

## **Addendum No. 2**

### **INVITING SEALED BIDS ITB No. 21/10039**

#### **Project: West Campus Laboratories Bldg. F Renovation**

**Issue Date:** February 18, 2021

This addendum # 2 is issued to address questions and issues not answered in Addendum 1 and raised by prospective respondents during the Mandatory Site Visits held February 9<sup>th</sup> and 10<sup>th</sup>, 2021.

This addendum supplements and amends the original Construction Document specifications and drawings, dated January 8, 2020 and will be taken into account in preparing bids, and will become part of the Contract Documents. In case of conflicts between the Specifications, Drawings, and this Addendum, this Addendum shall govern.

Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject bidder to disqualification.

#### **Addendum – Material changes to the solicitation.**

##### **Item One #1: Additional Drawings**

The below listed drawings of the Lecture Hall risers show a combination of steel and concrete.

Drawing – Lecture Hall Risers WC-69-F-5of25-S-F5

Drawing - Lecture Hall Risers WC-69-F-6of25-S-F6

##### **Item Two #2: Reissued Drawings**

Architectural sheets, Plumbing sheets and Mechanical sheets have been revised and reissued by BWS Architects and address question #s 9, 18 and 19. See Attached Addendum #2 Construction Documents prepared by BWS Architects dated 2/8/21.

##### **Item Three #3: New Specifications**

Add to Division 23 – HVAC, Section 237200 – Louvers.

Pages LOUVERS 233720-1, LOUVERS 233720-2 are attached to this Addendum #2 Construction Documents prepared by BWS Architects dated 2/8/21.

#### **Questions and Answers**

**Question #1:** Are the exterior Metal Stucco Embossed Panels to Alternate #1 North Microbiology Pod, Alternate #2 South Organic Chemistry Pod, and Base Bid Level 2, to remain, be reinstalled and refinished?

**Answer #1:** [Refer to construction documents for demolition and building finished elevations.](#)

**Question #2:** Is Mechanical Room F113 a total gut? Is this applicable to all other mechanical rooms?

**Answer #2:** [Please refer to the contract documents for mechanical room demolition extents. All roof drains are shown to remain.](#)

- Question #3:** Are the white boards, screens, fire extinguishers, soda machines, exterior benches exterior lockers, chairs part of demolition or salvage?  
**Answer #3:** The contractor will be responsible for removing/demolition of white boards and screens in rooms F204, F208, F215 and F219. The College will be removing all other white boards, screens, and be responsible for the fire extinguishers, soda machines, exterior lockers and chairs prior to demolition by selected contractors.
- Question #4:** Is the accessibility lift located in Alternate #2 South Organic chemistry pod to be salvaged by the College or demolished by the contractor?  
**Answer #4:** Per contract documents the lift is to be demolished by contractor with no salvage required.
- Question #5:** What type of roof is installed? Manufacturer? Is there a warranty in place? What type of access is available to the roof?  
**Answer #5:** Roof Warranty is attached.
- Question #6:** Can As Built drawings of floor risers be provided to Contractors? What materials are the floor risers made of?  
**Answer #6:** As built drawings F5 & F6, L GI DETAILS, have been added to the Addendum. Materials are called out on these drawings.
- Question #7:** Are the exterior Honeywell cameras to be salvaged?  
**Answer #7:** Yes
- Question #8:** Regarding taps into services. Are the shut off valves into any other building that may affect the operations of other buildings?  
**Answer #8:** No shut-off valves into other buildings are located in Building F
- Question #9:** Fire risers – is the Contractor responsible for bringing in line and creating fire risers of Base Bid (Second Floor)? Are risers connected for Alternate 1, 2 and Base Bid? Or is the riser connection a T with Base Bid?  
**Answer #9:** See Addendum 2 by BWS
- Question #10:** Should the bid be based on operating and performing (primarily demolition phase work) during regular hours Monday – Friday, between 6:00 AM – 4:00 PM? Will the College allow for earlier start time during the hotter months – such as 4:00 AM?  
**Answer #10:** Normal working hours are 6 AM until 5 PM. Earlier start times may be considered with prior notification.
- Question #11:** Is Davis Bacon Wage a requirement for this project?  
**Answer #11:** No
- Question #12:** Is the Contractor required to mount own hangers for piping? Can the contractor use existing teledata boxes, cable trays, and unistruts?  
**Answer #12:** No. Contractor to provide all supports per construction documents.

- Question #13:** There are (19) panels on the one line drawings but there are only (7) panel schedules. Will there be an additional panel schedule drawing provided? Please advise?
- Answer #13:** Additional panel schedules are located on the contract documents Laboratory Electrical 3.10 and Laboratory Electrical 3.11
- Question #14:** What electrical systems need to be certified?
- Answer #14:** Answer will be provided in additional addendum
- Question #15:** Can Contractor use elevator? What is the size, weight capacity of elevator?
- Answer #15:** Yes. The capacity is 2,500 lbs. It is 6'6" x 4'4".
- Question #16:** What are the anticipated access and staging points? Access for crane, A/C units?
- Answer #16:** The College will provide access to the contractor as required. Final location and plan for the staging and laydown area to be coordinated with the college and selected contractor. The contractor is responsible to set all equipment in place. Review mechanical drawings in Construction Documents for roof top equipment schedule.
- Question #17:** Is the contractor responsible for testing hoses, vacuums, gas?
- Answer #17:** Yes. Refer to contract documents, project Manual Division 11, 115350, Part 3.5
- Question #18:** Please clarify the Add Alternates listed on the drawings as to what areas and scope they pertain to.
- Answer #18:** See Addendum 2 by BWS.
- Question #19:** Please Add Alternates to the MEP sheets they pertain to?
- Answer #19:** See Addendum 2 by BWS.
- Question #20:** Are the Add Alternates a pricing breakout? Or are they a true Add Alternate as if there is no funding for that work then that work will not happen?
- Answer #20:** Bid per Contract Documents, 'instruction to bidders', and the Bid Form.
- Question #21:** What is the demarcation point where the fire alarm service enters building F? (*This is the point we would need to pull all the wiring back to "Safety off"*)
- Answer #21:** See Sheet E2.11 and E2.21 for fire alarm service.
- Question #22:** Is a copy of the EST 3 program available to review prior to Bid cutoff?
- Answer #22:** A copy of the EST program will not be available prior to bid cutoff. A copy of the EST program can be available to the selected contractor
- Question #23:** Are there current As-Builts for the fire alarm system?
- Answer #23:** No – there are no current as-builts for the fire alarm system in building F

- Question #24:** In the sample contract page 15 Article 7.7.1 Will all permits, Utility fees, water meters, sewer connection fees etc. be paid for by the owner? Should all of these fees and permits be excluded from the contractors bid?
- Answer #24:** Yes Pima College is responsible for all fees and permits, and should be excluded from contractors bid.
- Question #25:** On Page 32 of the sample contract article 15.1.3. Can the overhead & profit be raised to 10% since it is to include all General Conditions & Overhead & Profit of the contractor?
- Answer #25:** No
- Question #26:** Is the Low Voltage Tele/Data provided by PCC?
- Answer #26:** Yes Pima College will provide teledata vendor to provide, install and terminate cabling. Review construction documents for work to be provided by contractor.
- Question #27:** There is a drawing in between LP3.10 and LP3.12 with no page number or information. What is this sheet for? Is it supposed to be LP3.11?
- Answer #27:** LP3.11 will be re issued in additional addendum.
- Question #28:** Are any luminaires to be controlled by nLIGHT system. Sheet 3.3 has a schematic drawing for an nLIGHT system, but the Lighting Fixture Schedule does not specify any luminaires with nLIGHT control.
- Answer #28:** Answer will be provided in additional addendum.
- Question #29:** Are wall switches to be conventional line voltage, single pole, 3 way, 4 way, utilizing powerpack relays or low voltage control, dimming, 3 way, 4 way?
- Answer #29:** Answer will be provided in additional addendum
- Question #30:** Should Panel 1LP1 have a 200 amp main breaker? I see that all the other panels that are fed from switch gear have main breakers rated the same as the breaker feeding it.
- Answer #30:** Answer will be provided in additional addendum
- Question #31:** Refer to Drawings / Specification Reference: Drawings - Plumbing Demolition Plans P1.1.1, P1.1.2, P1.2.1,P1.2.2, Keynote 2. Question: In lieu of removing the existing underground waste piping can it be left in place and abandoned?
- Answer #31:** No - bid per construction documents
- Question #32:** Refer to Drawings / Specification Reference: Drawings - Plumbing Demolition Plans P1.1.1, P1.1.2, P1.2.1,P1.2.2, Keynote 2. Question: Any lab equipment that requires a backflow preventer is expected to be identified on the bid /contract documents; this is not indicated in the drawings or specs.
- Answer #32:** Answer will be provided in additional addendum



**Question #33:** Refer to Drawings – Lab Plumbing Details LP3.11. Something seems to have gone off-track with this drawing. There is no biddable, buildable information, no title block, date, AE seal, notes or scale, etc. It may be an early SD phase ‘sketch’ and not the intent for this drawing to be issued like this for bidding and construction. There are many other drawings and notes referencing this drawing and specific details. It is key for this PCC labs project. Please take a look at drawing LP3.11, correct and re-issue this sheet ASAP.

**Answer #33:** LP3.11 will be re issued in additional addendum.

**Question #34:** In lieu of removing the existing underground waste piping can it be left in place and abandoned?

**Answer #34:** No - bid per construction documents

**Question #35:** Any lab equipment that requires a backflow preventer is expected to be identified on the bid /contract documents; this is not indicated in the drawings or specs.

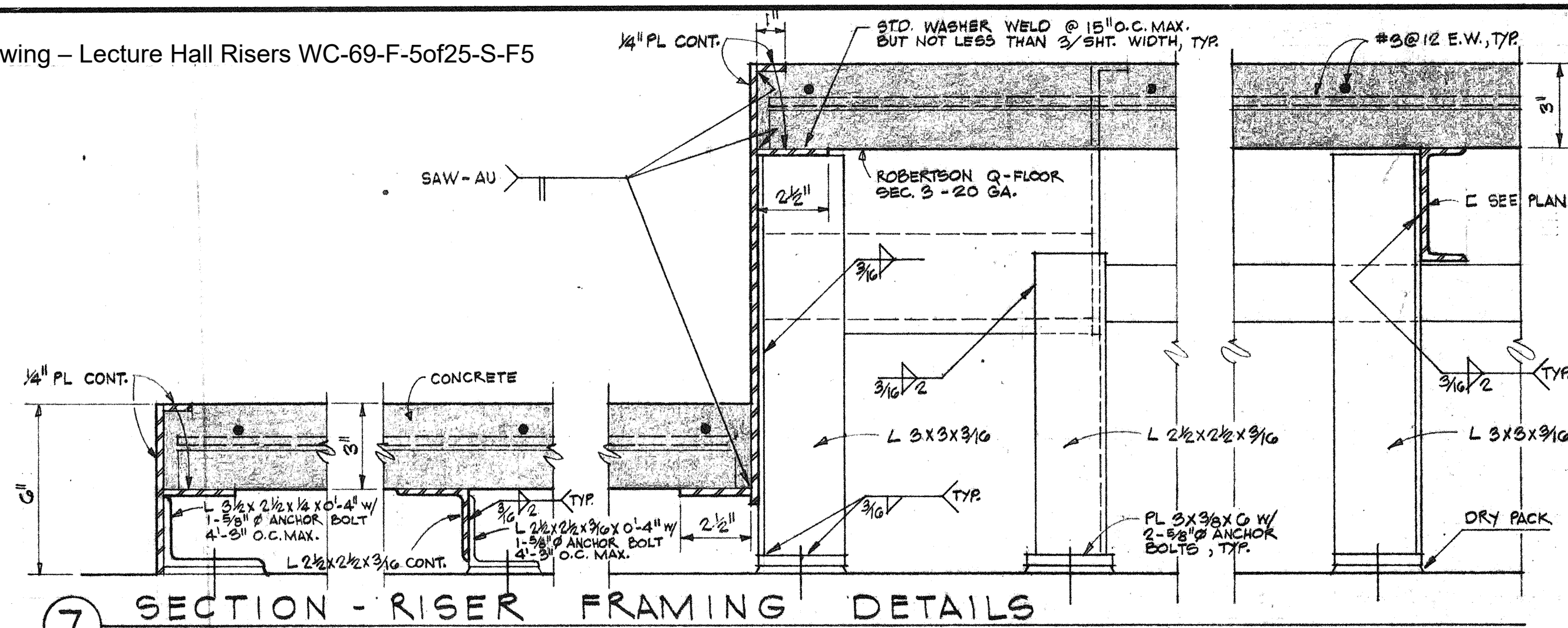
**Answer #35:** Answer will be provided in additional addendum

**Attachments:**

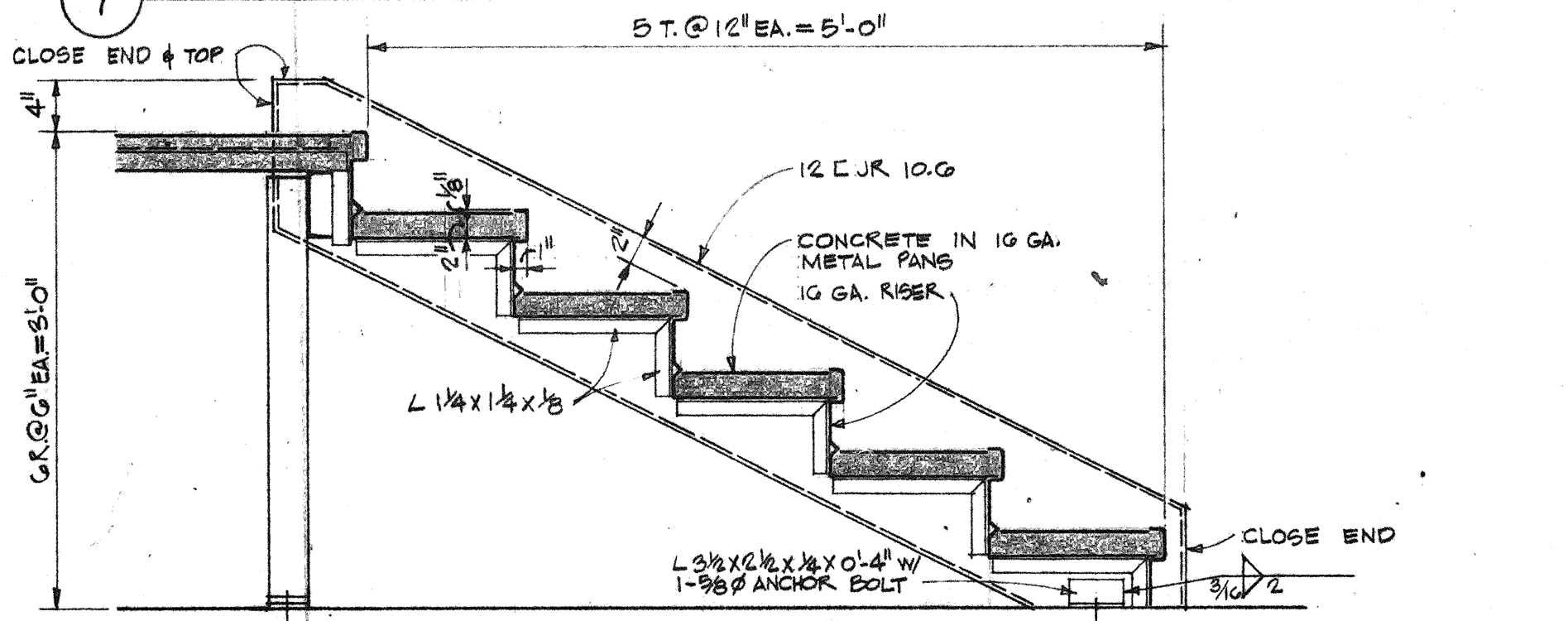
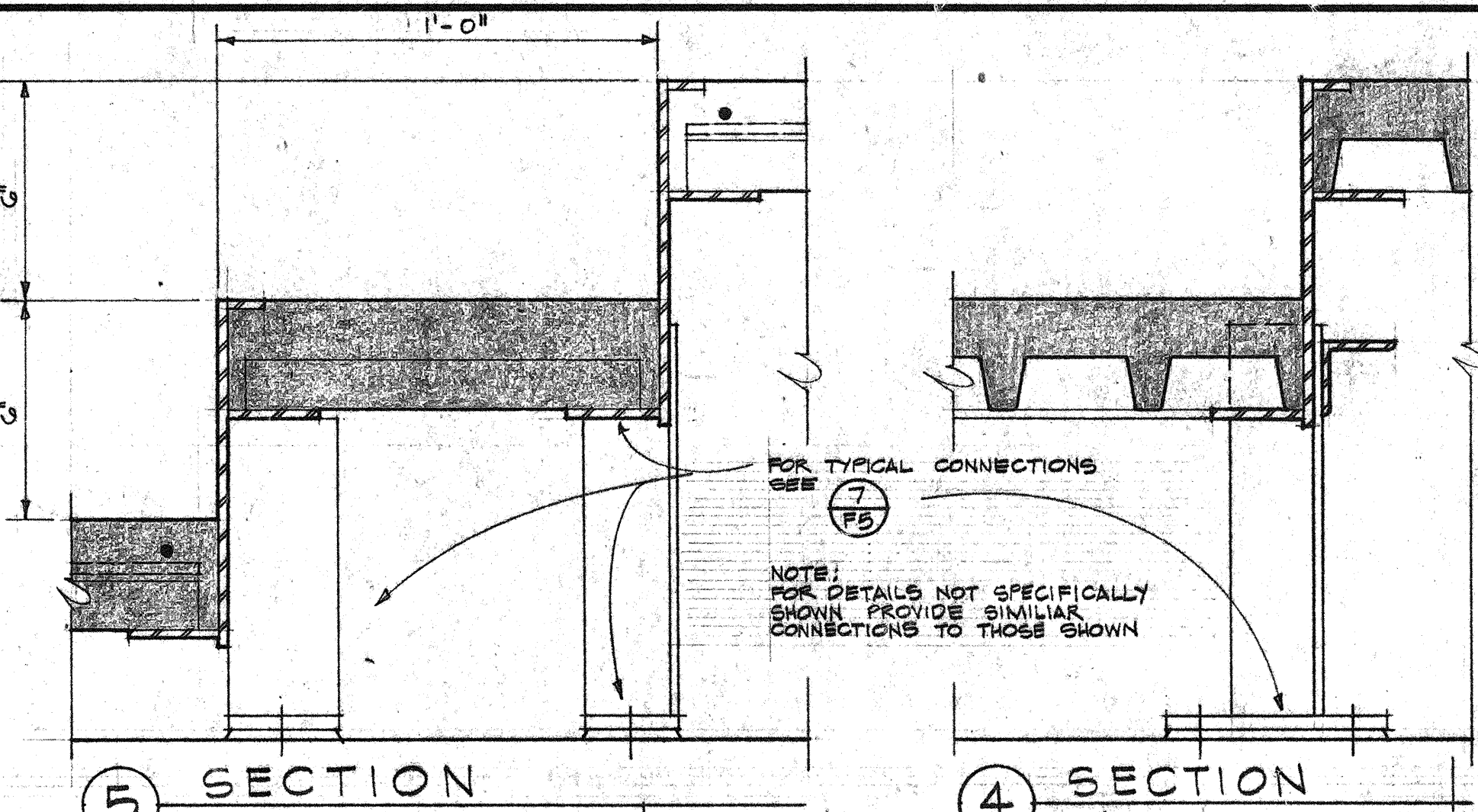
*Drawings – Floor Risers – 2 pages*

*Roof Warranty – 1 page*

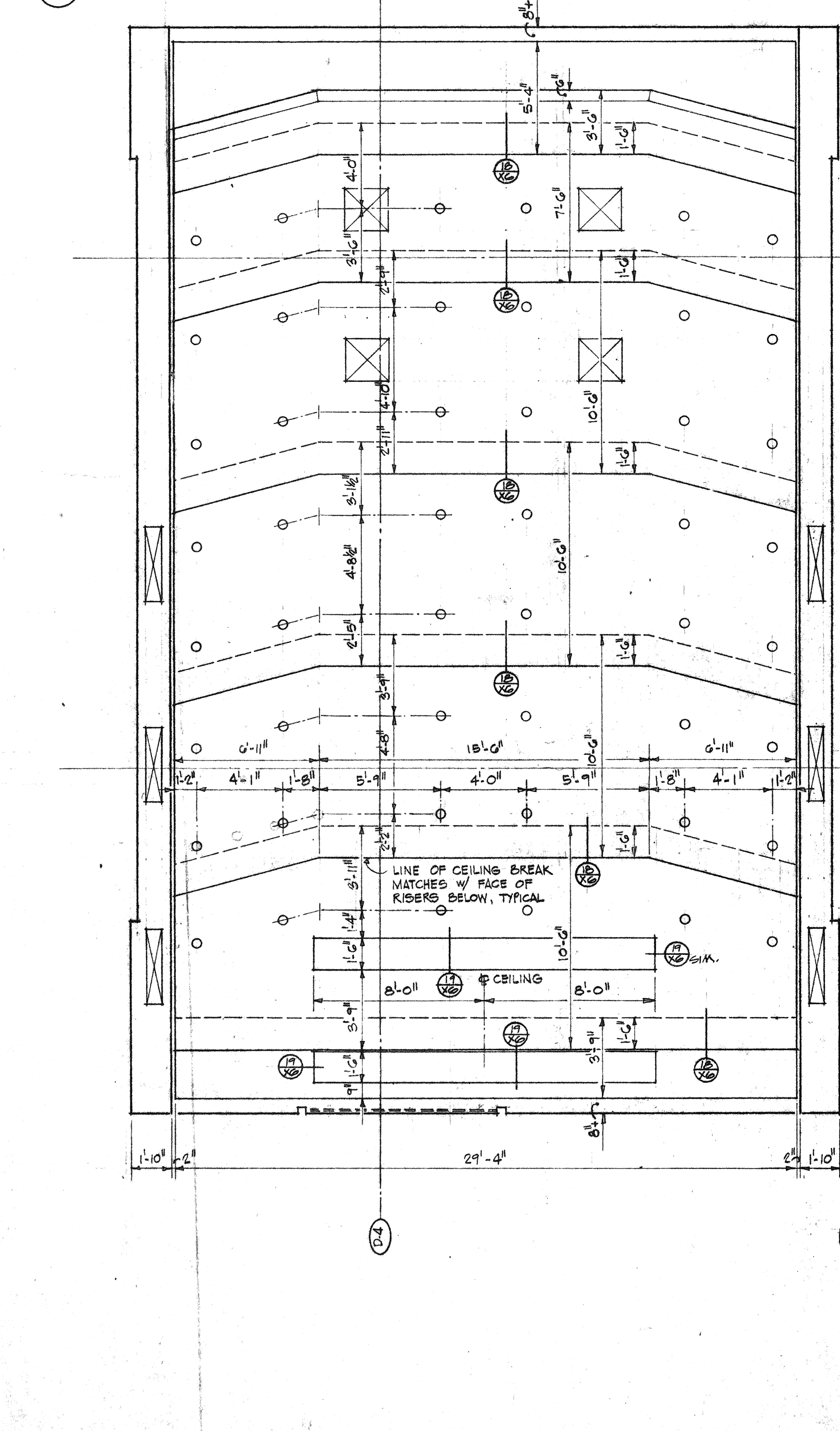
*Addendum 2, Construction Documents Prepared by BWS Architects 2/17/2021 – 19 pages*



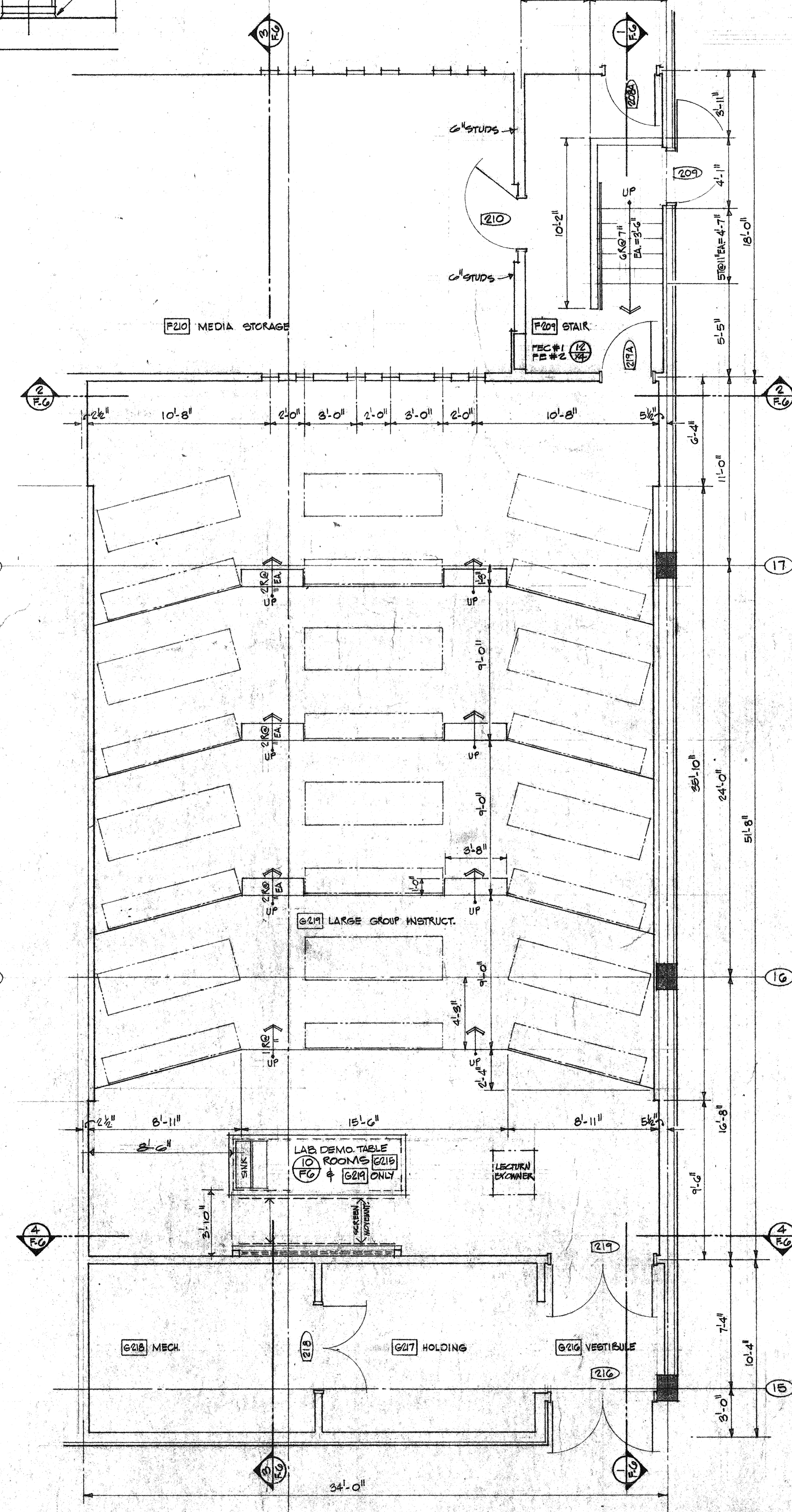
6 TYP. POST STRUCTURAL CONNECTIONS



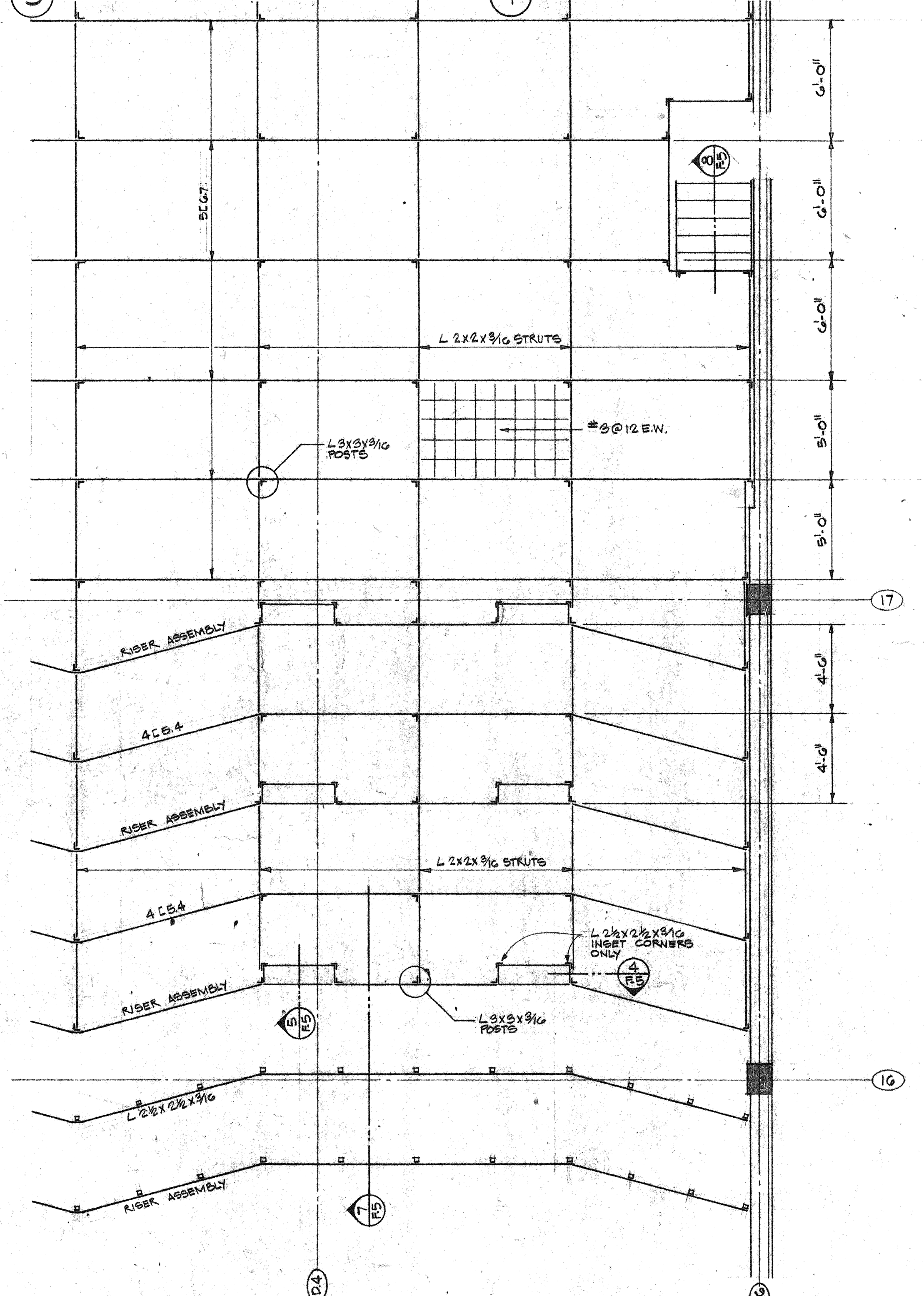
8 SECTION - STAIR FRAMING



3 L.G.I. REFLECTED CLG. PLAN  
RE: LEGEND SHEET F-7 SCALE 1/4"=1'-0"

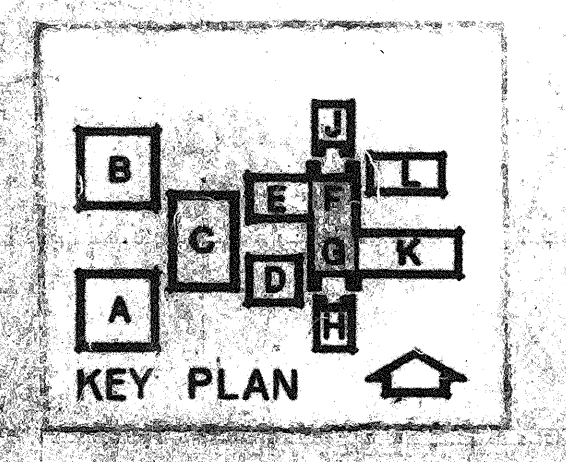


2 LARGE GROUP INSTRUCT. FLOOR PLAN  
RE: 1/2" PLAN FOR PARTITION TYPES SCALE 1/4"=1'-0"



1 L.G.I. RISER FRAMING PLAN  
SCALE 1/4"=1'-0"

CAMPUS	WC
BUILDING	RIMON-F
SHEET NO.	2 OF 25
TYPE OF INFORMATION	S
ORIGINAL CONSTRUCTION	YES
SPEC INDEX NO.	4 thru 10
PLAT FILE NO.	X



