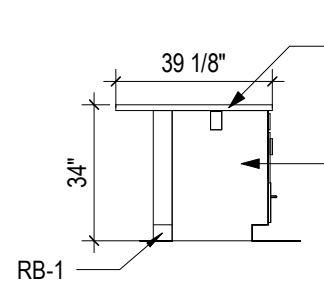
4 ELEVATION PUBLIC TOILET - SINK
1/4" = 1'-0"

2 ELEVATION MAIL KIOSK
1/4" = 1'-0"

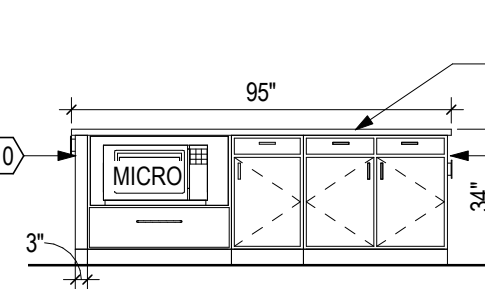
13 ENLARGED PLAN TYPICAL RESIDENTIAL FLOOR ELEVATOR CORE
1/4" = 1'-0" REF: 1 / A102



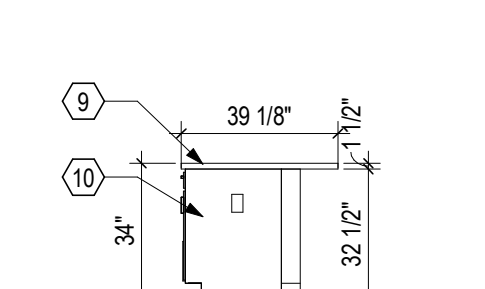
12 ELEVATION COMMUNITY ROOM KITCHEN
1/4" = 1'-0"



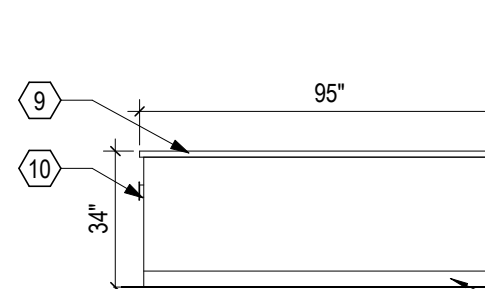
11 ELEVATION COMMUNITY KITCHEN ISLAND - WEST
1/4" = 1'-0" REF: 1 / A1.0



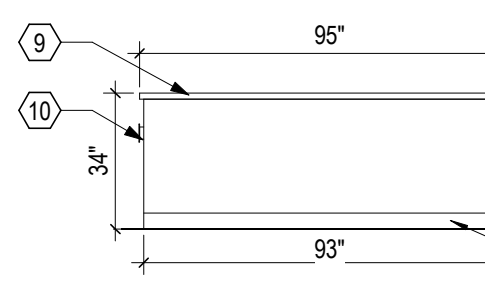
10 ELEVATION COMMUNITY KITCHEN ISLAND - SOUTH
1/4" = 1'-0" REF: 1 / A1.0



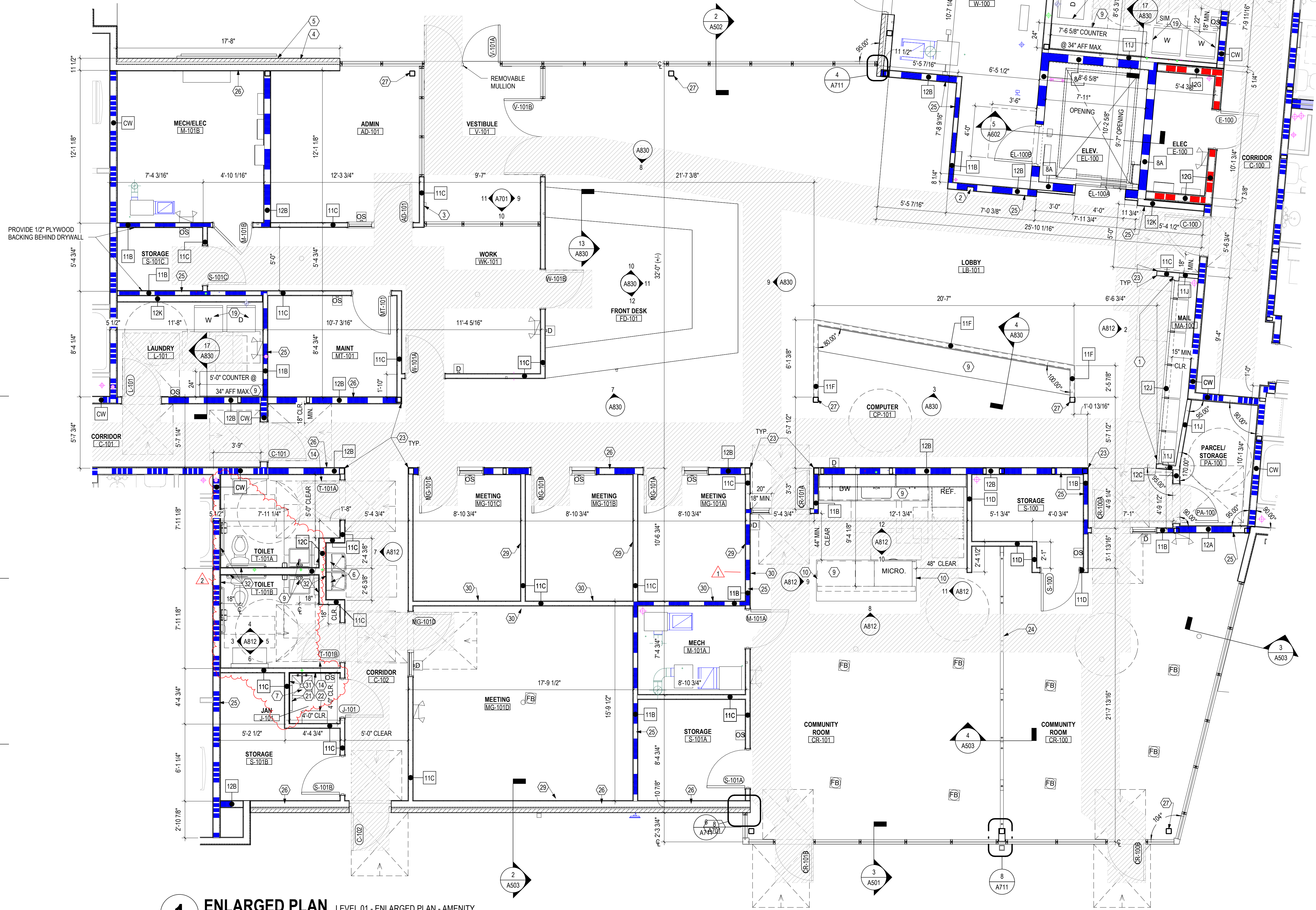
9 ELEVATION COMMUNITY KITCHEN ISLAND - EAST
1/4" = 1'-0" REF: 1 / A1.0



8 ELEVATION COMMUNITY KITCHEN ISLAND - NORTH
1/4" = 1'-0" REF: 1 / A1.0



1 ENLARGED PLAN LEVEL 01 - ENLARGED PLAN - AMENITY
1/4" = 1'-0" REF: 1 / A101



GENERAL NOTES - ENLARGED PLANS

- COMMUNITY ROOM KITCHEN APPLIANCES TO BE FINGERPRINT-FREE STAINLESS STEEL.
- PROVIDE AND INSTALL GARBAGE DISPOSAL AT COMMUNITY ROOM KITCHEN SINK.
- PROVIDE WOOD BLOCKING NOT SHOWN OR SHOWN AS REQUIRED TO MOUNT MARKERBOARDS, TACKBOARDS AND TELEVISIONS WHERE REQUIRED.

CODED NOTE LEGEND

- SEE TYPICAL PROJECT DETAILS SHEETS FOR ADDITIONAL INFORMATION, INCLUDING ALL MOUNTING HEIGHT REQUIREMENTS.
- METAL MAILBOXES AND PARCEL BOXES AS SHOWN IN FLOORS PLANS. DESIGN BASED ON THE MAILBOX WORKS OR EQUAL. PROVIDE ONE MAILBOX PER UNIT AND ONE PARCEL BOX PER EVERY FIVE MAILBOXES. BOTTOM OF UNIT SHALL NOT BE MOUNTED LOWER THAN 15 INCHES AFF AND TOP OF THE HIGHEST KEY HOLE SHALL NOT BE MOUNTED HIGHER THAN 48 INCHES AFF. SEE DETAIL FOR MORE INFORMATION.
 - INSTALL SEMI-RECESSED FIRE EXTINGUISHERS CABINETS SO THE INTEGRITY OF THE RATED WALL IS MAINTAINED. PROVIDE RATED CABINETS AT RATED WALL LOCATIONS.
 - SEMI-RECESSED APHONE. COORDINATE EXACT LOCATION WITH ARCHITECT AND MOUNT NO HIGHER THAN 4 FEET AFF. SEE ELECTRICAL INFORMATION.
 - KNOX BOX. COORDINATE FINAL LOCATION WITH FIRE DEPARTMENT.
 - NOT USED.
 - DRINKING FOUNTAIN. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - JANITOR'S SINK. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - FIRE DEPARTMENT CONNECTION. SEE FIRE PROTECTION AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
 - TOP OF COUNTERTOPS AND SINK RIM TO BE AT 34 INCHES MAXIMUM AFF AT PUBLIC KITCHENS AND TOILETS. PROVIDE AND INSTALL QUARTZ COUNTER WITH COUNTERTOP METAL SUPPORTS IN KITCHENS AND PUBLIC COUNTER AREAS. PROVIDE AND INSTALL WALL HUNG PORCELAIN SINK WITH METAL SUPPORTS IN PUBLIC TOILETS. IN ALL PUBLIC AREAS WORK SPACES. PROVIDE INTERMEDIATE SUPPORTS AND AT ALL PUBLIC SINKS PROVIDE VALANCE OR PLUMBING PROTECTION WRAP.
 - FINISHED END PANEL TYPICAL.
 - WALL MOUNTED MIRROR. SEE NOTED ON ELEVATION.
 - PAPER TOWEL DISPENSER.
 - SOAP DISPENSER.
 - ROBE HOOK ON TOILET ROOM DOORS. HOOK TO FACE SIDE OF TOILET AREA.
 - CHANGING TABLE.
 - GRAB BARS.
 - TOILET PAPER HOLDER.
 - SANITARY NAPKIN DISPOSAL.
 - FRONT-LOADING WASHER AND DRYER EQUIPMENT. PROVIDE PEDESTAL AS NEEDED TO PROVIDE CONTROLS THAT ARE WITHIN ACCESSIBLE REACH RANGES. ALL CLOTHES WASHERS TO BE ENERGY STAR-RATED.
 - LIGHT FIXTURE. CENTER ABOVE MIRROR. REFER TO ELECTRICAL DRAWINGS.
 - MOP STRIP.
 - JANITOR CLOSET SHELVES.
 - CORNER GUARDS. TYPICAL.
 - CENTER TWO SECTIONS (2) OF FOLDING PARTITION WALL TO INCLUDE FULL HEIGHT MARKER/TACK BOARD. ALL OTHER SECTIONS TO BE CARPET. EXTEND 1 HR FIRE BARRIER TO FLOOR SHEATHING ABOVE.
 - 1 HR FIRE RATED BEARING WALL - ONLY STRUCTURE NEEDS RATED.
 - PAINT EXPOSED STL COLUMN.
 - PROJECTION OF FLOOR ABOVE (DASHED).
 - 48" x 96" WHITEBOARD. TYPICAL. SEE SPECIFICATIONS.
 - 48" x 48" TACKBOARD. TYPICAL. SEE SPECIFICATIONS.
 - 48" HIGH FIBERGLASS REINFORCED PANELING. TYPICAL. SEE FINISH LEGEND, FINISH SCHEDULE AND SPECIFICATIONS.
 - 54" HIGH CERAMIC TILE. TYPICAL. PROVIDE AND INSTALL SCHLUTER DILEX-HKU COVE-SHAPED FLOORWALL TRANSITION STRIP. SEE FINISH LEGEND, FINISH SCHEDULE AND SPECIFICATIONS.
 - CERAMIC TILE BACKPLASH. SEE FINISH LEGEND, FINISH SCHEDULE AND SPECIFICATIONS.

LEGEND - FLOOR PLAN

- 2 HR FIRE RATED WALLS
- 1 HR FIRE RATING - INCLUDING BUT NOT LIMITED TO STAIR WALLS, ELEVATOR WALLS AND UNIT DEMISING WALLS.
- 1 HR FIRE RATED CORRIDOR WALLS
- INTERIOR PARTITION
- PLAN ELEVATION
- SEMI-RECESSED, RATED FIRE EXTINGUISHER CABINET (F.E.C.) AND FIRE EXTINGUISHER. UNIT SHALL NOT ENCRUMPH MORE THAN 4" INTO THE PATH OF EGRESS.
- DIRECTION OF INSTALLATION OF LVT FLOORING. SEE A800 SERIES SHEETS FOR FINISH SCHEDULE.
- DOOR TYPE
- REQUIRED 30"x48" CLEAR FLOOR SPACE - 48" SHALL BE CENTERED AT APPLIANCES AND SINKS
- ACCESSIBLE ROUTE, MINIMUM 36" CLEAR

#	DATE	CHANGE DESCRIPTION
1	04/21/2022	ADDENDUM #02
2	05/05/2022	ADDENDUM #03

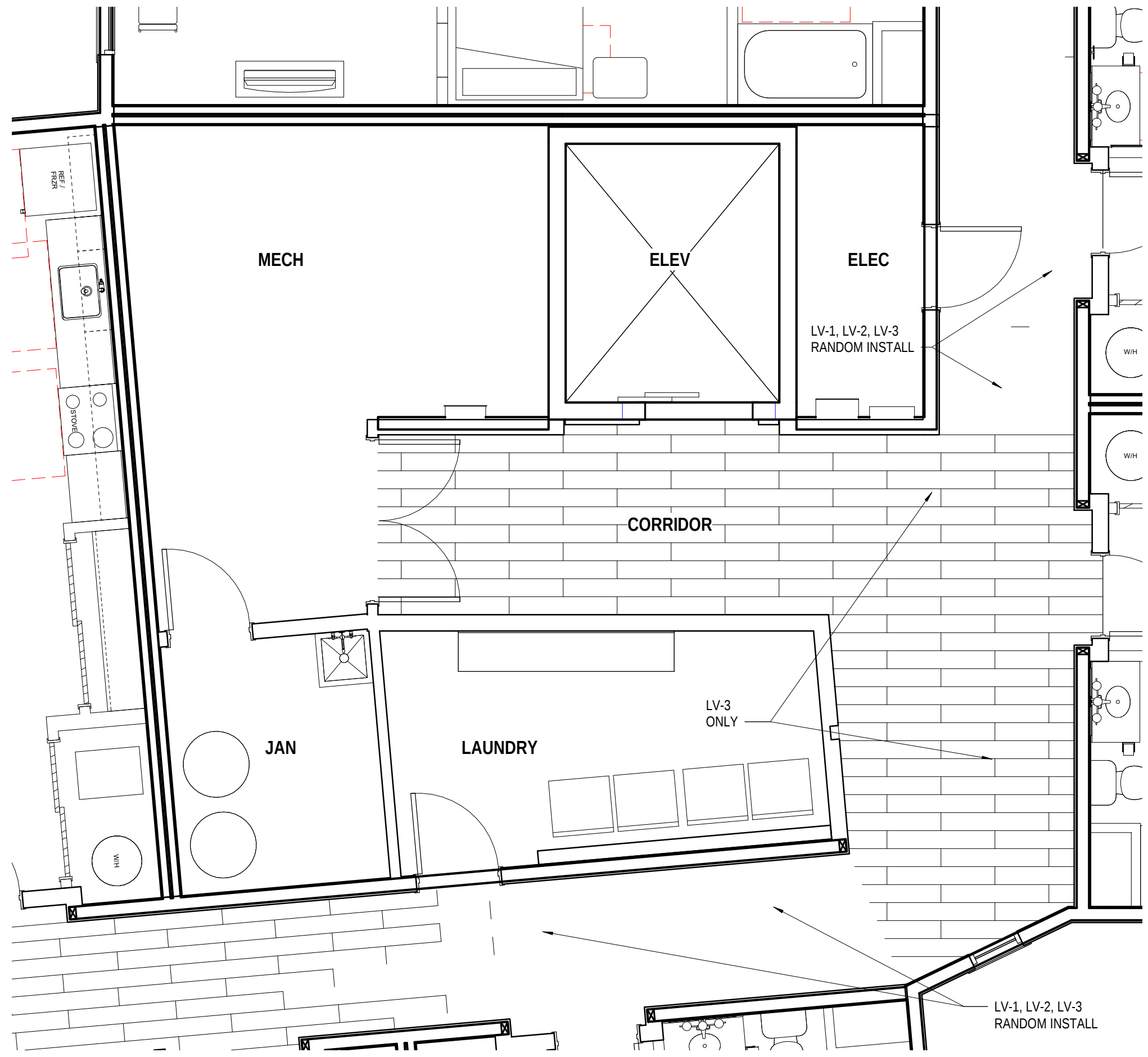
HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

