Development Services

From Concept to Construction

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More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

APPEAL SUMMARY

Status: Mixed Decision. Item 1: Decision Rendered. Item 2: Hold for Additional Information.

Appeal ID: 18961	**Project Address:** 619 NW 6th Ave
Hearing Date: 2/6/19	**Appellant Name:** Erkki (Erik) Ojala
Case No.: B-014	**Appellant Phone:** 503-863-2408
Appeal Type: Building	**Plans Examiner/Inspector:** Maureen McCafferty, Geoff Pena, Thomas Ng
Project Type: commercial	**Stories:** 9 **Occupancy:** **Construction Type:** 1-B
Building/Business Name: Multnomah County Health Headquaerters	**Fire Sprinklers:** Yes - Throughout building per NFPA 13
Appeal Involves: Erection of a new structure	**LUR or Permit Application No.:** 16-227322-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3]	**Proposed use:** Office and medical office

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	OSSC 1008.1.9.8
Requires	Access-controlled egress doors, criteria #3: The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to unlock – independent of the access control system electronics - and the doors shall remain unlocked for a minimum of 30 seconds.
Proposed Design	The proposed Multnomah County Health Department Headquarters (MCHD) project is a high-rise Type 1B building with an automatic sprinkler system in accordance with Section 903.3.1.1. The building is 9 occupied stories, with 8 levels of primarily B-occupancy office and outpatient clinic space above a ground floor level that includes primarily B and S-1 occupancies and a non-occupied 10th level mechanical penthouse. The cross-corridor doors 202A, 302A, 402A, 502A, 602A, 702A, 802A and 902A currently allow free access for exiting from the north to the south but are card reader access from south to north. We propose that the door hardware be revised to release the lock on fire alarm allowing egress from south to north as well. Please see the attached exhibit drawing A for additional information.
Reason for alternative	Multnomah County Health Department Headquarters (MCHD) will house both administrative and outpatient clinical functions. The clinic client population is quite varied and can present dangerous

or violent situations at times. Many are "mental health" patients. The County has consistently had violent encounters with their client base. It is essential that staff areas be secure for these situations for the protection of staff and for staff to take other clients to refuge. The County has protocol in place to deal with these situations. These cross-corridor doors cannot allow unsecure access to staff areas. The waiting room occupant load that exits from the south is less than 50 so one exit is required. The adjacent staff areas have two or more exit routes out to Stairs 1 and 2. We propose to comply with the other criteria in this code section so that fire alarm, fire sprinklers or loss of power will release these door locks, but no manual unlocking will be provided. The current condition for these doors and hardware function were approved in Permit Plan Review. This will be an enhancement to the permit condition. This will provide the safety necessary in fire and power loss events and that the County Protocol will provide safety in other emergency events. This will provide equivalent life safety and fire protection.

Appeal item 2

Code Section	OSSC 909.21.1
Requires	909.21.1: Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6093 mm) from any air exhaust system or outlet.
Proposed Design	A supply fan located on the roof supplies pressurization air at the top of each elevator hoistway. Fans are provided with Variable Frequency Drives (VFDs) that control fan speed for balancing and control. A control sequence is provided to reduce fan speed and hoistway pressure based on a pressure sensor located in each hoistway. Building pressure relief is provided by exterior louvers with motor operated dampers for the second floor and up; additional relief is provided via the lobby doors on the first floor. Design airflow values were determined via numerical simulation using the NIST's software program CONTAM. This software allows for determination of flow through various air pathways, including supply fans, flow through cracks and other openings, stack flow through shafts, and pressure-driven flow through both internal and external walls.
Reason for alternative	The elevator pressurization system is an engineered solution to meet the performance required per OSSC 909.21.1. The function of the elevator hoistway vents is to reduce pressure in the hoistways so as not to impede elevator operation. In this system this is accomplished by the fan speed control described above. Regardless of compliance with the prescriptive path described in the BDS Code Guide, the system must comply with OSSC 909.21 and must pass the same functional tests to be accepted. Analysis and modeling required by OSSC have been performed and indicate that all pressure requirements will be met. Functional testing will take place prior to occupancy.

APPEAL DECISION

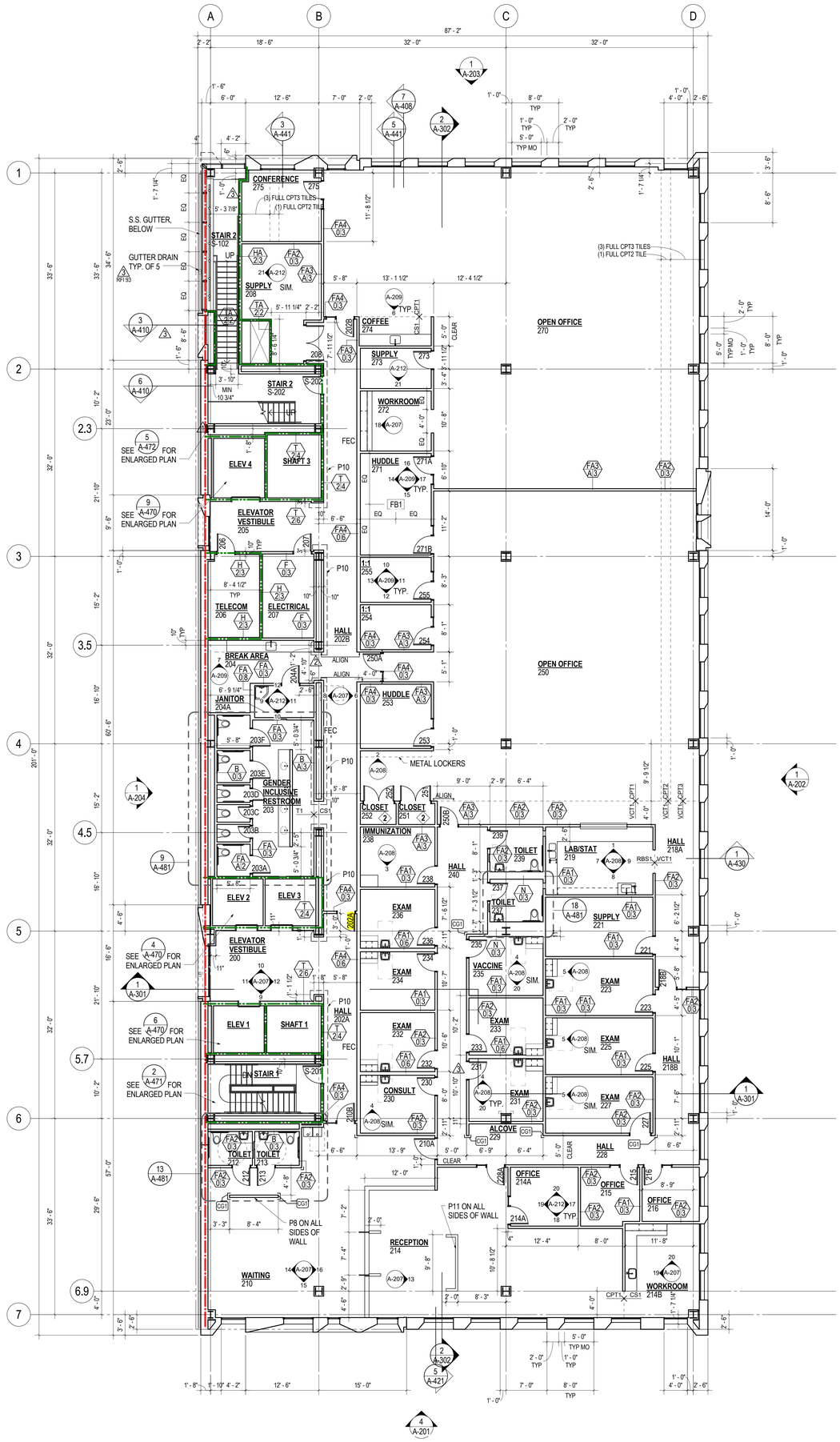
1. Release of access controlled egress doors by fire alarm signal or loss of power: Granted provided a communication device with instructional signage is provided at the specified doors to allow contact with a constantly attended location.