L.G.I. PLANS & DETAILS

**PIMA COLLEGE**  
TUCSON ARIZONA

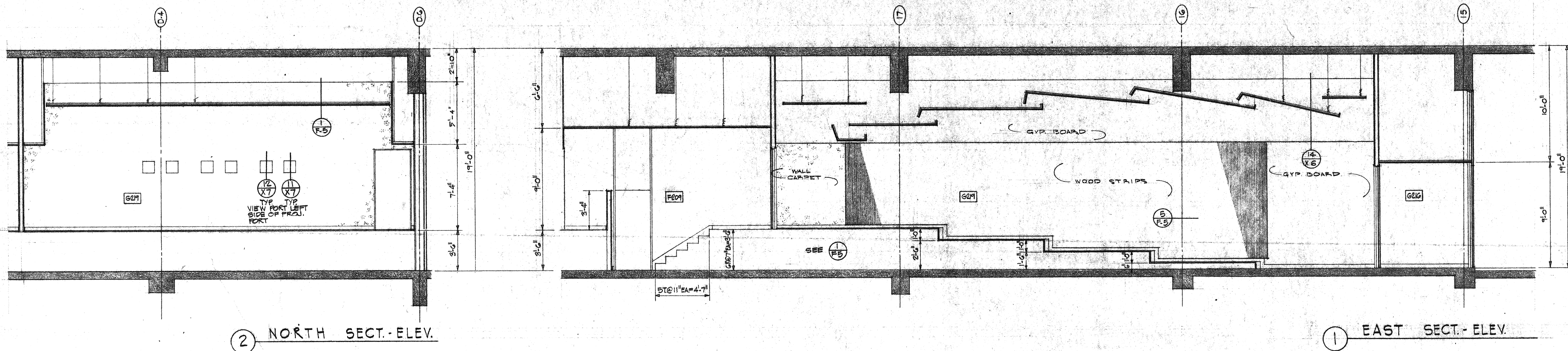
REVISIONS	
NO.	DATE

ASSOCIATED ARCHITECTS  
FRIEDMAN JOBSCH WILDE AND CAUDILL ROWLETT SCOTT  
2233 EAST BROADWAY TUCSON ARIZONA 85715 PH. 602. 624-8805



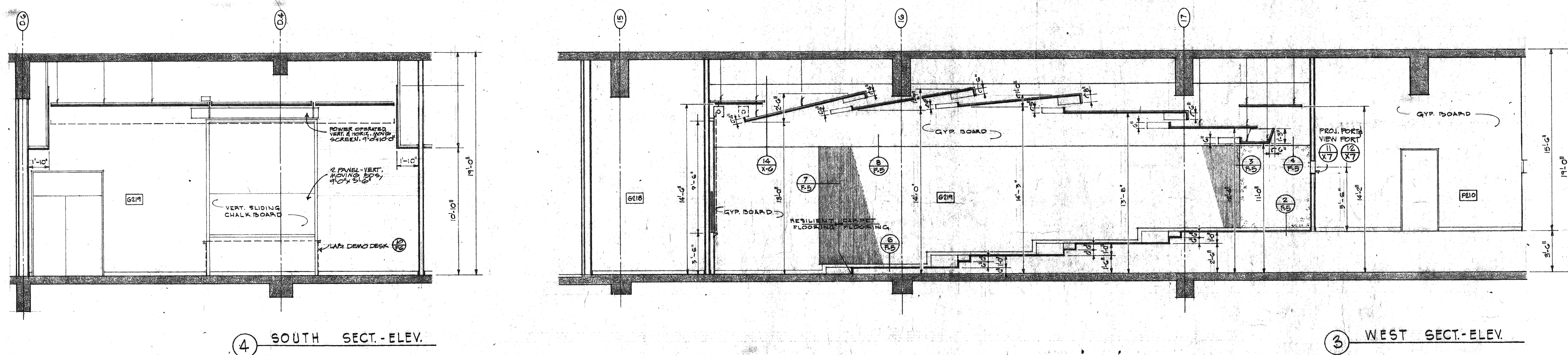
JOB NO. 948/4-1767  
DATE: FEB. 24, 1969

VOLUME III  
SHEET NO.  
**F5**  
OF



2 NORTH SECT.-ELEV.

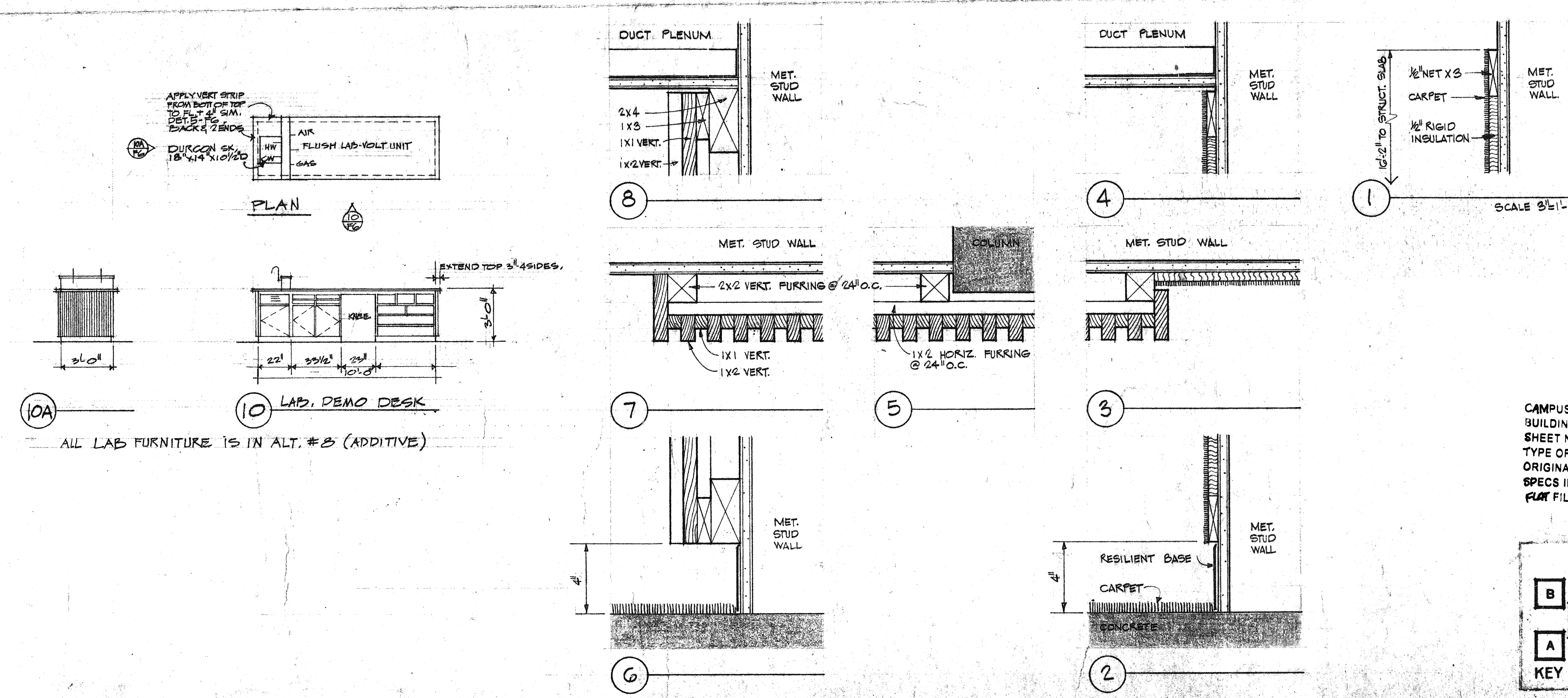
1 EAST SECT.-ELEV.



4 SOUTH SECT.-ELEV.

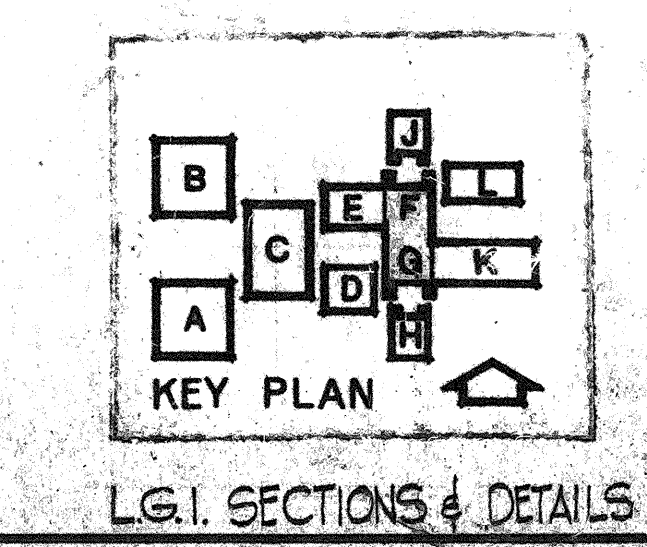
3 WEST SECT.-ELEV.

SECTION - ELEVATIONS LARGE GROUP INSTRUC. SCALE 1/4" = 1'-0"



10A LAB. DEMO DESK  
ALL LAB FURNITURE IS IN ALT. #3 (ADDITIVE)

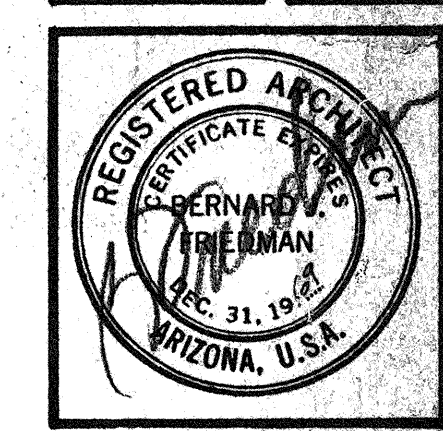
CAMPUS WC  
BUILDING RUCON-F  
SHEET NO 6 OF 26  
TYPE OF INFORMATION S  
ORIGINAL CONSTRUCTION YES  
SPECS INDEX NO 4 thru 10  
PLAN FILE NO 8



L.G.I. SECTIONS & DETAILS

REVISIONS	
NO.	DATE

ASSOCIATED ARCHITECTS  
FRIEDMAN JOBUSCH WILDE AND CAUDILL ROWLETT SCOTT  
2233 EAST BROADWAY TUCSON ARIZONA 85719 PH: 602 - 624-8805



JOB NO. 948/4-1767  
DATE: FEB. 24, 1969

VOLUME III  
SHEET NO. F6  
OF

PIMA COLLEGE  
TUCSON ARIZONA



## SEAMAN CORPORATION COMMERCIAL ROOFING WARRANTY

**Building Name:** PCC West Bldg F Stairwell  
**Building Address:** 2202 W Anklam Tucson, AZ 85709  
**Building Owner:** Pima County Community College District  
**Owner Address:** 2202 W Anklam Tucson, AZ 85709

**Warranty Serial No:** 20191454  
**Effective Date:** 08/16/2019  
**Warranted Roof Area:** 160 sq. ft.  
**Expiration Date:** 08/16/2039

SEAMAN CORPORATION ("Seaman Corp.") warrants to the owner named above ("Owner") of the building described above (the "Building") that, subject to the Terms & Conditions set forth below, for a period of **20 Years** commencing with the date of substantial completion of the installation of the roofing membrane, Seaman Corp. will repair leaks originating in the FiberTite Roofing System ("Roofing System") installed on the Building that are attributable to the Roofing System and/or workmanship provided by a roofing applicator authorized by Seaman Corp. to install the Roofing System (an "Authorized Applicator").

### Terms & Conditions

- The Roofing System includes only FiberTite® roof membranes, insulation and accessories provided by Seaman Corp installed in accordance with Seaman Corp.'s technical specifications.
- In order for this warranty to be effective the Roofing System must have been installed by an Authorized Applicator and inspected and approved for warranty by Seaman Corp.
- Owner shall give Seaman Corp. written notice not more than thirty (30) days after discovery of any leaks in the Roofing System. By giving such notice Owner authorizes Seaman Corp. or its agents to inspect the Roofing System and investigate the cause of the leak.
- Owner shall give or cause to be granted to Seaman Corp. free access to the roof of the Building during regular business hours to inspect the Roofing System. Owner shall indemnify and hold Seaman Corp. harmless for any damages or costs incurred by Seaman Corp. or its agents due to roof access delays as a result of security or other restrictions. Should the Roofing System be concealed with an overburden; i.e., garden roof, paving etc., Owner shall be responsible for all costs necessary to expose the Roofing System for inspection and/or repair.
- If, after its inspection, Seaman Corp. determines in good faith that the leaks are a result of defects in the Roofing System and/or the workmanship provided by the Authorized Applicator, Seaman Corp. will repair any leaks in the Roofing System at its expense.
- If, after its inspection, Seaman Corp. determines in good faith that the cause of the leaks are outside of the scope of this warranty, Owner shall pay for Seaman Corp.'s investigation and inspection costs and Seaman Corp. shall advise Owner of the type of repairs necessary to correct the leaks and cause the then existing remaining portion of this warranty to remain effective. This warranty shall automatically terminate if Owner fails to promptly make or cause to be made any such repairs or fails to pay such investigation and inspection costs.
- In no event shall Owner make any alterations or repairs to the Roofing System or install any structures, fixtures on or through such system without the prior written consent of Seaman Corp.
- Seaman Corp. shall have no obligation under this warranty unless and until all invoices for or otherwise relating to the Roofing System, including without limitation, materials, installation services, and supplies have been paid in full to the Authorized Applicator and Seaman Corp.
- This warranty shall not be applicable to nor shall Seaman Corp. be responsible for damage, leaks, or loss caused in whole or in part by: (a) natural disasters, including without limitation, earthquakes, hurricanes, tornadoes, winds in excess of 60 MPH, hail greater than ¾-in. in diameter, and lightning, which damages the Roofing System, or which impairs the Roofing System's ability to resist leaks, (b) acts of war or terrorism, civil disobedience, vandalism, animals, or insects which damage the Roofing System, or which impair the Roofing System's ability to resist leaks, (c) unauthorized alterations of the Roofing System (see Section 7 above) or installation of structures, fixtures, or utilities on or through the Roofing System by Owner, (d) negligence or failure of Owner to properly maintain the Roofing System, including without limitation, failure of Owner to maintain the Roofing System in accordance with Seaman Corp's FiberTite Maintenance Guidelines listed on the reverse side of this warranty, (e) settling, warping, defective condition, deterioration, corrosion, or other failure of the structure or substrata to which the Roofing System is attached or the walls or mortar of the Building; (f) any chemical contaminants injurious to the Roofing System that have not been specifically approved by Seaman Corp. via the Materials Submittal & Warranty Request form, (g) traffic or storage of materials on the Roofing System, (h) infiltration or condensation of moisture in, through, around or above the walls and/or other structure of the Building, (i) acts of negligence or misuse by Owner or any other party other than Seaman Corp. or the Authorized Applicator, (j) failure of any material or component not furnished by Seaman Corp., (k) the construction or design of the Building or its components, (l) a change in the use of the Building, and/or (j) loss of integrity of the Building envelope and/or structure.
- Rights under this warranty may be transferable by Owner to a third party only with the prior written consent of Seaman Corp. and the payment of the then-current transfer fees, inspections services and subsequent repair of the Roofing System, if necessary, by the Owner.
- Failure by Seaman Corp. to enforce any of the terms or conditions in this warranty shall not be interpreted to be a waiver of any terms and conditions of this warranty. If any portion of this warranty is unenforceable under applicable law, such portion shall be deemed reformed or deleted, but only to the extent necessary to comply with such law, and the remaining provisions shall remain in full force and effect. This warranty may be amended only by a writing signed by authorized representatives of both parties.
- This warranty shall be construed in accordance with, and shall be governed by, the laws of the State of Ohio without reference to its conflict of law principles and Owner agrees to submit to the exclusive jurisdiction of the appropriate state or federal court within Summit County, Ohio or purpose of resolving any dispute or claim arising in connection with this warranty.

EXCEPT AS SET FORTH ABOVE, SEAMAN CORP. MAKES NO REPRESENTATIONS AND WARRANTIES WHATSOEVER AND SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES OR GUARANTEES, WHETHER WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE OR REPRESENTATIVE OF SEAMAN CORP. HAS AUTHORITY TO MAKE ANY REPRESENTATIONS OTHER THAN THOSE STATED IN THIS WARRANTY. IN THE EVENT AN EXPRESS OR IMPLIED WARRANTY IS REQUIRED BY LAW DESPITE THIS DISCLAIMER, THE OWNER AGREES THAT SUCH WARRANTY AND REMEDIES FOR THE BREACH OF SUCH WARRANTY SHALL BE EXPRESSLY LIMITED TO THE TERMS OF THE WARRANTY SET FORTH ABOVE. OWNER AGREES THAT REPAIR UNDER THE TERMS OF THE WARRANTY SET FORTH ABOVE SHALL BE OWNER'S SOLE AND EXCLUSIVE REMEDY FOR ALL LEAKS AND ALL DEFECTS IN MATERIAL AND WORKMANSHIP. SEAMAN CORP. SHALL NOT BE LIABLE TO OWNER OR ANY OTHER PERSON OR ENTITY FOR ANY INCIDENTAL, SPECIAL, EXCEPTIONAL, CONSEQUENTIAL OR OTHER DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO, DAMAGES TO OTHER COMPONENTS OF THE ROOF, THE BUILDING OR THE CONTENTS OF THE BUILDING, OR LOSS OF PROFITS, UNDER ANY LEGAL THEORY. Seaman Corp. does not take any responsibility for the analysis of the architecture or engineering required to evaluate the type of roof system which is appropriate for the Building. Any Roofing System used for personal, family or household purposes IS NOT WARRANTED HEREUNDER.

\_\_\_\_\_  
 Building Owner's Signature  
 Full System  
 Warranty Addendum:

By: VP GM FiberTite  
 Title: \_\_\_\_\_  
 Date: 08/21/2019

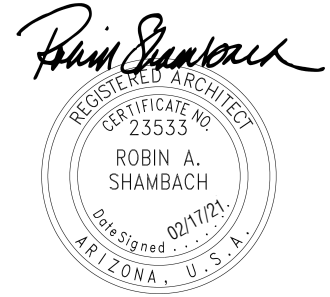
SEAMAN CORPORATION



PIMA COMMUNITY COLLEGE  
WEST CAMPUS SCIENCE LABS  
CONSTRUCTION DOCUMENTS

BWS 1931.000

Prepared by:  
BWS Architects  
261 N. Court Ave.  
Tucson, Arizona 85701



**Project:**  
**Pima Community College**  
**WEST CAMPUS LAB BUILDING F RENOVATION**

EXPIRES 06/30/2022

**ADDENDUM NO. 2**  
**February 17, 2021**

All requirements contained in the Contract Documents dated December January 8, 2020 shall apply to this Addendum, and the general character of the Work called for in this Addendum shall be the same as originally set forth in the applicable portions of the Contract Documents for similar Work, unless otherwise specified under this Addendum, and all incidental Work necessitated by this Addendum as required to complete the Work shall be included in the bids, even though not particularly mentioned in this Addendum.

This Addendum is hereby made a part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject bidder to disqualification.

**ITEMS FROM PREVIOUS ADDENDA:**

1. None

**DRAWINGS RE-ISSUED WITH THIS ADDENDUM:**

1. **Architectural Sheets:** The following sheets are revised and reissued with this addendum:

D2.1 - DEMO FLOOR PLAN – FIRST FLOOR ADD ALTERNATE #01 & #02  
A2.1 - FLOOR PLAN - FIRST FLOOR ADD ALTERNATE #01 & #02  
A2.4 - FLOOR PLAN - FIRST FLOOR ORGANIC CHEM ADD ALTERNATE #02  
A2.8 - DOOR & FRAME SCHEDULE TYPES  
A3.1 - REFLECTED CEILING PLAN -FIRST FLOOR  
A5.2 - BUILDING ELEVATIONS

**2. Plumbing Sheets:** The following sheets are revised and reissued with this addendum:

P2.1.1 - PLUMBING PLAN - LEVEL 1 AREA A - WATER & GAS - ADD ALT #1  
P2.1.3 - PLUMBING PLAN - LEVEL 1 AREA B - WATER & GAS - ADD ALT #2  
P2.2.1 - PLUMBING PLAN - LEVEL 2 AREA A - WATER & GAS - BASE BID  
P2.2.3 - PLUMBING PLAN - LEVEL 2 AREA B - WATER & GAS - BASE BID

**3. Mechanical:** The following sheets are revised and reissued with this addendum:

M2.1.2 – MECHANICAL PLAN – LEVEL 1 AREA B  
M2.2.1 – MECHANICAL PLAN – LEVEL 2 AREA A  
M2.2.2 – MECHANICAL PLAN – LEVEL 2 AREA B  
M5.1 – MECHANICAL DETAILS  
M7.1 – MECHANICAL CONTROLS

**SPECIFICATIONS ISSUED WITH THIS ADDENDUM:**

1. Section 237200 – Louvers.

**GENERAL ITEMS:**

1. **PCC Addendum Question #13:** There are (19) panels on the one line diagram and only (7) panel schedules...Please advise.

**Answer #13:** The remaining electrical panels are shown on the Laboratory Electrical (LE) drawings provided in the construction documents.

**SPECIFICATION ITEMS:**

1. None

**DRAWING ITEMS**

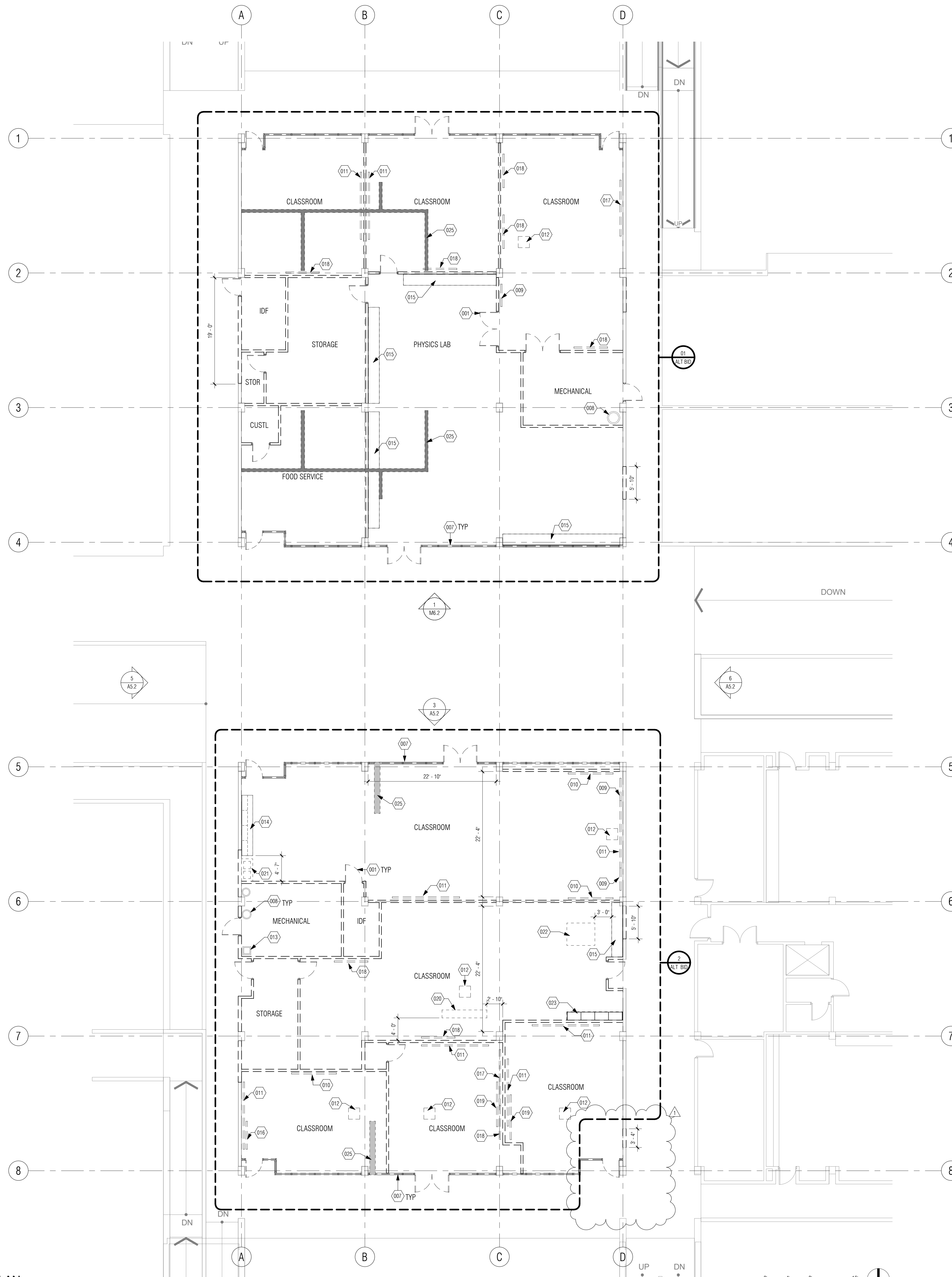
**PRIOR APPROVALS:** The following items have been approved for manufacturer only for purposes of bidding the project. Such approval does not exempt the manufacturer from complying with all requirements of the plans and specifications.

Submittals not approved for use are not listed here.

**None this addendum.**

END OF ADDENDUM NO. 2

2/11/2021 10:55:45 AM



1 FIRST FLOOR PLAN  
SCALE: 1/8" = 1'-0"

**DEMO PLAN GENERAL NOTES**

1. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION AND REMOVAL WITHIN THE LIMITS OF DEMOLITION U.N.O.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL BARRICADES AND SAFETY CONCERNS WITHIN AND ADJACENT TO CONSTRUCTION.
3. LIMITS OF DEMOLITION LINES ARE APPROXIMATE AND ARE TO BE ESTABLISHED BY THE FLOOR PLANS. THE ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES PRIOR TO DEMOLITION.
4. EXISTING FINISHES, MILLWORK, ETC. TO REMAIN SHALL BE PROTECTED DURING DEMOLITION. CONTRACTOR SHALL PATCH ALL EXISTING FINISHES TO REMAIN AS REQUIRED BY NEW WORK.
5. SALVAGE MASONRY AS NEEDED FOR INFILL.
6. REMOVE PORTION OF EXTERIOR WALLS TO EXTENTS INDICATED FOR NEW WINDOWS.
7. REFER TO STRUCTURAL, MECHANICAL, PLUMBING ELECTRICAL AND LABORATORY DRAWINGS FOR ADDITIONAL INFORMATION.