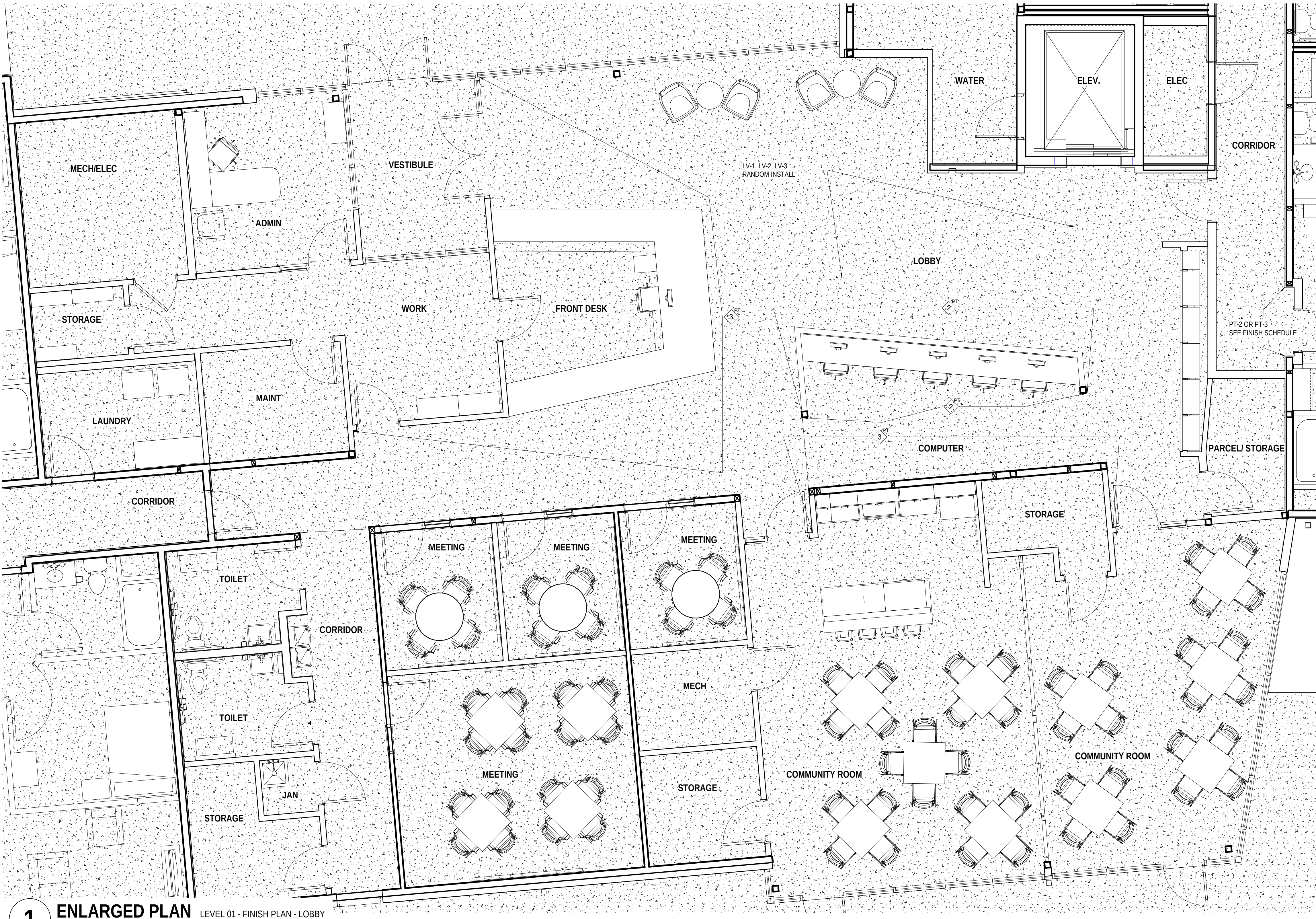
ENLARGED PLANS - COMMON AREAS

STATE OF OHIO
JAY W. BOONE
REGISTERED ARCHITECT
10740
APRIL 4, 2022
DRAWN BY: XXX CHECKED BY: XXX
Proj. #20643
A812
PERMIT & BID SET
JAY W. BOONE, LIC. #10740
EXP. DATE: 12/31/2022





2 ENLARGED PLAN LEVEL 02&03 - FINISH PLAN - ELEVATOR LOBBY
1/4" = 1'-0" REF: 1 / A301



1 ENLARGED PLAN LEVEL 01 - FINISH PLAN - LOBBY
1/4" = 1'-0" REF: 1 / A301

ROOM FINISH SCHEDULE																		
SPACE		FLOOR		BASE		DOOR/FRAME FINISH		WALLS										CODED REMARKS
ROOM NUMBER	ROOM NAME	MAT	COL	MAT	COL	DOOR FRAME		NORTH		SOUTH		EAST		WEST				
						PAINT	PAINT	MAT	COL	MAT	COL	MAT	COL	MAT	COL			
LEVEL 01																		
AD-101	ADMIN	CR	1	RB	1			PT	1	PT	1	PT	1	PT	1			
C-100	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 2	PT	1, 2	PT	1, 2	PT	1, 2	1		
C-101	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 3	PT	1, 3	PT	1, 3	PT	1, 3			
C-102	CORRIDOR	LV	1, 2, 3	RB	1			PT	1	PT	1	PT	1	PT	1	1		
CP-101	COMPUTER	CR	2	RB	1			PT	1, 2, 3	PT	1, 2, 3	PT	1, 2, 3	PT	1, 2, 3	3		
CR-100	COMMUNITY ROOM	LV	3	RB	1			PT	1	PT	1	PT	1	PT	1			
CR-101	COMMUNITY ROOM	LV	3	RB	1			PT / CW	1/1	PT	1	PT	1	PT	1	2		
E-100	ELEC	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
EL-100	ELEV	LV	3	--	--	--	--	PT	--	PT	--	PT	--	PT	--	--		
FD-101	FRONT DESK	CR	2	RB	1			PT	1	PT	1	PT	1	PT	1			
J-101	JAN	SC	--	RB	1			PT/FR-1	1	PT	1	PT	1	PT/FR-1	1	PROVIDE FR-1 TO 48" ABOVE WALL BASE		
L-100	LAUNDRY	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
L-101	LAUNDRY	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
LB-101	LOBBY	LV	1, 2, 3	RB	1			PT	1, 2, 3	PT	1, 2, 3	PT	1, 2, 3	PT	1, 2, 3	3		
M-101A	MECH	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
M-101B	MECH/ELEC	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
MA-100	MAIL	LV	1, 2, 3	RB	1			PT	1	PT	1	PT	1	PT	1			
MG-101A	MEETING	CR	2	RB	1			PT	1	PT	1	PT	1	PT	1			
MG-101B	MEETING	CR	2	RB	1			PT	1	PT	1	PT	1	PT	1			
MG-101C	MEETING	CR	2	RB	1			PT	1	PT	1	PT	1	PT	1			
MG-101D	MEETING	CR	2	RB	1			PT	1	PT	1	PT	1	PT	1			
MT-101	MAINT	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
PA-100	PARCEL STORAGE	LV	3	RB	1			PT	1	PT	1	PT	1	PT	1			
S-100	STORAGE	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
S-101A	STORAGE	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
S-101B	STORAGE	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
S-101C	STORAGE	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
ST-100	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		
ST-101	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		
T-101A	TOILET	LV	3	RB	1			PT	1	PT / CW	1/1	PT / CW	1/1	PT / CW	1/1	5		
T-101B	TOILET	LV	3	RB	1			PT / CW	1/1	PT	1	PT / CW	1/1	PT / CW	1/1	5		
V-101	VESTIBULE	WO	1	RB	1			PT	1	PT	1	PT	1	PT	1			
W-100	WATER	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
WK-101	WORK	SC	--	RB	1			PT	1	PT	1	PT	1	PT	1			
LEVEL 02																		
C-200	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 2	PT	1, 2	PT	1, 2	PT	1, 2	1		
C-201	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 3	PT	1, 3	PT	1, 3	PT	1, 3	1		
C-202	CORRIDOR	LV	1, 2, 3	RB	1			PT	1	PT	1	PT	1	PT	1	1		
E-200	ELEC	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
EL-200	ELEV	LV	1	--	--	--	--	--	--	--	--	--	--	--	--	--		
J-201	JAN	SV	1	RB	1			PT/FR-1	1	PT	1	PT/FR-1	1	PT	1	PROVIDE FR-1 TO 48" ABOVE WALL BASE		
L-200	LAUNDRY	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
M-200	MECH	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
ST-200	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		
ST-201	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		
LEVEL 03																		
C-300	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 2	PT	1, 2	PT	1, 2	PT	1, 2	1		
C-301	CORRIDOR	LV	1, 2, 3	RB	1			PT	1, 3	PT	1, 3	PT	1, 3	PT	1, 3	1		
C-302	CORRIDOR	LV	1, 2, 3	RB	1			PT	1	PT	1	PT	1	PT	1	1		
E-300	ELEC	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
EL-300	ELEV	LV	1	--	--	--	--	--	--	--	--	--	--	--	--	--		
J-301	JAN	SV	1	RB	1			PT/FR-1	1	PT	1	PT/FR-1	1	PT	1	PROVIDE FR-1 TO 48" ABOVE WALL BASE		
L-300	LAUNDRY	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
M-300	MECH	SV	1	RB	1			PT	1	PT	1	PT	1	PT	1			
ST-300	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		
ST-301	STAIR	RT / LV	1/3	RB	1			PT	1	PT	1	PT	1	PT	1	4		

- CODED REMARKS**
- PT-2 & PT-3 @ UNIT DOOR SURROUND. TO INCLUDE DOOR AND HOLLOW METAL FRAME
 - CW-1 @ BACKSPASH
 - SEE ENLARGED PLANS A900 FOR ACCENT PAINT LOCATIONS
 - RT ON STEPS / LV ON LANDINGS
 - CW-1 @ RESTROOM AND FOUNTAIN WALL TO 54" A.F.F. SEE ELEVATIONS

FINISH LEGEND	
FLOORS	
Carpet Tile (CR)	CR-1 Mfg: Timeless Designs Pattern: Fast Lanes 19.7" x 19.7" Tile Color: 101 Maze Trail Install: Quarter-Turn
CR-2	Mfg: 3&J Kinetics Pattern: Stipple 1839/2688 Color: 2688 Mottled Install: Brick
Luxury Vinyl (LV)	LV-1 Mfg: Timeless Designs / LG Hausys Pattern: Crosslink 8" x 48" Plank Color: 7915-S02SQON / Ardington Install: Random
LV-2	Mfg: Timeless Designs / LG Hausys Pattern: Crosslink 8" x 48" Plank Color: 7916-S02SQON / Ardington Install: Random
LV-3	Mfg: Timeless Designs / LG Hausys Pattern: Crosslink 8" x 48" Plank Color: 7932-S02SQON / Ardington Install: Random See Enlarged Unit Plans for Plank Direction (DIR). Random 3-Color LV install in Lobby and Corridors. See 1 and 2 A900 for Install.
Rubber Tread (RB)	RB-1 Mfg: Tarkett Pattern: Hammered Color: 63 Burnt Umber B
Sealed Concrete (SC)	
Sheet Vinyl (SV)	SV-1 MFG: Beaulieu Pattern: Collectible 12" Roll Color: Ivory S006567
Walk-Off Tile (WO)	WO-1 Mfg: Mannington Pattern: Ruffian II - 24" x 24" Tile Color: 1506 Ebony Earth Install: Monolithic
BASE	
Rubber Base (RB)	RB-1 Mfg: Tarkett 4" Traditional Base Color: Burnt Umber B
WALLS	
Ceramic Tile (CW)	CW-1 Mfg: Daltile Pattern: Color Wheel Classic 3" x 6" Color: 0190 Arctic White Grout: TBD Community Room Backsplash
Fiberglass Reinforced Plastic (FR)	FR-1 Mfg: Crane Composites Pattern: Glasbord / Pebbled Embossed Color: White (85)
Paint (PT)	PT-1 Mfg: Sherwin Williams Color: SW 7004 Snowbound
PT-2	Mfg: Sherwin Williams Color: Green Accent - TBD
PT-3	Mfg: Sherwin Williams Color: Blue Accent - TBD
PT-4	Mfg: Sherwin Williams Color: SW 7671 On the Rocks
STAIRS	
Paint (PT)	PT-5 Mfg: Sherwin Williams Color: SW 7069 Iron Ore Metal
CEILING	
Paint (PT)	PT-6 Mfg: Sherwin Williams Color: SW 7007 Ceiling Bright White
MISCELLANEOUS	
Cabinets	CB-1 Mfg: Advanta Style: Newbury Slab Color: Espresso Hardware: Brushed Nickel Single Units and Community Room
CB-2	Mfg: Advanta Style: Newbury Slab Color: Slate Hardware: Brushed Nickel Family Units
Cultured Marble	Mfg: Custom Cast Marble Works Color: White Bathroom Sinks
PLAM (PL)	PL-1 Mfg: Fomica Pattern: 756 Color: Natural Maple Reception Desk Casework
PL-2	Mfg: Fomica Pattern: Paloma Polat Color: 6698-58 Unit Countertops
Quartz Surface (QS)	QS-1 Mfg: DuPont Product: Corian Quartz Color: Cloud White Reception Desk Countertops Community Room Countertops

- GENERAL NOTES - FINISH PLANS**
- STANDARDS AND PROCEDURES FOR THE PREPARATION AND APPLICATION OF INTERIOR FINISHES ARE DEFINED IN THE PROJECT MANUAL. FINISH (SUB) CONTRACTORS ARE REQUIRED TO READ, UNDERSTAND AND FOLLOW ALL RELEVANT SECTIONS OF THE PROJECT MANUAL.
 - FINISH MATERIALS ARE LISTED IN THE LEGEND COMPONENT OF THE FINISH SCHEDULE. SPECIFICATIONS ARE INCLUDED IN THE PROJECT MANUAL. ANY CONFLICTS OR DISCREPANCIES BETWEEN THESE TWO SHOULD BE BROUGHT TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
 - NO FINISH MATERIAL SUBSTITUTIONS WILL BE ACCEPTED EXCEPT IN THE SPECIFIC CIRCUMSTANCES ENUMERATED IN THE PROJECT MANUAL.
 - PAINTED HOLLOW METAL DOORS AND FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE. MATERIAL, FINISH AND COLOR INFORMATION FOR ALL OTHER DOORS AND FRAMES IS CONTAINED IN THE DOOR SCHEDULE AND ITS ASSOCIATED LEGENDS. IF WALLS ON OPPOSITE SIDES OF DOOR FRAME ARE DIFFERENT COLORS THE PAINT COLORS SHOULD BE SPLIT AT THE JAMB OF THE FRAME.
 - ALL VERTICAL TRANSITIONS BETWEEN DIFFERING WALL FINISHES ARE TO BE MADE AT INSIDE CORNERS (UNLESS NOTED OTHERWISE).
 - FLOORING MATERIAL DESIGNATED FOR STAIRS IS TO INCLUDE STAIR AND ALL ASSOCIATED TREADS, RISERS, LANDINGS, ETC. (UNLESS NOTED OTHERWISE).
 - PAINT DESIGNATED FOR METAL STAIR COMPONENTS IS TO INCLUDE ALL EXPOSED METAL COMPONENTS ASSOCIATED WITH THE STAIR SYSTEM ITSELF, ALL EXPOSED STRUCTURAL STEEL COMPONENTS SUPPORTING THE STAIR SYSTEM (UNLESS NOTED OTHERWISE), AND ALL EXPOSED METAL COMPONENTS OF THE HANDRAIL AND GUARDRAIL SYSTEMS (UNLESS NOTED OTHERWISE). UNDERSIDES OF STAIR RUNS AND LANDINGS ARE CONSIDERED "EXPOSED" IN ALL SITUATIONS.
 - FOR CLARITY, SOME FINISH INFORMATION HAS BEEN PRESENTED GRAPHICALLY IN THE FORM OF FINISH AND FLOORING PLANS. SHOULD THERE BE A DISCREPANCY BETWEEN THE FINISH SCHEDULE AND THESE PLANS, THE ARCHITECT SHOULD BE NOTIFIED IMMEDIATELY. FOR THE PURPOSE OF BIDDING, INFORMATION DETAILED ON THE FINISH FLOOR PLANS AND FLOORING PLANS IS TO TAKE PRECEDENCE OVER THE FINISH SCHEDULE UNTIL FURTHER CLARIFICATION CAN BE GIVEN. FOR AREAS NOT SPECIFICALLY DETAILED ON THESE PLANS, THE FINISH SCHEDULE PERTAINS.
 - PAINT DESIGNATED FOR EXPOSED OVERHEAD STRUCTURE IS TO INCLUDE ALL EXPOSED COMPONENTS INCLUDING BUT NOT EXCLUSIVE TO DECKING, STRUCTURAL MEMBERS, MECHANICAL AND ELECTRICAL DELIVERY SYSTEMS, FIRE PROTECTION SYSTEMS (EXCLUDING SPRINKLER HEADS), AND ALL OTHER MISCELLANEOUS BUILDING SYSTEMS LOCATED OVERHEAD. EACH OF THE AFOREMENTIONED CATEGORIES IS TO INCLUDE ANY AND ALL ASSOCIATED SUPPORTS, FASTENERS, HANGERS, STRUTS, BRACKETS, ETC.
 - WHERE RESILIENT BASE IS SPECIFIED (VINYL OR RUBBER) PROVIDE COVE PROFILE BASE AT ALL RESILIENT FLOORS AND STRAIGHT BASE FOR ALL CARPET AREAS (UNLESS OTHERWISE NOTED). HEIGHT AND COLOR TO BE AS INDICATED ON FINISH LEGEND.
 - REFER TO REFLECTED CEILING PLANS AND SPECIFICATION MANUAL FOR ALL CEILING MATERIAL AND FINISH INFORMATION.
 - ALL DRYWALL SOFFITS TO BE PAINTED FLAT CEILING WHITE UNLESS NOTED OTHERWISE ON CEILING PLANS.
 - CERAMIC WALL TILE TO EXTEND FULL WIDTH AND FULL HEIGHT FOR ANY AND ALL SCHEDULED TILED WALLS (UNLESS NOTED OTHERWISE).
 - FOR EPOXY OR INTUMESCENT PAINT COLOR REFER TO PAINT SCHEDULE NUMBERS.
 - WITHIN FINISH SCHEDULE CELLS, SLASH MARKS INDICATE DIFFERENCES IN FINISH MATERIAL WHILE COMMAS INDICATE DIFFERENCES IN PATTERN OR COLOR WITHIN A SPECIFIC MATERIAL.
 - APPROPRIATE METAL OR VINYL TRANSITION STRIPS MUST BE PROVIDED AT ALL FINISH MATERIAL FLOORING CHANGES. GENERAL CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL FLOORING TRANSITIONS AND AREAS IN WHICH FLOORING PATTERNS ARE SHOWN. SEE FLOOR FINISH PLANS, DETAILS AND NOTES FOR SPECIFIC INFORMATION.
 - WALL PAINT INDICATED FOR CURTAIN WALL LOCATIONS APPLIES TO ALL ASSOCIATED DRYWALL COMPONENTS (CURBS, HEADERS, BULKHEADS, ETC.) AND SHOULD NOT BE INTERPRETED AS APPLYING TO CURTAIN WALL COMPONENTS OR GLASS.
 - FLOORING CONTRACTOR(S) IS RESPONSIBLE FOR COORDINATING FINISHED FLOOR ELEVATIONS WITH ALLIANY FLOOR MOUNTED COMPONENTS (RECEPTACLES, ACCESS PANELS, ETC.) SO THAT COMPONENTS ARE INTEGRATED AND FLUSH.