2. Alternate elevator shaft pressurization: Hold for additional information.

For Item 1. Appellant may contact John Butler (503 823-7339) with questions.
For Item 2. Appellant may contact Thomas Ng (503 823-7434) with questions.

For Item 1. The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 180 calendar days of the date this decision is published. For information on the appeals process and costs, including forms, appeal fee, payment methods and fee waivers, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.



GENERAL NOTES

1. FOR LOCATION AND EXTENT OF ALL FIRE RATED ASSEMBLIES SEE G-003.
2. FOR TYPICAL FLOOR TRANSITION DETAILS THAT ARE NOT KEYED ON PLANS REFER TO SHEET A-803.
3. REFER TO SHEET A-602 FOR RELITE (INTERIOR BORROWED LIGHTS, SCHEDULED R-X) SCHEDULE AND DETAIL REFERENCES.
4. REFER TO SHEET A-802 FOR TYPICAL WALL, DEFLECTION HEAD, BACKING PLATE, AND BRACING DETAILS.
5. SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS, FOR ADDITIONAL OPENINGS IN WALLS.
6. DRAIN LINE LOCATIONS IN CLINICAL SPACES TO BE COORDINATED WITH LEVEL 1 PARTITIONS.
7. ROOF DRAIN, WASTE LINES AND PLUMBING VENT RISER ROUTES TO BE COORDINATED WITH HARD WALL LOCATIONS AND CEILING HEIGHTS AS NECESSARY. ROUTE PLUMBING RISERS BETWEEN GRID LINES B AND C, COORDINATE OTHER LOCATIONS WITH ARCHITECT.
8. TYPICAL WALL TYPE IS FA3\A\3 UNLESS NOTED OTHERWISE. (2)
9. SEE PARTITION DETAILS A-801.
10. DIMENSIONS FOR INTERIOR PARTITIONS ARE TO FACE OF FINISH
11. REFER TO FFE PLANS FOR MORE INFORMATION.
12. SEE A-400 SERIES DRAWINGS FOR WINDOWS AT STUCCO APERTURES

SHEET NOTES - FLOOR PLANS

(1) FLOOR BOXES TO BE CENTERED IN ROOM UNLESS OTHERWISE NOTED.

(2) COAT ROD AND SHELF

1 A-103-02 **PLAN, SECOND FLOOR**
1/8" = 1'-0"

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Multnomah County

Revisions

1	COP PLAN REVIEW	02/23/17
2	ASI #2	03/17/17
3	COP PLAN REVIEW	05/05/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

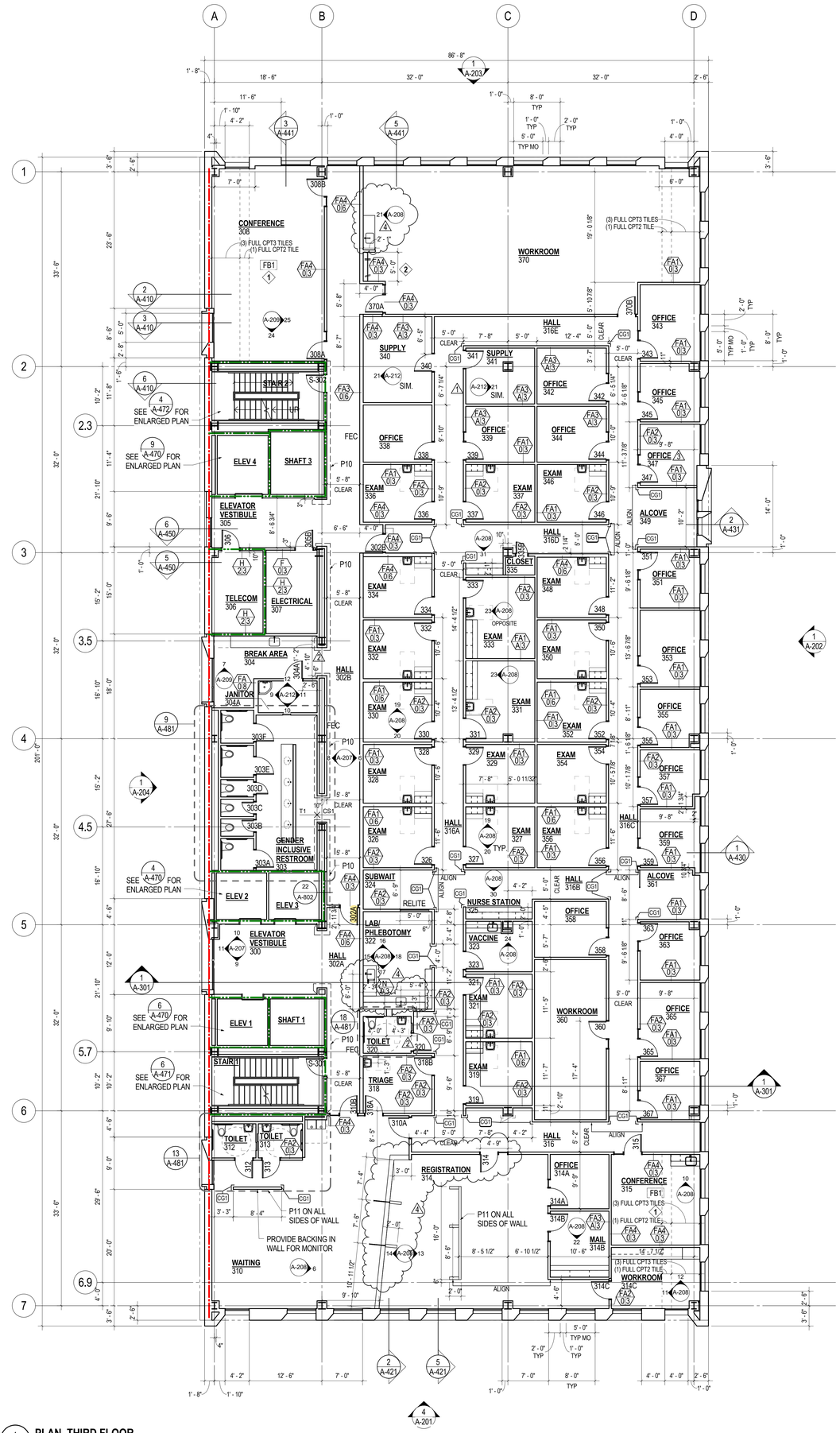
PLAN, SECOND FLOOR

Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-103-02

CONSTRUCTION DOCUMENTS



1 A-104-03 **PLAN, THIRD FLOOR**
1/8" = 1'-0"

GENERAL NOTES

1. FOR LOCATION AND EXTENT OF ALL FIRE RATED ASSEMBLIES SEE G-003.
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3. REFER TO SHEET A-602 FOR RELITE (INTERIOR BORROWED LIGHTS, SCHEDULED R-X) SCHEDULE AND DETAIL REFERENCES.
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8. TYPICAL WALL TYPE IS FA3\A\3 UNLESS NOTED OTHERWISE. A
9. SEE PARTITION DETAILS A-801.
10. DIMENSIONS FOR INTERIOR PARTITIONS ARE TO FACE OF FINISH
11. REFER TO FFE PLANS FOR MORE INFORMATION.
12. SEE A-400 SERIES DRAWINGS FOR WINDOWS AT STUCCO APERTURES