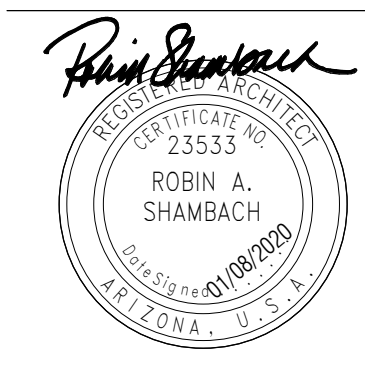
**KEYNOTES**

- 001 REMOVE EXISTING DOOR AND FRAME
- 007 REMOVE EXISTING STOREFRONT
- 008 ROOF DRAIN TO REMAIN - FIELD VERIFY SIZE, ROUTING AND LOCATION
- 009 REMOVE EXISTING 4" MARKER BOARD
- 010 REMOVE EXISTING 8" MARKER BOARD
- 011 REMOVE EXISTING 12" MARKER BOARD
- 012 REMOVE EXISTING 2X2 PROJECTOR
- 013 EXISTING FLOOR CHASE TO REMAIN - INFILL FOR
- 014 REMOVE UPPER AND LOWER CABINETS
- 015 DEMO CASEWORK AND COUNTERTOPS
- 016 REMOVE EXISTING 5" PROJECTOR SCREEN
- 017 REMOVE EXISTING 10" MARKER BOARD
- 018 REMOVE EXISTING 6" MARKER BOARD
- 019 REMOVE EXISTING 8" PROJECTOR SCREEN
- 020 ELECTRICAL FLOOR DUCT TO REMAIN
- 021 REMOVE STAINLESS STEEL TWO COMPARTMENT SINK
- 022 DEMO ISLAND
- 023 DEMO 10" SHELF
- 025 SAWCUTS FOR THE PLUMBING

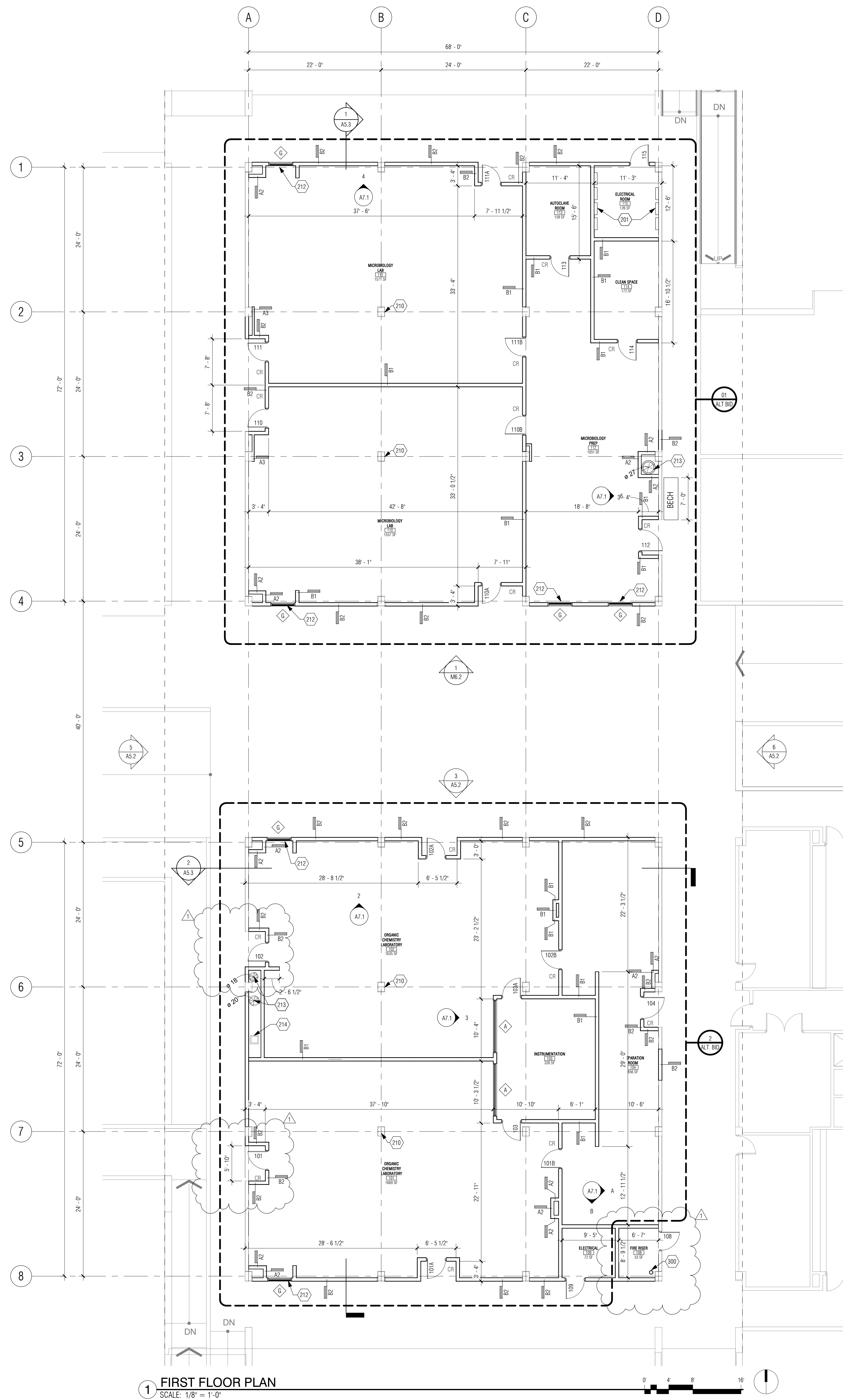
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FIRST FLOOR MICROBIOLOGY, DEMOLITION  
AND CONSTRUCTION, COMPLETE AND IN  
PLACE

ADD ALTERNATE BID #02:  
FIRST FLOOR ORGANIC CHEMISTRY,  
DEMOLITION AND CONSTRUCTION,  
COMPLETE AND IN PLACE

BASE BID:  
FIRE RISER ROOM, DEMOLITION AND  
CONSTRUCTION, COMPLETE AND IN PLACE



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**FLOOR PLAN GENERAL NOTES**

1. DIMENSIONS ARE TO COLUMN CENTERLINE OR FACE OF WALL, U.N.O.
2. REFER TO SHEET A2.7 FOR ROOM FINISHES.
3. REFER TO A2.8 FOR DOOR SCHEDULE TYPES.
4. REFER TO A2.9 FOR WINDOW TYPES.
5. REFER TO SHEET A6.1 FOR ENLARGED RESTROOM FLOOR PLANS.
6. REFER TO SHEET A10.1 FOR WALL TYPES.

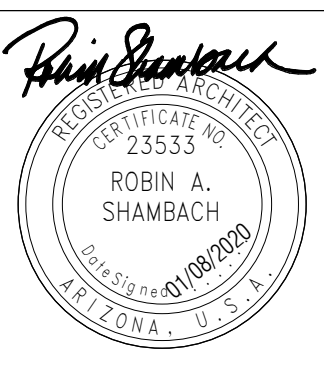
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**FIRST FLOOR MICROBIOLOGY, DEMOLITION AND CONSTRUCTION, COMPLETE AND IN PLACE**

**ADD ALTERNATE BID #02:**  
**FIRST FLOOR ORGANIC CHEMISTRY, DEMOLITION AND CONSTRUCTION, COMPLETE AND IN PLACE**

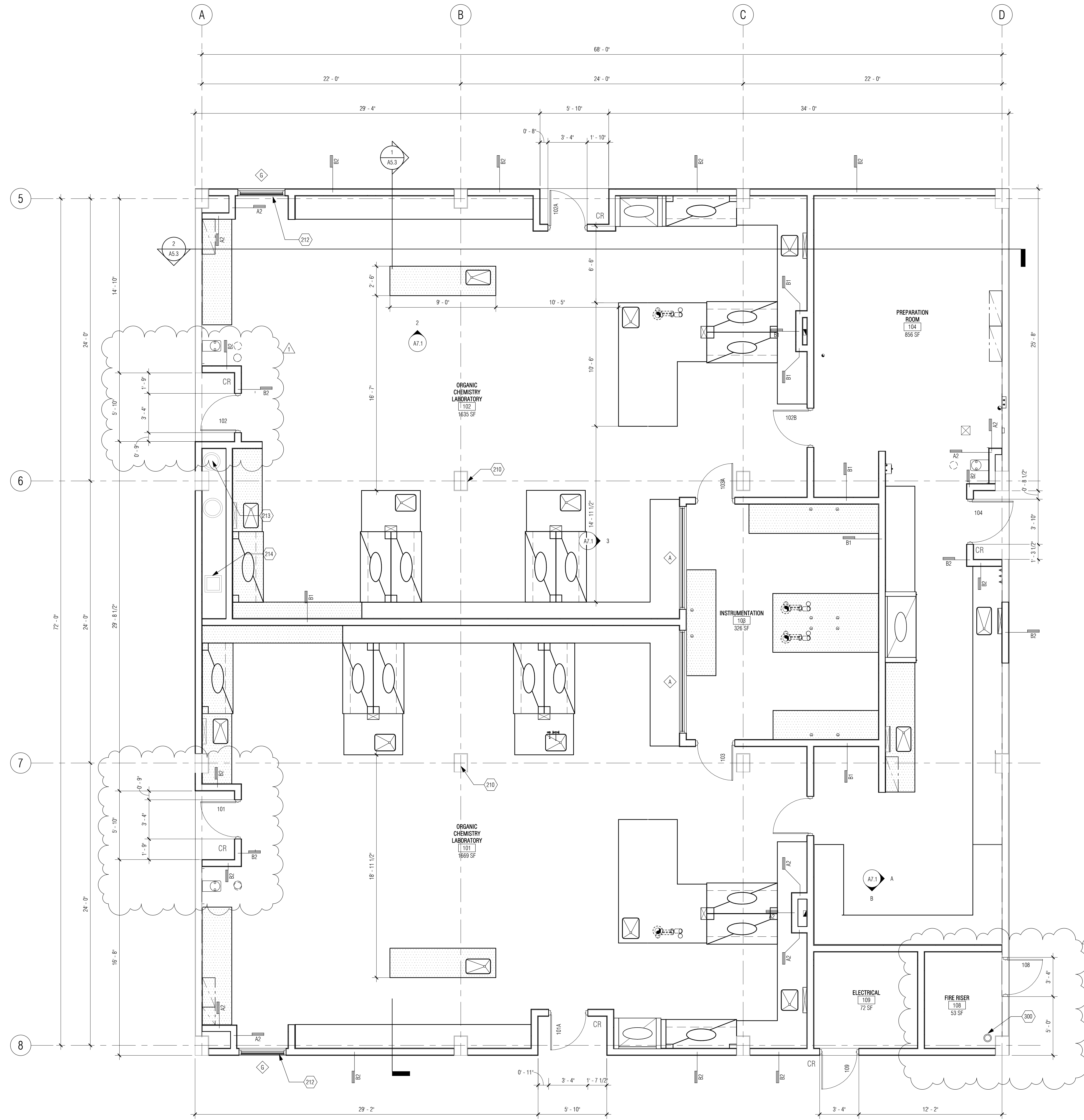
**KEYNOTES**

- 201 ELECT. PANEL - PROVIDE CONTINUOUS BACKING AND 1/2" - 4X8 PLYWOOD SHEET AT ALL PANEL LOCATIONS
- 210 FLOAT SMOOTH AND PAINT
- 212 ROLLING WINDOW SHADE - O.F.O.I
- 213 EXISTING ROOF DRAIN
- 214 EXISTING FLOOR CHASE
- 300 4" PIPE LINE

**BASE BID:**  
**FIRE RISER ROOM, DEMOLITION AND CONSTRUCTION, COMPLETE AND IN PLACE**



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**1 FLOOR PLAN - FIRST FLOOR ORGANIC CHEM**  
1/4" = 1'-0"

**FLOOR PLAN GENERAL NOTES**

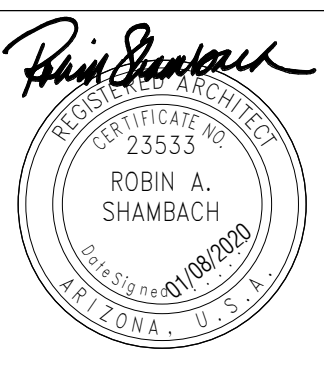
1. DIMENSIONS ARE TO COLUMN CENTERLINE OR FACE OF WALL, U.N.O.
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3. REFER TO A2.8 FOR DOOR SCHEDULE TYPES.
4. REFER TO A2.7 FOR WINDOW TYPES.
5. REFER TO SHEET A6.1 FOR ENLARGED RESTROOM FLOOR PLANS.
6. REFER TO SHEET A10.1 FOR WALL TYPES.

**KEYNOTES**

- 210 FLOAT SMOOTH AND PAINT
- 212 ROLLING WINDOW SHADE - O.F.O.I
- 213 EXISTING ROOF DRAIN
- 214 EXISTING FLOOR CHASE
- 300 4" PIPE LINE

**ADD ALTERNATE BID #02:**  
FIRST FLOOR ORGANIC CHEMISTRY,  
DEMOLITION AND CONSTRUCTION,  
COMPLETE AND IN PLACE

**BASE BID:**  
FIRE RISER ROOM, DEMOLITION AND  
CONSTRUCTION, COMPLETE AND IN PLACE

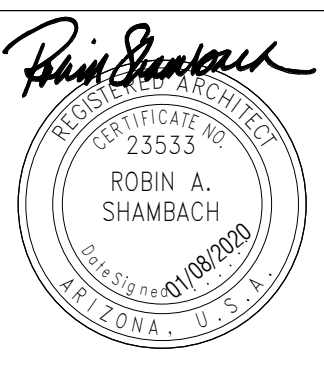
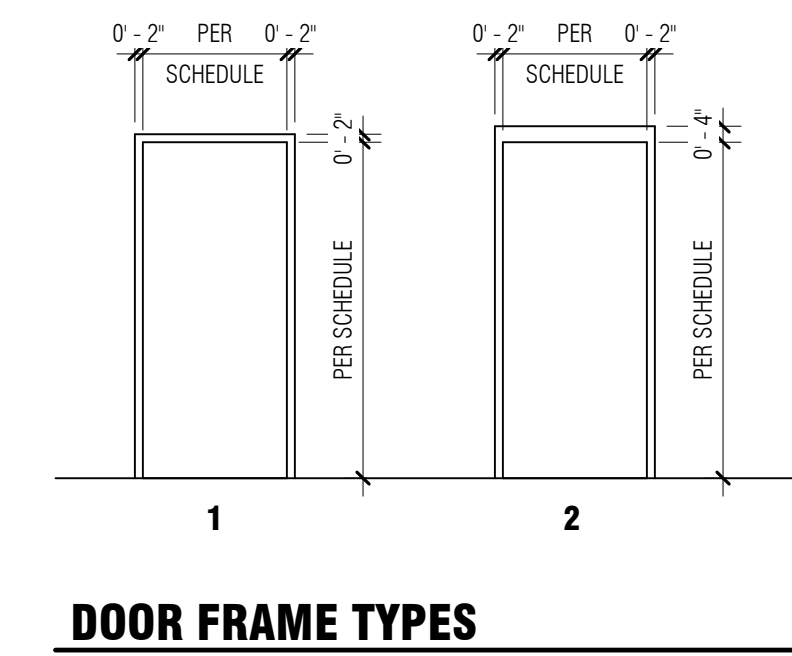
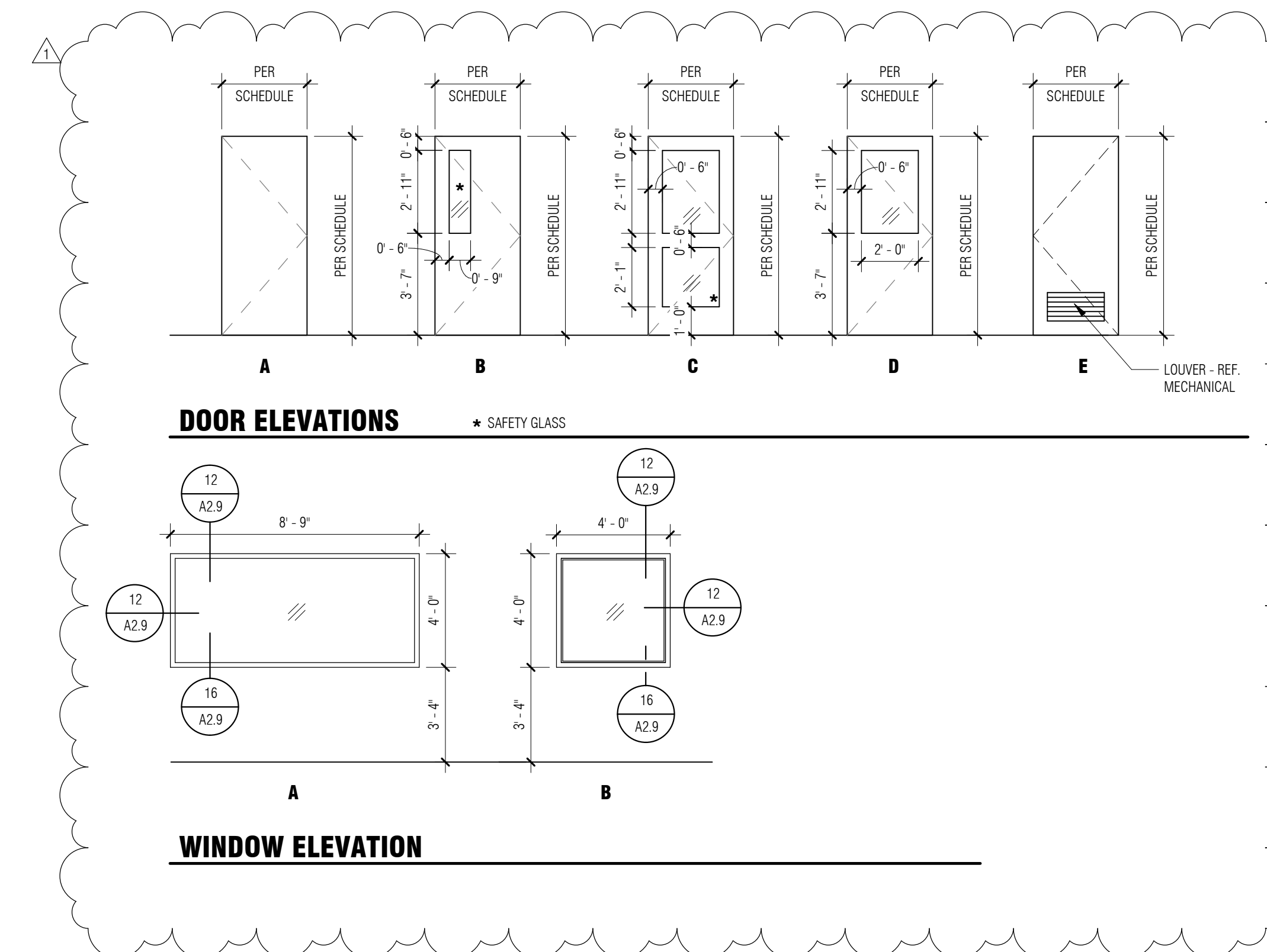


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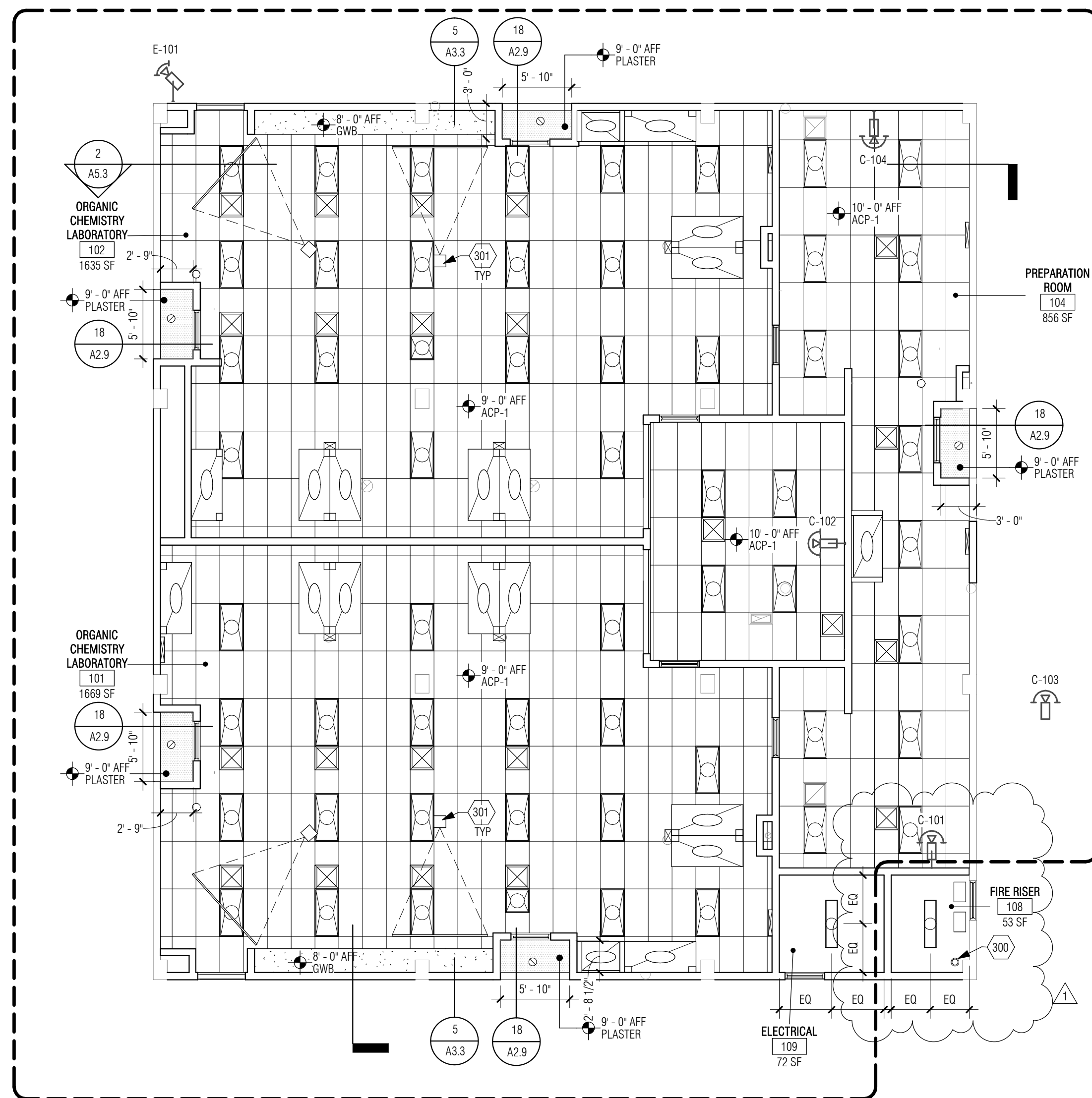
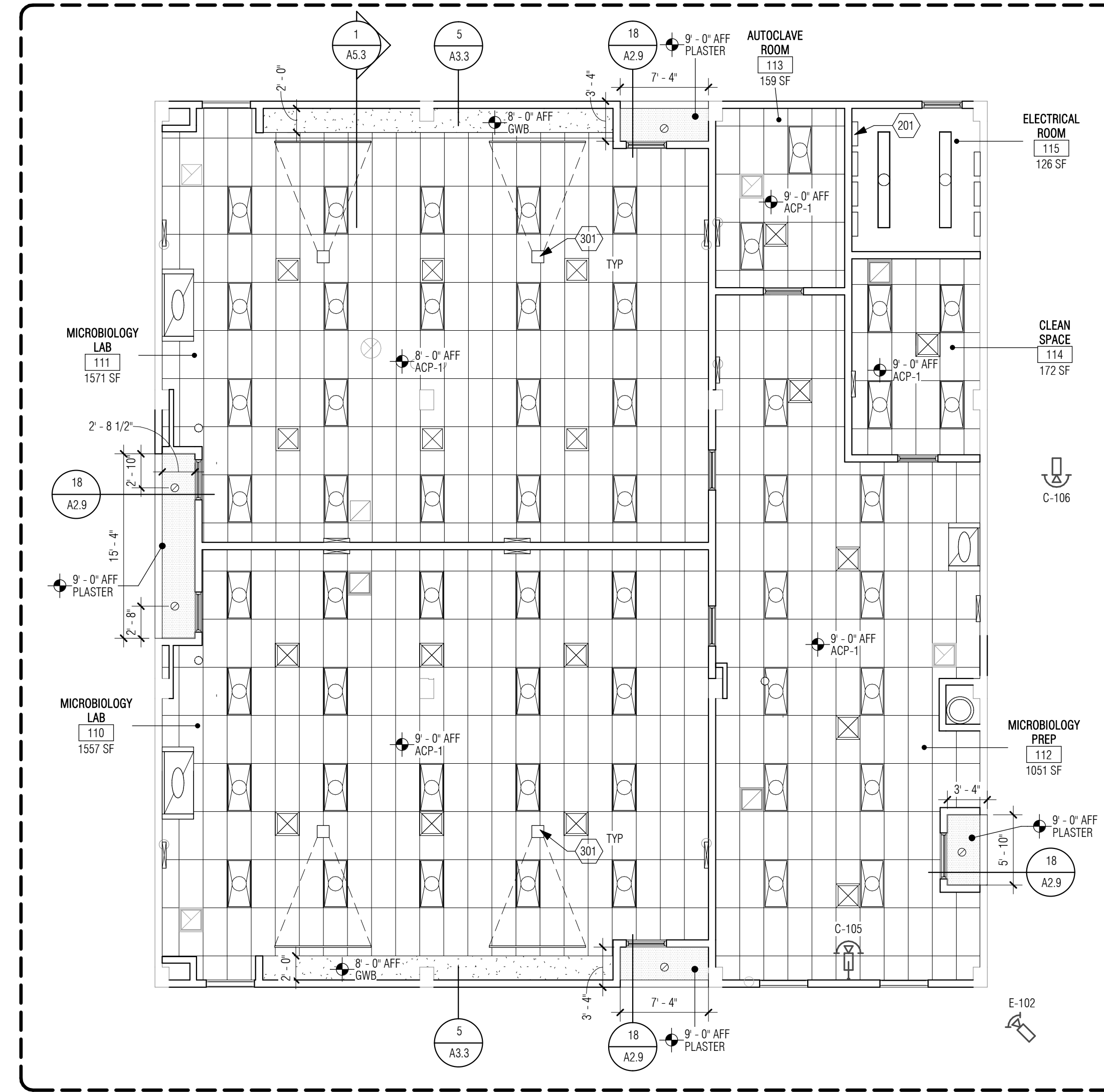
**DOOR SCHEDULE ABBREVIATIONS**

AL	ALUMINUM
ANOD	ANODIZED
CLR	CLEAR
HM	HOLLOW METAL
P	PAINT
SCW	SOLID-CORE WOOD
STC	SOUND DOOR
STL	STEEL

OPENING NO.	TYPE	DOOR						FRAME						HARDWARE SET NO.	CARD READER	REMARKS	
		OPENING SIZE		MATERIAL	FINISH	GLASS	TYPE	MATERIAL	FINISH	DETAILS							
		WIDTH	HEIGHT							HEAD	JAMB	LATCH	HINGE				SILL
101	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
101A	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
101B	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
102	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
102A	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
102B	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
103	D		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05		
103A	D		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05		
104	A		3'-6"	7'-0"	HM	P	Yes	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	01	●	
108	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	04		
109	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	04		
110	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
110A	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
110B	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	02	●	
111	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	05	●	
111A	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
111B	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
112	A		3'-6"	7'-0"	HM	P	Yes	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	01	●	
113	D		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	06	●	
114	D		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
115	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	04		
201	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
201A	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
201B	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
202	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
202A	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
202B	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
203	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
203A	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
203B	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
204	C		3'-0"	7'-0"	AL	FP	Yes	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
204A	B		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
204B	C		3'-0"	7'-0"	AL	FP	No	1	AL	FP	9/A2.9	9/A2.9 SIM	10/A2.9	11/A2.9	01	●	
206	D		3'-0"	7'-0"	SCW	CLR	Yes	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
207	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	03	●	
207A	B		3'-0"	7'-0"	SCW	CLR	No	1	AL	FP	5/A2.9	5/A2.9	6/A2.9	7/A2.9	05	●	
208	A		3'-6"	7'-0"	HM	P	Yes	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	01	●	
220	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	03	●	
221	A		3'-0"	7'-0"	HM	P		1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	01		
222	A		3'-0"	7'-0"	HM	P	No	1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	05	●	
223	E	Yes	3'-0"	7'-0"	HM	P		1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	07		
224	E	Yes	3'-0"	7'-0"	HM	P		1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	07		
224A	E	Yes	3'-0"	7'-0"	HM	P		1	HM	P	3/A2.9	4/A2.9	4/A2.9	17/A2.9	07		



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1 CEILING PLAN - FIRST FLOOR  
1/8" = 1'-0"

**REFLECTED CEILING PLAN GENERAL NOTES**

1. SEE GENERAL NOTES ON SHEET G1.1 FOR SUSPENDED CEILING GRID LAYOUT AND PLACEMENT OF CEILING MOUNTED DEVICES.
2. SEE FLOOR PLAN FOR PARTITION TYPES.
3. COORDINATE CEILING PLANS WITH MECHANICAL, FIRE PROTECTION AND ELECTRICAL PLANS.
4. ALL GWS CEILINGS AND SOFFITS SHALL BE TEXTURED AND PAINTED.
5. REFER TO SHEET A3.3 FOR CEILING DETAILS.
6. ACCESS PANELS IN FIRE RATED CEILINGS SHALL MATCH THE FIRE RATING OF THE CEILING.
7. CENTER LIGHT FIXTURES IN CEILING, U.N.O.
8. "C" INDICATES A GWS CONTROL JOINT.

**REFLECTED CEILING PLAN LEGEND**

CEILING TYPES:	CEILING EQUIPMENT:
A GWB	□ LIGHT FIXTURE - RECESSED IN CEILING.
B E.T.S. EXPOSED TO STRUCTURE	□ LIGHT FIXTURE - RECESSED IN CEILING.
C 2x4 SUSPENDED ACCOUSTICAL CEILING	□ LIGHT FIXTURE - RECESSED IN CEILING.
D PLASTER SOFFIT	○ LIGHT FIXTURE - CEILING OR PENDENT MOUNT.
	○ LIGHT FIXTURE - RECESSED IN CEILING.
	⊗ EXIT LIGHT
	⊗ MECH - SUPPLY DIFFUSER
	⊗ MECH - RETURN DIFFUSER
	⊗ MECH - EXHAUST
	⊗ CAMERAS (FOI CONTRACTOR TO COORDINATE WITH SECURITY VENDOR)

**GENERAL NOTES:**

1. CEILING HEIGHTS SHOWN IN PLAN ARE NOMINAL AND SHOULD BE COORDINATED WITH DETAILS AND SECTIONS

**CAMERA LEGEND - FIRST FLOOR**

**NOTE:**

CAMERAS COMPLETE AND IN PLACE TO BE O.F.O.I.