FLOOR PATTERN LEGEND	
	SC1 - SEALED CONCRETE
	CR1 - (QUARTER TURNED INSTALL)
	CR2 - (BRICK INSTALL)
	WO1 - WALK OFF
	LV1 - RANDOM INSTALL
	LV2 - RANDOM INSTALL
	LV3 - RANDOM INSTALL
	SV1 - 12' ROLL

#	DATE	CHANGE DESCRIPTION
1	05/05/2022	ADDENDUM #03

COLUMBUS METROPOLITAN HOUSING AUTHORITY
COMMUNITY. COMMITMENT. COLLABORATION.

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215

PHONE: (614) 461-4664
FAX: (614) 280-8881

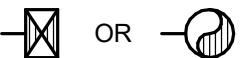
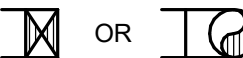
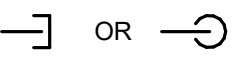
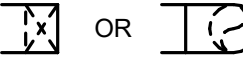
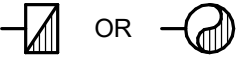
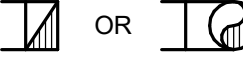
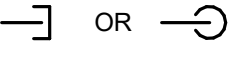
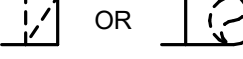
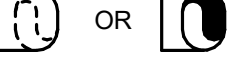
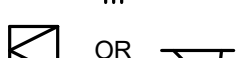
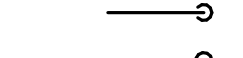
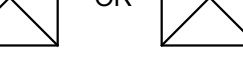
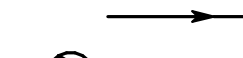
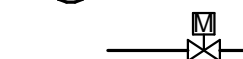
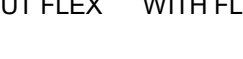
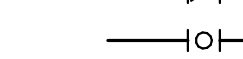
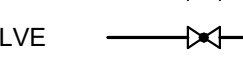
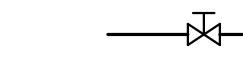
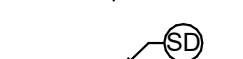
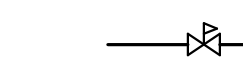
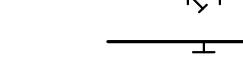
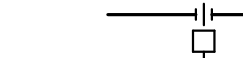
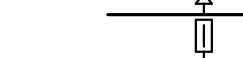
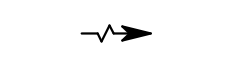
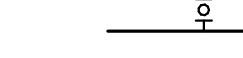
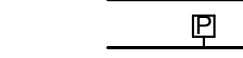
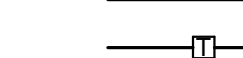
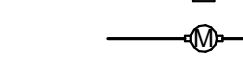
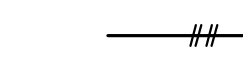
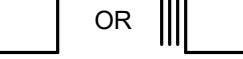
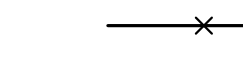
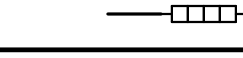
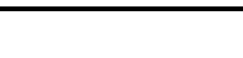
DRAWING TITLE:

FINISH LEGEND



APRIL 4, 2022
DRAWN BY: XXX CHECKED BY: XXX
Proj. #20643
A900
PERMIT & BID SET
JAY W. BOONE, LIC. #10740
EXP. DATE: 12/31/2022

ABBREVIATIONS	
NOTE: NOT ALL ABBREVIATIONS MAY BE USED.	
(A)	EXISTING TO BE ABANDONED
(D)	EXISTING TO BE DEMOLISHED
(E)	EXISTING TO REMAIN
(F)	FUTURE
(R)	EXISTING TO BE RELOCATED
AAV	AUTOMATIC AIR VENT
AFF	ABOVE FINISHED FLOOR
AMB	AMBIENT
APD	AIR PRESSURE DROP
A/E	ARCHITECT/ENGINEER
BAS	BUILDING AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTOR
BLDG	BUILDING
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
CL	CENTER LINE
CO	CLEAN OUT
DB	DRY BULB
DIA	DIAMETER
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FPI	FINS PER INCH
GTC	GENERAL TRADES CONTRACTOR
ID	INNER DIAMETER
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MFR	MANUFACTURER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
RA	RETURN AIR
REL	RELIEF AIR
SA	SUPPLY AIR
SCC	SENSIBLE COOLING CAPACITY
SP	STATIC PRESSURE
TCC	TOTAL COOLING CAPACITY
TCP	TEMPERATURE CONTROL PANEL
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB
WG	WATER GAUGE
WPD	WATER PRESSURE DROP

SYMBOLS LIST	
NOTE: NOT ALL SYMBOLS MAY BE USED.	
LINE STYLES	DUCTWORK
NEW WORK (VISIBLE) —————	SUPPLY/O.A. DUCT RISE (SINGLE LINE)  OR 
NEW WORK (HIDDEN) - - - - -	
EXISTING WORK (VISIBLE) ————	SUPPLY/O.A. DUCT RISE (DOUBLE LINE)  OR 
EXISTING WORK (HIDDEN) - - - - -	
EXISTING TO BE DEMOLISHED - - - - -	SUPPLY/O.A. DUCT DROP (SINGLE LINE)  OR 
FUTURE - - - - -	
	SUPPLY/O.A. DUCT DROP (DOUBLE LINE)  OR 
PIPING	
HEATING WATER SUPPLY ——— HWS	RETURN/EXHAUST/RELIEF DUCT RISE (SINGLE LINE)  OR 
HEATING WATER RETURN ——— HWR	
CHILLED WATER SUPPLY ——— CWS	RETURN/EXHAUST/RELIEF DUCT RISE (DOUBLE LINE)  OR 
CHILLED WATER RETURN ——— CWR	
CONDENSER WATER SUPPLY ——— CS	RETURN/EXHAUST/RELIEF DUCT DROP (SINGLE LINE)  OR 
CONDENSER WATER RETURN ——— CR	
COOLING COIL CONDENSATE ——— C	RETURN/EXHAUST/RELIEF DUCT DROP (DOUBLE LINE)  OR 
REFRIGERANT SUCTION ——— RS	
REFRIGERANT LIQUID ——— RL	
HIGH PRESSURE STEAM ——— HPS(#)	FLAT OVAL (DROP OR RISE)  OR 
HIGH PRESSURE STEAM CONDENSATE ——— HPC	
LOW PRESSURE STEAM ——— LPS(#)	DOUBLE LINE FLEX DUCT  OR 
LOW PRESSURE STEAM CONDENSATE ——— LPC	
PUMPED STEAM CONDENSATE ——— PSC	SINGLE LINE FLEX DUCT  OR 
PIPING (FITTINGS, VALVES, AND MISCELLANEOUS)	ACCESS DOOR
DROP 	
RISE 	90 DEGREE FITTING (WITH TURNING VANES)  OR 
TEE 	
CAP 	DIFFUSER  OR 
REDUCER 	
FLOW ARROW 	WITHOUT FLEX  OR 
PUMP  OR 	SIDEWALL GRILLE/REGISTER/DIFFUSER  OR 
2-WAY CONTROL VALVE 	
3-WAY CONTROL VALVE 	GRILLE/REGISTER 
BUTTERFLY VALVE 	
BALL VALVE 	VOLUME DAMPER 
CHECK VALVE 	
COMBINATION BALANCE/SHUT-OFF VALVE 	FIRE DAMPER WITH ACCESS DOOR 
TRIPLE DUTY VALVE 	
GATE VALVE 	SMOKE DAMPER WITH ACCESS DOOR 
PLUG VALVE 	
GLOBE VALVE 	COMB. FIRE/SMOKE DAMPER WITH ACCESS DOOR 
PRESSURE RELIEF VALVE 	
PRESSURE REDUCING VALVE 	BACKDRAFT DAMPER 
STRAINER 	
DRAIN VALVE WITH HOSE END ADAPTER 	MOTORIZED DAMPER WITH ACCESS DOOR 
UNION 	AIR FLOW ARROW 
AUTOMATIC AIR VENT 	TEMPEROSTAT (MOUNT 48" AFF TO CENTER UNO) 
MANUAL AIR VENT 	
THERMOMETER 	HUMIDISTAT (MOUNT 48" AFF TO CENTER UNO) 
PRESSURE GAUGE (WITH STOPCOCK) 	MISCELLANEOUS SENSOR 
PRESSURE/TEMPERATURE TEST PLUG 	CO SENSOR 
FLOW SENSOR 	CO2 SENSOR 
PRESSURE SENSOR 	CONNECT TO EXISTING 
TEMPERATURE SENSOR 	
STEAM TRAP 	TERMINAL BOX  OR 
METER 	WITHOUT REHEAT  OR 
FLEXIBLE CONNECTION 	
HEAT TRACED PIPE 	
PIPE ANCHOR 	
PIPE GUIDE 	
EXPANSION JOINT 	

GENERAL NOTES:

- A. THESE NOTES APPLY TO ALL DIVISION 23 DRAWINGS.
- B. ALL HVAC WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE, AND NATIONAL CODES.
- C. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, FEES, AND PERMITS FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL COMPLY WITH ALL GENERAL CONDITIONS LISTED ON THE ARCHITECTURAL DRAWINGS.
- D. IN CASE OF DIFFERENCE BETWEEN BUILDING CODES, SPECIFICATIONS, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS, FIRE INSURANCE CARRIER'S REQUIREMENTS, AND CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN. PROMPTLY NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DIFFERENCE.
- E. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE FUNCTIONALITY OF THE HVAC SYSTEM INCLUDING ELECTRICAL AND CONTROL ITEMS ASSOCIATED WITH THE MECHANICAL EQUIPMENT.
- F. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF MECHANICAL, PLUMBING, AND EQUIPMENT. DRAWINGS ARE BASED ON "AS-BUILT" DRAWINGS AND LIMITED FIELD OBSERVATIONS. FOR PURPOSES OF CLEARANCE AND LEGIBILITY, SIZE AND LOCATION OF EQUIPMENT ARE SHOWN TO SCALE WHEREVER POSSIBLE.
- G. IN THE EVENT OF A CONFLICT OCCURS BETWEEN THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THE ACTUAL FIELD CONDITIONS THE CONTRACTOR SHALL ADVISE ENGINEER IN WRITING PRIOR TO PROCEEDING WITH WORK. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH RESTOCKING, RELOCATING OF EQUIPMENT, SYSTEMS, PIPING, ETC. FROM FAILURE TO PROPERLY COORDINATE INSTALLATION AND NOT ADVISING IN WRITING OF CONFLICT PRIOR TO PURCHASE AND/OR INSTALLATION.
- H. CONTRACTOR IS TO MAINTAIN RECORDED "AS-BUILT" INFORMATION ON ALL EXISTING SERVICES UNCOVERED DURING CONSTRUCTION AND ALL NEW SERVICES BEING INSTALLED. "AS-BUILT" DRAWINGS SHALL BE MAINTAINED IN THE FIELD. THE "AS-BUILT'S" SHALL CAPTURE INFORMATION ON A CLEARLY MARKED IN COLOR PRINTED COPY OF CONTRACT DRAWING. RECORDED INFORMATION SHALL INCLUDE ROUTING AND INVERT ELEVATIONS. AT THE COMPLETION OF THE CONTRACT, THE CONTRACTOR SHALL PROVIDE ELECTRONIC (PDF FORMAT) OF RECORDED "AS-BUILT" INFORMATION TO THE ENGINEER.
- I. THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP OF ALL EQUIPMENT AND SYSTEMS INSTALLED, MODIFIED, OR REVISED BY THIS WORK PER MANUFACTURER'S REQUIREMENTS AND/OR CONTRACT DOCUMENTS.
- J. AT THE END OF CONSTRUCTION, CONTRACTOR SHALL PERFORM A COMPLETE AIR SYSTEM FLOW BALANCE FOR ALL EQUIPMENT AND SYSTEMS SHOWN, SCHEDULED OR OTHERWISE IDENTIFIED. CONTRACTOR SHALL INCLUDE TIME IN CONSTRUCTION SCHEDULE TO FULLY TEST AND BALANCE SYSTEMS PRIOR TO OWNER OCCUPANCY TO ASSURE ADJUSTMENTS CAN BE MADE TO MITIGATE COMFORT ISSUES FOR OCCUPANTS POST CONSTRUCTION.
- K. UPON COMPLETION OF HVAC SYSTEMS, THE MECHANICAL CONTRACTOR SHALL INSTRUCT THE OWNER IN THE COMPLETE OPERATION OF THE SYSTEMS.
- L. PRIOR TO AND DURING CONSTRUCTION, CONTRACTOR SHALL FULLY PROTECT THE AIR HANDLING AND DUCTWORK SYSTEMS. CONTRACTOR SHALL PROTECT EACH RETURN AIR GRILLE OPENING AND RETURN AIR DUCT WITH MINIMUM MERV 8 FILTER MEDIA. AIR HANDLING EQUIPMENT AND DUCTS COVERED WITH DRYWALL/CONSTRUCTION DUST SHALL BE CLEANED AT CONTRACTOR EXPENSE.
- M. THE CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, VALVES, AND ACCESS LOCATIONS HAVE CLEARANCES IN ACCORDANCE TO THE DRAWINGS AND THE MANUFACTURER'S REQUIREMENTS FOR FULL ACCESSIBILITY AND OPERATION OF MECHANICAL SYSTEMS.
- N. THE CONTRACTOR SHALL PROVIDE ACCESS PANELS, IN WALLS OR CEILING, OR ACCESS DOORS, IN DUCTWORK, AS INDICATED OR REQUIRED FOR ACCESS TO CONCEALED MECHANICAL EQUIPMENT OR DEVICES.
- O. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND SHALL REPAIR ADJACENT EXISTING AND/OR NEW SURFACES, AREAS, AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF DEMOLITION AND/OR NEW WORK.
- P. COORDINATE THE LOCATION OF ALL UTILITY CONNECTION POINTS FOR EQUIPMENT WITH OTHER TRADES. COORDINATION INCLUDES ALLOWING PROPER CLEARANCE FOR ELECTRICAL DEVICES FURNISHED WITH EQUIPMENT INCLUDING CONTROLS, DISCONNECTS, VAV POWER/CONTROL PANELS, VFD, ETC.
- Q. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING DEVICES, INCLUDING CEILING MOUNTED FANS.
- R. COORDINATE CLOSELY WITH OTHER TRADES IN LOCATING AND INSTALLING ALL SYSTEMS ABOVE SUSPENDED CEILINGS. SPECIFICALLY, COORDINATE LAYOUT WITH ELECTRICAL AND PLUMBING CONTRACTORS TO ALLOW SUFFICIENT ROOM FOR RECESSED LIGHT FIXTURES, FIRE SPRINKLER, AND PLUMBING VENTS WHERE APPLICABLE.
- S. ANNULAR SPACE OF PIPE, CONDUIT, DUCT, AND OTHER SIMILAR PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. IN ADDITION, PENETRATIONS THRU 0-HOUR RATED FLOORS SHALL ALSO BE FIRESTOPPED TO RETARD PASSAGE OF FIRE AND SMOKE. REFER TO FIRESTOPPING SPECIFICATION. REFER TO ARCHITECTURAL DRAWINGS FOR CONSTRUCTION, LAYOUT, AND FIRE RATINGS OF FLOORS, WALLS, PARTITIONS, AND OTHER BUILDING ELEMENTS.
- T. ALL EXPOSED WIRING SHALL BE RUN IN CONDUIT, EXCEPT WHEN RUNNING THOUGH FINISHED SPACES THAT HAVE CEILING "CLOUDS".
- U. THE CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, FINISHING, AND PENETRATIONS REQUIRED BY THE INSTALLATIONS. ALL FLOOR PENETRATIONS SHALL BE PATCHED AND SEALED TO BE WATERTIGHT. PROVIDE CHROME ESCUTCHEON FOR EXPOSED PIPING PENETRATIONS. CUTTING OF BUILDING CONSTRUCTION MATERIALS SHALL CONFORM TO THE CHARACTERISTICS OF THE PARTICULAR MATERIAL INVOLVED AND SHALL NOT CREATE ANY STRUCTURAL WEAKNESS OR UNSIGHTLY APPEARANCE. REFINISH ANY SURFACE DISTURBED UNDER THIS WORK TO MATCH EXISTING, EXCEPT WHERE REFINISHING OF THAT SURFACE IS INCLUDED UNDER THE GENERAL TRADES CONTRACT.
- V. PROVIDE ROOM TEMPERATURE THERMOSTATS FOR ALL UNITS. PREFERRED LOCATIONS ARE SHOWN ON THE PLANS. COORDINATE LOCATION OF THERMOSTATS AND OTHER WALL MOUNTED DEVICES WITH FURNITURE, WALL FRAMING, ELECTRICAL OUTLETS AND DEVICES, AND TECHNOLOGY OUTLETS AND DEVICES PRIOR TO ROUGH-IN. PROVIDE THERMOSTATS WITH ROOM TEMPERATURE INDICATOR AND WITH SET POINT ADJUSTMENT.
- W. ALL ROOF AND DECK PENETRATIONS SHALL BE COMPLETED BY THE GENERAL TRADES CONTRACTOR. COORDINATE EXACT SIZE AND LOCATION WITH ARCHITECT AND STRUCTURAL ENGINEER. COORDINATE SCOPE OF WORK WITH GENERAL CONTRACTOR PRIOR TO BIDDING.
- X. COORDINATE EXACT LOCATION OF DIFFUSERS, GRILLES AND REGISTERS WITH AREA SMOKE DETECTORS, LIGHTS, AND ELECTRICAL DEVICES. AIR DEVICES SHALL NOT BE CLOSER THAN 3 FEET FROM AN AREA SMOKE DETECTOR.
- Y. BRANCH DUCT TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE. FLEXIBLE DUCT CONNECTION TO THE DIFFUSER SHALL BE NO MORE THAN 5 FEET IN LENGTH. FLEXIBLE DUCT SHALL NOT BE USED FOR ELBOW TO DIFFUSER WITH A FLEXFLOW SUPPORT ELBOW.
- Z. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR MAKING ALL EXPOSED DUCTWORK PAINT READY.
- AA. PROVIDE VOLUME DAMPERS AS SHOWN ON THE DRAWINGS, AS REQUIRED BY THE SPECIFICATIONS, AND SHOWN IN TYPICAL DETAILS. LOCATE VOLUME DAMPERS IN ACCESSIBLE LOCATIONS. A VOLUME DAMPER SHALL BE PROVIDED FOR EACH DIFFUSER AND GRILLE IN ORDER TO BALANCE EACH AIR DEVICE INDEPENDENTLY PER SPECIFIED CFM STATED ON DRAWINGS.
- AB. DUCTWORK DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR, UNLESS NOTED OTHERWISE.
- AC. PROVIDE STRAIGHT INLET AND OUTLET DUCTS PER THE LENGTH THE EQUIPMENT MANUFACTURER RECOMMENDS. FAN INLETS SHALL BE MINIMUM 3 DUCT DIAMETERS OF STRAIGHT DUCT. INSTALL AND SUPPORT MECHANICAL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE FLEXIBLE CONNECTIONS AND VIBRATION ISOLATION FOR VIBRATING EQUIPMENT UNLESS NOTED OTHERWISE.
- AD. INSTALL AIRFOIL TURNING VANES IN ALL 90 DEGREE ELBOWS EXCEPT TRANSFER DUCTS AND OPEN RETURN AIR BOOTS.
- AE. CONTRACTOR SHALL COMPLY WITH SMACNA "HVAC DUCT CONSTRUCTION AND STANDARDS" AND OTHER APPLICABLE STANDARDS INCLUDED IN THE SPECIFICATIONS FOR THE CONSTRUCTION AND SUPPORT OF DUCTWORK, UNLESS OTHERWISE NOTED.
- AF. ALL DUCTS AND PIPES SHALL BE RUN ABOVE CEILING. WHERE NO CEILINGS ARE INSTALLED, INSTALL AS HIGH AS POSSIBLE TO STRUCTURE UNLESS NOTED OTHERWISE. IN GENERAL, KEEP DUCT AND PIPING MAINS NEXT TO UNDERSIDE OF STRUCTURE.