SHEET NOTES - FLOOR PLANS

1 FLOOR BOXES TO BE CENTERED IN ROOM UNLESS OTHERWISE NOTED.

2 COAT ROD AND SHELF

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Revisions

1	ADD# 2 MAIN BLDG	02/16/17
2	ASI #2	03/17/17
3	COP PLAN REVIEW	06/06/17
4	COP PERMIT REV 2	02/05/19
5	RFI 379	11/02/17
6	PR 009	11/22/17
7	RFI 455	12/12/17
8	RFI 481	12/29/17
9	CCD 009	02/15/18
10	PR 015	02/15/18
11	CCD 011	03/21/18
12	CCD 007 R1	05/16/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, THIRD FLOOR

Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-104-03

CONSTRUCTION DOCUMENTS

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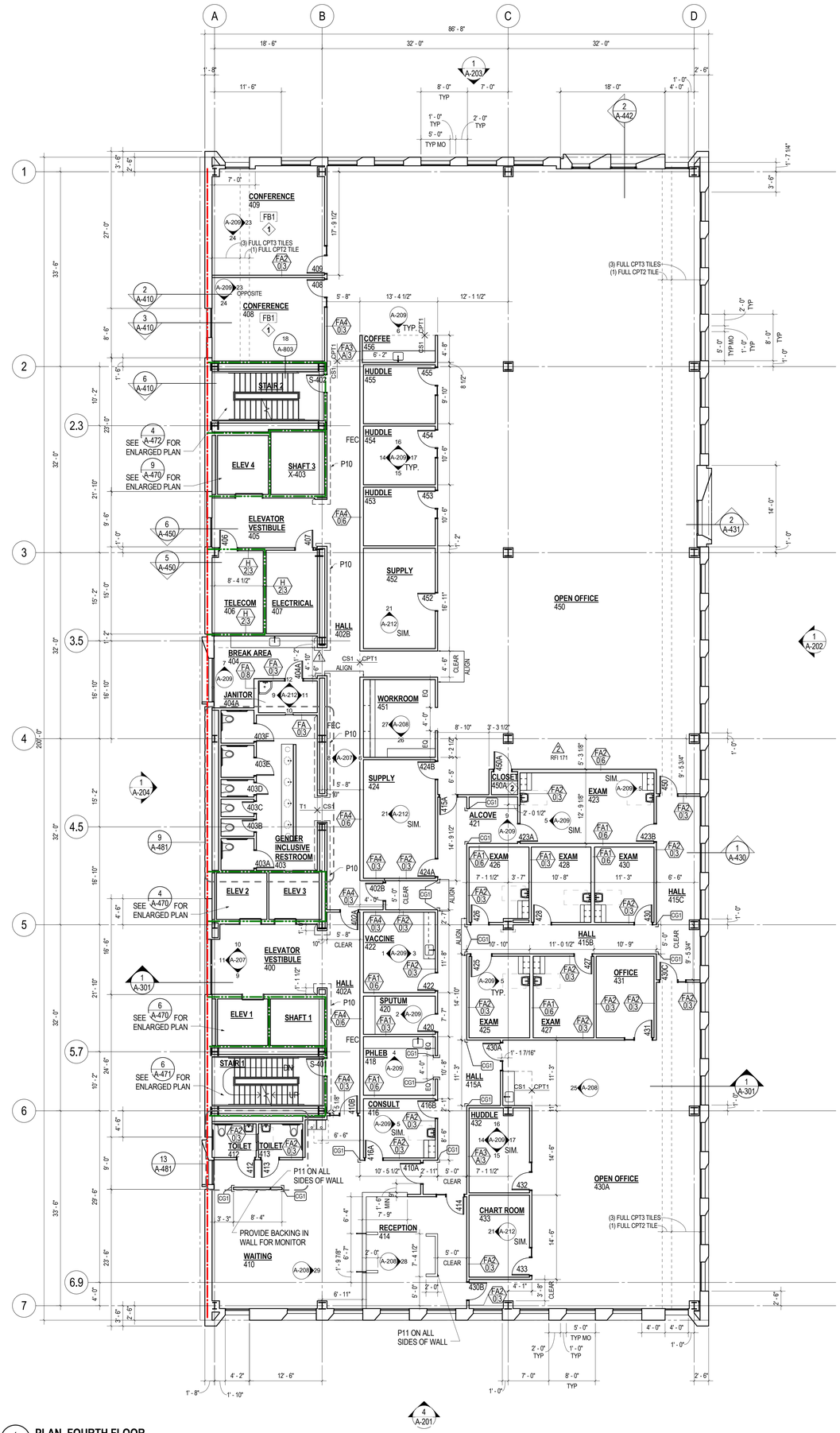

1 A-105-04 **PLAN, FOURTH FLOOR**
1/8" = 1'-0"

GENERAL NOTES

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8. TYPICAL WALL TYPE IS FA3\A13 UNLESS NOTED OTHERWISE.
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SHEET NOTES - FLOOR PLANS

1. FLOOR BOXES TO BE CENTERED IN ROOM UNLESS OTHERWISE NOTED.
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Revisions

1	ASI #2	03/17/17
2	PR 006	08/21/17
3	RFI 478	12/19/17
4	PR 015	02/15/18
5	CCD 007 R1	05/16/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, FOURTH FLOOR

Date:	2017.01.12
Job No:	P21926
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Drawing No.

A-105-04

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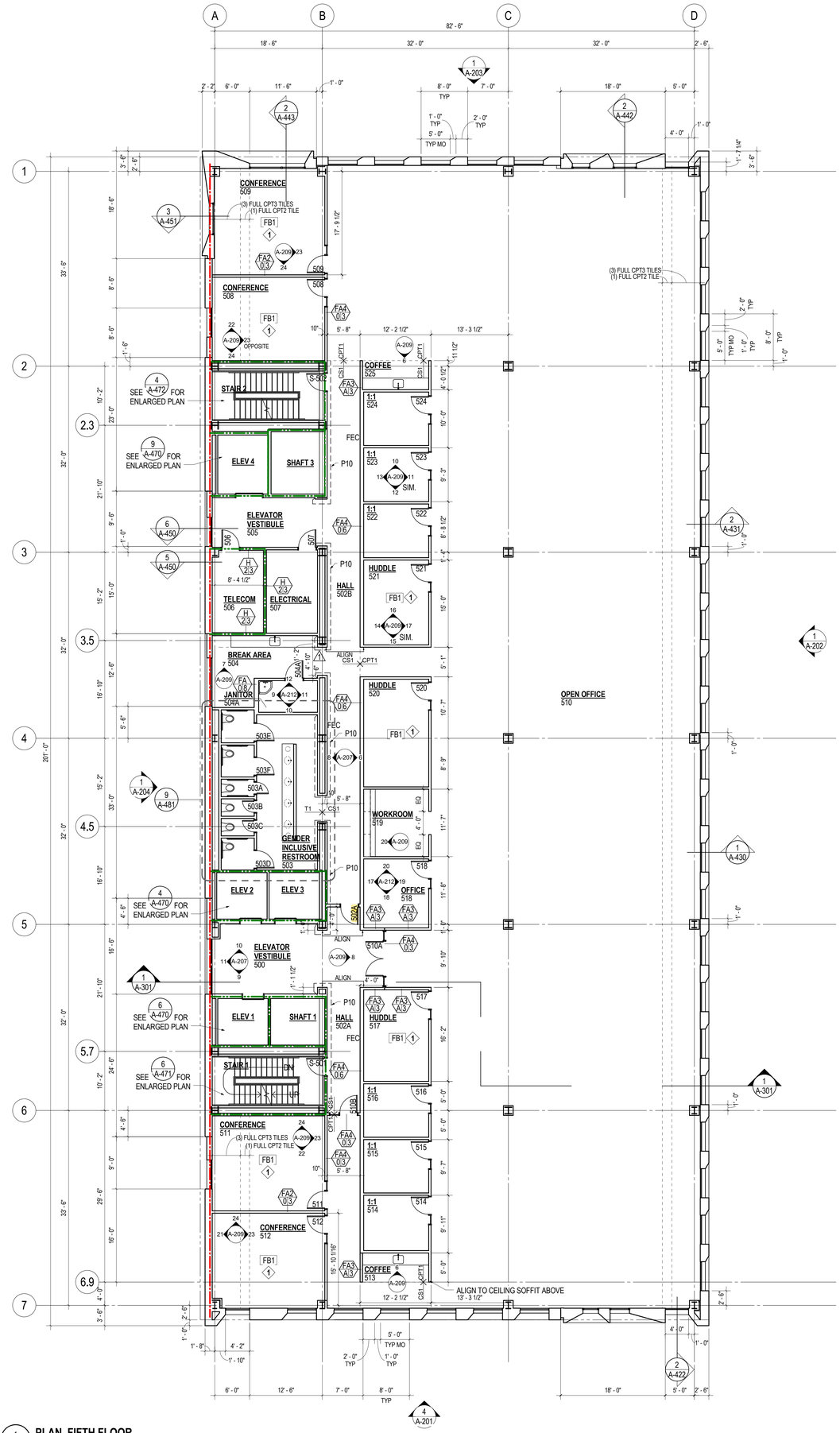