CAMERA SCHEDULE - FIRST FLOOR					
CAMERA No.	NEW/EXIST	TYPE	REMARKS	ALT#	
C-101	NEW	WALL MOUNTED	180	2	
C-102	NEW	WALL MOUNTED	180	COORDINATE WITH SNORKELS	2
C-103	NEW	CEILING MOUNTED	180	CAPTURE PREP. LAB ENTRY	2
C-104	NEW	WALL MOUNTED	180	CAPTURE ENTRY	2
C-105	NEW	WALL MOUNTED	180	CAPTURE ALL OPENINGS INTO SPACE	1
C-106	NEW	CEILING MOUNTED	180	CAPTURE PREP. LAB ENTRY	1
E-101	EXISTING	-	90	BASE BID	
E-102	EXISTING	-	90	UPGRADE TO 4 LENS / BETWEEN F & K / SINGLE POE	BASE BID

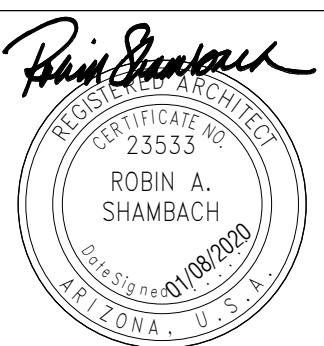
**KEYNOTES**

- 201 ELECT. PANEL - PROVIDE CONTINUOUS BACKING AND 1/2" - 4X8 PLYWOOD SHEET AT ALL PANEL LOCATIONS
- 300 4" PIPE LINE
- 301 PROJECTION SCREEN & CEILING MOUNTED PROJECTOR

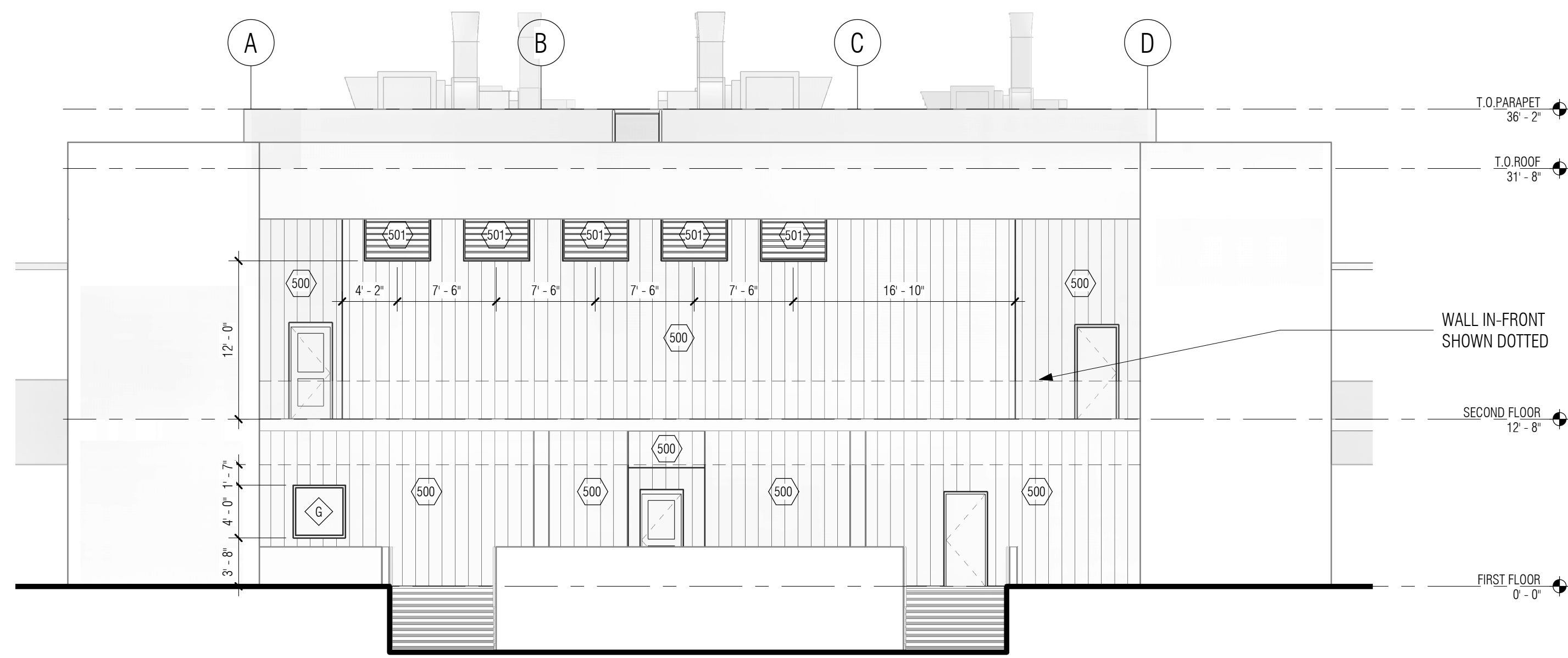
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ADD ALTERNATE BID #02:  
FIRST FLOOR ORGANIC CHEMISTRY, DEMOLITION AND CONSTRUCTION, COMPLETE AND IN PLACE

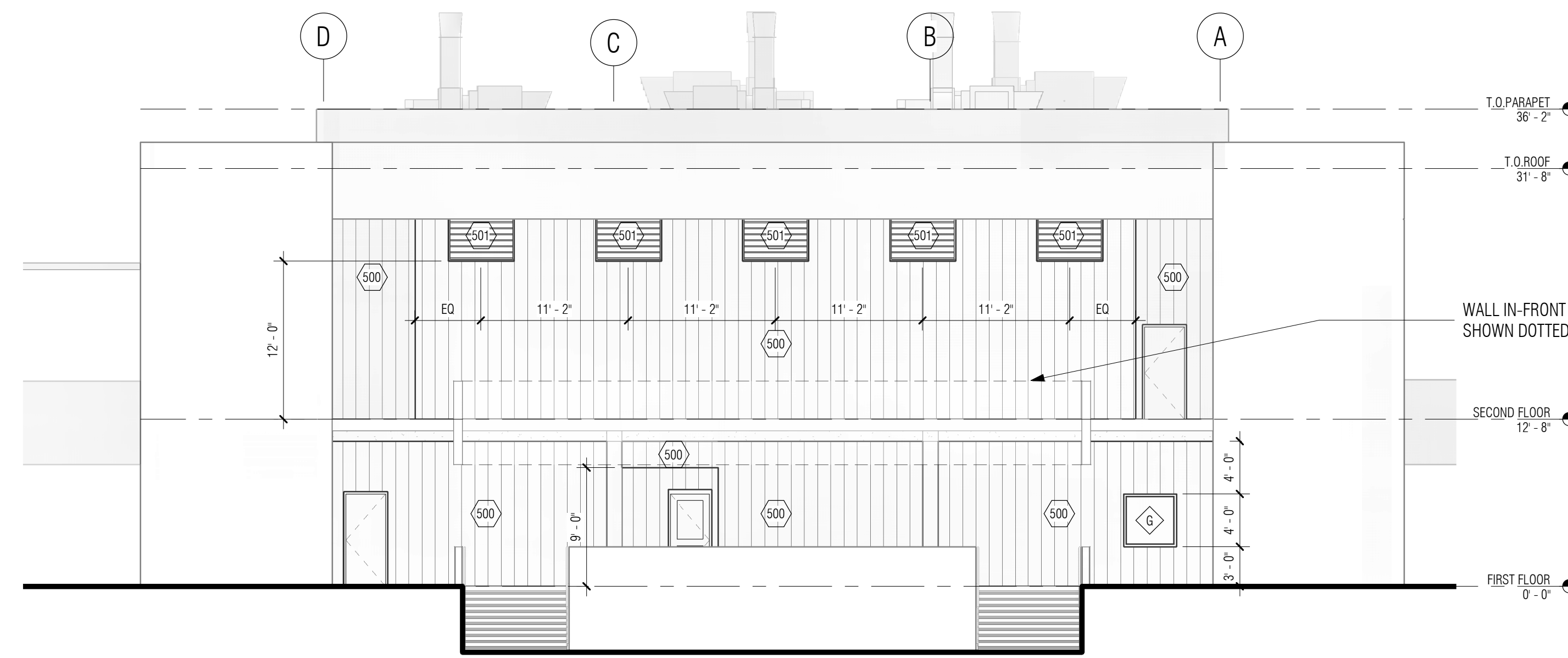
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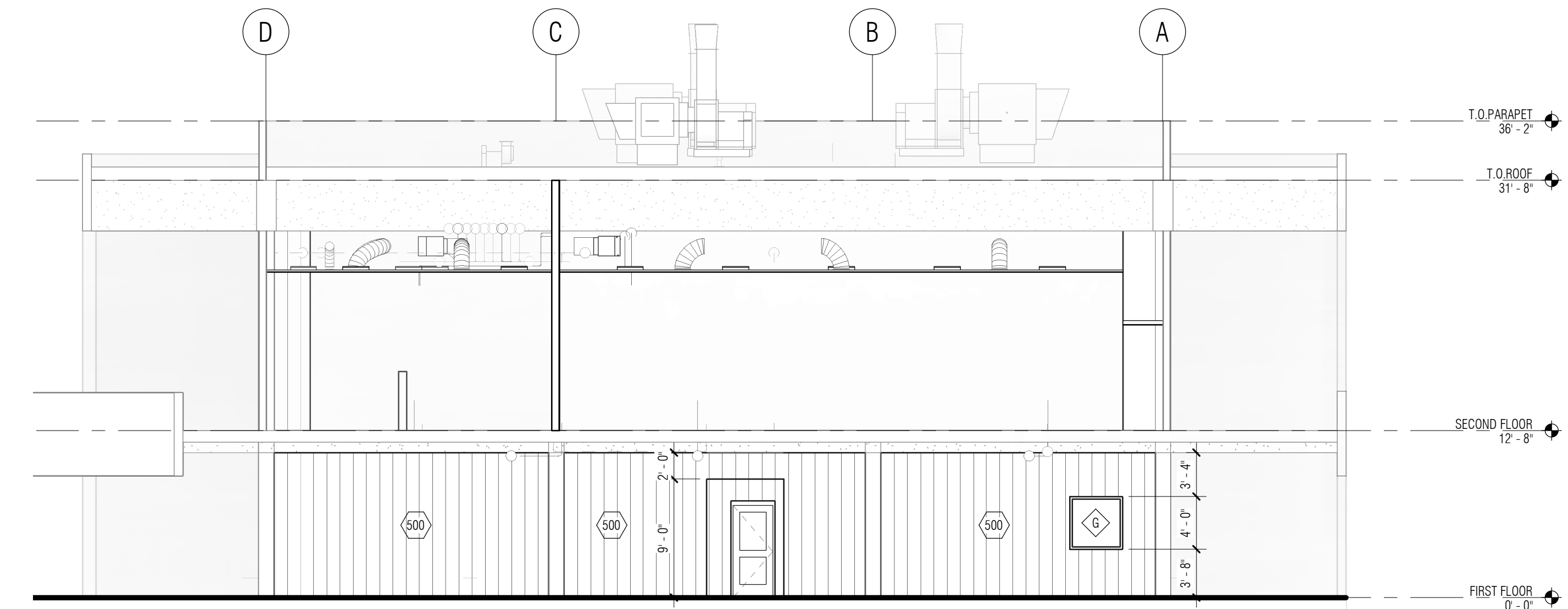
1 BUILDING ELEVATION - SOUTH  
1/8" = 1'-0"



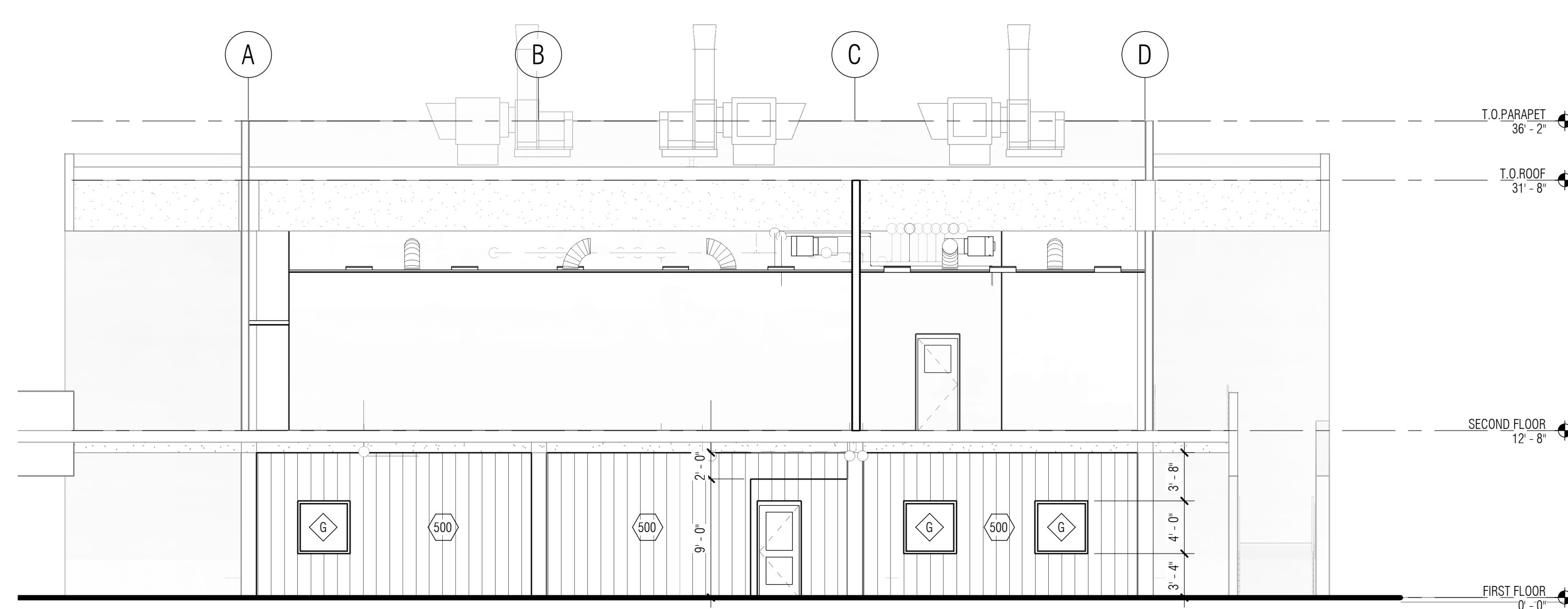
2 BUILDING ELEVATION - NORTH  
1/8" = 1'-0"

**KEYNOTES**

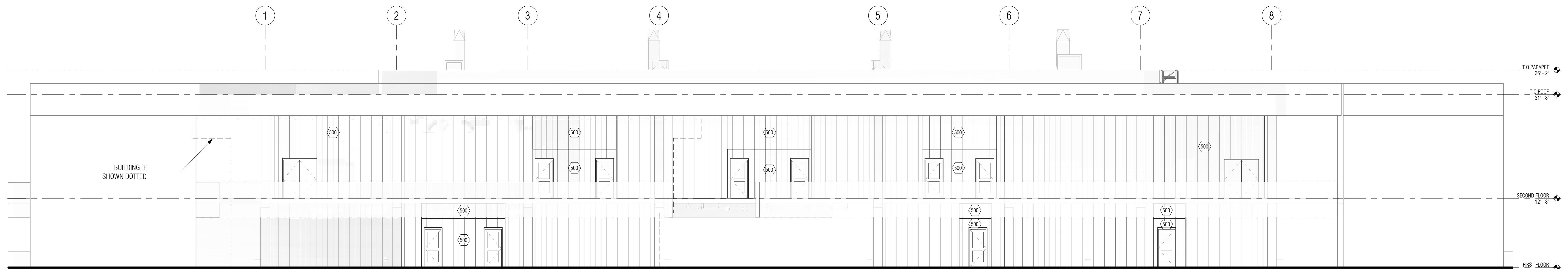
- 500 STUCCO EMBOSSED MTL PANEL, TYP
- 501 5' X 5' MECHANICAL LOUVER - REF. MECHANICAL DRAWINGS & SPECS, TYP



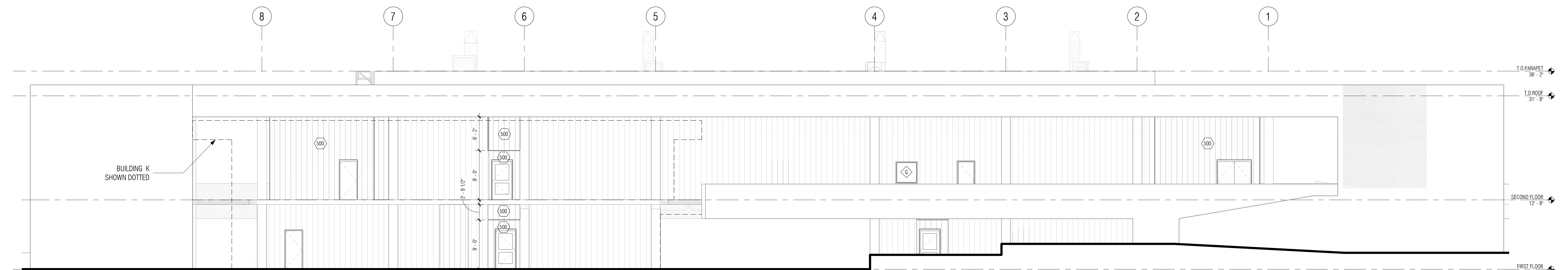
3 BUILDING ELEVATION - BREEZEWAY SOUTH  
1/8" = 1'-0"



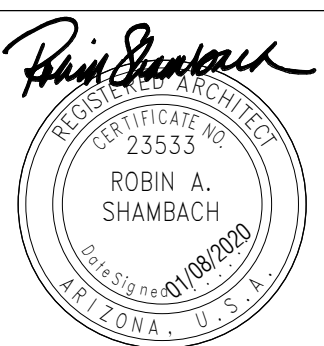
4 BUILDING ELEVATION - BREEZEWAY NORTH  
1/8" = 1'-0"



5 BUILDING ELEVATION - WEST  
1/8" = 1'-0"



6 BUILDING ELEVATION - EAST  
1/8" = 1'-0"

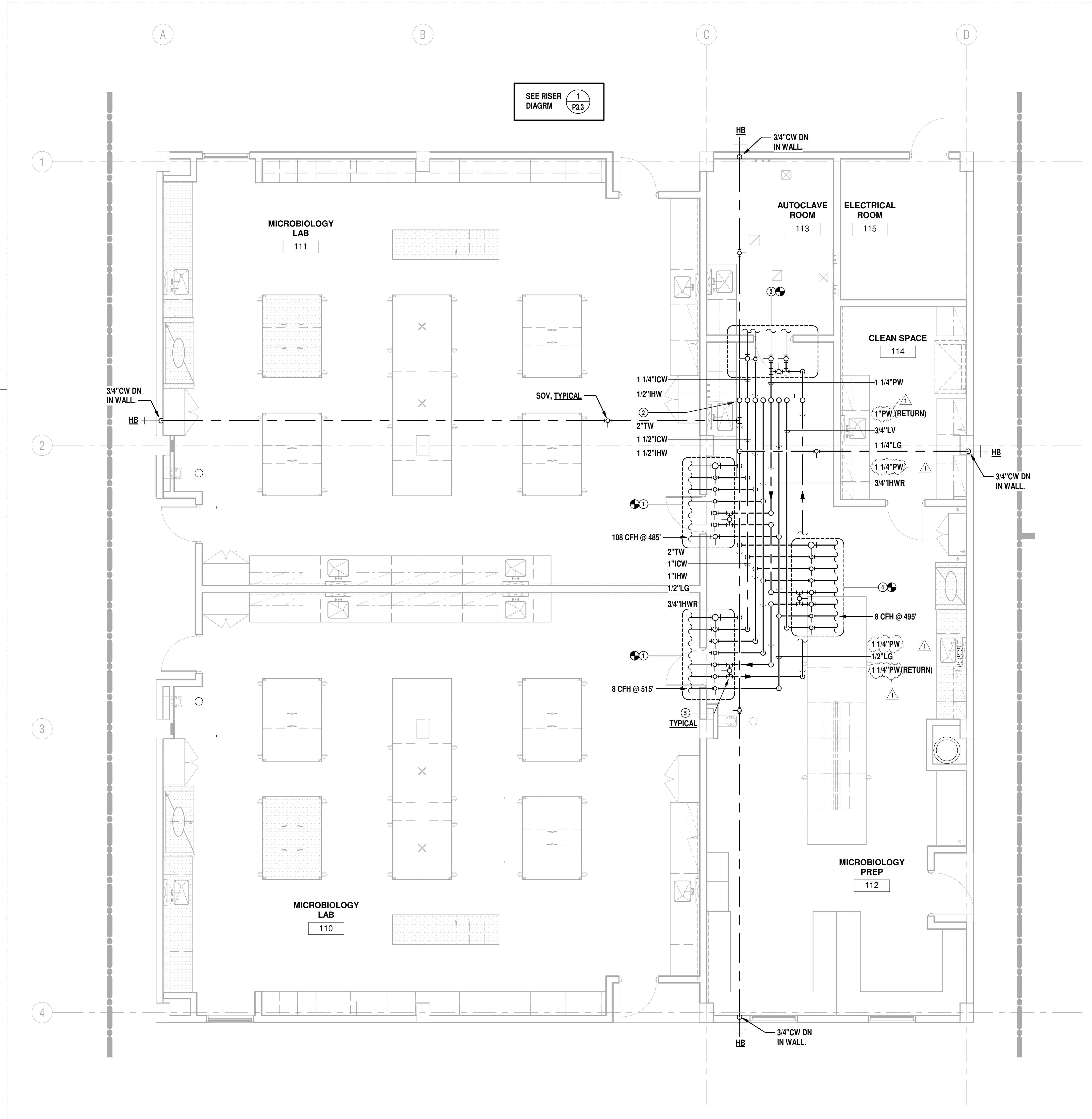


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2/11/2021 10:55:44 AM



ADD ALTERATE #01

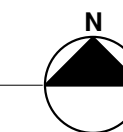


SEE RISER DIAGRAM 1 P3.3

### PLUMBING KEYNOTES

- 1-1/4" TW, 3/4" ICW, 3/4" IHV, 1/2" IHWR, (2) 3/4" PW, & 1-1/4" LG POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR 1/2" IHWR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" # 116151AC, SET TO .5 GPM.
- 2" TW, 1-1/2" ICW, 1-1/4" IHV, 3/4" IHWR, 1/2" PW, 1-1/4" LG, 3/4" LV, & 1-1/4" PWR UP TO LEVEL 2. SEE P2.2.1 FOR CONT.
- 1" ICW, 1/2" IHV, & (2) 1" PW POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS.
- 1-1/4" TW, 3/4" ICW, 3/4" IHV, 1/2" IHWR, (2) 1" PW, 1/2" LG, & 3/4" LV POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR 1/2" IHWR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" # 116151AC, SET TO .5 GPM.
- NORMALLY CLOSED SOV FOR 1-1/4" PW BY-PASS. TYPICAL. SEE LAB DRAWINGS.

1 Plumbing Plan 1st Floor - A - Water & Gas  
1/4" = 1'-0"



bws ARCHITECTS

BURNS WILD-HOPKINS SHAMBACH ARCHITECTS  
26 North Court Avenue  
Tucson, AZ 85710  
520.395.2702 Fax: 520.395.0571  
www.bwsarch.com

**ELECTRICAL**  
Meredith Engineering, Inc.  
1920 E. Fort Lowell Rd.  
Tucson, AZ 85719  
Phone: 520.884.0045

**STRUCTURAL**  
Sunder Structural Engineering  
3028 N. W. 8th St.  
Tucson, AZ 85716  
Phone: 520.323.3422

**MECHANICAL**  
KC Mechanical Engineering  
1477 E. Fort Lowell Rd.  
Tucson, AZ 85711  
Phone: 520.327.1611

**LABORATORY**  
ARC Lab Services  
2505 S. 1st Ave.  
San Diego, CA 92108-3192  
Phone: 619.297.0169

**CONSULTANTS**

**LABORATORY**  
ARC Lab Services  
2505 S. 1st Ave.  
San Diego, CA 92108-3192  
Phone: 619.297.0169

**PLUMBER**  
KENNETH M. CAWTHORNE  
25035  
TUCSON, AZ 85711  
PHOENIX 619/307-1000

**PLUMBER**  
KENNETH M. CAWTHORNE  
25035  
TUCSON, AZ 85711  
PHOENIX 619/307-1000

**PLUMBER**  
KENNETH M. CAWTHORNE  
25035  
TUCSON, AZ 85711  
PHOENIX 619/307-1000



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ADD#1 02/12/2021

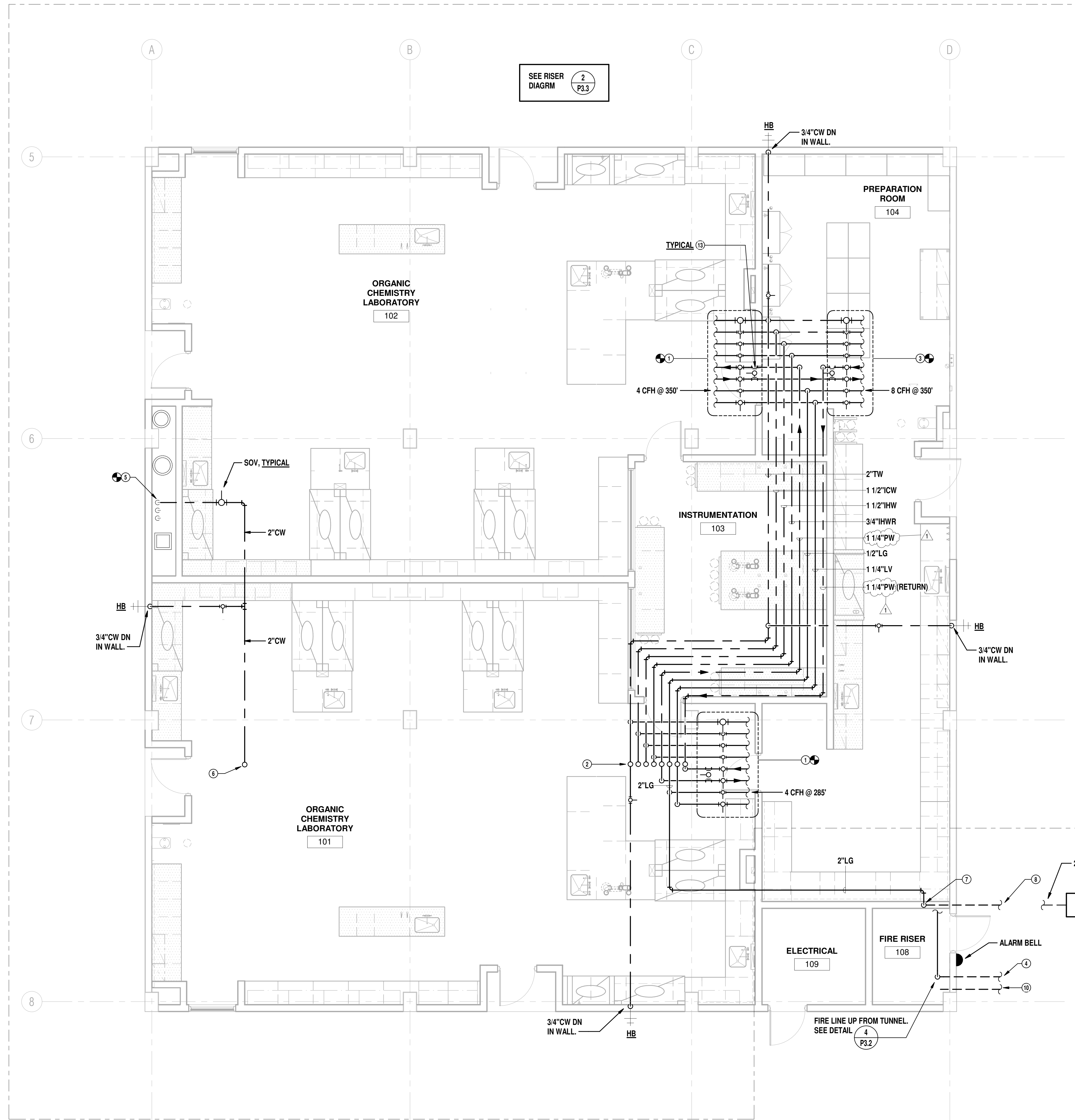
**PLUMBING PLAN - LEVEL 1  
AREA A - WATER & GAS -  
ADD ALT #1**