- AG. CHANGES IN HVAC DUCT AND PIPE ELEVATIONS SHALL BE PROVIDED AND BE COORDINATED WITH OTHER SYSTEMS INCLUDING, BUT NOT LIMITED, TO PLUMBING, FIRE PROTECTION, ELECTRICAL, AND BUILDING ELEMENTS SYSTEMS. OFFSET DUCTS INTO JOIST SPACE FOR WHERE SPACE ABOVE CEILING IS NOT SUFFICIENT FOR DUCTS TO CROSS OTHER DUCTS OR WORK OF OTHER CONTRACTORS.
- AH. DUCTWORK AND PIPING ON DRAWINGS DOES NOT INDICATE ALL REQUIRED OFFSETS AND FITTINGS. INCLUDE THESE OFFSETS AND FITTINGS TO COORDINATE WITH OTHER CONTRACTORS.
- AI. SECURELY FASTEN ALL PIPING AND DUCTWORK WITHIN STRUCTURES TO THE BUILDING CONSTRUCTION BY MEANS OF HANGERS, SUPPORTS, GUIDES, ANCHORS, AND SWAY BRACES TO MAINTAIN PIPE AND DUCTWORK ALIGNMENT, TO PREVENT SAGGING, AND TO PREVENT NOISE AND EXCESSIVE STRAIN ON PIPING AND DUCTWORK DUE TO MOVEMENT UNDER OPERATING CONDITIONS. SUPPORTS FOR ALL PIPING AND DUCTWORK SHALL BE IN ACCORDANCE WITH LATEST ANSI AND SMACNA STANDARDS.
- AJ. CONTRACTOR SHALL PROTECT THE PIPING AND DUCTWORK TO PREVENT ENTRY OF DIRT AND ANY OTHER FOREIGN MATERIAL DURING THE INSTALLATION.
- AK. PROVIDE FLEXIBLE CONNECTIONS FOR ALL VIBRATING EQUIPMENT.
- AL. INSTALL ALL PIPING IN LOCATIONS AND ELEVATIONS SUCH THAT COILS, TUBES, AND FILTERS CAN BE REMOVED AND REPLACED WITHOUT MAJOR PIPING REMOVAL. LOCATE VALVES IN APPROPRIATE PLACES TO ACCOMMODATE MAINTENANCE. MAINTAIN REQUIRED SERVICE ACCESS SPACE AT EQUIPMENT.
- AM. PIPE SLEEVES THRU FLOORS SHALL BE SEPARATED BY A MINIMUM OF 3" UNLESS APPROVED BY THE PROJECT STRUCTURAL ENGINEER. SUBMIT SLEEVE COORDINATION DRAWINGS FOR REVIEW AND APPROVAL. EXTEND SLEEVES A MINIMUM OF 2" AFF AND CAULK PERIMETER.
- AN. ARRANGE ALL PIPING WITHIN STRUCTURES NEATLY ALONG WALLS AND/OR IN NEAT, HORIZONTAL GROUPS AND MAINTAIN REQUIRED SLOPES.
- AO. PROVIDE A HANGER NOT MORE THAN 12 INCHES FROM THE POINT OF CHANGE OF DIRECTION OF A PIPE RUN IN BOTH HORIZONTAL AND VERTICAL PLANE.
- AP. CONNECTION BETWEEN DISSIMILAR MATERIAL PIPES SHALL BE CONNECTED VIA DIELECTRIC NIPPLES OR FLANGES WITH DIELECTRIC GASKETS TO COUNTERACT ELECTROLYSIS.
- AQ. ALL WORK, EQUIPMENT AND MATERIALS SHALL BE PROTECTED AT ALL TIMES. ALL DUCT AND PIPE OPENING SHALL BE PROPERLY CAPPED OR PLUGGED DURING INSTALLATION.
- AR. INSTALL CEILING RADIATION DAMPERS IN ACCORDANCE WITH THE DETAILS LISTED IN THE FIRE-RESISTANT RATED ASSEMBLY AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE LISTING.

#	DATE	CHANGE DESCRIPTION
2	05-05-2022	ADDENDUM NO. 3



COLUMBUS METROPOLITAN HOUSING AUTHORITY
COMMUNITY. COMMITMENT. COLLABORATION.

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA



MOODY•NOLAN

300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215

PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
**GENERAL INFORMATION -
MECHANICAL**



STATE OF OHIO
3/29/22
DAVID A. HARRIET
PROFESSIONAL ENGINEER
MECHANICAL

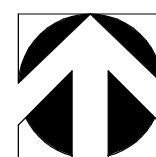
APRIL 4, 2022

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Proj. #20643

M001

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AEC **ADVANCED
ENGINEERING
CONSULTANTS**

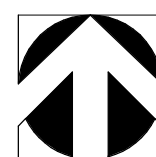
Mechanical | Electrical | Plumbing | Fire Protection | Utilities
1405 Dublin Road
Columbus, Ohio 43215
Tel: (614) 486-4778
Fax: (614) 486-4082

1. 4" Ø DRYER EXHAUST TO BE CONSTRUCTED WITH A SMOOTH INTERIOR FINISH. VOID OF SCREWS AND SIMILAR FASTENERS THAT PROTRUDE MORE THAN 1/8 IN. INTO THE INSIDE OF THE DUCT. THE OVERALL RUN OF DUCT SHALL NOT EXCEED 35' EQUIVALENT FEET IN LENGTH. PER SECTION 504.8.4.1 OF THE OHIO MECHANICAL CODE, THE FITTING SHALL BE CONSTRUCTED WITH 1/8" SMOOTH RADIUS ELBOW FITTING EQUAL TO DRYER-ELL MODEL LT-90.
2. RUN DRYER EXHAUST DUCT IN SOFFIT BELOW THE FIRE RATED CEILING IN THIS AREA.
3. PROVIDE YOUNG'S REGULATOR ELECTRONIC BALANCE DAMPER WITH POSITION INDICATOR. 12V. PROVIDE FIBER GLASS RATED 5 CONDUCTOR WIRE. EXTEND TO MODEL EBD WALL UNIT.
4. PROVIDE MULTI PORT EBD-WALL PLATE TO ACCOMMODATE ASSOCIATED DAMPERS FOR SETTING DAMPER POSITION. EXTEND EBD CABLE PLenum RATED CABLE TO ALL DAMPERS IN AREA TO ALLOW FOR FUTURE AIR BALANCE OF SYSTEM. PROVIDE ONE EBD-DAMPER POSITIONING WITH DISPLAY METER.
5. REFRIGERANT PIPING, ROUTE AND SIZE PER MANUFACTURER'S RECOMMENDATIONS.
6. AIR DEVICE LOCATED IN SOFFIT.
7. RUN DRYER EXHAUST DUCT BELOW THE FIRE RATED CEILING IN THIS AREA.
8. PROVIDE HONEYWELL EARD MOTORIZED DAMPER 24V IN OUTSIDE AIR DUCT. DAMPER TO BE INTERLOCKED WITH AIR HANDLING UNIT. DAMPER TO OPEN ONLY WHEN AHU IS IN HEATING OR COOLING MODE.
9. GRILLE MOUNTED BELOW CEILING/SOFFIT (APPROX. 6" AFF TO CENTERLINE). COORDINATE EXE HEIGHT AND FINISH WITH ARCHITECT.
10. RETURN AIR THROUGH DOOR SYSTEM BY GC.
11. GRILLE MOUNTED BELOW CEILING (APPROX. 6" AFF TO CENTERLINE).

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APRIL 4, 2022	
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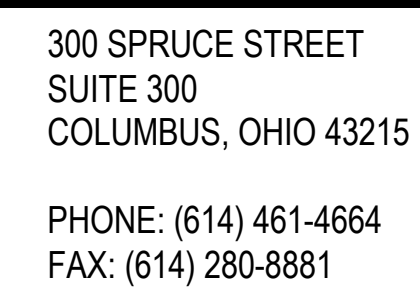
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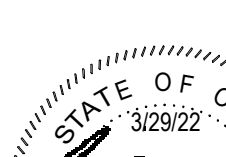
1. PER THE OHIO MECHANICAL CODE, OUTSIDE AIR INTAKES MUST BE AT LEAST 10'-0" FROM CONTAMINATED EXHAUST SOURCES SUCH AS BATHROOM EXHAUST OR DRYER EXHAUST.
2. PER THE OHIO MECHANICAL CODE, CONTAMINATED EXHAUST SOURCES SUCH AS BATHROOM EXHAUST OR DRYER EXHAUST OPENINGS MUST BE AT LEAST 3'-0" FROM ANY OPERABLE WINDOW OR DOOR OPENING.
3. ALL EXHAUST DUCTWORK WITH CONNECTIONS TO THE OUTSIDE SHALL BE INSULATED A MINIMUM OF 10'-0" LINEAR FEET FROM THE EXTERIOR WALL CONNECTION.
4. ALL OUTSIDE AIR INTAKE DUCTWORK SHALL BE INSULATED FROM AIR HANDLING UNIT TO THE EXTERIOR.
5. ALL SUPPLY AIR DUCTWORK, INCLUDING FLEX DUCT, SHALL BE INSULATED FROM AIR HANDLING UNIT TO AIR DEVICE.
6. PROVIDE CEILING RADIATION DAMPERS FOR ALL AIR DEVICES.
7. INSTALL ALL AIR HANDLING UNITS DIRECTLY BETWEEN STRUCTURAL TRUSSES OVERHEAD WHERE POSSIBLE.
8. GENERAL TRADES CONTRACTOR SHALL PROVIDE A COMPLETE ACCESS POINT INTO THE DUCT ACCESS PANELS ARE ABOVE DRYWALL CEILING. COORDINATE LOCATION OF THESE ACCESS POINTS.
9. COVER ALL TRANSFER AIR DUCT OPENINGS ABOVE CEILING WITH BIRD SCREEN.
10. ALL DUCTWORK TO BE INSTALLED ABOVE CEILINGS UNLESS NOTE OTHERWISE.
11. FOR ALL PUBLIC AREA AHUS WHERE SUPPLY AIR AND/OR RETURN AIR DUCT PENETRATES RAISED FLOORING ASSEMBLY, PROVIDE FIRE DAMPER(S) AND DUCT ACCESS DOOR(S).