PLAN, FIFTH FLOOR

1 A-106-05

1/8" = 1'-0"

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8. TYPICAL WALL TYPE IS FA3\A\3 UNLESS NOTED OTHERWISE. △1
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SHEET NOTES - FLOOR PLANS

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◇2 COAT ROD AND SHELF

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Revisions

1	ASI #2	03/17/17
2	PR 015	02/15/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, FIFTH FLOOR

Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-106-05

CONSTRUCTION DOCUMENTS

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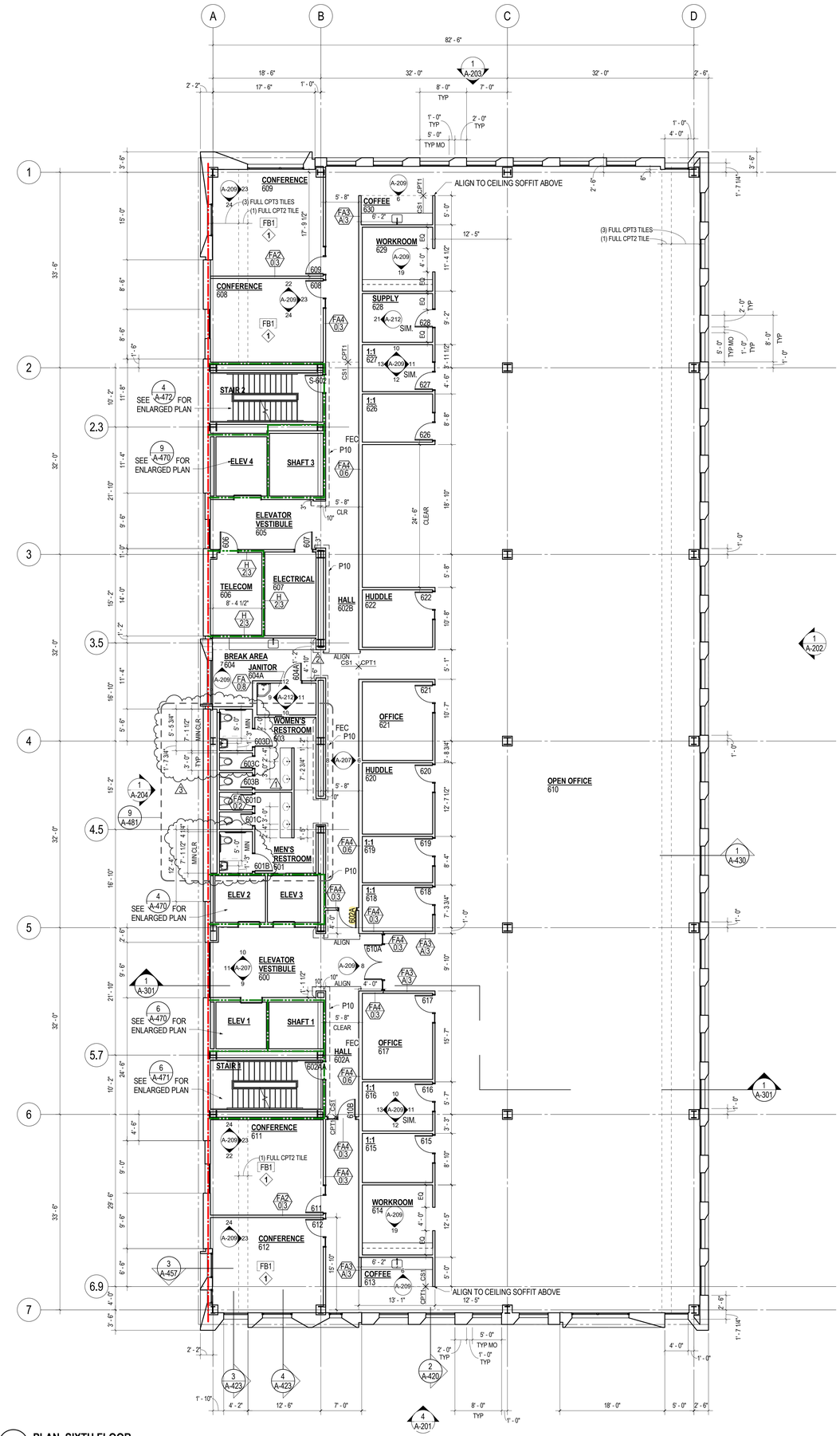

1 A-107-06 **PLAN, SIXTH FLOOR**
1/8" = 1'-0"

GENERAL NOTES

1. FOR LOCATION AND EXTENT OF ALL FIRE RATED ASSEMBLIES SEE G-003.
2. FOR TYPICAL FLOOR TRANSITION DETAILS THAT ARE NOT KEYED ON PLANS REFER TO SHEET A-803.
3. REFER TO SHEET A-602 FOR RELITE (INTERIOR BORROWED LIGHTS, SCHEDULED R-X) SCHEDULE AND DETAIL REFERENCES.
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8. TYPICAL WALL TYPE IS FA3/A3 UNLESS NOTED OTHERWISE. 2
9. SEE PARTITION DETAILS A-801.
10. DIMENSIONS FOR INTERIOR PARTITIONS ARE TO FACE OF FINISH
11. REFER TO FFE PLANS FOR MORE INFORMATION.
12. SEE A-400 SERIES DRAWINGS FOR WINDOWS AT STUCCO APERTURES

SHEET NOTES - FLOOR PLANS

1. FLOOR BOXES TO BE CENTERED IN ROOM UNLESS OTHERWISE NOTED.
2. COAT ROD AND SHELF

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Multnomah County

Revisions

1	ADD# 1 MAIN BLDG	02/09/17
2	ASI #2	03/17/17
3	COP PERMIT REV 2	02/05/19
4	CCD 004	11/22/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