**P2.1.1**  
100% CONSTRUCTION DOCUMENTS

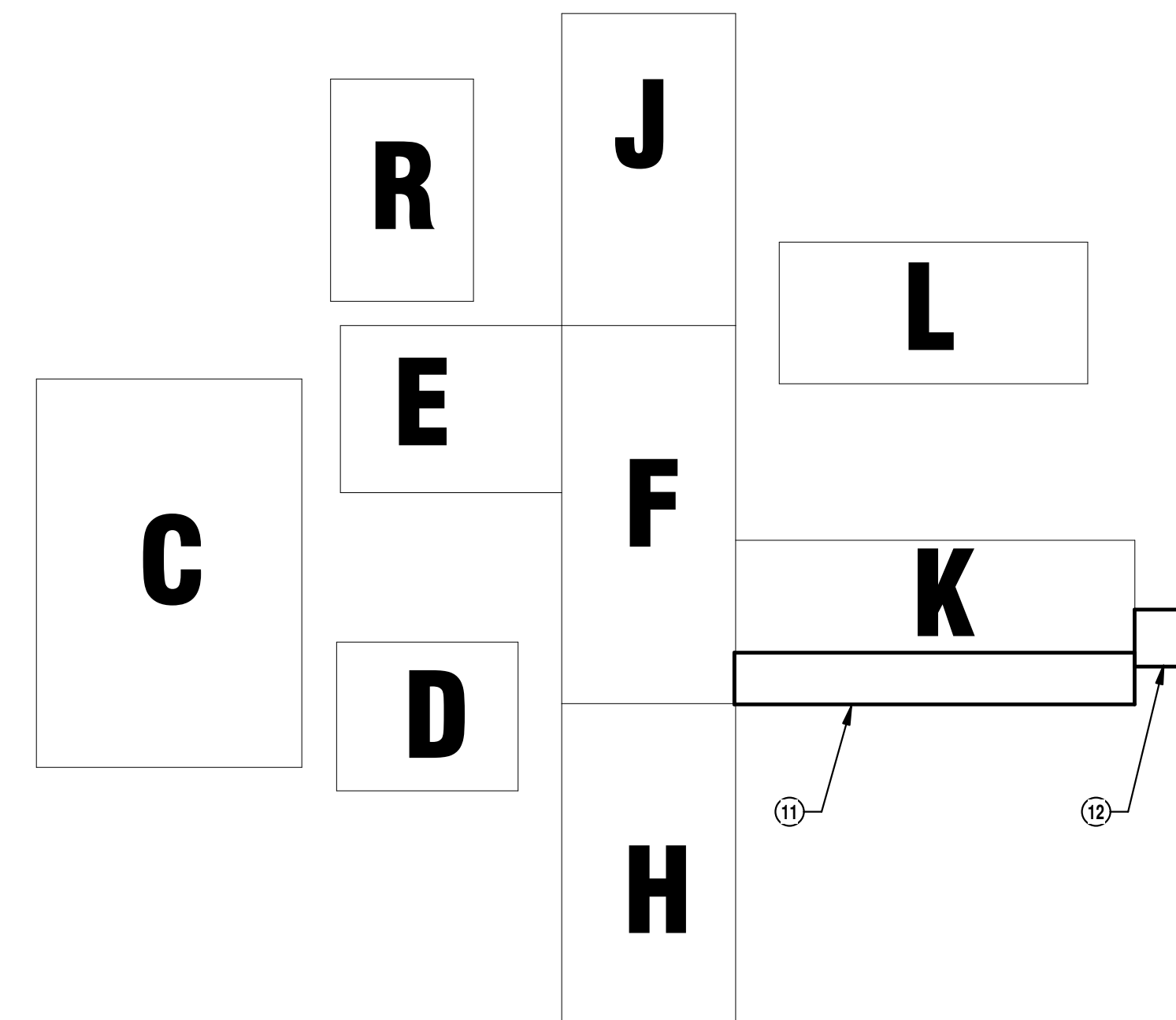
**KC MECHANICAL ENGINEERING, L.L.C.**  
5447 East Fifth Street # 112  
Tucson, Arizona 85711  
Designers: Mech: TCB Plumb: MT  
520/327-7611  
520/327-0432  
PROJECT# 19-366

**PLUMBING NOTES**

- 1-1/4" TW, 1" ICW, 1" HW, 1/2" HWR, (2) 3/4" PW, 1-1/4" LG, & 1-1/4" LV POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR HWR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" #116151AC, SET TO 3 GPM.
- 2" TW, 1-1/2" ICW, 1-1/2" HW, 3/4" HWR, 1-1/4" PW, 2" LG, 1-1/4" LV, & 1-1/4" PWR UP TO LEVEL 2. SEE P2.2.3 FOR CONT.
- 1-1/4" TW, 1" ICW, 1" HW, 1/2" HWR, (2) 3/4" PW, 1-1/4" LG, & 3/4" LV POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR HWR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" #116151AC, SET TO 3 GPM.
- CONNECT 6" FIRE LINE TO EXISTING 6" STUB-OUT IN TUNNEL. FIELD VERIFY EXISTING PRIOR TO START OF WORK.
- CONNECT NEW 2" CW TO EXISTING 2" CW & ROUTE ABOVE CEILING. FIELD VERIFY EXISTING PRIOR TO START OF WORK.
- 2" CW UP TO LEVEL 2. SEE P2.2.1 FOR CONTINUATION.
- 2" LG DOWN TO BELOW FLOOR / IN CRAWL SPACE.
- 2" LG BELOW FLOOR / IN TUNNEL UNDER BUILDING K TO GAS METER APPROXIMATELY 230' AWAY. PROVIDE VENTED SLEEVE WHERE BURIED PER DETAIL 6P3.2.
- EXISTING GAS METER FOR BUILDING F LOCATED ON EAST EXTERIOR OF BUILDING K. SEE SITE PLAN FOR APPROXIMATE LOCATION. FIELD VERIFY EXACT LOCATION. 320 CFH @ 515' T.W.G. PRESSURE. REPLACE METER IF REQUIRED. COORDINATE WITH SOUTHWEST GAS. TRENCHING & BACKFILL BY CONTRACTOR. COORDINATE WITH SOUTHWEST GAS.
- CONNECT 4" FDC LINE TO EXISTING 4" STUB-OUT IN TUNNEL. FIELD VERIFY EXISTING PRIOR TO START OF WORK.
- EXISTING TUNNEL UNDER BUILDING K. LOCATION OF EXISTING 4" FDC LINE & 6" FIRE LINE FOR NEW CONNECTION. ROUTE NEW 2" G IN TUNNEL TO EAST EXTERIOR OF BUILDING K, APPROXIMATELY 230'. COORDINATE FINAL LOCATION WITH SITE CONDITIONS.
- APPROXIMATE LOCATION OF NEW GAS METER. SEE NOTE #9.
- NORMALLY CLOSED SOV FOR 1-1/4" PW BY-PASS. TYPICAL. SEE LAB DRAWINGS.
- HPG BY SW GAS. TRENCH & BACKFILL BY CONTRACTOR. COORD. WITH SW GAS.



ADD ALTERATE #02  
 NOTE: NATURAL GAS PIPING MAINS IN BASE BID. DISTRIBUTION PIPING TO ALTERNATE AREAS NOT IN BASE BID.



**Plumbing - Reference Site Plan**  
 n.t.s.

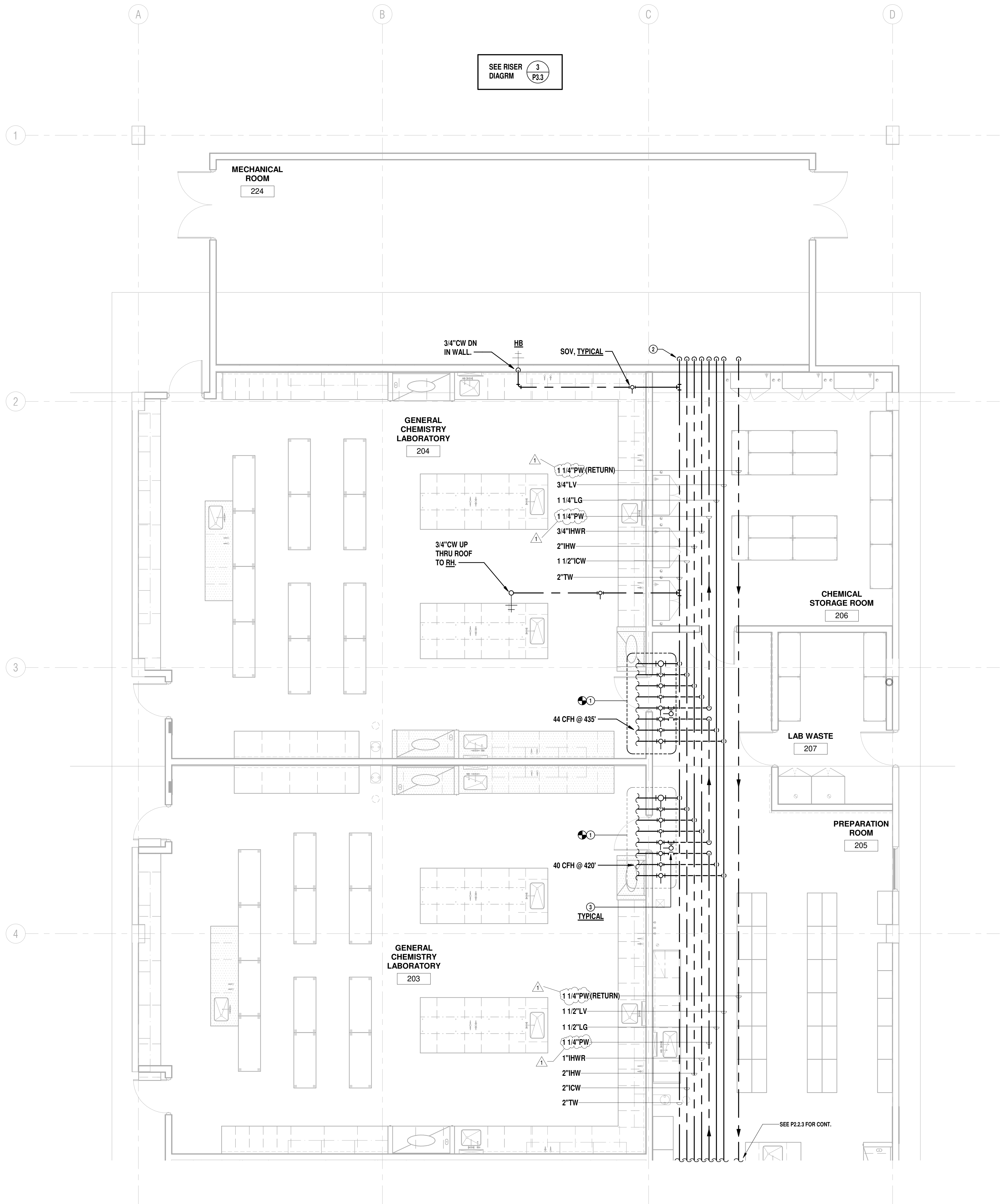
1 Plumbing Plan 1st Floor - B - Water & Gas  
 1/4" = 1'-0"



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**PLUMBING KEYNOTES**

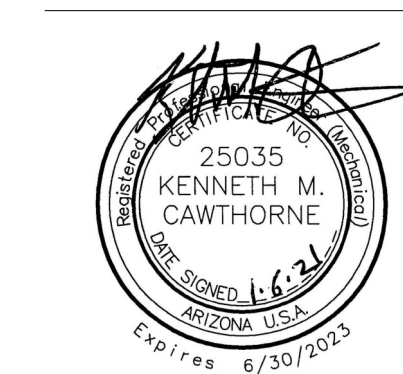
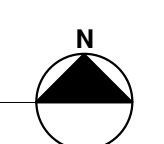
- 1-1/4" TW, 1" ICW, 1" HW, 1/2" HW, (2) 3/4" PW, 3/4" LG, & 1-1/4" LV POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR HWR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" # 116151AC, SET TO 3.5 GPM.
- 2" TW, 1-1/2" ICW, 2" HW, 3/4" HW, 1-1/4" PW, 1-1/4" LG, 3/4" LV, & 1-1/4" PWR DN TO LEVEL 1. SEE P2.2.3 FOR CONT.
- NORMALLY CLOSED SOV FOR 1-1/4" PW BY-PASS. TYPICAL. SEE LAB DRAWINGS.



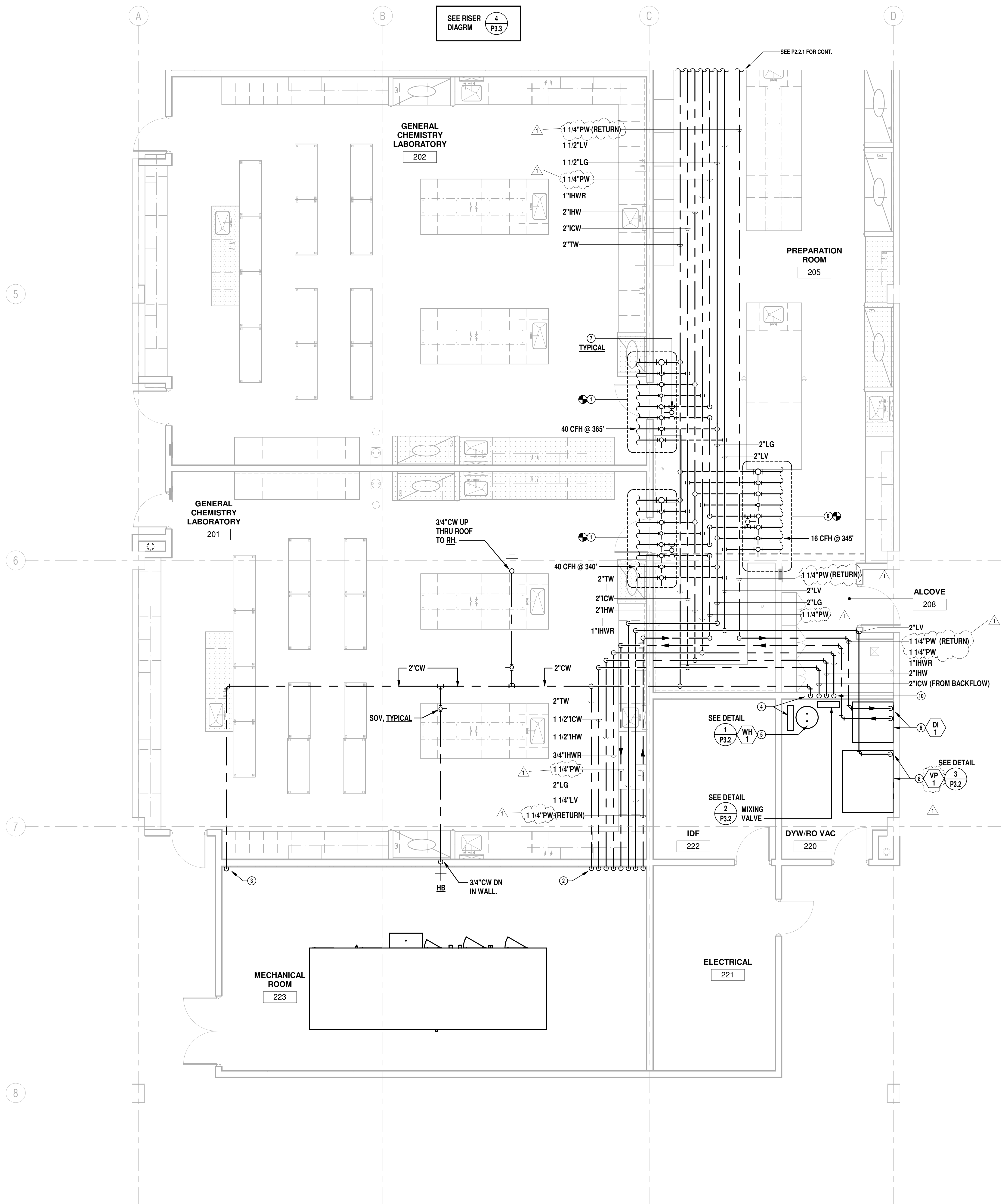
SEE RISER DIAGRAM 3 P2.3

SEE P2.2.3 FOR CONT.

1 Plumbing Plan 2nd Floor - A - Water & Gas  
1/4" = 1'-0"



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**PLUMBING KEYNOTES**

- 1-1/4" TW, 1" ICW, 1" HW, 1/2" HW, (2) 3/4" PW, 3/4" LG, & 1-1/4" LV POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR HWHR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" #116151AC, SET TO 3 GPM.
- 2" TW, 1-1/2" ICW, 1-1/2" HW, 3/4" HW, 1-1/4" PW, 2" LG, 1-1/4" LV, & 1-1/4" PWR UP FROM LEVEL 1. SEE P2.1.3 FOR CONT.
- 2" CW UP FROM LEVEL 1. SEE P2.1.3 FOR CONT.
- 2" CW TO 2" REDUCED PRESSURE BACKFLOW PREVENTER EQUAL OF FERCO #R232V, PROVIDE AIR GAP FITTING AND 3" DRAIN TO EXTERIOR WITH DOWN SPOUT NOZZLE EQUAL OF IR SMITH #171-03. POINT OF SEPARATION TO INDUSTRIAL WATER (IW), FROM BACKFLOW PROVIDE 2" CW TO BUILDING & 1-1/2" ICW TO WATER HEATER & MIXING VALVE. SEE DETAILS 1P3.2 & 2P3.2 FOR CONT.
- WATER HEATER FOR INDUSTRIAL HOT WATER. SEE SCHEDULE.
- 1-1/4" PW & PW RETURN DN TO PURIFIED / DIONIZED WATER SYSTEM WITH FACTORY RECIRCULATION PUMP. INSTALL PER MANUFACTURER'S DETAILS. SEE SCHEDULE.
- NORMALLY CLOSED SOV FOR 1-1/4" PW BY-PASS. TYPICAL. SEE LAB DRAWINGS.
- 2" LV DN TO VACUUM PUMP SYSTEM. SEE SCHEDULE.
- 1-1/4" TW, 1" ICW, 1" HW, 1/2" HW, (2) 1" PW, 1/2" LG, 1" LV, & 1/2" CA. POINT OF CONNECTION FOR LAB EQUIPMENT PIPING. REFER TO LAB PIPING POINT OF CONNECTION SCHEDULE AND LAB PLUMBING DRAWINGS FOR CONTINUATION AND DETAILS. FOR HWHR PROVIDE ADJUSTABLE THERMAL BALANCING VALVE WITH INTEGRAL OUTLET TEMP GAUGE & CHECK EQUAL OF "CALEFF" #116151AC, SET TO 3 GPM.
- 2" CW FROM BACKFLOW, & 2" HW (120) & 1" HW FROM MIXING VALVE UP DN IN WALL FROM MECHANICAL ROOM. SEE DETAILS 1P3.2 & 2P3.2 FOR CONT.

SEE RISER DIAGRAM 4 P3.3

SEE P2.2.1 FOR CONT.

TYPICAL

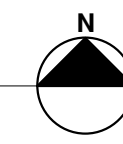
ALCOVE 208

SEE DETAIL 1 WH 1 P3.2

SEE DETAIL 2 MIXING VALVE P3.2

SEE DETAIL 3 VP 1 P3.2

1 Plumbing Plan 2nd Floor - B - Water & Gas  
1/4" = 1'-0"



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**Pima Community College  
PCC West Lab Building F  
Renovation**  
2202 W Anklam Rd, Tucson, AZ 85745



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**JOB NO:** 1931.000  
**DATE:** 01/08/2020  
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**KC MECHANICAL ENGINEERING, L.L.C.**  
5447 East Fifth Street # 112  
Tucson, Arizona 85711  
Designers: Mech: TCB Plumb: MT  
520/327-7611  
520/327-0432  
PROJECT# 19-366

**PLUMBING PLAN - LEVEL 2  
AREA B - WATER & GAS -  
BASE BID**  
**P2.2.3**  
100% CONSTRUCTION DOCUMENTS

**MECHANICAL KEYNOTES**

1. 26"x24" SUPPLY UP THRU FLOOR TO LEVEL 2. SEE M2.2.2 FOR CONTINUATION.
2. TRANSITION TO 24"x22" WITH (2) 24"x16" MITERED ELBOWS.
3. 16"Ø SUPPLY UP THRU FLOOR TO LEVEL 2. SEE M2.2.2 FOR CONTINUATION.
4. 16"x14" RETURN WITH 1" LINER UP. TRANSITION TO 16"x16" WITH 2" LINER THRU FLOOR TO LEVEL 2.
5. 20"Ø EXHAUST DUCT UP THRU LEVEL 2 FLOOR. SEE M2.2.2 FOR CONTINUATION.
6. 18"Ø EXHAUST DUCT UP THRU LEVEL 2 FLOOR. SEE M2.2.2 FOR CONTINUATION.
7. 12"Ø EXHAUST DUCT UP THRU LEVEL 2 FLOOR. SEE M2.2.2 FOR CONTINUATION.
8. 12"Ø EXHAUST DUCT DOWN TO 6" FVH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
9. 12"Ø EXHAUST DUCT DOWN TO 6" FVH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
10. 10"Ø EXHAUST DUCT DOWN TO 4"CFH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
11. 6"Ø DOWN IN WALL CHASE TO BASE CABINET CHASE. 6"Ø IN BASE CABINET CHASE TO VACUUM PUMP CABINET EXHAUST CONNECTION. REFER TO LABORATORY FURNISHINGS DETAIL. BALANCE TO 100 CFM.
12. 6"Ø MANUAL DAMPER, 6"Ø REDUCE TO 4"Ø EXHAUST SNORKEL CONNECTION. REFER TO LABORATORY FURNISHINGS DETAIL. BALANCE TO 60 CFM.
13. 2"Ø SCHEDULE 80 PVC/CPVC EXHAUST DUCT DOWN TO TALL CORROSIVE STORAGE CABINET. REFER TO LABORATORY FURNISHINGS DRAWINGS.
14. PROVIDE DRYER WALL BOX WITH 4"Ø DRYER VENT.
15. 4"Ø DRYER VENT UP IN WALL AND UP THRU LEVEL 2 FLOOR. SEE M2.2.2 FOR CONTINUATION.
16. 1"Ø VENT UP FROM PRESSURE RELIEF VALVE TO ABOVE CEILING.
17. 1"Ø VENT UP IN WALL AND UP THRU LEVEL 2 FLOOR. SEE M2.2.2 FOR CONTINUATION.
18. SUPPLY DUCT STATIC PRESSURE SENSOR FOR AHU-1.1.

**bws ARCHITECTS**

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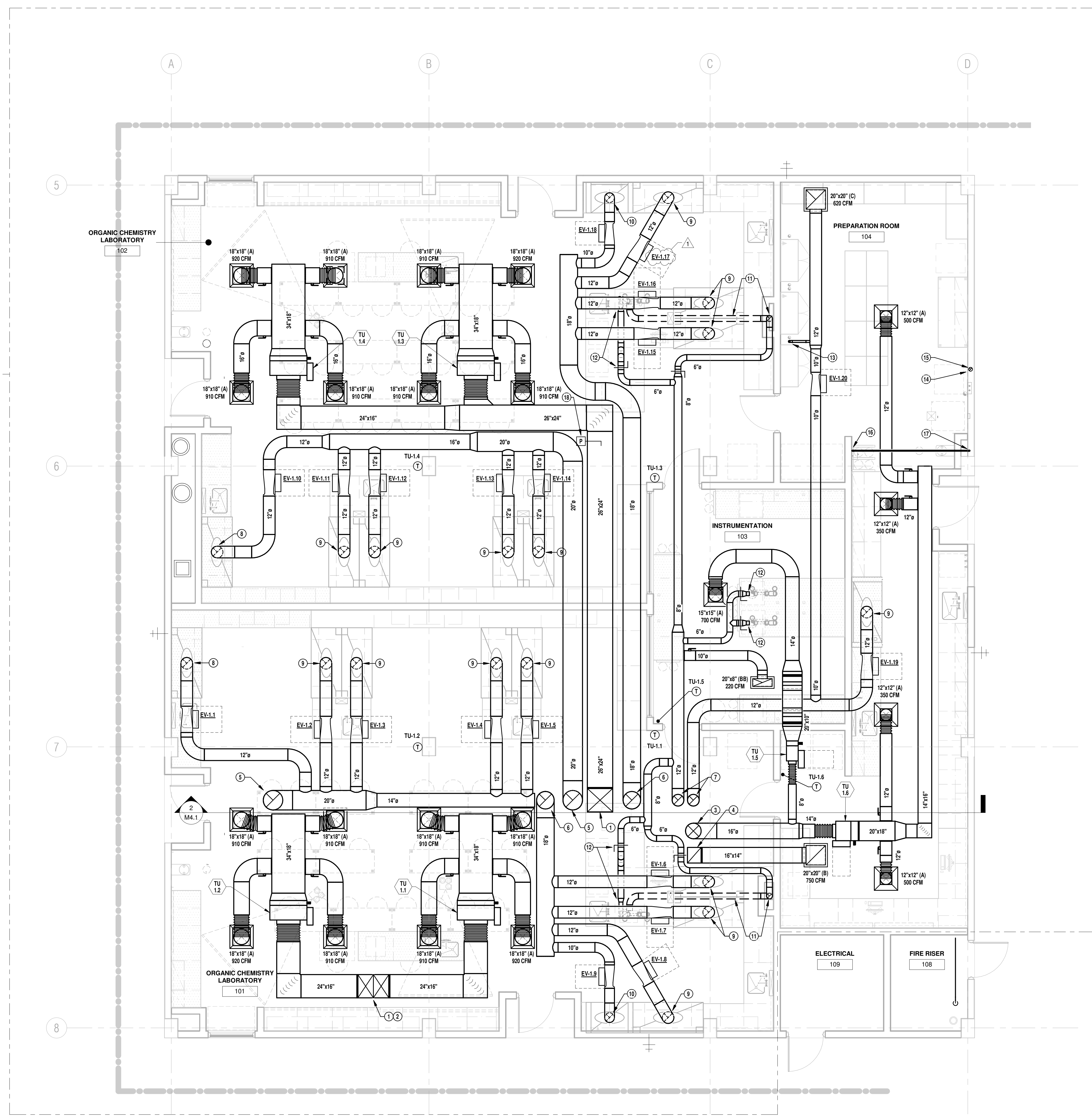
**ELECTRICAL**  
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 Phone: 520.884.0045

**Pima Community College  
 PCC West Lab Building F  
 Renovation**  
 2202 W Anklam Rd, Tucson, AZ 85745



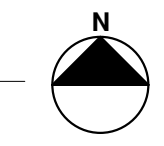
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**JOB NO:** 1931.000  
**DATE:** 01/08/2020  
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**MECHANICAL PLAN - LEVEL 1 AREA B**  
**M2.1.2**  
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ADD ALTERATE #02

1 Mechanical Plan 1st Floor - B  
 1/4" = 1'-0"



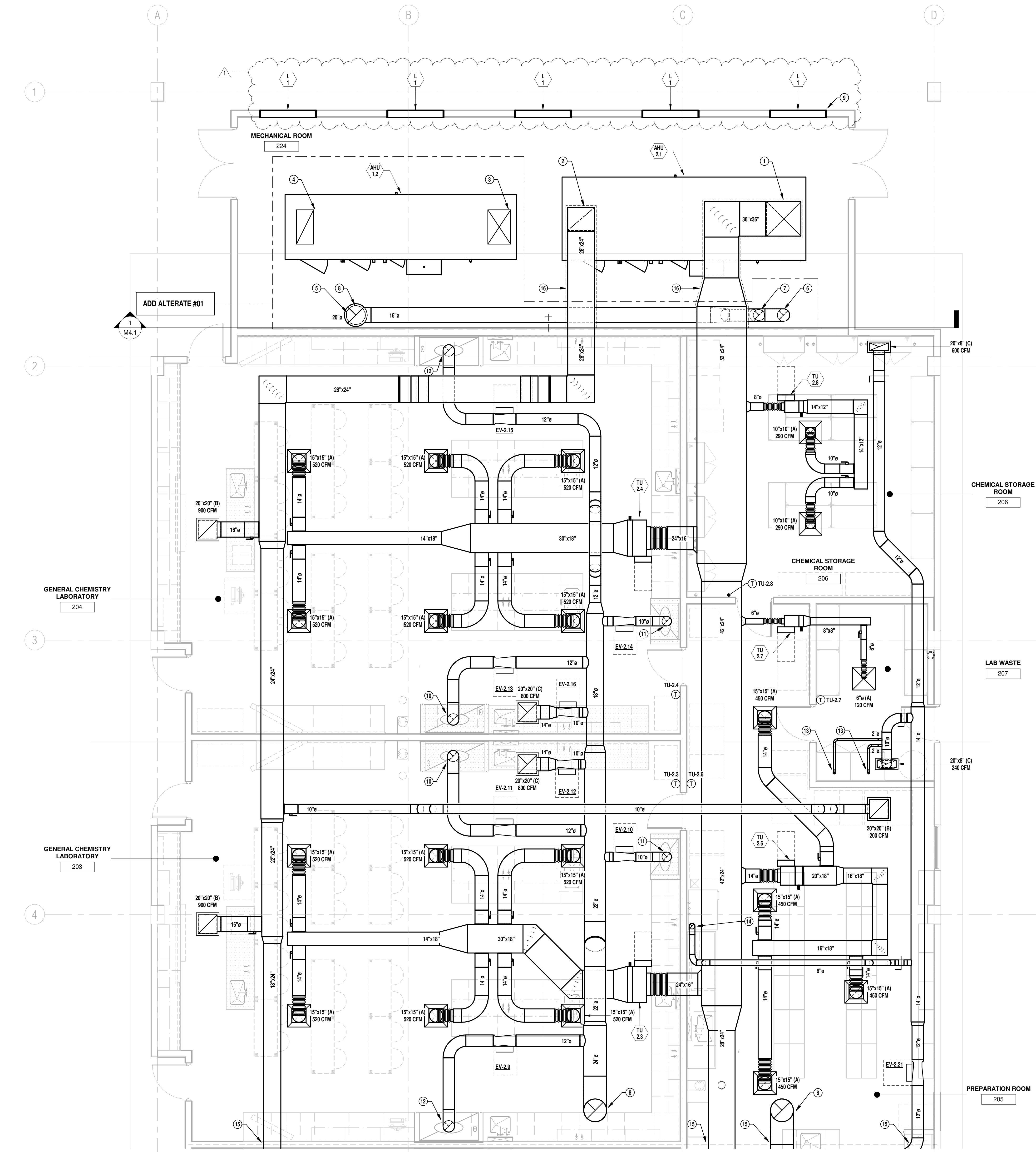
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 5447 East Fifth Street # 112  
 Tucson, Arizona 85711  
 Designers: Mech: TCB Plumb: MT  
 520/327-7611  
 520/327-0432  
 PROJECT# 19-366

**MECHANICAL KEYNOTES**

1. 36"x36" SUPPLY UP FROM UNIT. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
2. 28"x24" RETURN UP FROM UNIT. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
3. 36"x24" SUPPLY DOWN FROM UNIT AND THRU FLOOR TO LEVEL 1. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
4. 36"x18" RETURN DOWN FROM UNIT AND THRU FLOOR TO LEVEL 1. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
5. 20"x8" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.1 FOR CONTINUATION.
6. 12"x8" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.1 FOR CONTINUATION.
7. 12"x8" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.1 FOR CONTINUATION.
8. 24"x8" EXHAUST DUCT THRU ROOF. SEE M2.1.1 FOR CONTINUATION.
9. ACOUSTIC WALL LOUVERS FOR OUTSIDE AIR INTAKE. REFER TO LOUVER SCHEDULE. INSTALL BOTTOM OF LOUVER AT 12'-0" ABOVE FINISHED FLOOR. SEE ARCHITECTURAL DRAWINGS.
10. 12"x8" EXHAUST DUCT DOWN TO 6" ACFH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
11. 10"x8" EXHAUST DUCT DOWN TO 4" ACFH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
12. 12"x8" EXHAUST DUCT DOWN TO 6" CFH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
13. 2"x8" EXHAUST DUCT DOWN TO VENTED STORAGE CABINET. REFER TO LABORATORY FURNISHINGS DRAWINGS.
14. 6"x8" EXHAUST DUCT DOWN TO TALL GLASSWARE WASHER. REFER TO LABORATORY FURNISHINGS DRAWINGS. BALANCE TO 60 CFM.
15. SEE M2.2.3 FOR CONTINUATION.
16. PROVIDE MINIMUM R8 INSULATION FOR SUPPLY AND RETURN AIR CONDITIONING DUCT IN MECHANICAL ROOM.