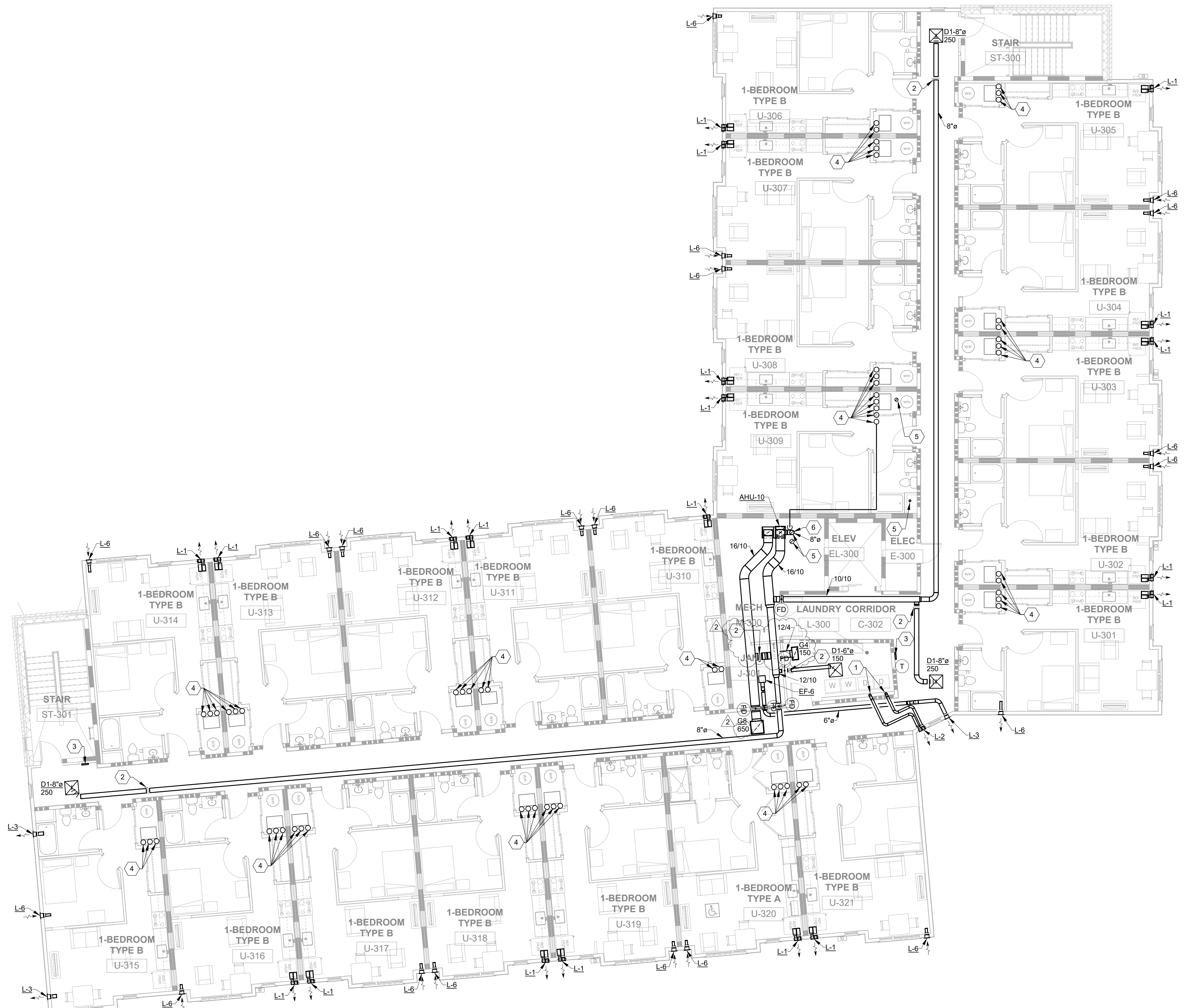
1. 4"Ø DRYER EXHAUST TO BE CONSTRUCTED WITH A SMOOTH INTERIOR FINISH. VUD OF SCREWS AND SIMILAR FASTENERS THAT PROTRUDE MORE THAN 1/8" INTO THE INSIDE OF THE DUCT. THE OVERALL RUN OF DUCT SHALL NOT EXCEED 35' EQUIVALENT FEET IN LENGTH. PER SECTION 504.8.4.1 OF THE OHIO MECHANICAL CODE, ALL FITTINGS SHALL BE CONSTRUCTED WITH 10" RADIUS MILD STEEL ELBOWS.
2. PROVIDE YOUNG'S REGULATOR OR EQUIVALENT BALANCE DAMPER WITH POSITION INDICATOR. 12V. PROVIDE 1/2" RATED 5 CONDUCTOR WIRE. EXTEND TO MODEL EBD WALL UNIT.
3. PROVIDE MULTI-PORT EBD-WALL PLATE TO ACCOMMODATE ASSOCIATED DAMPERS FOR SETTING DAMPER POSITION. EXTEND EBD PLENUM RATED TO ALL DAMPERS. PROVIDE EBD-WALL PLATE FOR COMPLETE AIR BALANCE OF SYSTEM. PROVIDE ONE EBD-DAMPER POSITIONER WITH DISPLAY METER.
4. REFRIGERANT PIPING, ROUTE AND SIZE PER MANUFACTURER'S RECOMMENDATIONS.
5. OUTSIDE AIR DUCT UP TO ROOF.
6. PROVIDE HONEYWELL EARD MOTORIZED DAMPER 24V IN OUTSIDE AIR DUCT. DAMPER TO BE INTERLOCKED WITH HEATING UNIT. DAMPER TO BE OPENED WHEN AHU IS IN HEATING OR COOLING MODE.


COLUMBUS METROPOLITAN
HOUSING AUTHORITY
COMMUNITY. COMMITMENT. COLLABORATION.

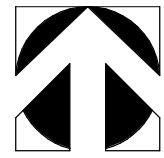
HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA



	APRIL 4, 2022	
	DRAWN BY: MDH	CHECKED BY: CAT
	Proj. #20643	
	M102	
PERMIT & BID SET		



1 PLAN LEVEL 03 - FLOOR - PLAN - MECHANICAL
1/8" = 1'-0"



- GENERAL NOTES:**
- PER THE OHIO MECHANICAL CODE, OUTSIDE AIR INTAKES MUST BE AT LEAST 10'-0" FROM CONTAMINATED EXHAUST SOURCES SUCH AS BATHROOM EXHAUST OR DRYER EXHAUST.
 - PER THE OHIO MECHANICAL CODE, CONTAMINATED EXHAUST SOURCES SUCH AS BATHROOM EXHAUST OR DRYER EXHAUST OPENINGS MUST BE AT LEAST 3'-0" FROM ANY OPERABLE WINDOW OR DOOR OPENING.
 - ALL EXHAUST DUCTWORK WITH CONNECTIONS TO THE OUTSIDE SHALL BE INSULATED A MINIMUM OF 10'-0" LINEAR FEET FROM THE EXTERIOR WALL CONNECTION.
 - ALL OUTSIDE AIR INTAKE DUCTWORK SHALL BE INSULATED FROM AIR HANDLING UNIT TO THE EXTERIOR.
 - ALL SUPPLY AIR DUCTWORK, INCLUDING FLEX DUCT, SHALL BE INSULATED FROM AIR HANDLING UNIT TO AIR DEVICE.
 - PROVIDE CEILING RADIATION DAMPERS FOR ALL AIR DEVICES.
 - INSTALL ALL AIR HANDLING UNITS DIRECTLY BETWEEN STRUCTURAL TRUSSES OVERHEAD WHERE POSSIBLE.
 - GENERAL TRADES CONTRACTOR SHALL PROVIDE A CEILING ACCESS PANEL WHERE DUCT ACCESS DOORS ARE ABOVE DRYWALL CEILINGS. COORDINATE LOCATION OF THESE ACCESS POINTS.
 - COVER ALL TRANSFER AIR DUCT OPENINGS ABOVE CEILING WITH BIRD SCREEN.
 - ALL DUCTWORK TO BE INSTALLED ABOVE CEILINGS UNLESS NOTE OTHERWISE.
 - FOR ALL PUBLIC AREA AHU'S WHERE SUPPLY AIR AND/OR RETURN AIR DUCT PENETRATES RATED FLOOR/CEILING ASSEMBLY, PROVIDE FIRE DAMPER(S) AND DUCT ACCESS DOOR(S).

- CODING NOTES:**
- 4" DRYER EXHAUST TO BE CONSTRUCTED WITH A SMOOTH INTERIOR FINISH, VOID OF SCREWS AND SIMILAR FASTENERS THAT PROTRUDE MORE THAN 1/8" INCH INTO THE INSIDE OF THE DUCT. THE OVERALL RUN OF DUCT SHALL NOT EXCEED 35' EQUIVALENT FEET IN LENGTH, PER SECTION 504.8.4.1 OF THE OHIO MECHANICAL CODE. DUCT FITTINGS SHALL BE CONSTRUCTED WITH 10" RADIUS SMOOTH ELBOWS.
 - PROVIDE YOUNG'S REGULATOR ELECTRONIC BALANCE DAMPER WITH POSITION INDICATOR, 12V. PROVIDE PLENUM RATED 5 CONDUCTOR WIRE, EXTEND TO MODEL EBD WALL UNIT.
 - PROVIDE MULTI PORT EBD-WALL PLATE TO ACCOMMODATE ASSOCIATED DAMPERS FOR SETTING DAMPER POSITION. EXTEND EBD-C PLENUM RATED CABLE TO ALL DAMPERS IN AREA TO ALLOW FOR COMPLETE AIR BALANCE OF SYSTEM. PROVIDE ONE EBD-P DAMPER POSITIONER WITH DISPLAY METER.
 - REFRIGERANT PIPING, ROUTE AND SIZE PER MANUFACTURER'S RECOMMENDATIONS.
 - OUTSIDE AIR DUCT UP TO ROOF.
 - PROVIDE HONEYWELL EARD MOTORIZED DAMPER 24V IN OUTSIDE AIR DUCT. DAMPER TO BE INTERLOCKED WITH AIR HANDLING UNIT. DAMPER TO OPEN ONLY WHEN AHU IS IN HEATING OR COOLING MODE.

#	DATE	CHANGE DESCRIPTION
2	05-05-2022	ADDENDUM NO. 3



COLUMBUS METROPOLITAN HOUSING AUTHORITY
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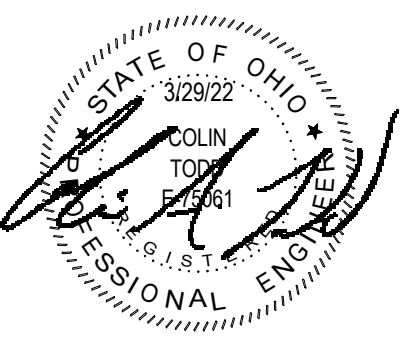


MOODY+NOLAN

300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215

PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
LEVEL 03 - FLOOR PLAN - MECHANICAL



STATE OF OHIO
3/29/22
COLIN T. NOLAN
PROFESSIONAL ENGINEER

APRIL 4, 2022
DRAWN BY: MDH
CHECKED BY: CAT
Proj. #20643
M103
PERMIT & BID SET

AIR HANDLING UNIT SCHEDULE																				
EQUIPMENT BASED ON BRYANT UNLESS NOTED OTHERWISE																				
UNIT DATA							COOLING COIL DATA					HEATING COIL DATA			ELECTRICAL DATA					NOTES
TAG	SERVICE	MODEL	MIN. O.A. CFM	CFM	MOTOR HP	WEIGHT LB.	TOTAL MBH	SENSIBLE MBH	REFRIG. TYPE	E.A.T. °F		MODEL	NO.	TOTAL KW	VOLTS	PHASE	MCA	MOCP		
										D.B.	W.B.									
AHL1	TYPICAL APARTMENT	FB4CNP018L	30	600	1/3	117	17.31	13.12	R-410A	78.40	65.40	KFCEH2501C08	1	8	208	1	44.7	45	ALL	
AHL2	TYPICAL APARTMENT	FB4CNP025L	30	800	1/3	128	21.49	16.53	R-410A	78.40	65.40	KFCEH2501C08	1	8	208	1	44.7	45	ALL	
AHL3	TYPICAL APARTMENT	FB4CNF030L	45	1000	1/3	128	27.67	21.46	R-410A	78.40	65.40	KFCEH2601C10	1	10	208	1	53.8	60	ALL	
AHL4	1ST FLOOR OFFICES	FB4CNP025L	160	800	1/3	128	21.49	16.53	R-410A	78.40	65.40	KFCEH2501C08	1	8	208	1	44.7	45	ALL	
AHL5	1ST FLOOR MEETING ROOMS	FB4CNF030L	210	1200	1/2	128	32.26	25.22	R-410A	78.40	65.42	KFCEH2601C10	1	10	208	1	53.8	60	ALL	
AHL6	1ST FLOOR LOBBY	FB4CNF048L	330	1600	3/4	162	45.05	34.18	R-410A	78.40	65.42	KFCEH3001F15	1	15	208	1	76.3	80	ALL	
AHL7	1ST FLOOR WEST COMMUNITY ROOM	FB4CNF030L	190	1000	1/3	128	27.67	21.46	R-410A	78.40	65.40	KFCEH2601C10	1	10	208	1	53.8	60	ALL	
AHL8	1ST FLOOR EAST COMMUNITY ROOM	FB4CNF048L	160	1600	3/4	162	45.05	34.18	R-410A	78.40	65.42	KFCEH3001F15	1	15	208	1	76.3	80	ALL	
AHL9	2ND FLOOR LAUNDRY / CORRIDOR	FB4CNP025L	170	800	1/3	128	21.49	16.53	R-410A	78.40	65.40	KFCEH2501C08	1	8	208	1	44.7	45	ALL	
AHL10	3RD FLOOR LAUNDRY / CORRIDOR	FB4CNF030L	200	1000	1/3	128	27.67	21.46	R-410A	78.40	65.40	KFCEH2601C10	1	10	208	1	53.8	60	ALL	
NOTES:																				
1. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT.																				
2. ELECTRIC HEATER 10 KW AND LESS WITH CIRCUIT BREAKER. ELECTRIC HEATER 15 KW AND MORE TO BE FUSED.																				
3. ALL UNITS SHALL HAVE A SINGLE POINT ELECTRICAL WIRING CONNECTION.																				
4. ECM FAN MOTOR.																				
5. PROVIDE WITH FILTER HOUSING.																				
6. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT.																				
7. REFER TO FLOOR PLAN FOR QUANTITY OF UNITS.																				

FAN SCHEDULE													
EQUIPMENT BASED ON GREENHECK UNLESS NOTED OTHERWISE													
UNIT DATA										ELECTRICAL DATA			
TAG	LOCATION	MODEL	FUNCTION	FAN TYPE	E.S.P. IN W.G.	CFM	RPM	TYPE OF DAMPER	TYPE OF DRIVE	SOUND RATING IN SONES	HP	VOLTS	PHASE
EF-1	APARTMENT	SP-B110	EXHAUST	CENTRIFUGAL	0.7	75	950	BACKDRAFT	DIRECT	LOW FLOW: 1.0 HIGH FLOW: 3.0	N/A	115	1
EF-2	TOILET	SP-B110	EXHAUST	CENTRIFUGAL	0.7	75	950	BACKDRAFT	DIRECT	LOW FLOW: 1.0 HIGH FLOW: 3.0	N/A	115	1
EF-3	TOILET	SP-B110	EXHAUST	CENTRIFUGAL	0.7	75	950	BACKDRAFT	DIRECT	LOW FLOW: 1.0 HIGH FLOW: 3.0	N/A	115	1
EF-4	JANITOR J-101	SP-A50-90-VG	EXHAUST	CENTRIFUGAL	0.75	50	808	BACKDRAFT	DIRECT	2.5	N/A	115	1
EF-5	JANITOR J-201	SP-B110	EXHAUST	CENTRIFUGAL	0.7	75	950	BACKDRAFT	DIRECT	3.0	N/A	115	1
EF-6	JANITOR J-301	SP-B110	EXHAUST	CENTRIFUGAL	0.7	75	950	BACKDRAFT	DIRECT	3.0	N/A	115	1
NOTES: 1. PROVIDE FACTORY MOUNTED AND WIRED DISCONNECT. 2. PROVIDE WALL MOUNTED MOTION DETECTOR TO CONTROL EXHAUST FAN. DETECTOR TO BE PROVIDED WITH FAN. WHEN OCCUPIED, FAN IS OPERATING AT 75 CFM AND WHEN NOT OCCUPIED THE FAN IS OPERATED AT 35 CFM CONTINUOUSLY (ADJUSTABLE). SET DURATION TO BE 10 MINUTES AT 75 CFM WHEN OCCUPIED (ADJUSTABLE). 3. PROVIDE EXHAUST FAN WITH RADIATION DAMPER. 4. FAN TO OPERATE CONTINUOUSLY. 5. PROVIDE WITH VIBRATION ISOLATION KIT.													

AIR DEVICE SCHEDULE									
EQUIPMENT BASED ON TITUS UNLESS NOTED OTHERWISE									
UNIT DATA									
TAG	FUNCTION	MODEL	FACE SIZE	NECK SIZE	TYPE	MATERIAL	FINISH	DAMPER	N.C. MAX.
D1	SUPPLY	OMNI	24" X 24"	SEE PLANS	SURFACE	STEEL	WHITE	IN DUCT	20
D2	SUPPLY	OMNI	12" X 12"	SEE PLANS	SURFACE	STEEL	WHITE	IN DUCT	20
D3	SUPPLY	301RL	8" X 8"	8" X 6"	DUCT MOUNTED	STEEL	WHITE	IN DUCT	20
D4	RETURN / EXHAUST	350FL	14" X 8"	12" X 6"	SURFACE	ALUMINUM	WHITE	NO	20
D5	RETURN / EXHAUST	350FL	22" X 12"	20" X 10"	SURFACE	ALUMINUM	WHITE	NO	20
D6	RETURN / EXHAUST	350FL	26" X 14"	24" X 12"	SURFACE	ALUMINUM	WHITE	NO	20
D7	RETURN / EXHAUST	350RL	24" X 12"	22" X 10"	SURFACE	STEEL	WHITE	IN DUCT	20
D8	INTAKE / EXHAUST	350FL	8" X 8"	6" X 6"	SURFACE	ALUMINUM	WHITE	NO	20
D9	RETURN / EXHAUST	350FL	14" X 22"	12" X 20"	SURFACE	ALUMINUM	WHITE	NO	20
D10	RETURN / EXHAUST	350RL	18" X 22"	16" X 20"	SURFACE	ALUMINUM	WHITE	NO	20
D11	RETURN / EXHAUST	350RL	24" X 24"	22" X 22"	SURFACE	STEEL	WHITE	IN DUCT	20
D12	INTAKE / EXHAUST	350FL	12" X 12"	10" X 10"	SURFACE	ALUMINUM	WHITE	NO	20
R1	SUPPLY	AIRMAE 160	14" X 8"	12" X 6"	SURFACE	STEEL	WHITE	YES	20

ELECTRIC UNIT HEATER SCHEDULE								
EQUIPMENT BASED ON QMARK UNLESS NOTED OTHERWISE								
UNIT DATA				HEATING ELEMENTS			NOTES	
TAG	LOCATION	MODEL	TYPE	TOTAL KW	VOLTS	PHASE		AMPS
ELUH1	ST-100 STAIR	AWH4408F	SEMI-RECESSED	4	208	1	19.2	1, 2, 3
ELUH2	ST-101 STAIR	AWH4408F	SEMI-RECESSED	4	208	1	19.2	1, 2, 3
ELUH3	W-100 WATER	MUH03-81	CEILING MOUNTED (HUNG)	3	208	1	14.5	1, 2, 4
ELUH4	M-101B MECH/ELEC	MUH03-81	CEILING MOUNTED (HUNG)	3	208	1	14.5	1, 2, 4
ELUH5	V-101 VESTIBULE	AWH4408F	RECESSED	4	208	1	19.2	1, 2, 3
NOTES: 1. PROVIDE FACTORY INSTALLED DISCONNECT SWITCH. 2. PROVIDE UNIT MOUNTED THERMOSTAT. 3. PROVIDE SEMI-RECESSED MOUNTING FRAME. AWH82. 4. PROVIDE OPTIONAL BRACKET FOR CEILING MOUNTED UNIT.								