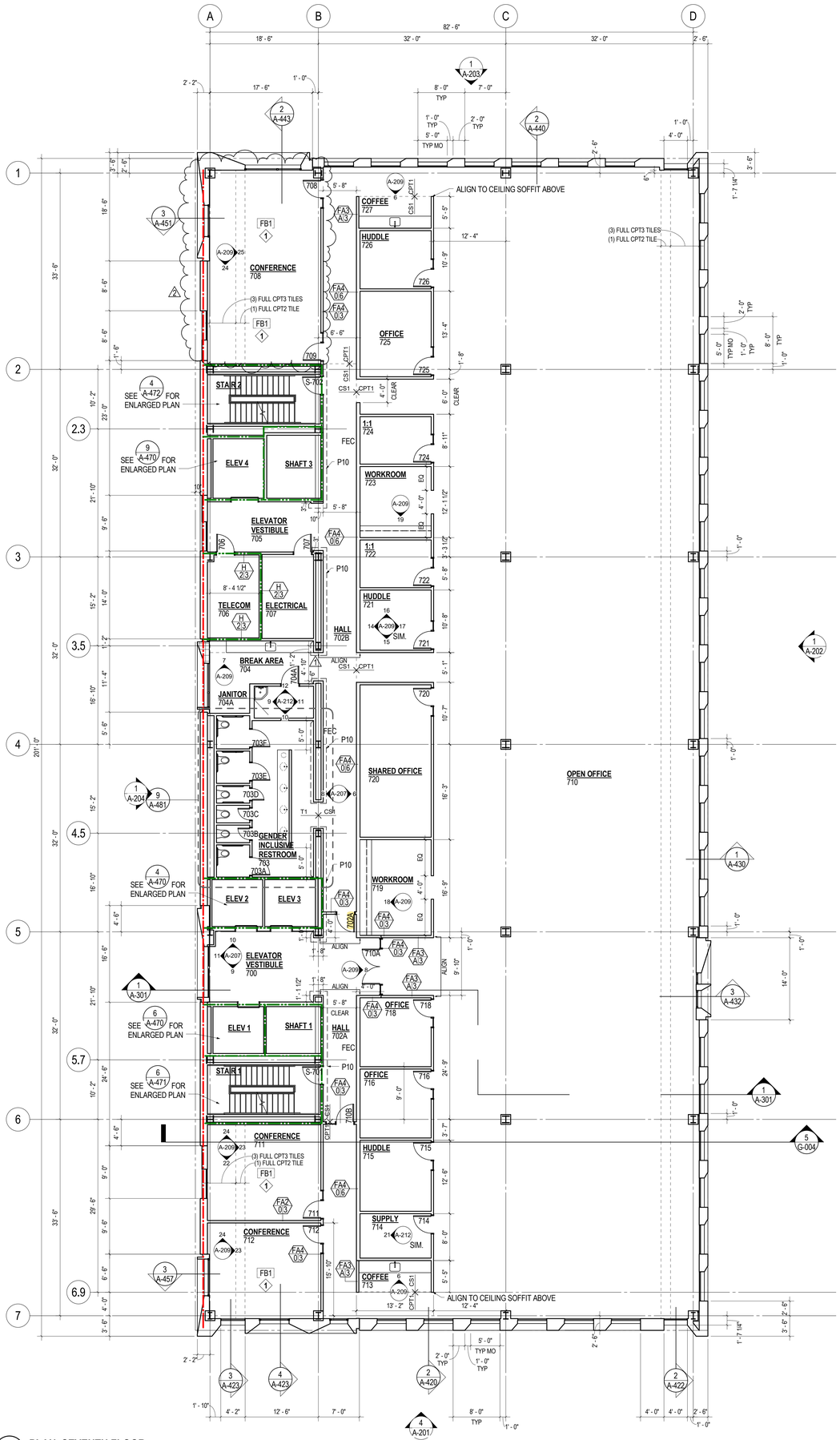
PLAN, SIXTH FLOOR

Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-107-06

CONSTRUCTION DOCUMENTS



1 A-108-07 **PLAN, SEVENTH FLOOR**
1/8" = 1'-0"

GENERAL NOTES

1. FOR LOCATION AND EXTENT OF ALL FIRE RATED ASSEMBLIES SEE G-003.
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5. SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS, FOR ADDITIONAL OPENINGS IN WALLS.
6. DRAIN LINE LOCATIONS IN CLINICAL SPACES TO BE COORDINATED WITH LEVEL 1 PARTITIONS.
7. ROOF DRAIN, WASTE LINES AND PLUMBING VENT RISER ROUTES TO BE COORDINATED WITH HARD WALL LOCATIONS AND CEILING HEIGHTS AS NECESSARY. ROUTE PLUMBING RISERS BETWEEN GRID LINES B AND C, COORDINATE OTHER LOCATIONS WITH ARCHITECT.
8. TYPICAL WALL TYPE IS FA3\A\3 UNLESS NOTED OTHERWISE. ⚠1
9. SEE PARTITION DETAILS A-801.
10. DIMENSIONS FOR INTERIOR PARTITIONS ARE TO FACE OF FINISH
11. REFER TO FFE PLANS FOR MORE INFORMATION.
12. SEE A-400 SERIES DRAWINGS FOR WINDOWS AT STUCCO APERTURES

SHEET NOTES - FLOOR PLANS

1. FLOOR BOXES TO BE CENTERED IN ROOM UNLESS OTHERWISE NOTED.
2. COAT ROD AND SHELF

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Multnomah County

Revisions

1	ASI #2	03/17/17
2	COP PERMIT REV 2	02/05/19
3	PR 008	11/03/17
4	PR 015	02/15/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, SEVENTH FLOOR

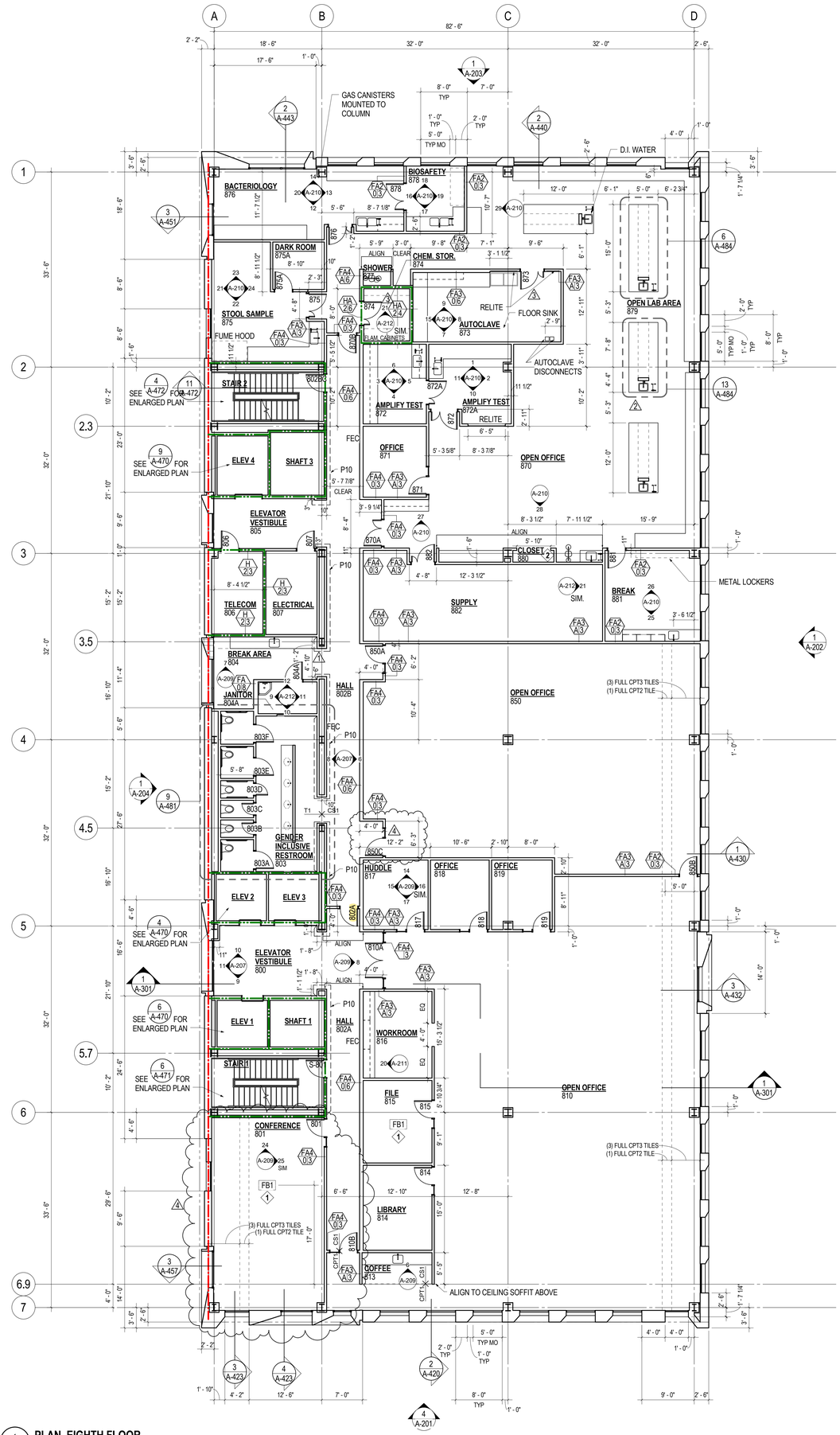
Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-108-07