NOTE: THE AIRFLOWS SHOWN ON THIS PLAN FOR CEILING EXHAUST AIR DEVICES ARE WITH ALL LAB HOODS AT THEIR MINIMUM AIRFLOW (CLOSED SASH POSITION). REFER TO EXHAUST VALVE SCHEDULE AND CONTROL SEQUENCE OF OPERATION.



1 Mechanical Plan 2nd Floor - A  
1/4" = 1'-0"

**bws ARCHITECTS**  
 BURNS WALD-HOPKINS SHAMBACH ARCHITECTS  
 26 North Court Avenue  
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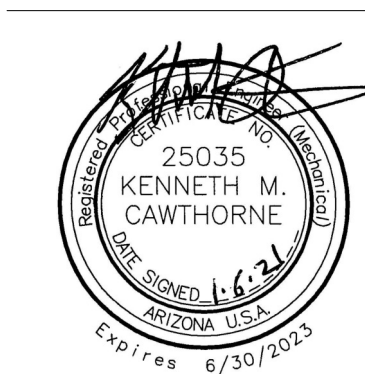
**ELECTRICAL**  
 Monrad Engineering, Inc.  
 1520 E. Fairway  
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 Phone: 520.327.7611

**LABORATORY**  
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 San Diego, CA 92103-3192  
 Phone: 619.297.0169

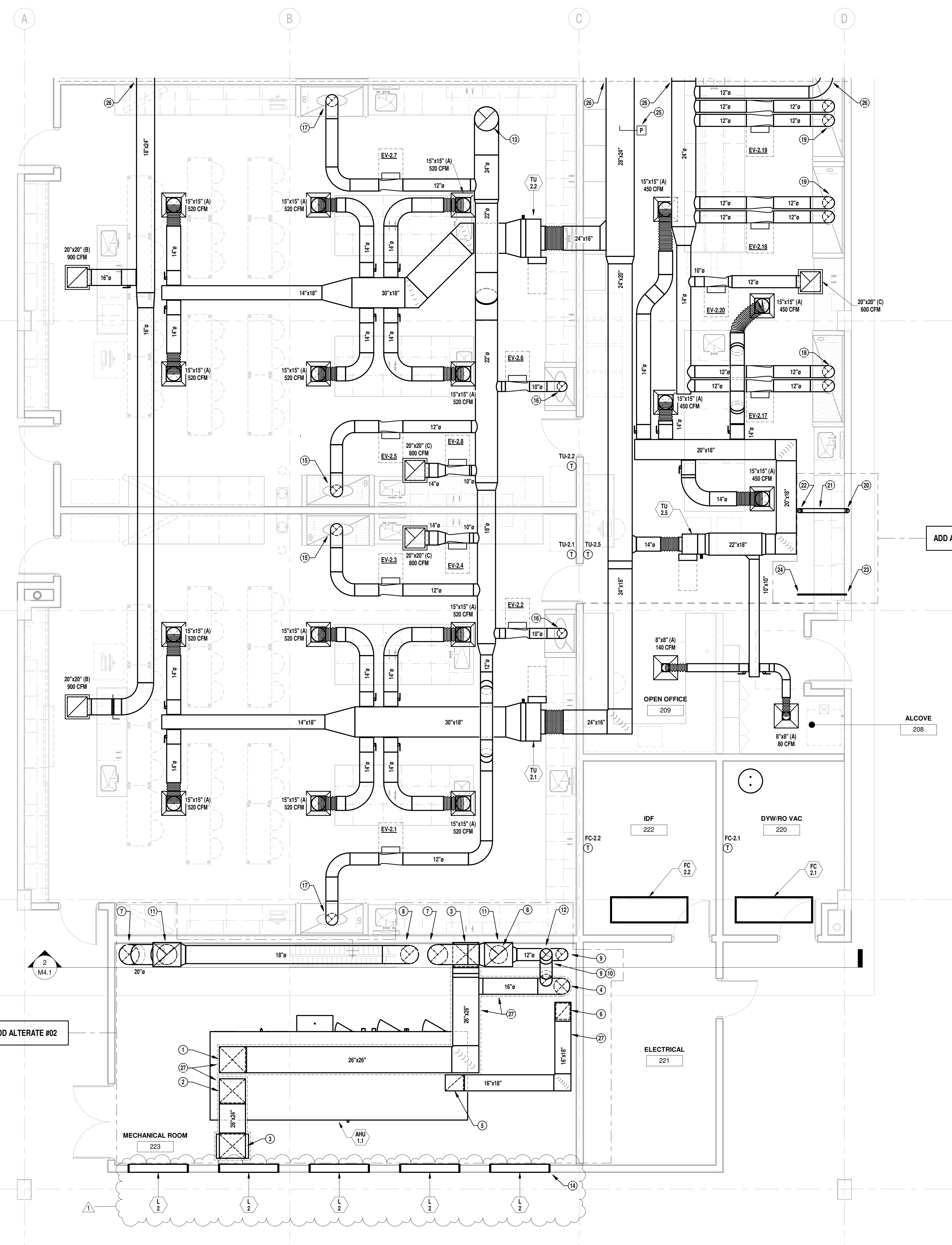
**CONSULTANTS**  
**Pima Community College**  
**PCC West Lab Building F**  
**Renovation**  
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**DATE:** 01/08/2020  
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**MECHANICAL PLAN - LEVEL 2 AREA A**  
**M2.2.1**  
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 Tucson, Arizona 85711  
 Designers: Mech: TCB Plumb: MT  
 520/327-7611  
 520/327-0432  
 PROJECT# 19-366



**MECHANICAL KEYNOTES**

- 26"x26" SUPPLY UP FROM UNIT. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
- 26"x24" SUPPLY UP FROM UNIT. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
- 26"x24" SUPPLY DOWN THRU FLOOR TO LEVEL 1. SEE M2.2 FOR CONTINUATION.
- 18"x8" SUPPLY DOWN THRU FLOOR TO LEVEL 1. SEE M2.2 FOR CONTINUATION.
- 15"x18" RETURN WITH 2" LINER UP FROM UNIT. PROVIDE FLEXIBLE DUCT CONNECTION AT UNIT.
- 16"x18" RETURN WITH 2" LINER DOWN THRU FLOOR TO LEVEL 1. SEE M2.1.2 FOR CONTINUATION.
- 20" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.2 FOR CONTINUATION.
- 18" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.2 FOR CONTINUATION.
- 12" EXHAUST DUCT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.2 FOR CONTINUATION.
- 12" EXHAUST DUCT OFFSET AS REQUIRED TO AVOID OTHER DUCTS.
- 26"x24" EXHAUST DUCT THRU ROOF. SEE M2.3.2 FOR CONTINUATION.
- 12" EXHAUST DUCT THRU ROOF. SEE M2.3.2 FOR CONTINUATION.
- 24" EXHAUST DUCT THRU ROOF. SEE M2.3.2 FOR CONTINUATION.
- ACUSTIC WALL LOUVERS FOR OUTSIDE AIR INTAKE. REFER TO LOUVER SCHEDULE. INSTALL BOTTOM OF LOUVER AT 12" ABOVE FINISHED FLOOR. SEE ARCHITECTURAL DRAWINGS.
- 18" EXHAUST DUCT DOWN TO 6" ACPH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
- 12" EXHAUST DUCT DOWN TO 6" ACPH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
- (2) 12" EXHAUST DUCT DOWN TO 8" ACPH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
- (2) 12" EXHAUST DUCT DOWN TO 8" ACPH CHEMICAL FUME HOOD. REFER TO LABORATORY FURNISHINGS DRAWINGS.
- 4" DRYER VENT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.2. AND UP IN WALL TO ABOVE CEILING.
- 4" DRYER VENT OFFSET WITH 45° FITTINGS.
- 4" DRYER VENT UP THRU ROOF. SEE M2.3.2 FOR CONTINUATION.
- 1" VENT UP THRU FLOOR FROM LEVEL 1. SEE M2.1.2. AND UP IN WALL TO ABOVE CEILING.
- 1" VENT UP THRU ROOF. SEE M2.3.2 FOR CONTINUATION.
- SUPPLY DUCT STATIC PRESSURE SENSOR FOR AHU-2.
- SEE M2.2.1 FOR CONTINUATION.
- PROVIDE MINIMUM R8 INSULATION FOR SUPPLY AND RETURN AIR CONDITIONING DUCT IN MECHANICAL ROOM.

NOTE: THE AIRFLOWS SHOWN ON THIS PLAN FOR CEILING EXHAUST AIR DEVICES ARE WITH ALL LAB HOODS AT THEIR MINIMUM AIRFLOW (CLOSED SASH POSITION). REFER TO EXHAUST VALVE SCHEDULE AND CONTROL SEQUENCE OF OPERATION.

ADD ALTERATE #02

FAN COIL UNIT SCHEDULE (HYDRONIC)		
MARK	FC-2.1	FC-2.2
SUPPLY AIR (CFM)	1200	1200
MINIMUM TOTAL COOLING CAPACITY (MBH)	33	33
MINIMUM SENSIBLE COOLING CAPACITY (MBH)	30	30
ENTERING AIR TEMPERATURE (DB/WB)	78/63	78/63
ENTERING CHILLED WATER TEMPERATURE (DEG. F)	45	45
CHILLED WATER FLOW RATE (GPM)	8	8
MAXIMUM COIL PRESSURE DROP (FT.)	10	10
DRIVE TYPE	DIRECT	DIRECT
FAN MOTOR HP	1/6	1/6
VOLTS/PHASE/HZ	115/1/60	115/1/60
UNIT MCA	4.8	4.8
UNIT MOCP	15	15
MAXIMUM OPERATING WEIGHT (LBS.)	200	200
REFERENCE	CARRIER	CARRIER
	42CG12B	42CG12B
NOTES	1 THRU 4	1 THRU 4

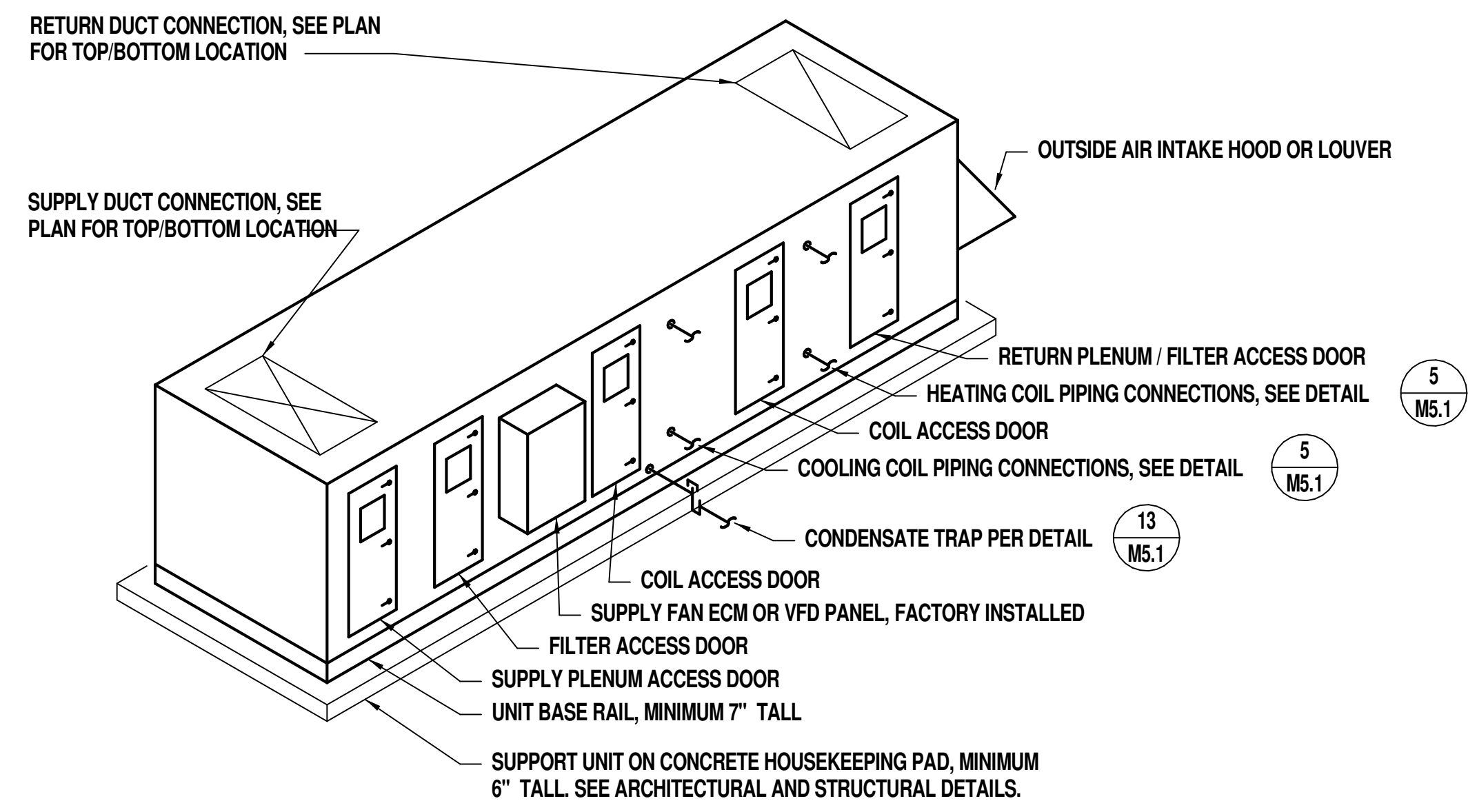
AIR DEVICE SCHEDULE		
MARK	L-1	L-2
QUANTITY	5	5
SERVICE	AIR INTAKE	AIR INTAKE
TYPE	ACOUSTIC	ACOUSTIC
	LOUVER	LOUVER
MINIMUM STC RATING	12	12
FINISH	AAMA 2604	AAMA 2604
AIRFLOW (CFM)	3740	3250
MAX PRESSURE DROP (IN. WG)	0.025	0.025
MINIMUM FREE AREA (SQ. FT.)	7.5	7.5
LOUVER SIZE (W X H IN.)	60 x 60	60 x 60
REFERENCE	GREENHECK	GREENHECK
	AFJ-801	AFJ-801
NOTES	1 THRU 5	1 THRU 5

- CAPACITY SCHEDULED SHALL BE FOR 2500 FT. ELEVATION
- PROVIDE UNIT COMPLETE WITH FAN, COOLING COIL AND CEILING CABINET WITH INTEGRAL BOTTOM RETURN GRILLE AND FRONT SUPPLY GRILLE.
- PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
- DISCONNECT MEANS TO BE PROVIDED BY ELECTRICAL.

1 Mechanical Plan 2nd Floor - B  
1/4" = 1'-0"



**DRAWN BY:** TCB  
**JOB NO:** 1931.000  
**DATE:** 01/08/2020  
**REVISIONS**

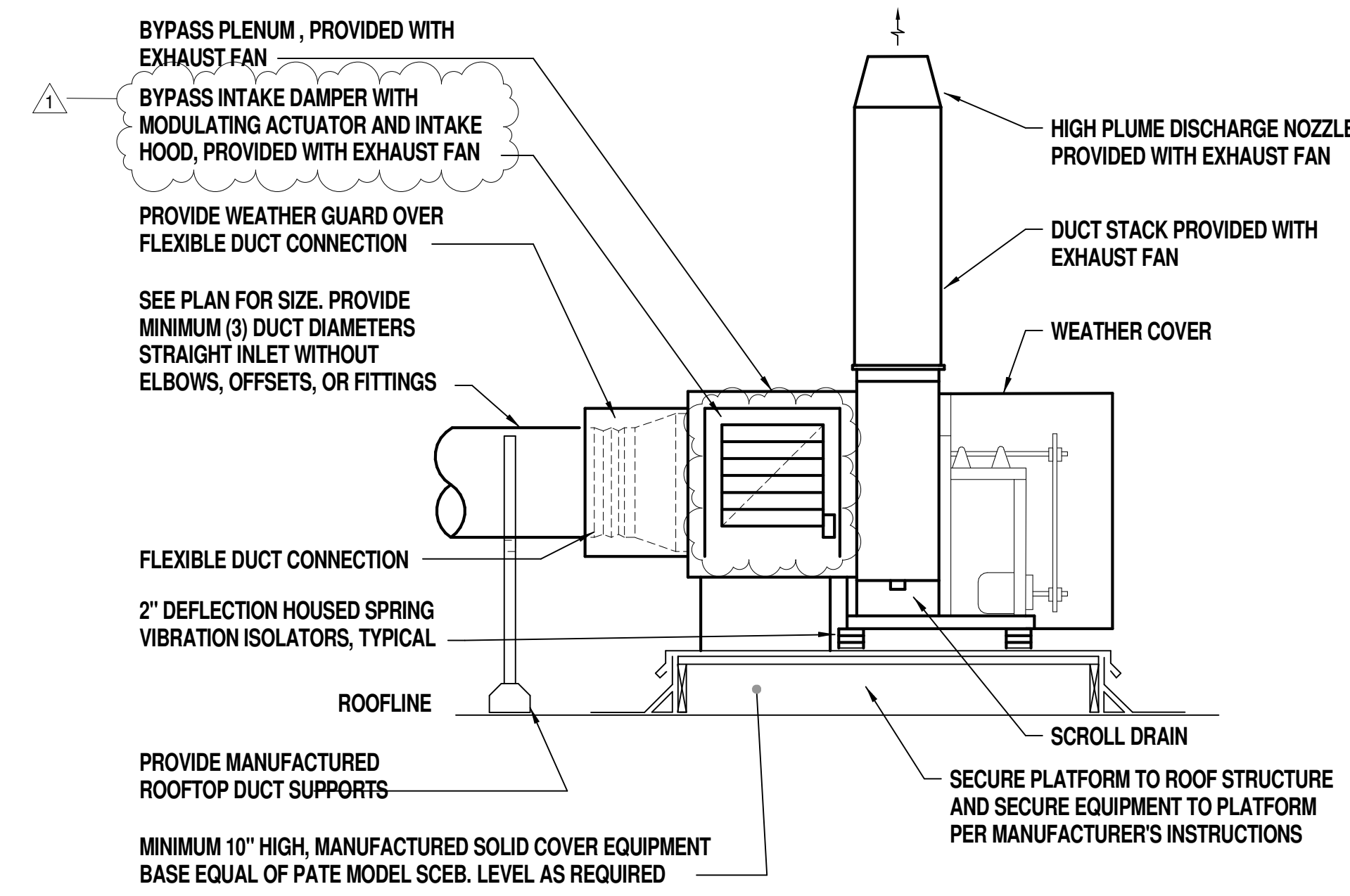


- NOTE:
1. INSULATE ALL CHWS/R & HWS/R PIPING PER SPECIFICATIONS.
  2. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN PIPING IN MECHANICAL ROOM.
  3. PROVIDE MANUAL DRAINS AT ALL LOW POINTS IN PIPING IN MECHANICAL ROOM.
  4. LABEL ALL PIPING WITH STENCIL PAINTED PIPE MAKERS. INCLUDE ARROW INDICATING DIRECTION OF FLOW.
  5. PROVIDE FLEXIBLE DUCT CONNECTIONS AT UNIT AND TRANSITION TO DUCT SIZES SHOWN ON PLANS.