AIR COOLED HEAT PUMP SCHEDULE													
EQUIPMENT BASED ON BRYANT UNLESS NOTED OTHERWISE													
UNIT DATA							CONDENSER DATA		ELECTRICAL DATA				NOTES
TAG	SERVICE	MODEL	WEIGHT LB.	NOMINAL COOLING CAPACITY (TONS)	SEER	HEATING CAPACITY @ 47°F (BTU/H)	MOTOR FLA	REFRIG. TYPE	VOLTS	PHASE	MCA	MOCP	
HP-1	SERVES AHL1	214DNA218P00	166	1.5	14	17,600	0.50	R-410A	208	1	11.8	20	ALL
HP-2	SERVES AHL2	214DNA224P00	175	2	14.5	22,200	0.60	R-410A	208	1	14.2	25	ALL
HP-3	SERVES AHL3	214DNA230P00	180	2.5	14	26,600	1.40	R-410A	208	1	18.3	30	ALL
HP-4	SERVES AHL4	214DNA224P00	175	2	14.5	22,200	0.60	R-410A	208	1	14.2	25	ALL
HP-5	SERVES AHL5	214DNA236P00	201	3	14	33,800	1.10	R-410A	208	1	20	30	ALL
HP-6	SERVES AHL6	214DNA248P00	232	4	14	45,500	1.40	R-410A	208	1	25.2	40	ALL
HP-7	SERVES AHL7	214DNA230P00	180	2.5	14	26,600	1.40	R-410A	208	1	18.3	30	ALL
HP-8	SERVES AHL8	214DNA248P00	232	4	14	45,500	1.40	R-410A	208	1	25.2	40	ALL
HP-9	SERVES AHL9	214DNA224P00	175	2	14.5	22,200	0.60	R-410A	208	1	14.2	25	ALL
HP-10	SERVES AHL10	214DNA230P00	180	2.5	14	26,600	1.40	R-410A	208	1	18.3	30	ALL
NOTES: 1. PROVIDE UNIT WITH HAIL GUARD. 2. LOW-AMBIENT PRESSURE SWITCH. 3. CRANKCASE HEATER. 4. EVAPORATOR FREEZE THERMOSTAT. 5. START ASSIST. 6. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT. 7. REFER TO FLOOR PLANS FOR QUANTITY OF UNITS.													

LOUVER SCHEDULE								
EQUIPMENT BASED ON XYENT UNLESS NOTED OTHERWISE								
UNIT DATA								NOTES
TAG	SERVICE	MODEL	FUNCTION	FACE DIMENSION W x H	FREE FACE AREA (SF)	VEL. FPM	DAMPER	
L-1	SEE PLANS	DHEB-66-BRS	EXHAUST	15.75" X 11.625"	0.440	N/A	BACKDRAFT	
L-2	SEE PLANS	DHEB-44-BRS	EXHAUST	15.75" X 11.625"	0.396	N/A	BACKDRAFT	
L-3	SEE PLANS	6SEB-BRS	EXHAUST	11.75" X 10.875"	0.220	N/A	BACKDRAFT	
L-4	SEE PLANS	6SEB-BRS	INTAKE	11.75" X 10.875"	0.220	N/A	NONE	
L-5	SEE PLANS	4SEB-BRS	EXHAUST	11.75" X 10.875"	0.198	N/A	BACKDRAFT	
L-6	SEE PLANS	4SEB-BRS	INTAKE	11.75" X 10.875"	0.198	N/A	NONE	

DUCT CONSTRUCTION SCHEDULE											
DUCT LOCATION	DUCT CONSTRUCTION								NOTES		
	SHAPE	TYPE	PRESSURE CLASS (IN WG)	LEAKAGE CLASS (CFM PER 100 SF @ 1 IN WG)	MATERIAL						
					GALVANIZED STEEL	GALVANIZED STEEL PVC COATED	ALUMINUM	STAINLESS STEEL TYPE 304			
										STAINLESS STEEL TYPE 316	
OUTDOOR AIR OR COMBUSTION AIR DUCT											
Indoors Concealed From View	X	X	-2 or +2	NA	X	X	X	X			
	X		X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
Indoors Exposed to View in Unfinished Space	X	X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
Outdoors	X	X	X	-2 or +2	4	X	X	X	X		
SUPPLY AIR DUCT											
Indoors Concealed From View: VAV Downstream From Terminal Box or CAV <2000 CFM	X		X	+1	NA	X	X	X	X		
	X		X	+1	NA	X	X	X	X		
		X	X	+1	NA	X	X	X	X		
		X	X	+1	NA	X	X	X	X		
Indoors Exposed to View in Unfinished Space: VAV Downstream From Terminal Box or CAV <2000 CFM	X		X	+1	NA	X	X	X	X		
	X		X	+1	NA	X	X	X	X		
		X	X	+1	NA	X	X	X	X		
		X	X	+1	NA	X	X	X	X		
RETURN AIR OR MIXED AIR DUCT											
Indoors Concealed From View	X		X	-2 or +2	NA	X	X	X	X		
	X		X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
Indoors Exposed to View in Unfinished Space	X		X	-2 or +2	NA	X	X	X	X		
	X		X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
TRANSFER AIR DUCT											
Indoors Concealed From View	X		X	-1 or +1	NA	X	X	X	X		
		X	X	-1 or +1	NA	X	X	X	X		
CLASS 1 OR 2 EXHAUST AIR DUCT											
Indoors Concealed From View	X		X	-2 or +2	NA	X	X	X	X		
		X	X	-2 or +2	NA	X	X	X	X		
NOTES:											


$$1^{\circ} = 10'-0''$$
DOP
Pole
#103959

PERMIT & BID SET

Panel: 1A1

Location: SEE OVERALL PLANS

Volts: 120/208 Single

A.I.C. Rating: 10,000

Supply From: METER CENTER

Phases: 1

Mains Type: MCB

Mounting: RECESSED

Wires: 3

Mains Rating: 125 A

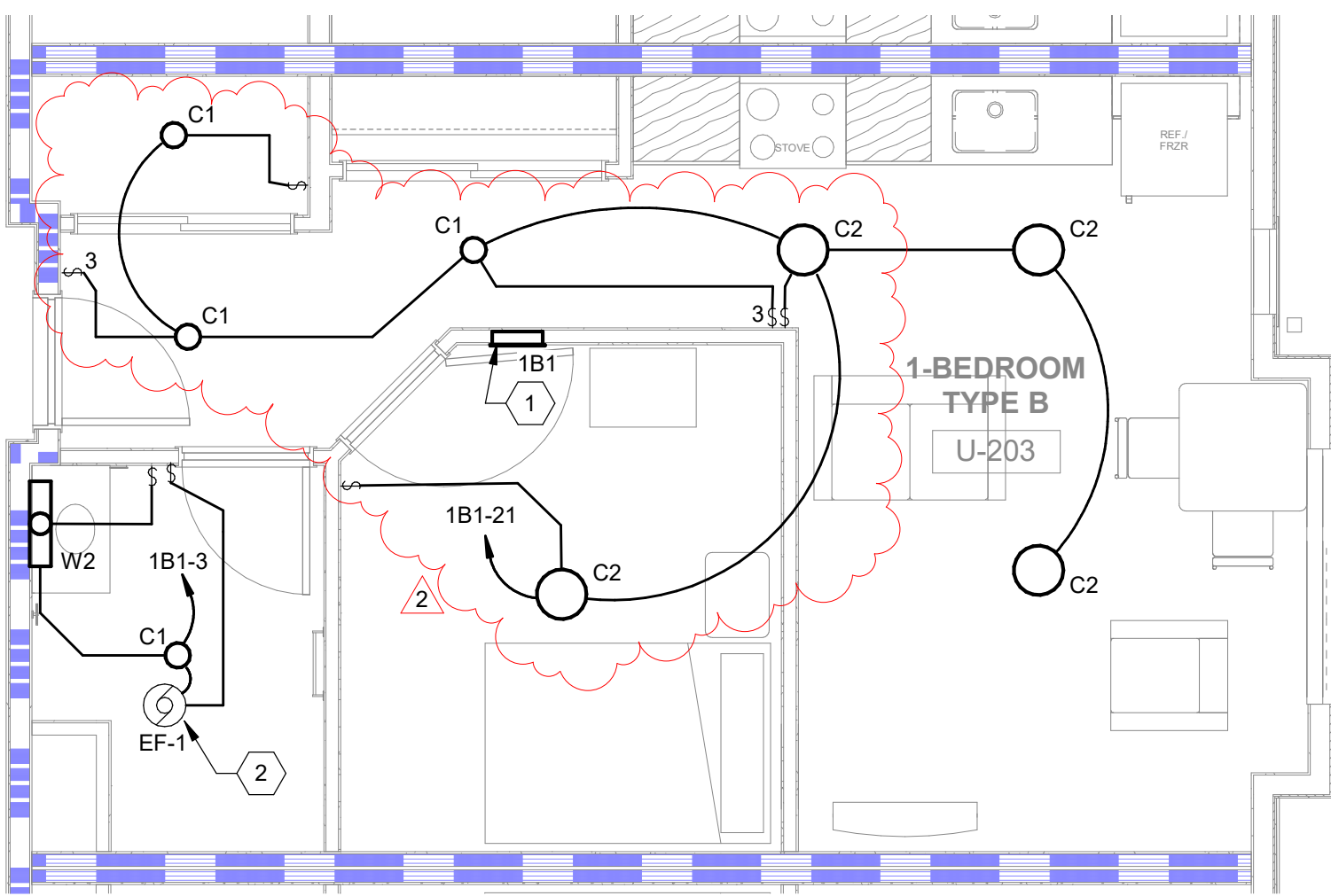
Enclosure: NEMA 1

MCB Rating: 125 A

CKT	Circuit Description	Trip	Poles	Brkr Opt	A	B	Brkr Opt	Poles	Trip	Circuit Description	CKT	
1	RECEPTACLE - HALLWAY	20 A	1	AF	0.9	2.6			2	45 A AIR HANDLER	2	
3	LTG/RECEPT - BATHROOM	20 A	1	AF	0.9	1.2	0.3	2.6			4	
5	RECEPTACLE - BEDROOM	20 A	1	AF	0.9	1.2			2	20 A HEAT PUMP	6	
7	RECEPTACLE - LIVING ROOM	20 A	1	AF			0.9	1.2			8	
9	REFRIGERATOR	20 A	1	AF, GF	0.9	2.3			2	30 A WATER HEATER	10	
11	MICROWAVE	20 A	1	AF, GF			1.5	2.3			12	
13	DISHWASHER (FUTURE)	20 A	1	AF, GF	0.8	2.5			2	30 A DRYER	14	
15	RECEPTACLE - KITCHEN	20 A	1	AF			0.4	2.5			16	
17	OVEN	50 A	2		4.0	1.5		AF, GF	1	20 A WASHER	18	
19					4.0	0.8	AF, GF		1	20 A GARBAGE DISPOSAL	20	
21	LIGHTING	20 A	1	AF	0.1	0.0			1	20 A SPARE	22	
23	SPARE	20 A	1	--			0.0	0.0	--	1	20 A SPARE	24

PANEL SCHEDULE NOTES:

- REFER TO APARTMENT UNIT SERVICE LOAD CALCULATIONS, THIS SHEET, FOR DWELLING UNIT SERVICE LOAD CALCULATIONS PER NEC 220.82.
- REFER TO OVERALL FLOOR PLANS FOR INDIVIDUAL APARTMENT UNIT PANEL DESIGNATIONS. THE LAST CHARACTER IN THE PANEL DESIGNATION INDICATES THE TYPE OF HVAC SERVING EACH UNIT.
- TYPICAL PANEL SCHEDULE 1B1, THIS SHEET, SHALL APPLY TO PANEL TYPE 1B2, EXCEPT AS MODIFIED BELOW.
- TYPICAL PANEL SCHEDULES SHALL BE ADJUSTED TO ACCOMMODATE HVAC UNITS AS FOLLOWS:
 - PANEL TYPES 1A1 AND 1B1 UTILIZE AHU-1 AND HP-1. PROVIDE A 45 AMP, 2 POLE BREAKER FOR TYPE AHU-1 AND A 20 AMP, 2 POLE BREAKER FOR HP-1.
 - PANEL TYPE 1B2 UTILIZES AHU-2 AND HP-2. PROVIDE A 45 AMP, 2 POLE BREAKER FOR TYPE AHU-2 AND A 25 AMP, 2 POLE BREAKER FOR HP-2.