CONSTRUCTION DOCUMENTS

2/1/2019 3:35:06 PM



GENERAL NOTES

1. FOR LOCATION AND EXTENT OF ALL FIRE RATED ASSEMBLIES SEE G-003.
2. FOR TYPICAL FLOOR TRANSITION DETAILS THAT ARE NOT KEYED ON PLANS REFER TO SHEET A-803.
3. REFER TO SHEET A-602 FOR RELITE (INTERIOR BORROWED LIGHTS, SCHEDULED R-X) SCHEDULE AND DETAIL REFERENCES.
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Multnomah County

Revisions

1	ASI #2	03/17/17
2	RFI 194	06/30/17
3	RFI 263	09/12/17
4	COP PERMIT REV 2	02/05/19
5	PR 008	11/03/17
6	CCD 006	01/12/18
7	PR 015	02/15/18
8	CCD 038	03/29/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, EIGHTH FLOOR

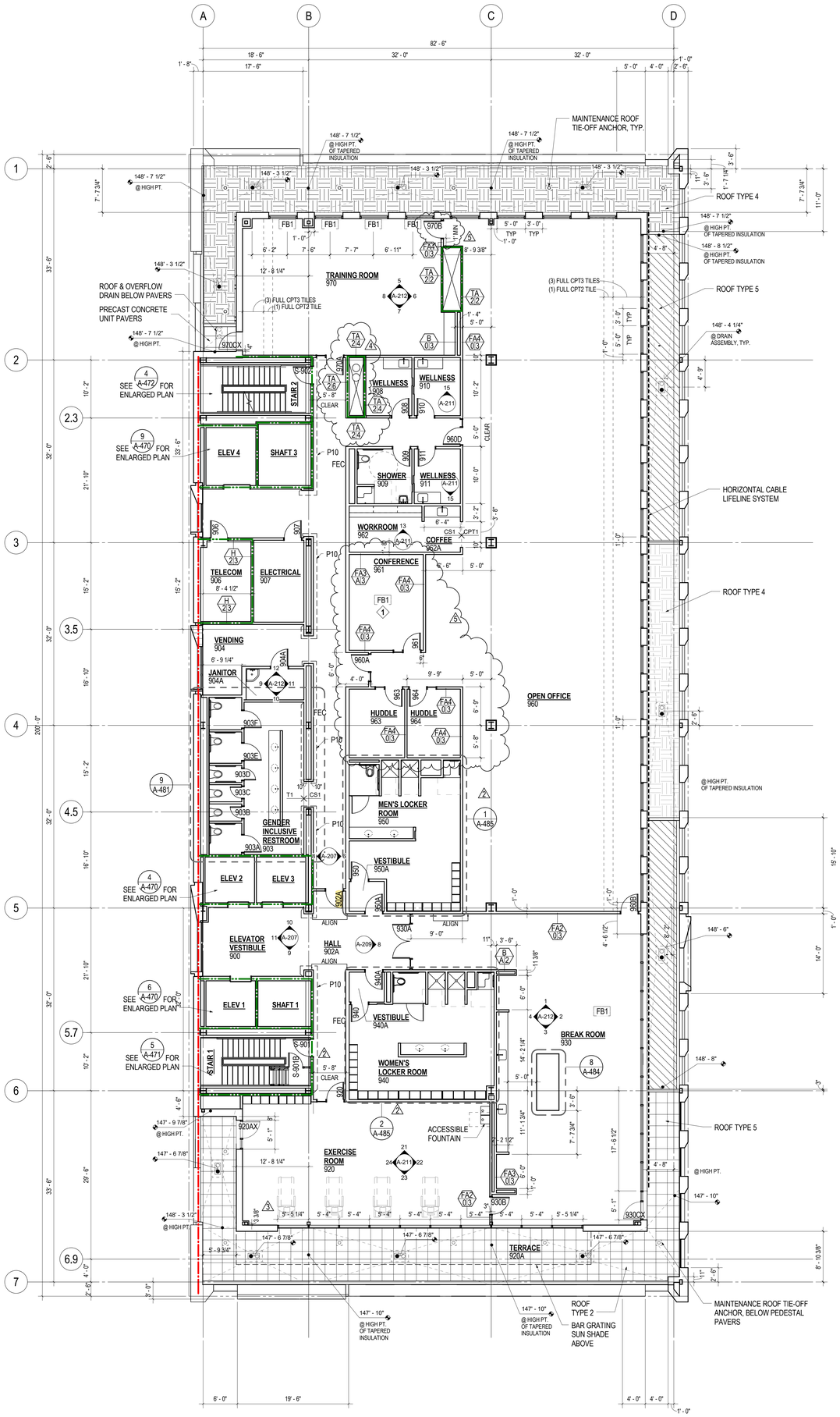
Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-109-08

CONSTRUCTION DOCUMENTS

2/1/2019 3:35:12 PM



1 A-110-09 **PLAN, NINTH FLOOR - ALTERNATE 1**
1/8" = 1'-0"

GENERAL NOTES

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Revisions

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2	COP PLAN REVIEW	05/05/17
3	COP PLAN REVIEW	06/06/17
4	RFI 278	08/29/17
5	COP PERMIT REV 2	02/05/19
6	PR 010	11/22/17
7	PR 015	02/15/18
8	RFI 584	03/02/18
9	RFI 810	07/17/18

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PLAN, NINTH FLOOR

Date:	2017.01.12
Job No:	P21926
Drawn By:	Author
Checked By:	Checker

Drawing No.

A-110-09

CONSTRUCTION DOCUMENTS

2/1/2019 9:35:18 PM

1.0 Design Calculations

Initial results following the standard ASHRAE calculation gave a required airflow of about 11,000 CFM for each elevator car in the elevator hoistways and 8,000 CFM each for the stairways. Approximately 6 SF of free area per floor was required for relief to maintain pressurization.