**INDOOR AIR HANDLING UNIT DETAIL**

NO SCALE

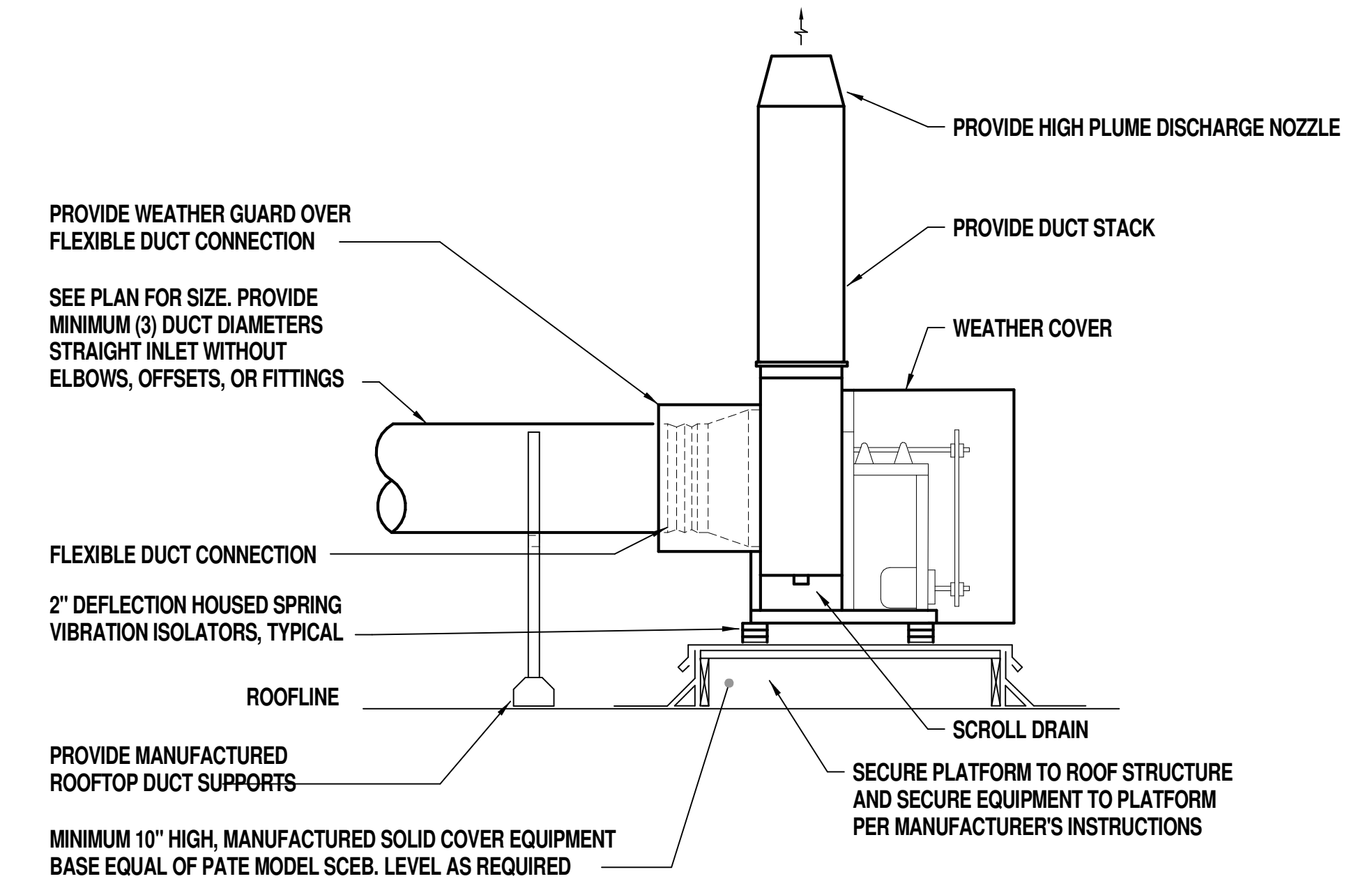
M5.1



**UTILITY SET EXHAUST FAN WITH BYPASS DETAIL**

NO SCALE

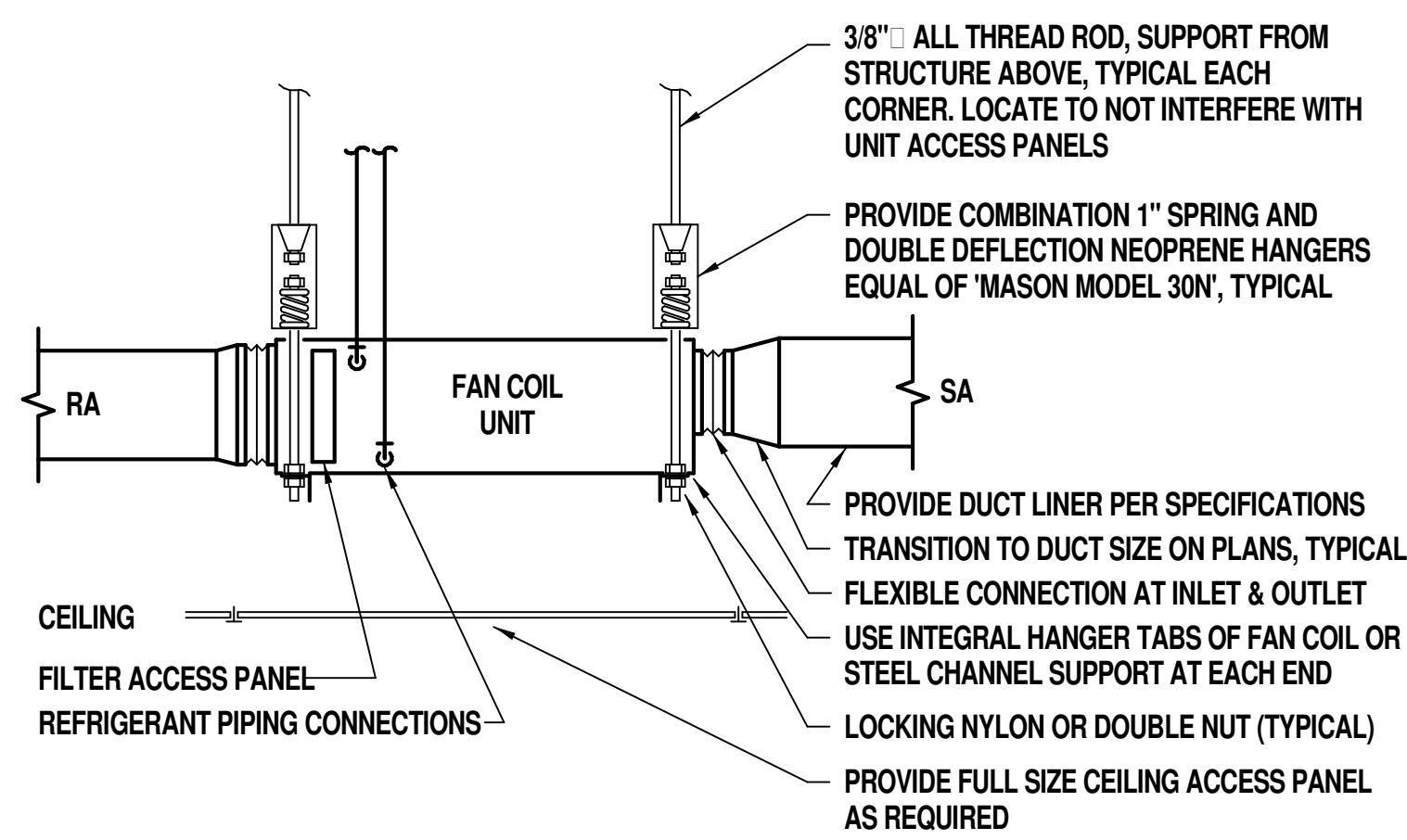
M5.1



**UTILITY SET EXHAUST FAN DETAIL**

NO SCALE

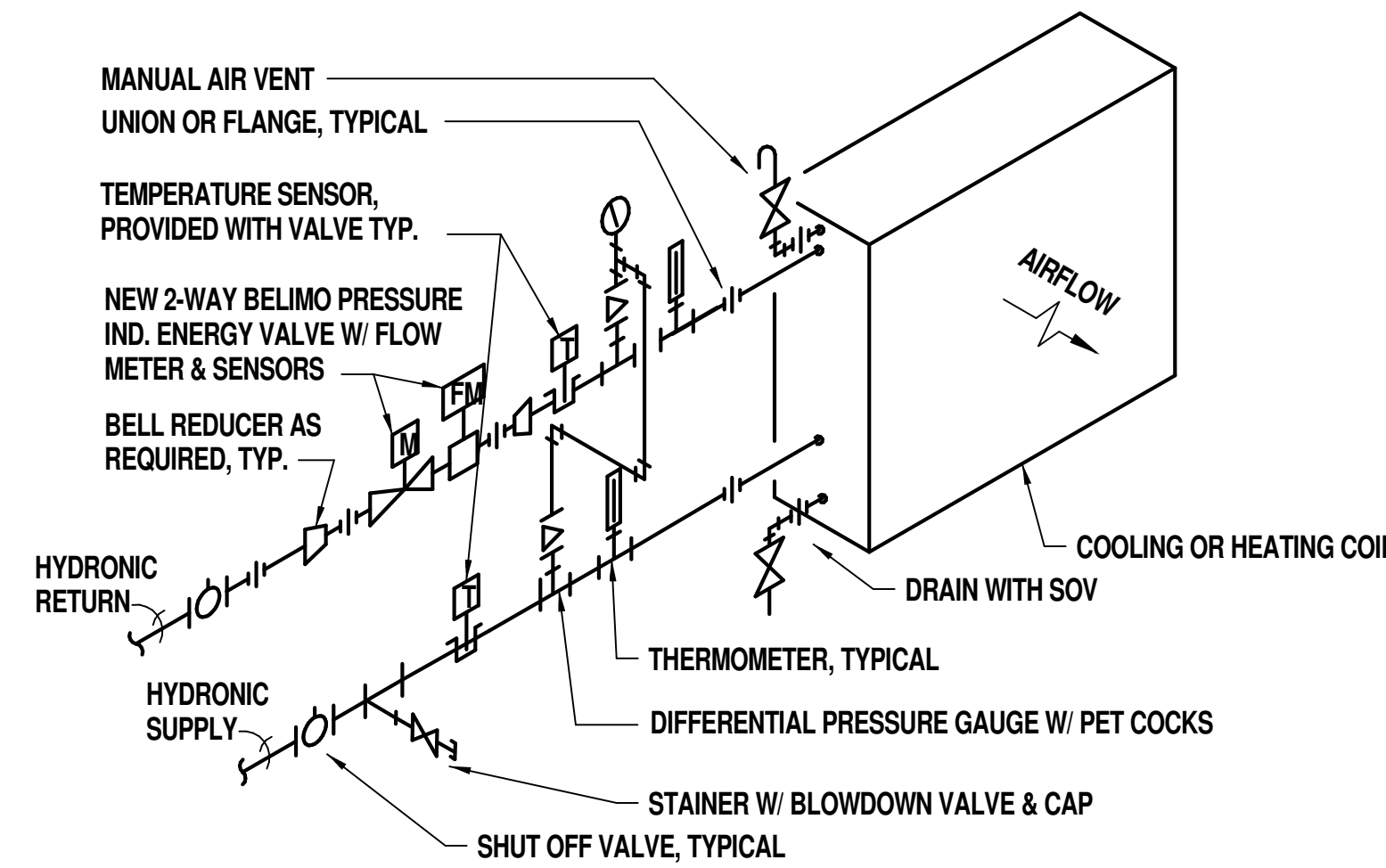
M5.1



**DUCTED FAN COIL DETAIL**

NO SCALE

M5.1

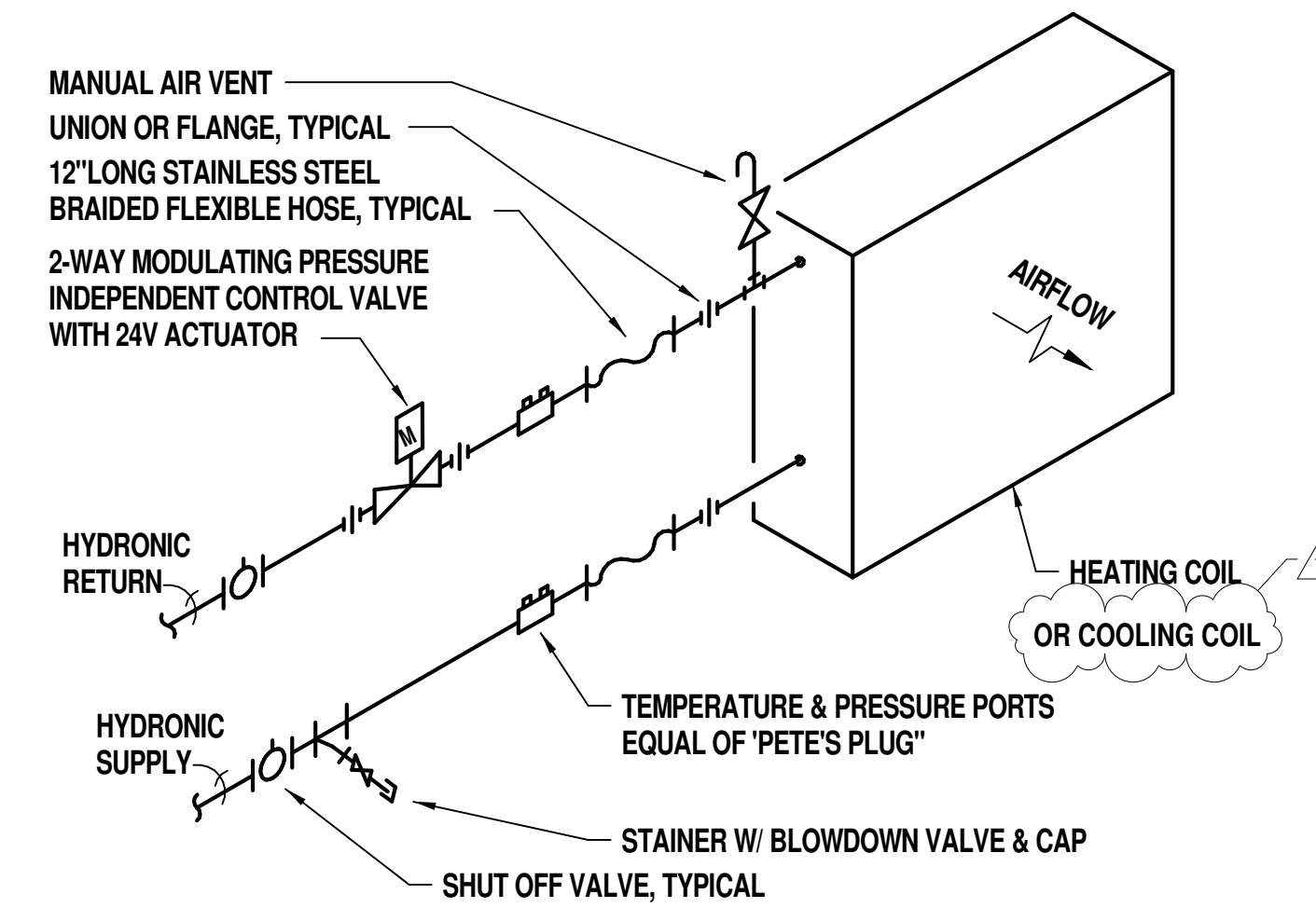


- NOTE:
1. ALL VALVES, CONTROL VALVE AND ACCESSORIES SHALL BE LOCATED IN ADJACENT TO AHU.
  2. UNIONS SHALL BE LOCATED IMMEDIATELY ADJACENT TO CONTROL VALVE.

**PRESSURE INDEPENDENT 2-WAY VALVE COIL SCHEMATIC (AHU)**

NO SCALE

M5.1

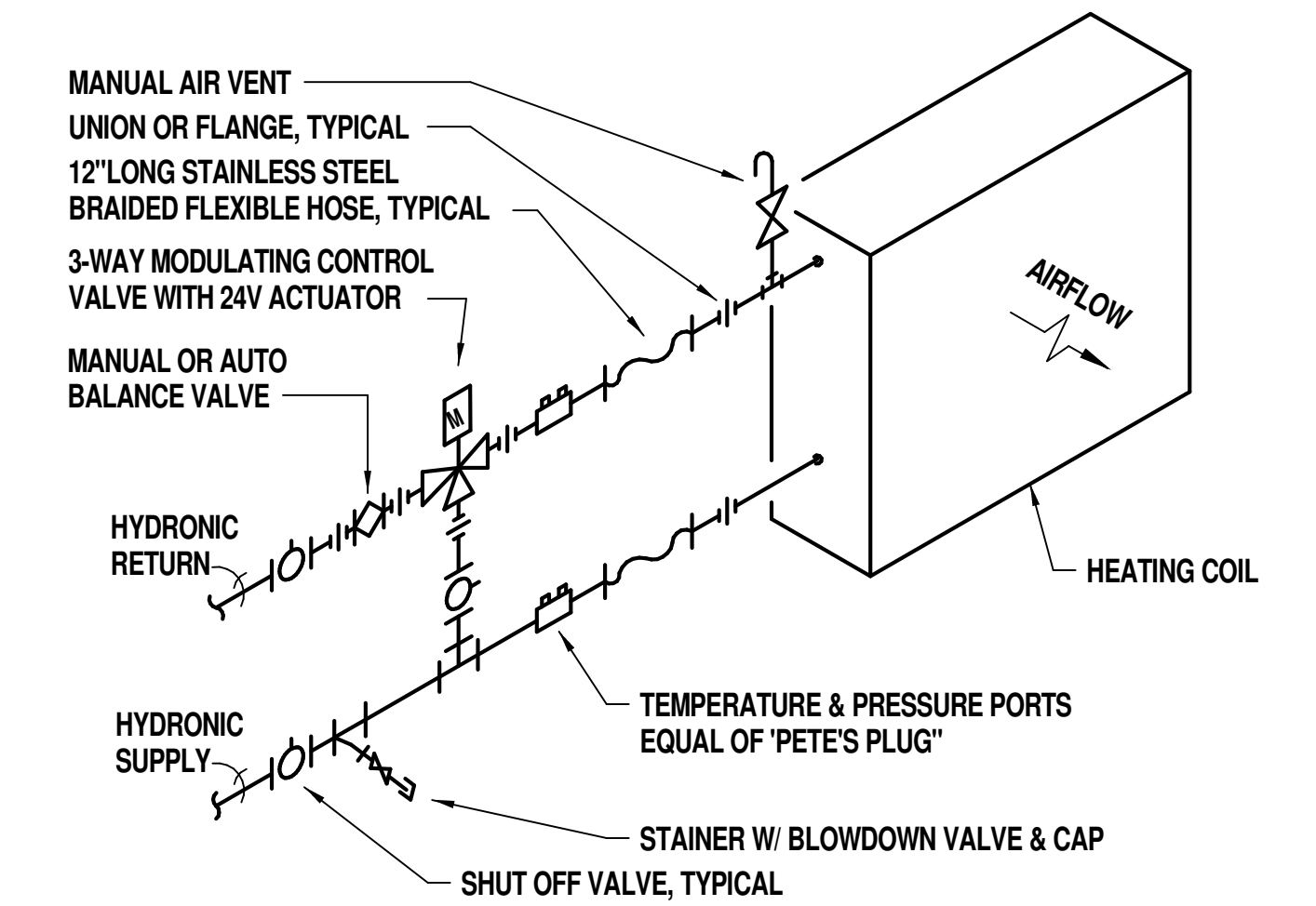


- NOTE:
1. ALL VALVES, CONTROL VALVE AND ACCESSORIES SHALL BE LOCATED WITHIN 24" OF UNIT.
  2. UNIONS SHALL BE LOCATED IMMEDIATELY ADJACENT TO CONTROL VALVE.

**PRESSURE INDEPENDENT 2-WAY VALVE COIL SCHEMATIC (REHEAT COIL)**

NO SCALE

M5.1

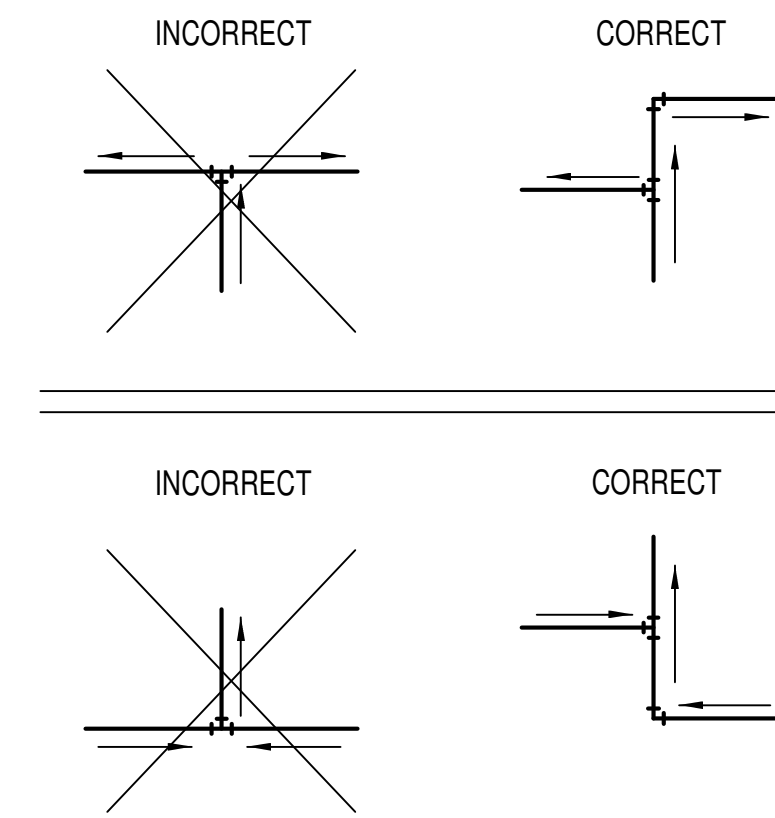


- NOTE:
1. ALL VALVES, CONTROL VALVE AND ACCESSORIES SHALL BE LOCATED WITHIN 24" OF UNIT.
  2. UNIONS SHALL BE LOCATED IMMEDIATELY ADJACENT TO CONTROL VALVE.
  3. SEE PLANS AND 3-WAY VALVE LOCATIONS/QUANTITIES.

**3-WAY VALVE COIL SCHEMATIC (REHEAT COIL)**

NO SCALE

M5.1

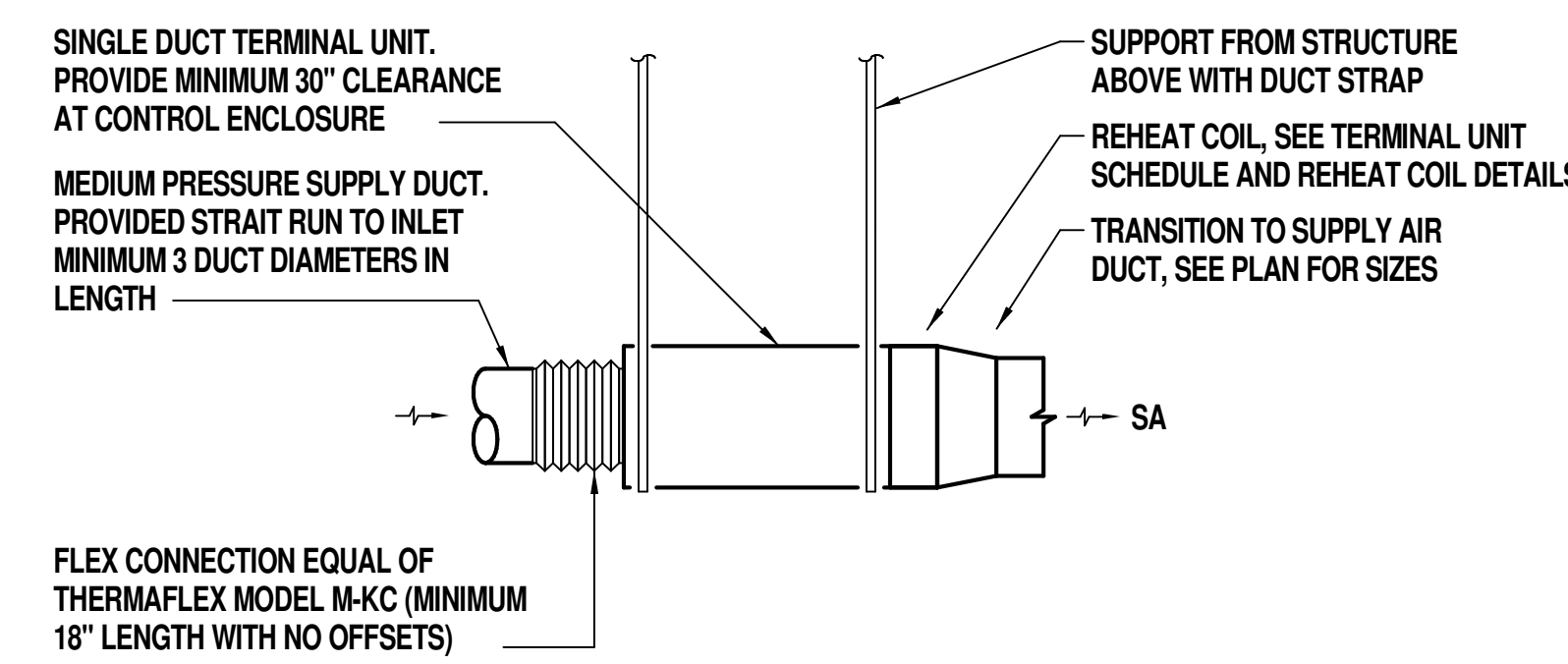


NOTE: BULLHEAD TEES IN PIPING ARE NOT ALLOWED

**BRANCH PIPING SCHEMATIC**

NO SCALE

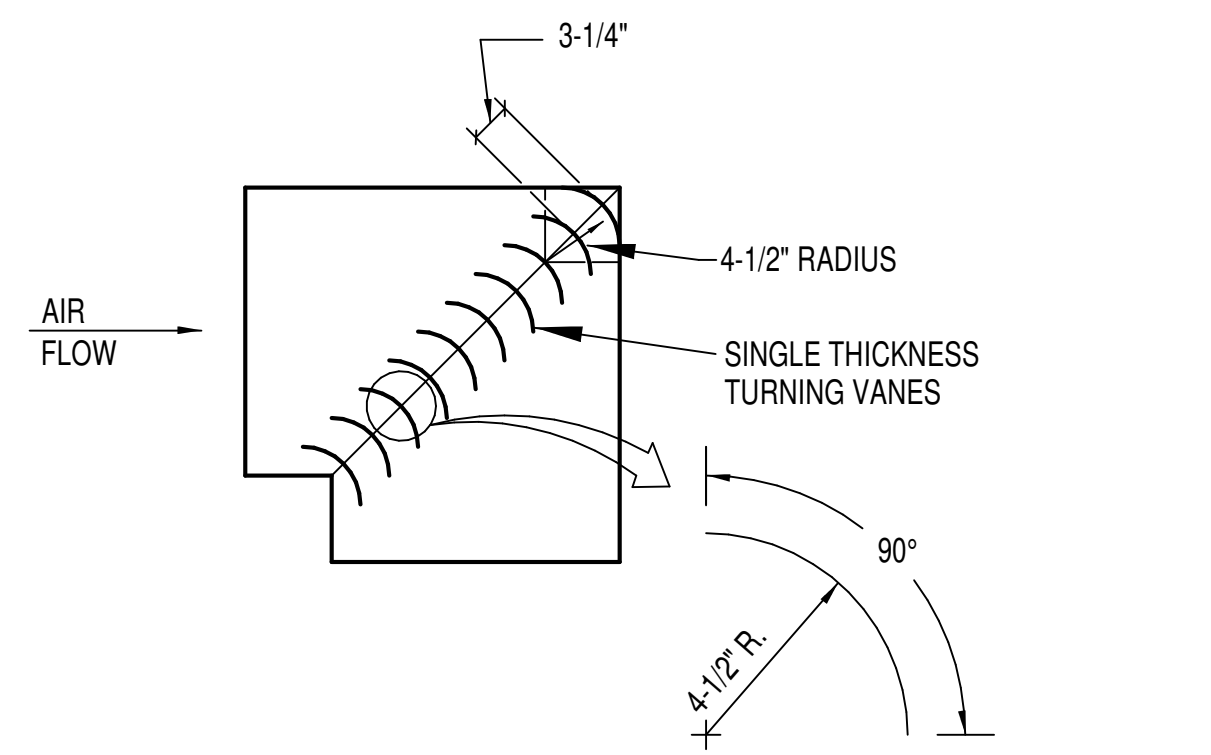
M5.2



**SINGLE DUCT TERMINAL UNIT DETAIL**

NO SCALE

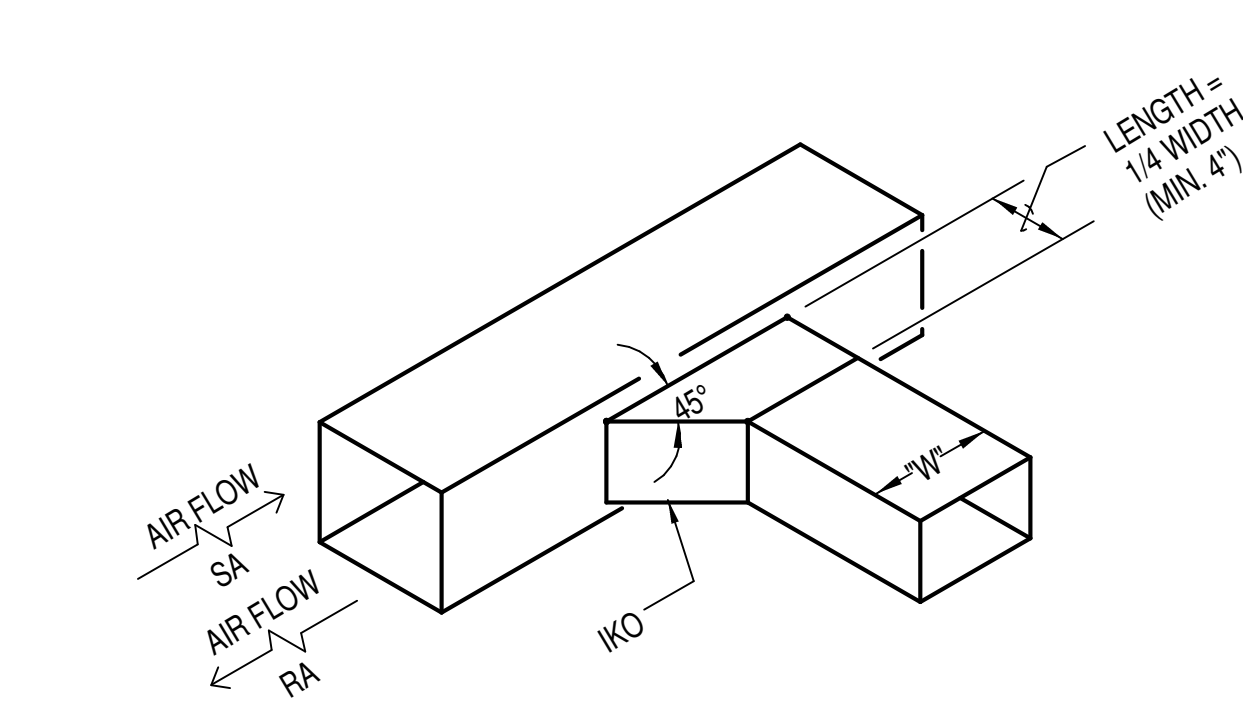
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**MITER ELBOW WITH TURNING VANES DETAIL**