1 ENLARGED PLAN 1B1-BEDROOM ENLARGED UNIT - TYPE B - LIGHTING
1/4" = 1'-0"

Panel: 1B1

Location: SEE OVERALL PLANS

Supply From: METER CENTER

Mounting: RECESSED

Enclosure: NEMA 1

Volts: 120/208 Single

Phases: 1

Wires: 3

A.I.C. Rating: 10,000

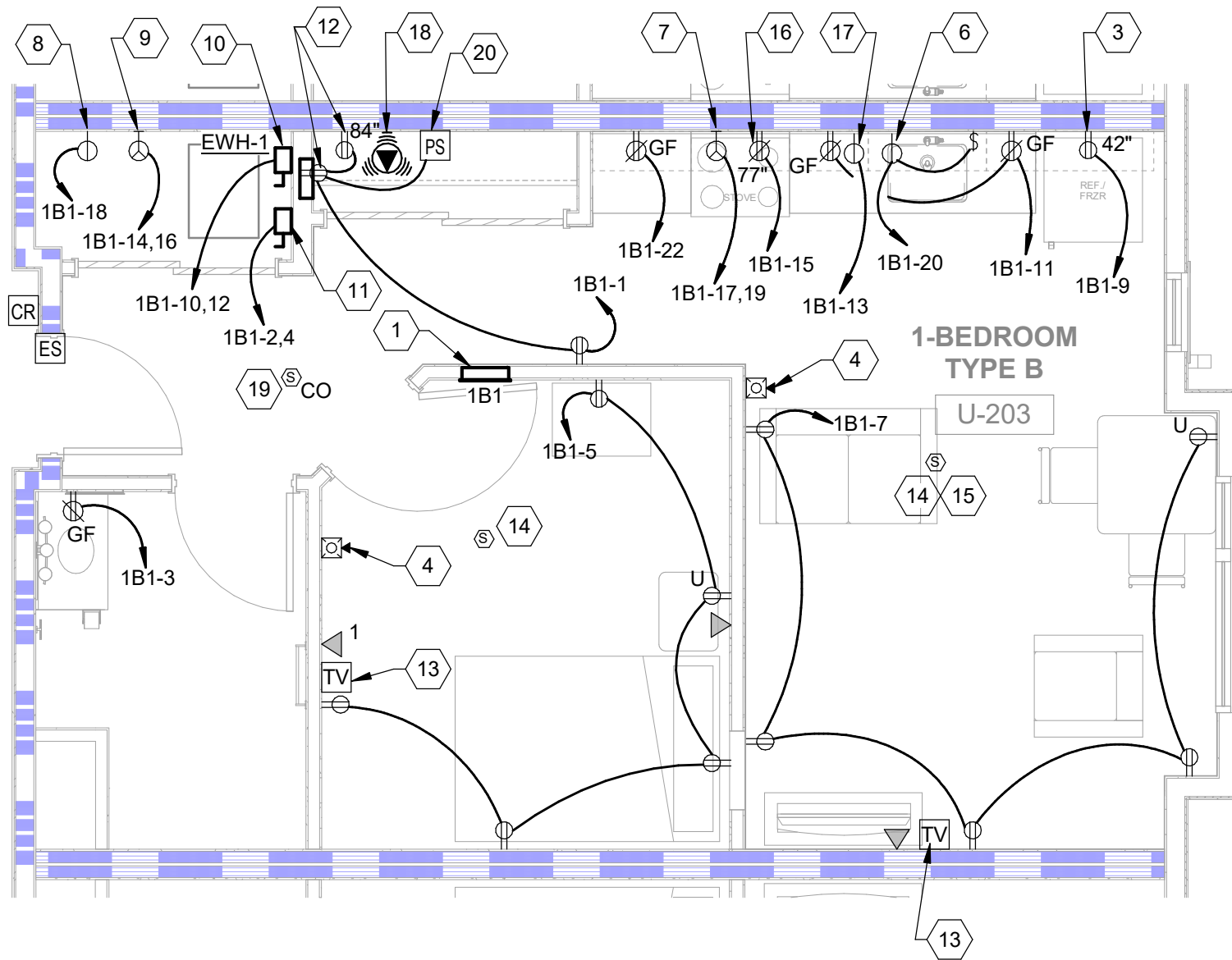
Mains Type: MCB

Mains Rating: 125 A

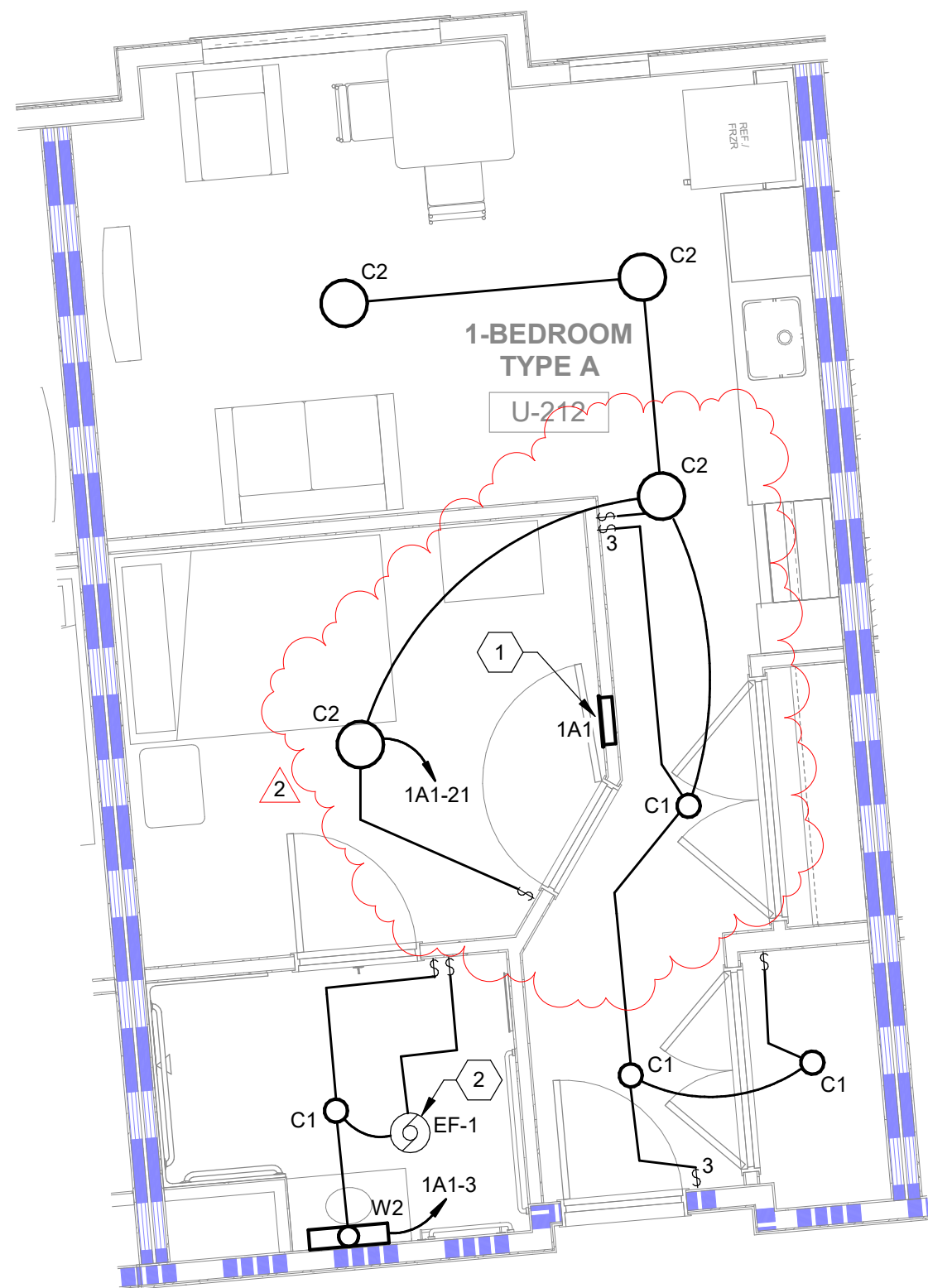
MCB Rating: 125 A

CKT	Circuit Description	Trip	Poles	Brkr Opt	A	B	Brkr Opt	Poles	Trip	Circuit Description	CKT	
1	RECEPTACLE - HALLWAY	20 A	1	AF	0.7	4.6			2	45 A AIR HANDLER	2	
3	LTG/RECEPT - BATHROOM	20 A	1	AF			0.3	4.6			4	
5	RECEPTACLE - BEDROOM	20 A	1	AF	0.9	1.2			2	20 A HEAT PUMP	6	
7	RECEPTACLE - LIVING ROOM	20 A	1	AF			0.9	1.2			8	
9	REFRIGERATOR	20 A	1	AF,GF	0.9	0.0			2	30 A WATER HEATER	10	
11	RECEPTACLE - KITCHEN	20 A	1	AF			0.4	0.0			12	
13	DISHWASHER (FUTURE)	20 A	1	AF,GF	0.8	2.5		AF,GF	2	30 A DRYER	14	
15	MICROWAVE	20 A	1	AF,GF			1.5	2.5			16	
17	OVEN	50 A	2		4.0	1.5		AF,GF	1	20 A WASHER	18	
19					4.0	0.8	AF,GF	1	20 A GARBAGE DISPOSAL	20		
21	LIGHTING	20 A	1	AF	0.1	0.2		AF	1	20 A RECEPTACLE - KITCHEN	22	
23	SPARE	20 A	1	--			0.0	0.0	--	1	20 A SPARE	24

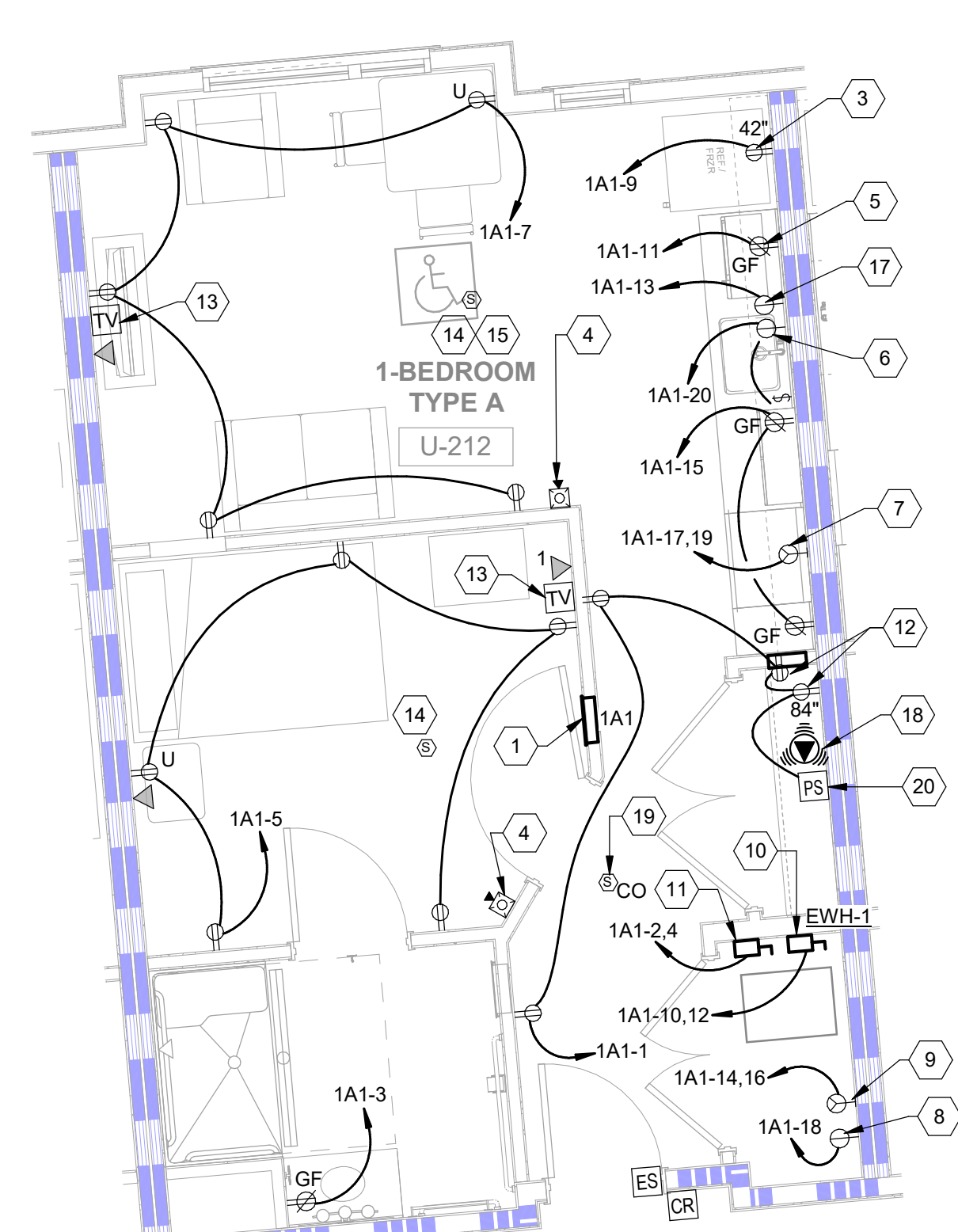
BREAKER OPTIONS (IF USED):
LO - LOCK-ON DEVICE
GF - GND FAULT CKT INTERRUPTER
AF - ARC FAULT CKT INTERRUPTER



2 ENLARGED PLAN 1B1-BEDROOM ENLARGED UNIT - TYPE B - POWER, TELECOMM, SECURITY
1/4" = 1'-0" REF: 1 / E102



3 ENLARGED PLAN 1A1-BEDROOM ENLARGED UNIT - TYPE A - LIGHTING
1/4" = 1'-0"



4 ENLARGED PLAN 1A1-BEDROOM ENLARGED UNIT - TYPE A - POWER, TELECOMM, SECURITY
1/4" = 1'-0" REF: 1 / E102

APARTMENT UNIT SERVICE LOAD CALCULATIONS			
UNIT TYPE	1 BEDROOM TYPE A & B	1 BEDROOM TYPE B	
HVAC TYPE	AHU-1/HP-1	AHU-2/HP-2	
GROSS SQFT	580	580	
GENERAL (3 VA/SQFT)			
APPLIANCES (2 @ 1500VA)	3000	VA	3000
LAUNDRY	1500	VA	1500
DISPOSAL	828	VA	828
DISHWASHER (FUTURE)	900	VA	900
RANGE	8000	VA	8000
DRYER	5000	VA	5000
WATER HEATER	4500	VA	4500
TOTAL GENERAL CONNECTED	25468	VA	25468
FIRST 10000 @ 100%			
REMAINDER @ 40%	6187.2	VA	6187.2
TOTAL GENERAL DEMAND	16187.2	VA	16187.2
AIR HANDLER MOTOR			
AIR HANDLER HEAT	582.4	VA	582.4
HEAT PUMP	2454.4	VA	2953.6
TOTAL HVAC CONNECTED	9048	VA	9547.2
TOTAL HVAC DEMAND*			
	6944.08	VA	7443.28
TOTAL UNIT DEMAND			
TOTAL DEMAND AMPS (120/208V-1Ø)	111.2	A	113.6
*NEC 220.82(C)(3) - 100% MOTOR; 100% HEAT PUMP COMPRESSOR; 65% SUPPLEMENTAL ELECTRIC HEAT			

GENERAL NOTES

- EACH UNIT PLAN REPRESENTS MULTIPLE APARTMENT UNITS WITH SIMILAR LAYOUTS. COORDINATE EXACT UNIT LAYOUT INCLUDING ROUGH-INS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EACH UNIT.
- COORDINATE MULTI-SPEED EXHAUST FAN CONTROL REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO BEGINNING OF WORK. MECHANICAL CONTRACTOR SHALL FURNISH CONTROL COMPONENTS, INCLUDING BUT NOT LIMITED TO MULTI-SPEED CONTROLLER AND OCCUPANCY SENSOR, TO BE WIRED COMPLETE BY THE ELECTRICAL CONTRACTOR. VERIFY EXACT REQUIREMENTS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. REFER TO MECHANICAL SCHEDULES FOR ADDITIONAL INFORMATION.
- COORDINATE MOUNTING HEIGHT AND FINAL LOCATIONS OF RECEPTACLES, DEVICES AND EQUIPMENT WITH ARCHITECTURAL DETAILS AND ELEVATIONS PRIOR TO ROUGH-IN.
- COORDINATE ALL FIRE ALARM DEVICE AND EQUIPMENT LOCATIONS WITH APPROVED FIRE ALARM SHOP DRAWINGS PRIOR TO ROUGH-IN.
- COORDINATE ALL DEVICE LOCATIONS WITH FRAMING MEMBERS PRIOR TO ROUGH-IN.
- COORDINATE WALL THICKNESS WITH GENERAL TRADES CONTRACTOR. PROVIDE ADAPTER RING APPROPRIATE FOR WALL THICKNESS AND/OR CABINET BACK PANEL.
- ALL 120-VOLT, 15 & 20 AMP RECEPTACLES IN DWELLING UNITS SHALL BE TAMPER-RESISTANT TYPE.
- ALL 120-VOLT, SINGLE PHASE, 15 & 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS IN BEDROOMS, LIVING ROOMS, HALLWAYS, CLOSETS, LAUNDRY AREAS AND SIMILAR ROOMS SHALL BE AFCI PROTECTED AT THE CIRCUIT BREAKER.
- ALL RECEPTACLES LOCATED IN THE BATHROOM, KITCHEN, LAUNDRY AREA OR WITHIN 6'-0" OF THE OUTSIDE EDGE OF A SINK, SHALL BE GFCI PROTECTED PER NEC 210.8. RECEPTACLES INSTALLED IN ACCESSIBLE LOCATIONS SHALL BE GFCI TYPE. RECEPTACLES INSTALLED BEHIND EQUIPMENT OR OTHERWISE INACCESSIBLE LOCATIONS SHALL BE GFCI PROTECTED AT THE CIRCUIT BREAKER.
- ALL CONDUIT RUNS AND WIRING, DEVICES AND ASSOCIATED ELECTRICAL WORK WHICH PENETRATES THRU FIRE RATED WALLS OR FIRE RATED ASSEMBLIES SHALL BE COMPLETELY FIRE SEALED AT EACH PENETRATION. PROVIDE FIRE RATED PUTTY PADS ON ALL JUNCTION BOXES LOCATED IN FIRE RATED WALLS.
- WRAP ALL CIRCUIT WIRES TO DEVICES WITH MASKING TAPE PRIOR TO PAINTING. ALL DEVICES AND COVERPLATES SHALL BE INSTALLED AFTER PAINTING IS COMPLETE.
- WRAP WIRING DEVICES WITH 2 LAYERS OF VINYL ELECTRICAL TAPE AFTER TERMINATIONS HAVE BEEN COMPLETED.
- THE ELECTRICAL PANEL IN EACH APARTMENT UNIT SHALL BE MOUNTED IN SUCH THAT THE TOP CIRCUIT BREAKER IS NOT MORE THAN 48" A.F.F. AND SHALL COMPLY WITH ANSI A117.1.
- ELECTRICAL DEVICES AND WIRING RUN ALONG EXPOSED ACCENT BRING WALLS AND EXPOSED STRUCTURE SHALL USE METAL BOXES AND THIN WALL EMT CONDUIT. CONDUITS SHALL BE RUN TIGHT TO SURFACE AND PERPENDICULAR OR PARALLEL TO BUILDING ELEMENTS. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR LOCATIONS.
- IN ALL ADA TYPE DWELLING UNITS, PROVIDE 1-1/2" BOX EXTENSION FOR ALL ABOVE COUNTER RECEPTACLES.
- ROUGH-IN FOR TELEVISION AND COMMUNICATIONS OUTLETS SHALL BE A 4" SQUARE BACK BOX WITH SINGLE GANG REDUCER AND A 1" CONDUIT TO POINT OF SERVICE ROOM. PROVIDE PROTECTIVE BUSHINGS.
- ALL LOW VOLTAGE WIRING INCLUDING BUT NOT NECESSARILY LIMITED TO, CABLE TV, TELEPHONE, SECURITY AND FIRE ALARM WIRING, SHALL BE INSTALLED PRIOR TO DRYWALL COVERUP.
- AT TELEVISION SERVICE LOCATIONS, SERVICE PROVIDER (AT&T) SHALL BE PROVIDE ONE (1) CAT 5E CABLE AND ONE (1) RG6 COAXIAL CABLE TO HOMERUN TO CLOSET AS INDICATED IN CODED NOTE 18. SERVICE PROVIDER SHALL PROVIDE A MINIMUM OF 20' OF SERVICE LOOP AT THE END OF EACH CABLE FOR TERMINATION TO EQUIPMENT FURNISHED BY SERVICE PROVIDER. COORDINATE EXACT REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.
- UNLESS NOTED OTHERWISE, LIGHTING CONTROLS SHALL SERVE LUMINAIRES SHOWN IN THE SAME SPACE.
- SEE ARCHITECTURAL PLANS FOR SUMMARY OF SENSORY IMPAIRED UNITS.
- IN EACH SENSORY IMPAIRED UNIT PROVIDE PUSH-BUTTON, TRANSFORMER AND LINE VOLTAGE LOW VOLTAGE WIRING FOR HEARING IMPAIRED DOORBELL, SIMILAR TO EDWARDS #7005-G5. MOUNT TRANSFORMER IN FLUSH MOUNTED JUNCTION BOX. PROVIDE OCCUPANT NOTIFICATION HORN/STROBE IN EACH BEDROOM, BATHROOM AND COMMON AREA.
- PROVIDE COMBINATION HIGH INTENSITY STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BEDROOM.
- PROVIDE COMBINATION STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BATHROOM.
- ALL SENSORY IMPAIRED UNIT FIRE ALARM NOTIFICATION DEVICES SHALL BE INTERCONNECTED AND SIMULTANEOUS.
- CEILING MOUNTED SMOKE ALARM, 120 VOLT WITH BATTERY BACK-UP, BRK # 7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.
- PROVIDE AUXILIARY RELAY AT SMOKE ALARM TO INTERCONNECT WITH AND SHUTDOWN APARTMENT UNIT AIR HANDLER UPON ALARM. AUXILIARY RELAY SHALL BE BRK ELECTRONICS #RM4 OR EQUAL.
- PROVIDE A 120 VOLT, 20 AMP DUPLEX RECEPTACLE FOR MICROWAVE MOUNTED INSIDE THE CABINET ABOVE RANGE FOR RANGE HOOD AND MICROWAVE (120V, 1PH). COORDINATE WITH CABINET INSTALLER PRIOR TO ROUGH-IN. REFER TO ARCHITECTURAL ELEVATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE A 120 VOLT, 20 AMP SIMPLEX RECEPTACLE MOUNTED BELOW SINK. FLUSH IN BASE CABINETS FOR A FUTURE DISHWASHER. FIELD COORDINATE EXACT LOCATION WITH ARCHITECT AND CASEWORK PROVIDER PRIOR TO ROUGH-IN.
- PROVIDE FLUSH, CEILING-MOUNTED, SINGLE GANG BOX WITH SINGLE DATA JACK FOR FUTURE POE WIRELESS ACCESS POINT (ACCESS POINT BY OTHERS).
- CEILING MOUNTED COMBO SMOKE/CO ALARM, 120 VOLT WITH BATTERY BACK-UP, BRK #5C7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.
- PROVIDE PS902 ACCESS CONTROLLED POWER SUPPLY, SURFACE MOUNTED ON WALL, NEAR CEILING, 120VAC POWER.