A basic shell airflow model has been created using NIST's software program CONTAM. This software allows for determination of flow through various air pathways, including supply fans, flow through cracks and other openings, stack flow through shafts, and pressure-driven flow through both internal and external walls. Elevator hoistway pressurization supply fans have been selected to operate at 12,000 CFM for Elevators 1 and 4, and at 22,000 CFM for the hoistway serving Elevators 2 and 3. 10,000 CFM fans were selected for each stairwell. Leakage through solid structures was specified as that of a "tight" construction, except for interior stairwell walls specified as "medium", with values from Chapter 52 (Fire and Smoke Management) of the 2011 ASHRAE HVAC Applications Handbook that meet or exceed 2014 Oregon Structural Specialty Code Section 909.5. Both stairwells and the hoistway are modeled as shafts with internal ducts to deliver pressurization air, and the program automatically considers buoyancy-driven flow (stack effect) through vertical spaces. Other openings include backdraft dampers set to relieve 2500 CFM at 0.15" W.C. at the top of each stairwell and relief louvers on floors 1-9.

Pursuant to OSSC Section 909, the model considers all stairway doors to be closed. For the elevator hoistway, hoistway doors are closed on all floors except the ground floor, which is the floor of recall. Exterior building doors in the first floor lobby are open for this analysis. Pressurization supply air is supplied from the roof, and is injected at the top of the elevator hoistway and at floors 1, 4, 7, and 10 (via rated shafts) for the stairways.

Two analyses have been performed to assess the pressurization in both summer and winter design conditions for the Portland, OR, weather station from the 2013 ASHRAE Fundamentals Handbook. For summer, the 0.4% dry bulb temperature of 91.2°F and a 25mph south wind is used to match the 1% extreme annual wind speed. For winter, the 99.6% dry bulb temperature of 25.2°F in still conditions is used. Further analysis showed that neither the magnitude nor direction of the wind affected the ability of the designed systems to maintain the required level of pressurization, and did not appreciably alter pressure differentials.

1.1 Results – Summer Design Day

Figures 1-5 below show results for the summer design conditions (91.2°F, 25mph south wind). Each figure is a "shaft report" generated by the CONTAM software for the respective shaft. The left columns indicate the pressurization and air leakage through the interior walls, while the right columns indicate the pressurization and air flow through the doors (or door cracks, when the doors are closed). For the stairwells, the pressure drops all fall in the required 0.10-0.35 in. H_2O range required by code, and the elevator hoistway pressure drops are in the required 0.10-0.25 in. H_2O range. All pressures are recorded at the median height of the respected door/wall.