NO SCALE

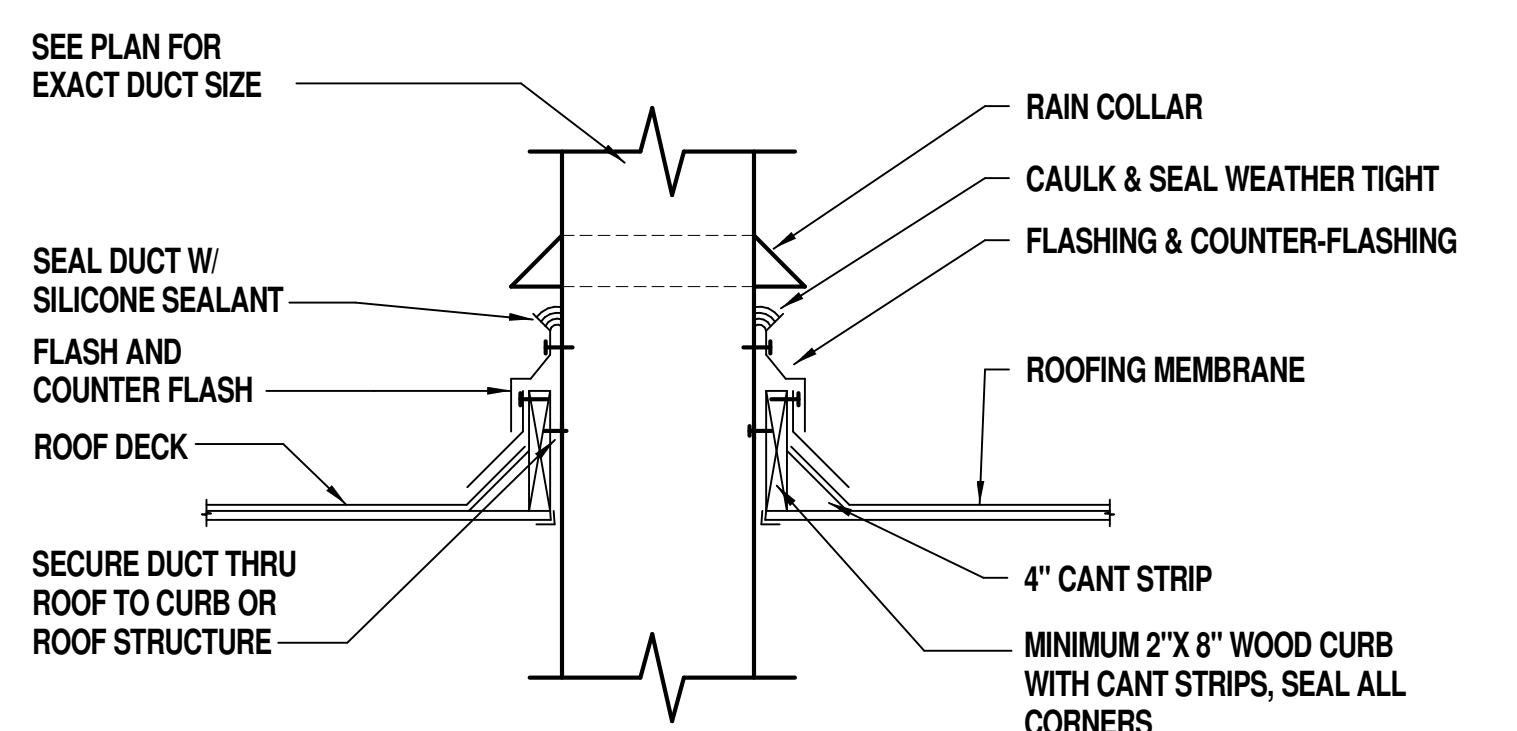
M5.1



**DUCT TAKE-OFF DETAIL**

NO SCALE

M5.1

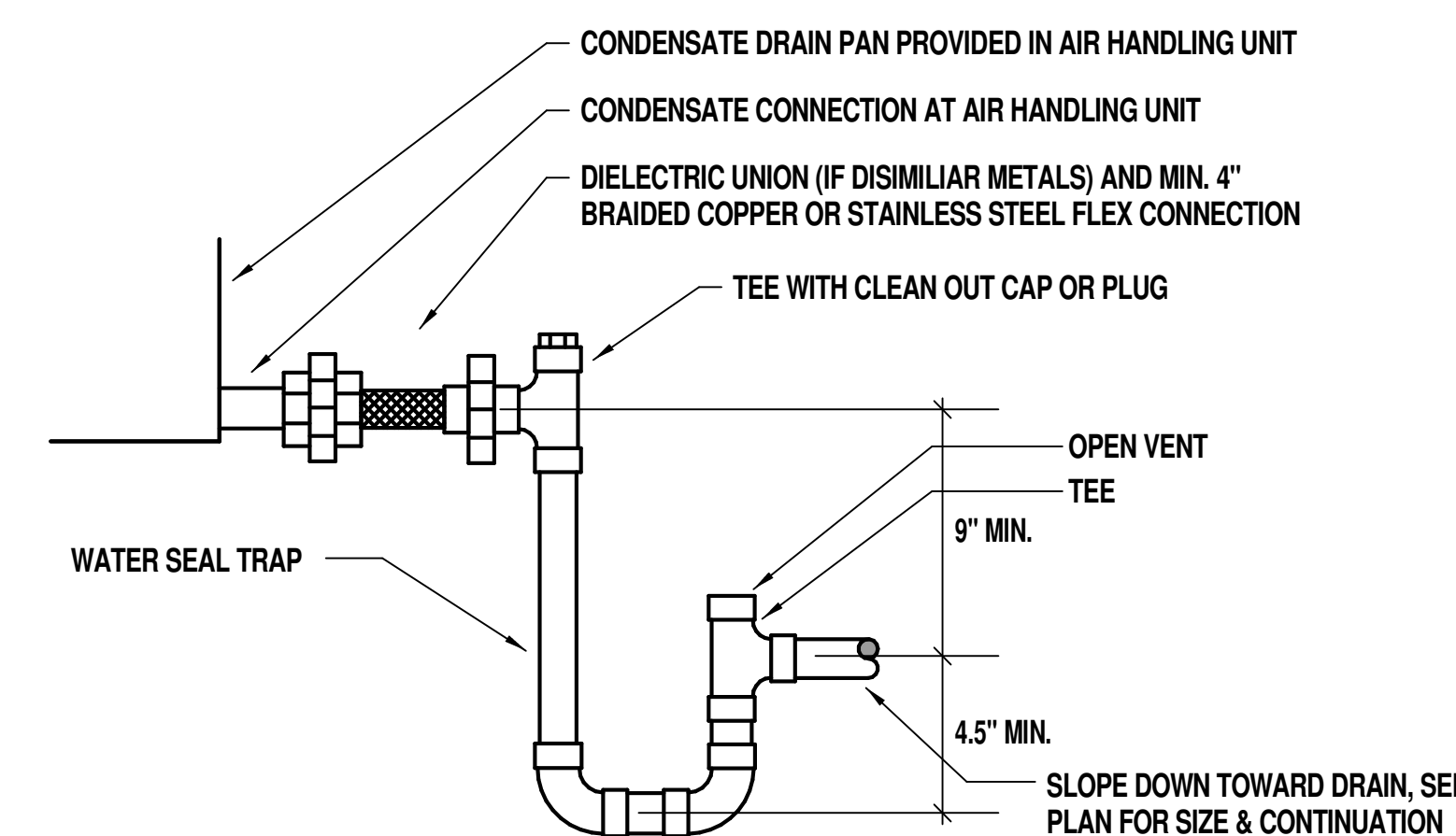


NOTE: CONTRACTOR MAY PROVIDE A FACTORY BUILT DUCT CURB IN LIEU OF THIS DETAIL

**DUCT THRU ROOF DETAIL**

NO SCALE

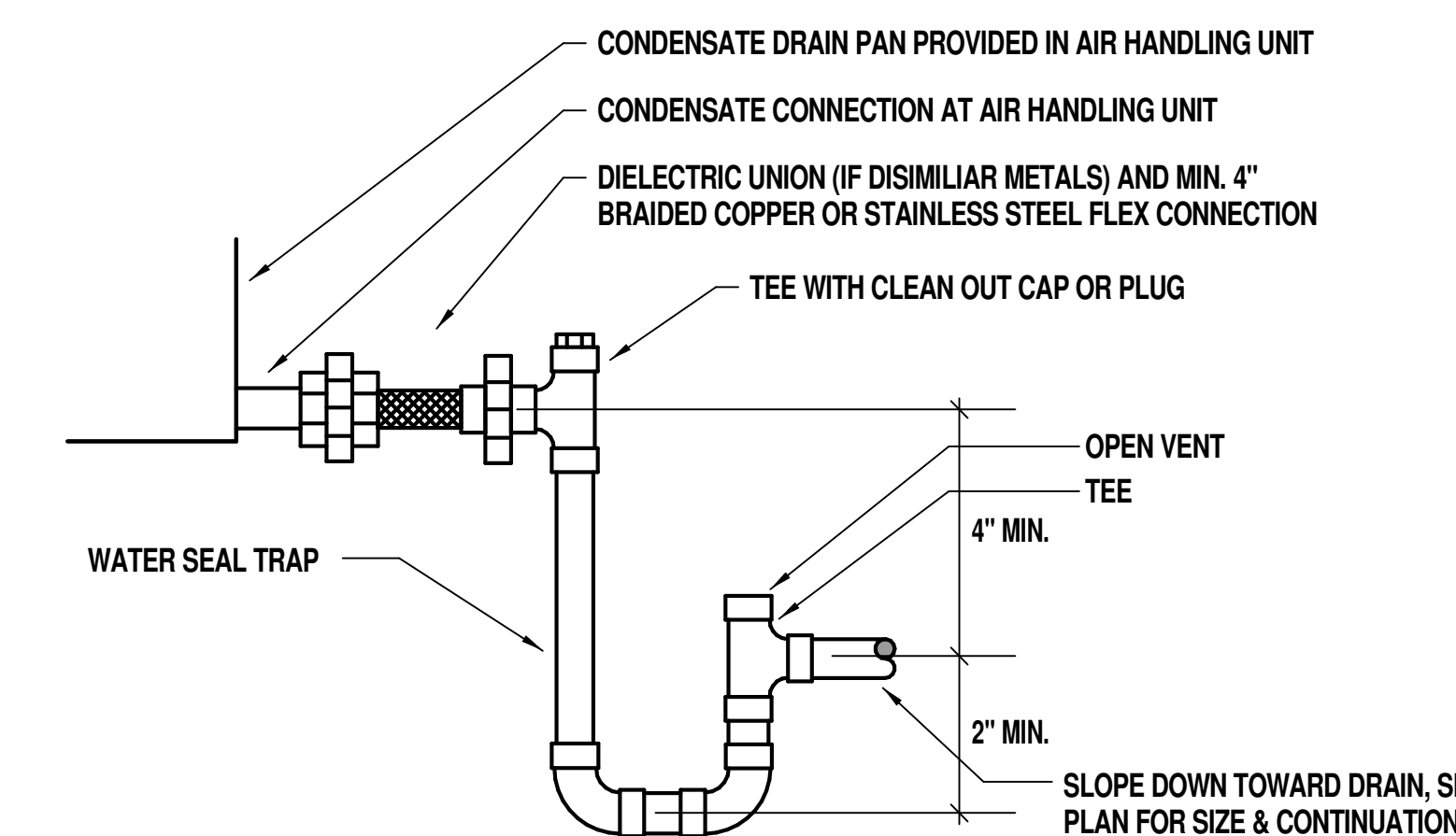
M5.1



**AIR HANDLING UNIT CONDENSATE TRAP DETAIL**

NO SCALE

M5.1

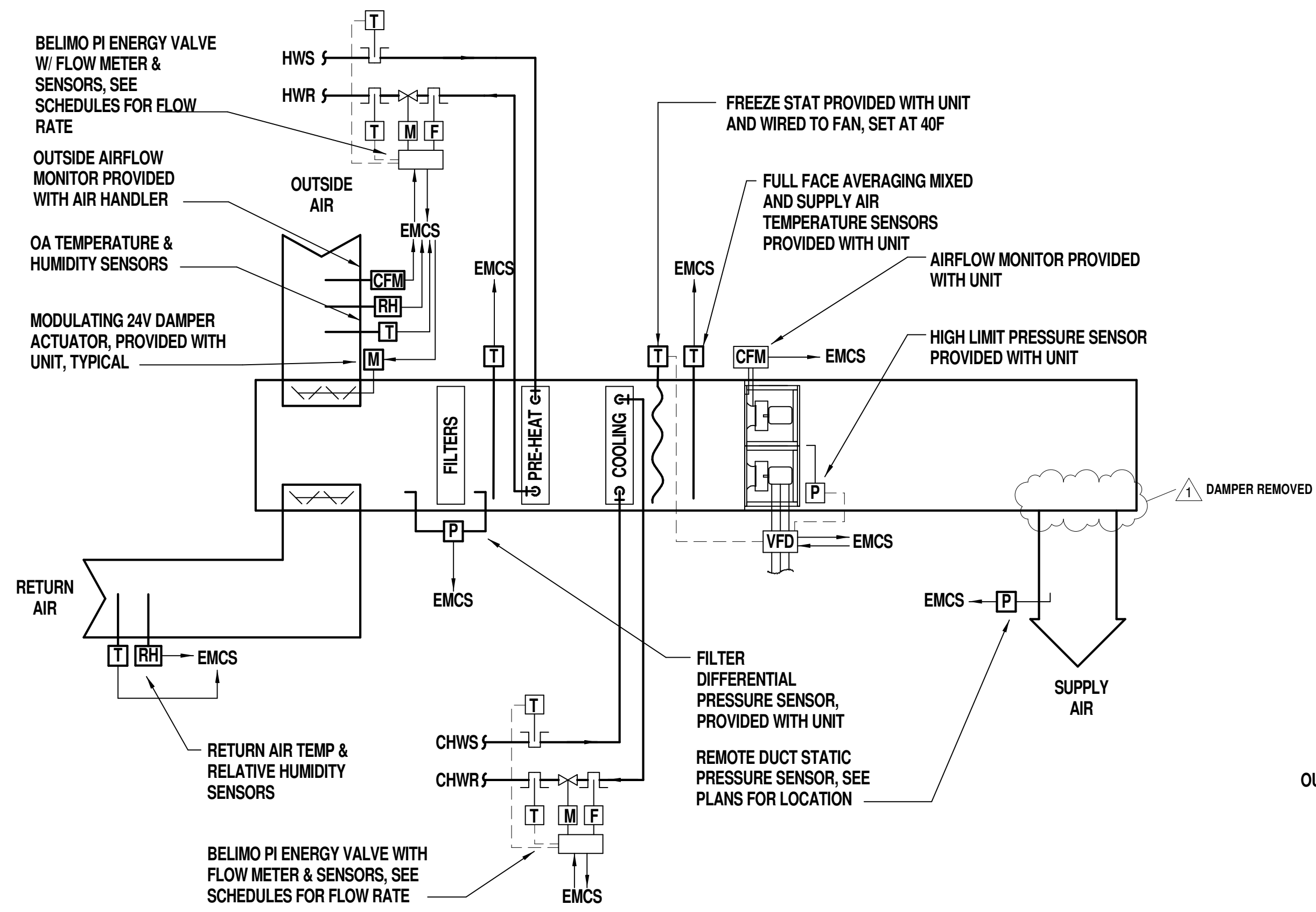


**FAN COIL UNIT CONDENSATE TRAP DETAIL**

NO SCALE

M5.1

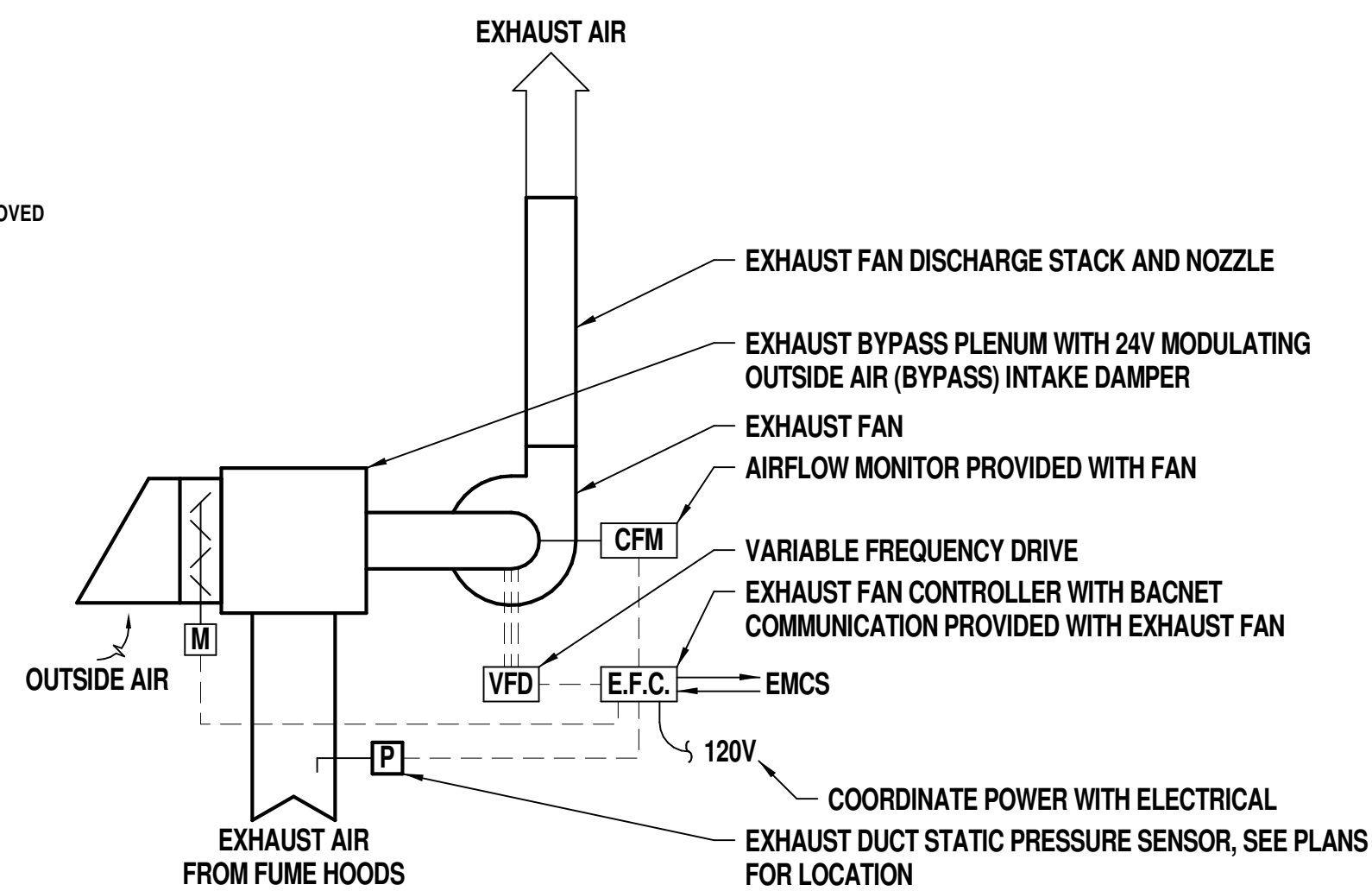




**AIR HANDLER UNIT CONTROL DIAGRAM**

NO SCALE

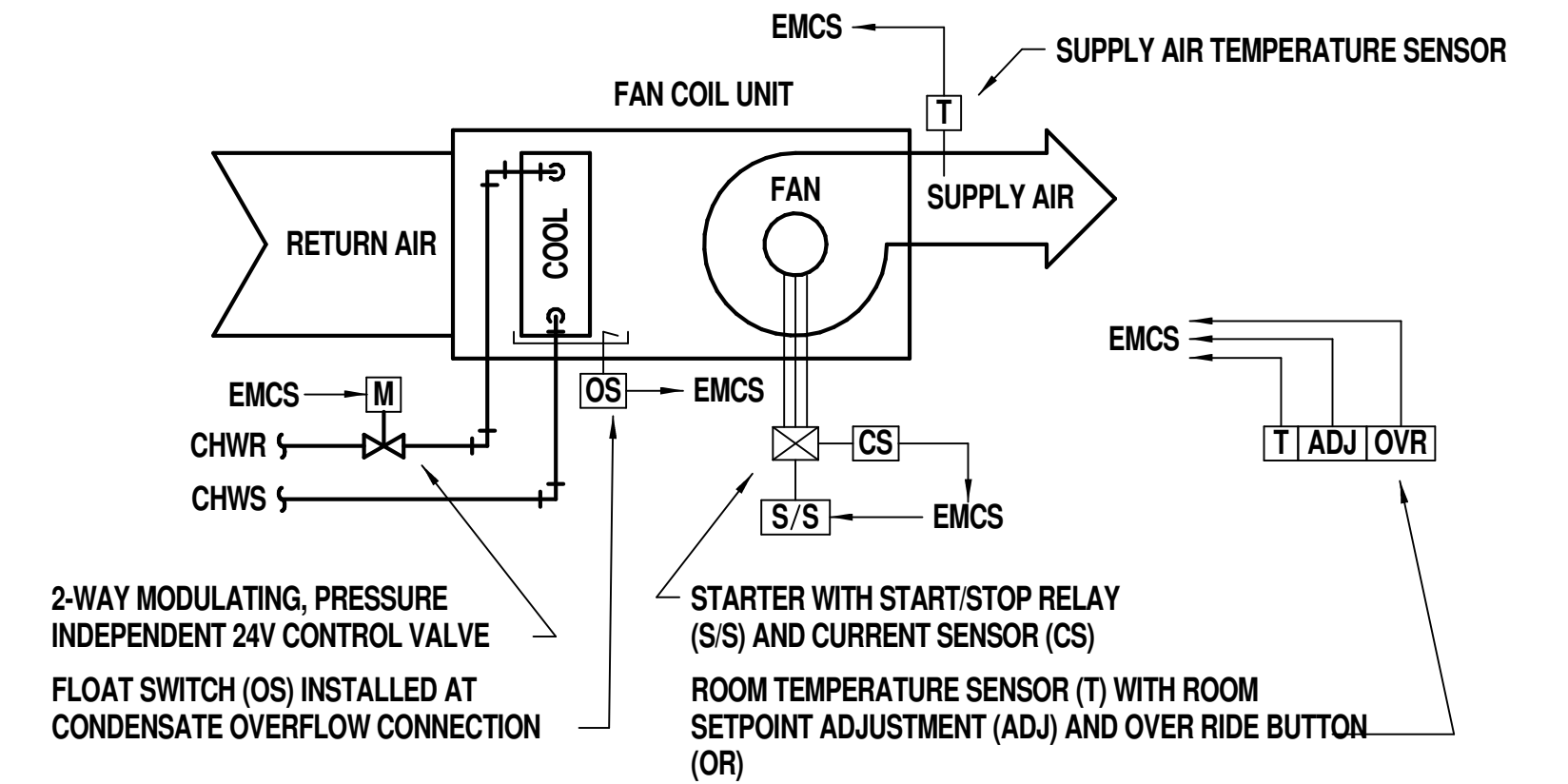
1  
M6.1



**LAB EXHAUST FAN CONTROL SCHEMATIC**

NO SCALE

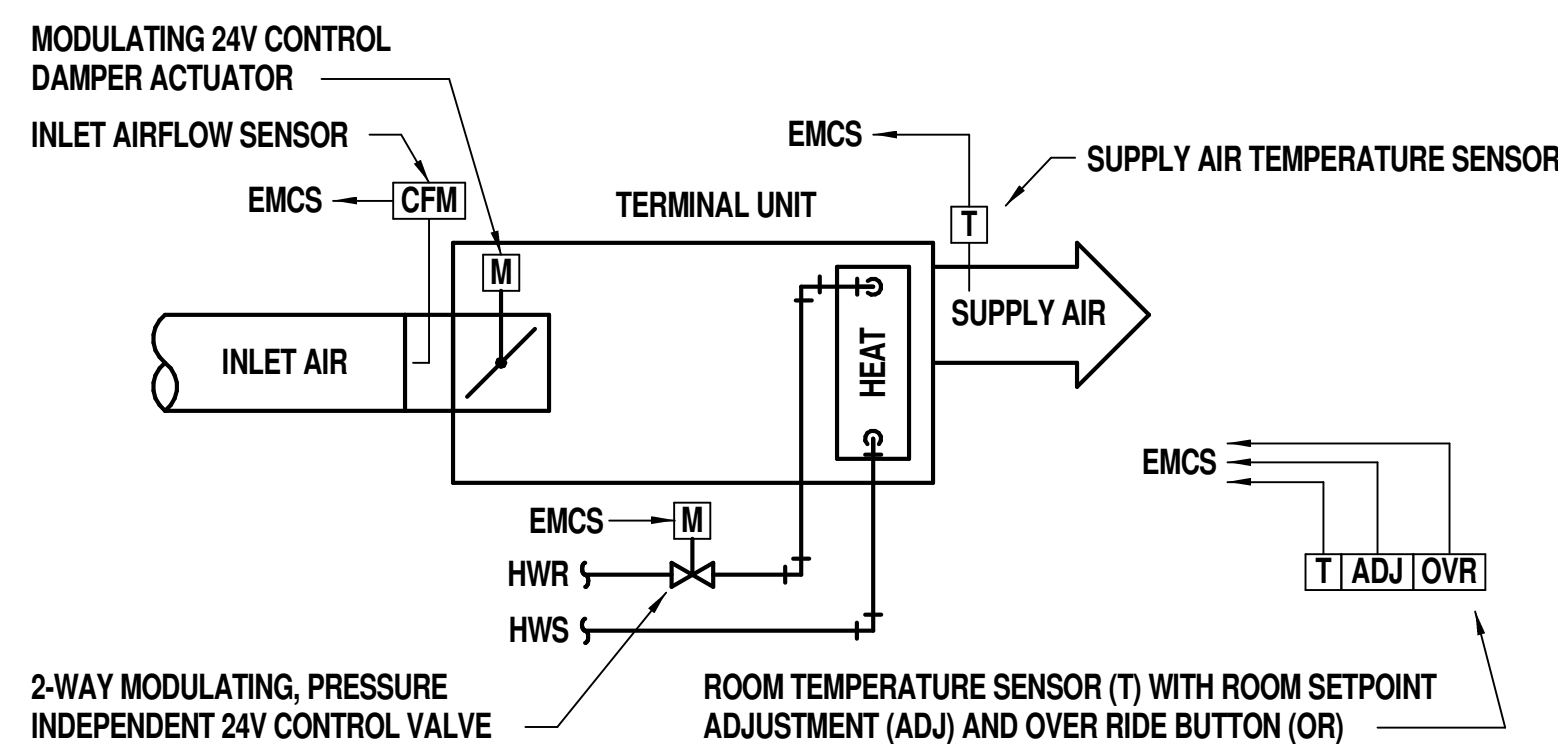
4  
M6.1



**FAN COIL UNIT CONTROL SCHEMATIC**

NO SCALE

7  
M6.1



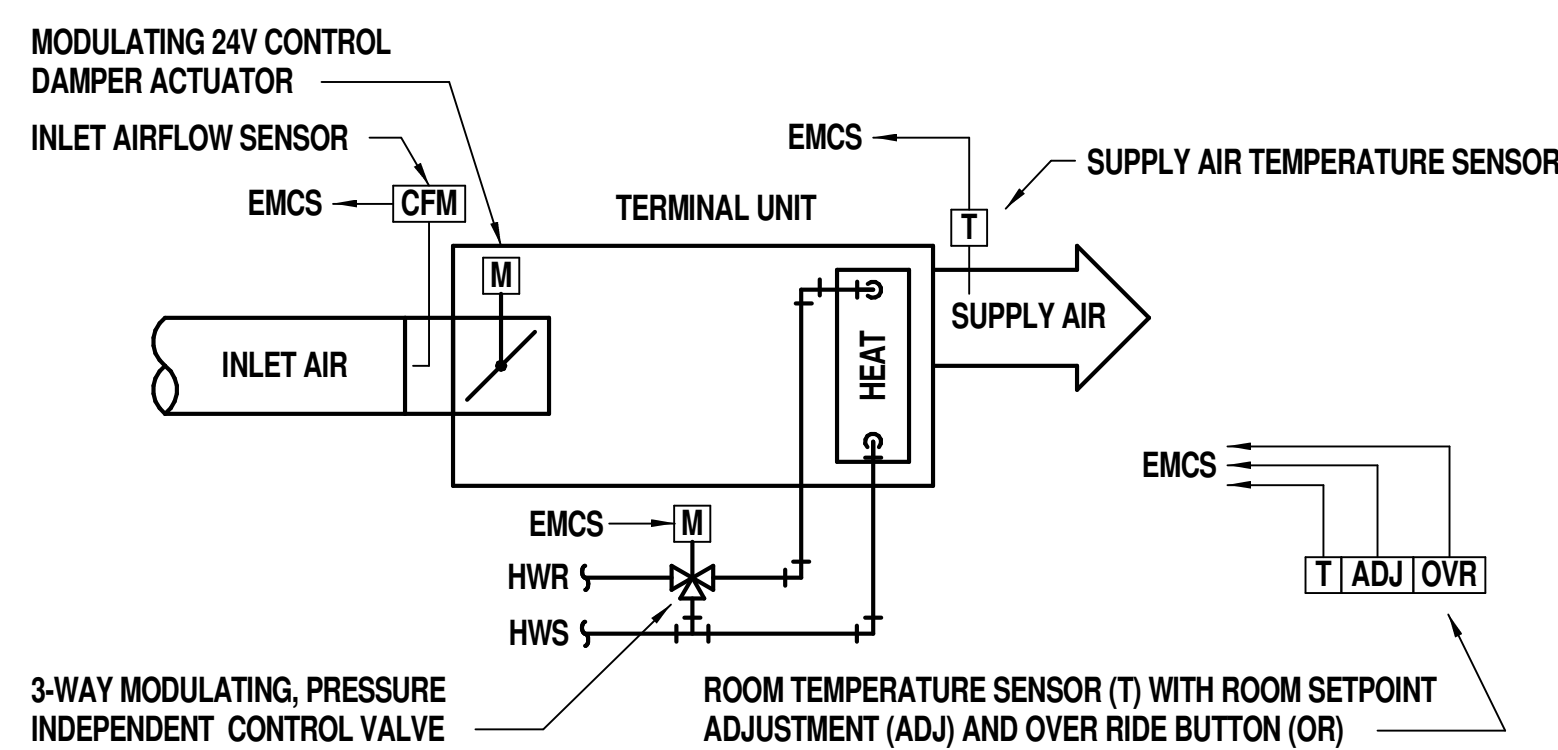
NOTES:

1. TERMINAL UNITS ARE PROVIDED WITH INLET AIRFLOW SENSOR, INLET DAMPER, CONTROLLER ENCLOSURE AND 24V TRANSFORMER.
2. PROVIDE CONTROLLER AND DAMPER ACTUATORS FOR FIELD INSTALLATION AND CALIBRATION.
3. PROVIDE CONTROL VALVE FOR REHEAT COIL, COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.

**TWO-WAY VALVE TERMINAL UNIT CONTROL SCHEMATIC**

NO SCALE

2  
M6.1



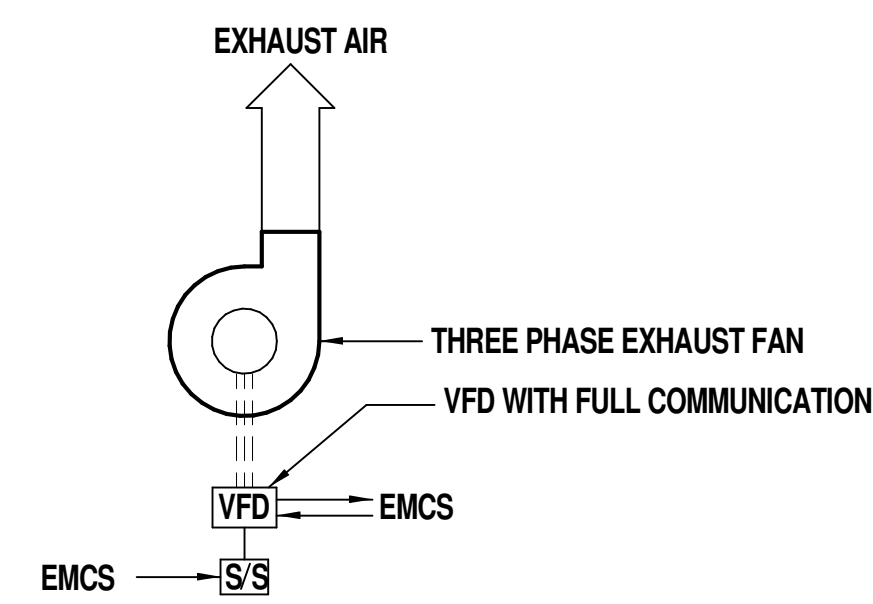
NOTES:

1. TERMINAL UNITS ARE PROVIDED WITH INLET AIRFLOW SENSOR, INLET DAMPER, CONTROLLER ENCLOSURE AND 24V TRANSFORMER.
2. PROVIDE CONTROLLER AND DAMPER ACTUATORS FOR FIELD INSTALLATION AND CALIBRATION.
3. PROVIDE CONTROL VALVE FOR REHEAT COIL, COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.

**THREE-WAY VALVE TERMINAL UNIT CONTROL SCHEMATIC**

NO SCALE

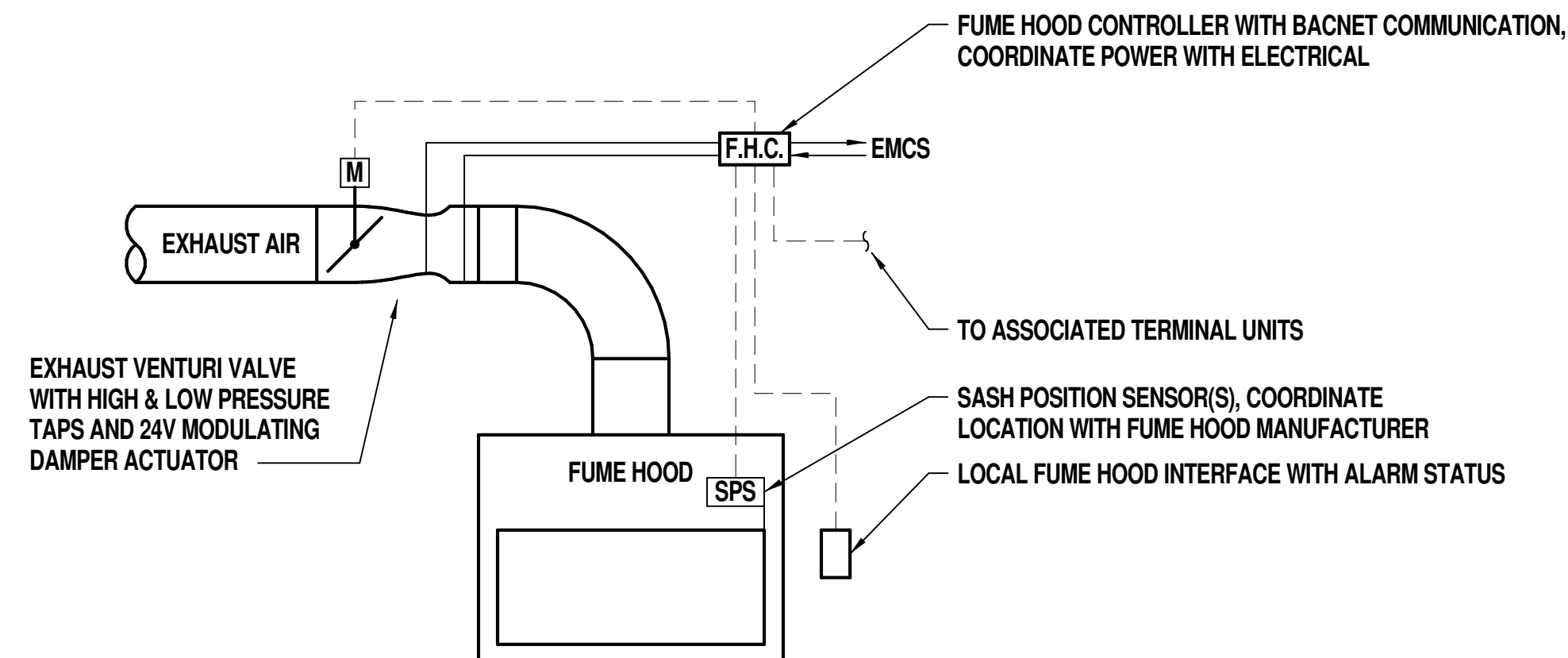
3  
M6.1



**THREE PHASE VFD EXHAUST FAN CONTROL SCHEMATIC**

NO SCALE

5  
M6.1



**FUME HOOD CONTROL SCHEMATIC**

NO SCALE

6  
M6.1



**DRAWN BY:** TCB  
**JOB NO:** 1931.000  
**DATE:** 01/08/2020  
**REVISIONS**

ADD#1 02/12/2021

**SECTION 233720 – LOUVERS**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Mechanical louvers.

1.2 RELATED WORK

- A. Section 230500 – Common Work Results for HVAC
- B. Section 230593 – Testing, Adjusting & Balancing For HVAC
- C. Section 233113 – Ductwork
- D. Section 233300 – Air Duct Accessories

1.3 QUALITY ASSURANCE

- A. Provide louvers bearing AMCA certified ratings for water penetration, sound and air performance.
- B. Manufacturer shall certify cataloged performance and ensure correct application of louver types.

1.4 SUBMITTALS

- A. Submit in accordance with Division 1.
- B. Submit product data and shop drawings covering each item together with schedule listing airflow, pressure drop, free area, dimensions, STC rating and air flow measurement procedures.

Submit full color chart for selection of specified finish..

1.5 REFERENCED STANDARDS

- A. AMCA 501.
- B. ASTM E413

1.6 JOB CONDITIONS

- A. Review requirements (including architectural drawings) as to size, finish, and type of mounting prior to submitting shop drawings and schedules of louvers.
- B. Check location of louvers and make necessary adjustments in position to conform to architectural features, symmetry and structure.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Products manufactured by Greenheck, IAC, Kinetics, Price, Ruskin or equal meeting these specifications are acceptable.

## 2.2 GENERAL REQUIREMENTS

- A. Provide louvers equal in all respects to those scheduled on the drawings.
- B. Construction: mechanically fastened.
- C. Material: heavy gauge formed aluminum, 0.080 in. nominal wall thickness.
- D. Acoustic Insulation: fiberglass insulation.
- E. Finish: Factory-applied organic coating, AAMA 2604 compliant (50% Kynar/Acroflur). Color to be selected from full range of manufacturer offerings.
- F. Birdscreen: 3/4" max expanded aluminum or wire mesh in frame, inside (rear) mount.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install items in accordance with manufacturer's printed instructions and per AMCA 501 Louver Application Manual.
- B. Reinforce and brace as required.
- C. Anchor securely into opening. Seal with caulking all around both interior and exterior to seal weather tight.

END OF SECTION