SENSORY IMPAIRED NOTES

- SEE ARCHITECTURAL PLANS FOR SUMMARY OF SENSORY IMPAIRED UNITS.
- IN EACH SENSORY IMPAIRED UNIT PROVIDE PUSH-BUTTON, TRANSFORMER AND LINE VOLTAGE LOW VOLTAGE WIRING FOR HEARING IMPAIRED DOORBELL, SIMILAR TO EDWARDS #7005-G5. MOUNT TRANSFORMER IN FLUSH MOUNTED JUNCTION BOX. PROVIDE OCCUPANT NOTIFICATION HORN/STROBE IN EACH BEDROOM, BATHROOM AND COMMON AREA.
- PROVIDE COMBINATION HIGH INTENSITY STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BEDROOM.
- PROVIDE COMBINATION STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BATHROOM.
- ALL SENSORY IMPAIRED UNIT FIRE ALARM NOTIFICATION DEVICES SHALL BE INTERCONNECTED AND SIMULTANEOUS.

CODING NOTES

- LOAD CENTER. ROUTE ALL CIRCUITS IN EACH SPACE THROUGH UNITS LOAD CENTER.
- COORDINATE MULTI-SPEED EXHAUST FAN CONTROL REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO BEGINNING OF WORK. MECHANICAL CONTRACTOR SHALL FURNISH CONTROL COMPONENTS, INCLUDING BUT NOT LIMITED TO MULTI-SPEED CONTROLLER AND OCCUPANCY SENSOR, TO BE WIRED COMPLETE BY THE ELECTRICAL CONTRACTOR. VERIFY EXACT REQUIREMENTS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. REFER TO MECHANICAL SCHEDULES FOR ADDITIONAL INFORMATION.
- COORDINATE ALL FIRE ALARM DEVICE AND EQUIPMENT LOCATIONS WITH APPROVED FIRE ALARM SHOP DRAWINGS PRIOR TO ROUGH-IN.
- COORDINATE ALL DEVICE LOCATIONS WITH FRAMING MEMBERS PRIOR TO ROUGH-IN.
- COORDINATE WALL THICKNESS WITH GENERAL TRADES CONTRACTOR. PROVIDE ADAPTER RING APPROPRIATE FOR WALL THICKNESS AND/OR CABINET BACK PANEL.
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- ALL CONDUIT RUNS AND WIRING, DEVICES AND ASSOCIATED ELECTRICAL WORK WHICH PENETRATES THRU FIRE RATED WALLS OR FIRE RATED ASSEMBLIES SHALL BE COMPLETELY FIRE SEALED AT EACH PENETRATION. PROVIDE FIRE RATED PUTTY PADS ON ALL JUNCTION BOXES LOCATED IN FIRE RATED WALLS.
- WRAP ALL CIRCUIT WIRES TO DEVICES WITH MASKING TAPE PRIOR TO PAINTING. ALL DEVICES AND COVERPLATES SHALL BE INSTALLED AFTER PAINTING IS COMPLETE.
- WRAP WIRING DEVICES WITH 2 LAYERS OF VINYL ELECTRICAL TAPE AFTER TERMINATIONS HAVE BEEN COMPLETED.
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- ELECTRICAL DEVICES AND WIRING RUN ALONG EXPOSED ACCENT BRING WALLS AND EXPOSED STRUCTURE SHALL USE METAL BOXES AND THIN WALL EMT CONDUIT. CONDUITS SHALL BE RUN TIGHT TO SURFACE AND PERPENDICULAR OR PARALLEL TO BUILDING ELEMENTS. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR LOCATIONS.
- IN ALL ADA TYPE DWELLING UNITS, PROVIDE 1-1/2" BOX EXTENSION FOR ALL ABOVE COUNTER RECEPTACLES.
- ROUGH-IN FOR TELEVISION AND COMMUNICATIONS OUTLETS SHALL BE A 4" SQUARE BACK BOX WITH SINGLE GANG REDUCER AND A 1" CONDUIT TO POINT OF SERVICE ROOM. PROVIDE PROTECTIVE BUSHINGS.
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- UNLESS NOTED OTHERWISE, LIGHTING CONTROLS SHALL SERVE LUMINAIRES SHOWN IN THE SAME SPACE.
- SEE ARCHITECTURAL PLANS FOR SUMMARY OF SENSORY IMPAIRED UNITS.
- IN EACH SENSORY IMPAIRED UNIT PROVIDE PUSH-BUTTON, TRANSFORMER AND LINE VOLTAGE LOW VOLTAGE WIRING FOR HEARING IMPAIRED DOORBELL, SIMILAR TO EDWARDS #7005-G5. MOUNT TRANSFORMER IN FLUSH MOUNTED JUNCTION BOX. PROVIDE OCCUPANT NOTIFICATION HORN/STROBE IN EACH BEDROOM, BATHROOM AND COMMON AREA.
- PROVIDE COMBINATION HIGH INTENSITY STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BEDROOM.
- PROVIDE COMBINATION STROBE AND LOW FREQUENCY TONE FIRE ALARM NOTIFICATION APPLIANCE IN THE BATHROOM.
- ALL SENSORY IMPAIRED UNIT FIRE ALARM NOTIFICATION DEVICES SHALL BE INTERCONNECTED AND SIMULTANEOUS.
- CEILING MOUNTED SMOKE ALARM, 120 VOLT WITH BATTERY BACK-UP, BRK # 7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.
- PROVIDE AUXILIARY RELAY AT SMOKE ALARM TO INTERCONNECT WITH AND SHUTDOWN APARTMENT UNIT AIR HANDLER UPON ALARM. AUXILIARY RELAY SHALL BE BRK ELECTRONICS #RM4 OR EQUAL.
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- PROVIDE A 120 VOLT, 20 AMP SIMPLEX RECEPTACLE MOUNTED BELOW SINK. FLUSH IN BASE CABINETS FOR A FUTURE DISHWASHER. FIELD COORDINATE EXACT LOCATION WITH ARCHITECT AND CASEWORK PROVIDER PRIOR TO ROUGH-IN.
- PROVIDE FLUSH, CEILING-MOUNTED, SINGLE GANG BOX WITH SINGLE DATA JACK FOR FUTURE POE WIRELESS ACCESS POINT (ACCESS POINT BY OTHERS).
- CEILING MOUNTED COMBO SMOKE/CO ALARM, 120 VOLT WITH BATTERY BACK-UP, BRK #5C7010B OR EQUAL. CIRCUIT TO LOCAL 120 VOLT LIGHTING CIRCUIT AND MAKE FINAL CONNECTIONS. ALL ALARMS WITHIN AN APARTMENT UNIT SHALL BE INTERLOCKED TO PROVIDE SIMULTANEOUS ALARMING.
- PROVIDE PS902 ACCESS CONTROLLED POWER SUPPLY, SURFACE MOUNTED ON WALL, NEAR CEILING, 120VAC POWER.

#	DATE	CHANGE DESCRIPTION
2	05-05-2022	ADDENDUM NO. 3

HARRIET'S HOPE
1581 W. BROAD STREET
COLUMBUS, OH 43222
FOR
CMHA

MOODY-NOLAN
300 SPRUCE STREET
SUITE 300
COLUMBUS, OHIO 43215
PHONE: (614) 461-4664
FAX: (614) 280-8881

DRAWING TITLE:
**ENLARGED UNIT PLANS - 1
BEDROOM UNITS**

APRIL 4, 2022
DRAWN BY: MCNA CHECKED BY: NAIGL
Proj. #20643
E401
PERMIT & BID SET

AMEC ADVANCED
ENGINEERING
CONSULTANTS
Mechanical | Electrical | Plumbing | Fire Protection | Utilities
1405 Dublin Road
Columbus, Ohio 43215
Tel: (614) 486-4778
Fax: (614) 486-4882

Panel: 2A3

Location: SEE OVERALL PLANS

Supply From: METER CENTER

Mounting: RECESSED

Enclosure: NEMA 1

Volts: 120/208 Single

Phases: 3

Wires: 3

A.I.C. Rating: 10,000

Mains Type: MCB

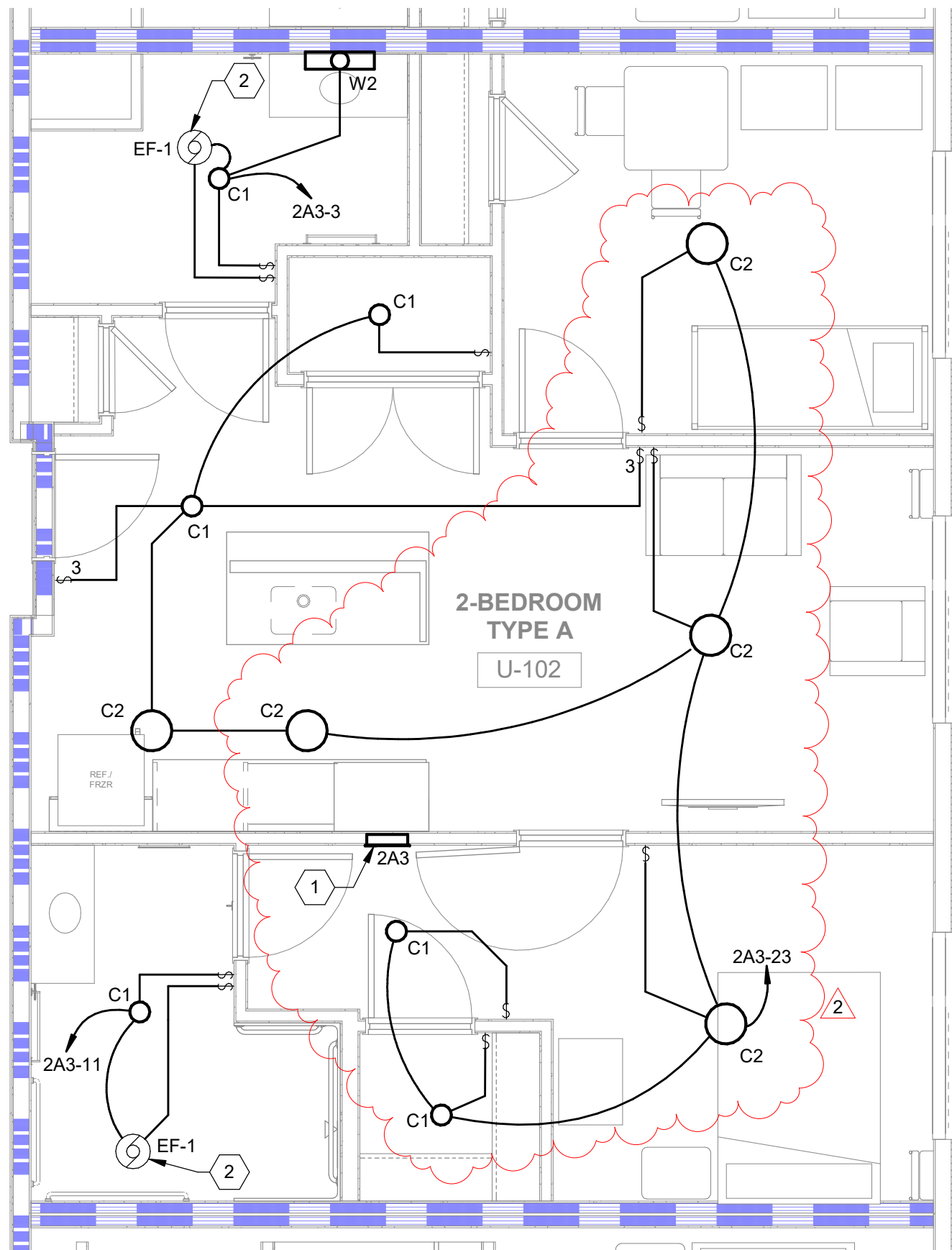
Mains Rating: 125 A

MCB Rating: 125 A

CKT	Circuit Description	Trip	Poles	Brkr Opt	A	B	Brkr Opt	Poles	Trip	Circuit Description	CKT
1	RECEPTACLE - KITCHEN	20 A	1	AF	0.5	5.6			2	60 A AIR HANDLING UNIT	2
3	LTG/RECEPT. - N. BATHROOM	20 A	1	AF		0.3	5.6				4
5	RECEPT. - N. BEDROOM	20 A	1	AF	0.9	1.9					6
7	RECEPT. - LIVING ROOM	20 A	1	AF		1.3	1.9		2	30 A HEAT PUMP	8
9	RECEPT. - S. BEDROOM	20 A	1	AF	0.9	2.3			2	30 A WATER HEATER	10
11	LTG/RECEPT. - S. BATHROOM	20 A	1	AF		0.3	2.3				12
13	REFRIGERATOR	20 A	1	AF, GF	0.9	2.5			2	30 A DRYER	14
15	RECEPTACLE - KITCHEN	20 A	1	AF		0.4	2.5				16
17	OVEN	50 A	2		4.0	1.5		AF, GF	1	20 A WASHER	18
19								AF, GF	1	20 A GARBAGE DISPOSAL	20
21	MICROWAVE	20 A	1	AF, GF	1.5	0.8		AF, GF	1	20 A DISHWASHER (FUTURE)	22
23	LIGHTING	20 A	1	AF		0.2	0.0	--	1	20 A SPARE	24

PANEL SCHEDULE NOTES:

- REFER TO APARTMENT UNIT SERVICE LOAD CALCULATIONS, THIS SHEET, FOR DWELLING UNIT SERVICE LOAD CALCULATIONS PER NEC 220.82.
- REFER TO OVERALL FLOOR PLANS FOR INDIVIDUAL APARTMENT UNIT PANEL DESIGNATIONS. THE LAST CHARACTER IN THE PANEL DESIGNATION INDICATES THE TYPE OF HVAC SERVING EACH UNIT.



1 ENLARGED PLAN 2A3-BEDROOM ENLARGED UNIT - TYPE A - LIGHTING
1/4" = 1'-0" REF: 1 / E101

Panel: 2B3

Location: SEE OVERALL PLANS

Supply From: METER CENTER

Mounting: RECESSED

Enclosure: NEMA 1

Volts: 120/208 Single

Phases: 1

Wires: 3

A.I.C. Rating: 10,000

Mains Type: MCB

Mains Rating: 125 A

MCB Rating: 125 A

CKT	Circuit Description	Trip	Poles	Brkr Opt	A	B	Brkr Opt	Poles	Trip	Circuit Description	CKT
1	RECEPTACLE - KITCHEN	20 A	1	AF	0.5	1.9			2	60 A AIR HANDLING UNIT	2
3	LTG/RCPT. - N. BATHROOM	20 A	1	AF		0.3	1.9				4
5	RECEPT. - N. BEDROOM	20 A	1	AF	0.9	1.9					6
7	RECEPT. - LIVING ROOM	20 A	1	AF		1.4	1.9		2	30 A HEAT PUMP	8
9	LTG/RCPT. - S. BATHROOM	20 A	1	AF	0.3	2.3			2	30 A WATER HEATER	10
11	RECEPT. - S. BEDROOM	20 A	1	AF		0.9	2.3				12
13	REFRIGERATOR	20 A	1	AF, GF	0.9	2.5			2	30 A DRYER	14
15	RECEPTACLE - KITCHEN	20 A	1	AF		0.5	2.5				16
17	OVEN	50 A	2		4.0	1.5		AF GF	1	20 A WASHER	18
19								AF GF	1	20 A GARBAGE DISPOSAL	20
21	MICROWAVE	20 A	1	AF, GF	1.5	0.8		AF GF	1	20 A DISHWASHER (FUTURE)	22
23	LIGHTING	20 A	1	AF		0.2	0.0	--	1	20 A SPARE	24

BREAKER OPTIONS (IF USED):
LO - LOCK-ON DEVICE
GF - GND FAULT CKT INTERRUPTER
AF - ARC FAULT CKT INTERRUPTER