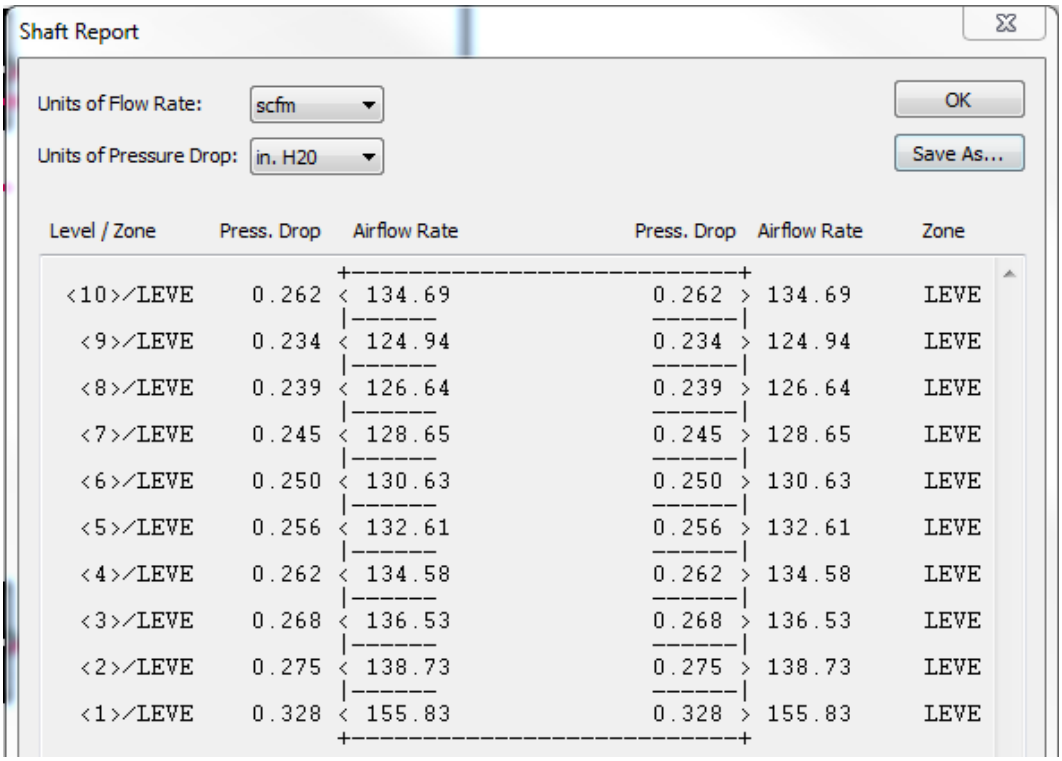


Figure 1: Stair 1, Shaft Report – Summer Design Conditions

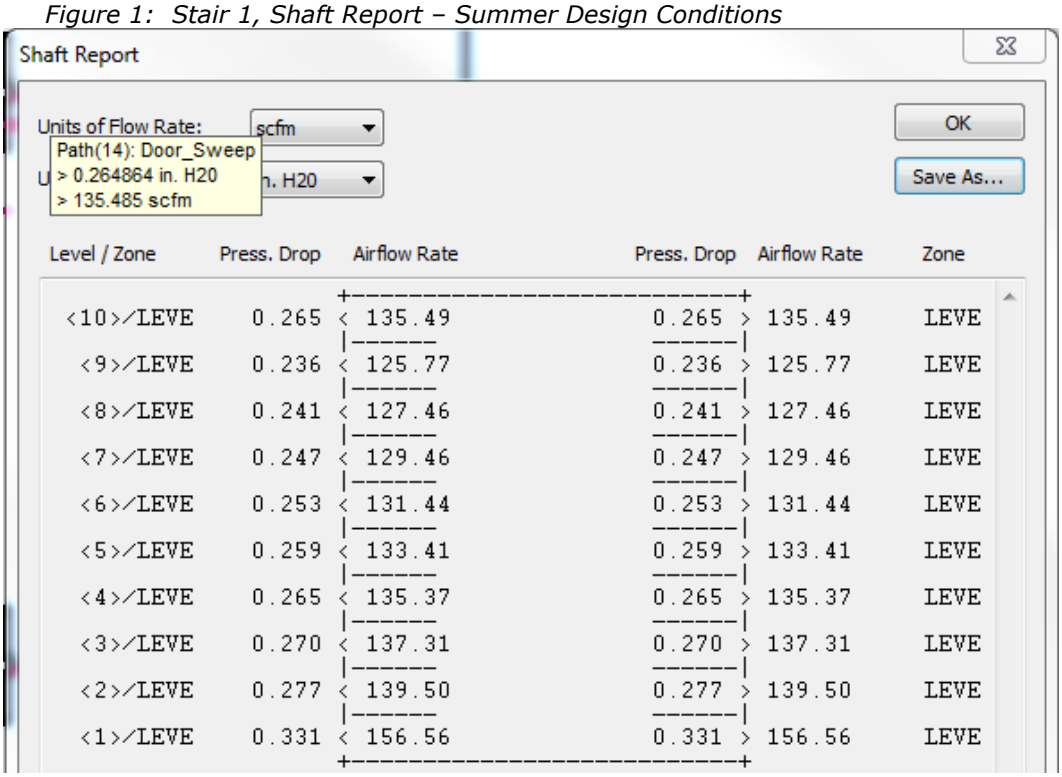
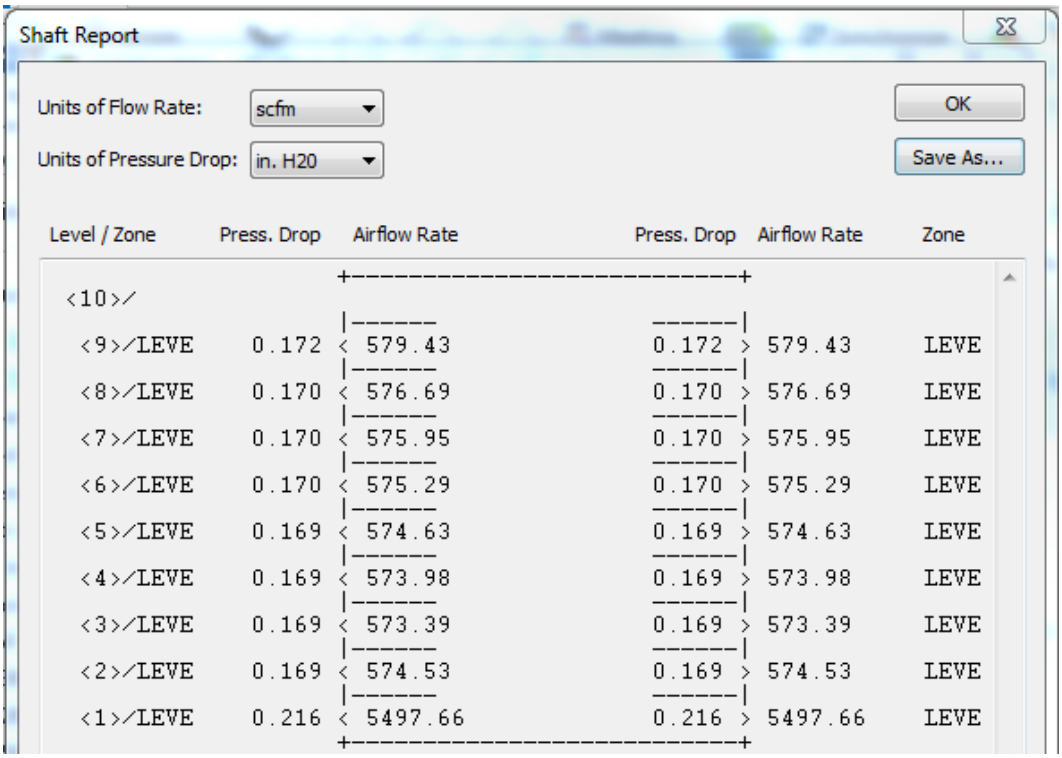


Figure 2: Stair 2, Shaft Report – Summer Design Conditions.



Shaft Report

Units of Flow Rate: scfm

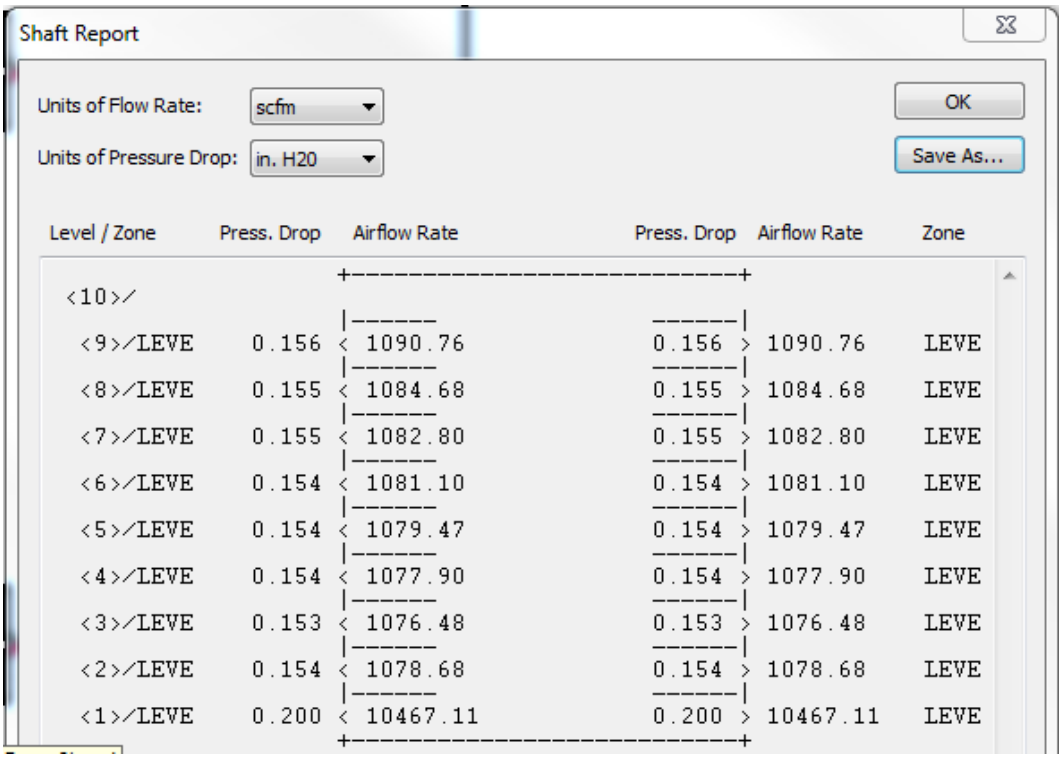
Units of Pressure Drop: in. H20

OK

Save As...

Level / Zone	Press. Drop	Airflow Rate	Press. Drop	Airflow Rate	Zone
<10>/					
<9>/LEVE	0.172	< 579.43	0.172	> 579.43	LEVE
<8>/LEVE	0.170	< 576.69	0.170	> 576.69	LEVE
<7>/LEVE	0.170	< 575.95	0.170	> 575.95	LEVE
<6>/LEVE	0.170	< 575.29	0.170	> 575.29	LEVE
<5>/LEVE	0.169	< 574.63	0.169	> 574.63	LEVE
<4>/LEVE	0.169	< 573.98	0.169	> 573.98	LEVE
<3>/LEVE	0.169	< 573.39	0.169	> 573.39	LEVE
<2>/LEVE	0.169	< 574.53	0.169	> 574.53	LEVE
<1>/LEVE	0.216	< 5497.66	0.216	> 5497.66	LEVE

Figure 3: Elevator 1, Shaft Report – Summer Design Conditions



Shaft Report

Units of Flow Rate: scfm

Units of Pressure Drop: in. H20

OK

Save As...

Level / Zone	Press. Drop	Airflow Rate	Press. Drop	Airflow Rate	Zone
<10>/					
<9>/LEVE	0.156	< 1090.76	0.156	> 1090.76	LEVE
<8>/LEVE	0.155	< 1084.68	0.155	> 1084.68	LEVE
<7>/LEVE	0.155	< 1082.80	0.155	> 1082.80	LEVE
<6>/LEVE	0.154	< 1081.10	0.154	> 1081.10	LEVE
<5>/LEVE	0.154	< 1079.47	0.154	> 1079.47	LEVE
<4>/LEVE	0.154	< 1077.90	0.154	> 1077.90	LEVE
<3>/LEVE	0.153	< 1076.48	0.153	> 1076.48	LEVE
<2>/LEVE	0.154	< 1078.68	0.154	> 1078.68	LEVE
<1>/LEVE	0.200	< 10467.11	0.200	> 10467.11	LEVE

Figure 4: Elevators 2 and 3, Shaft Report – Summer Design Conditions

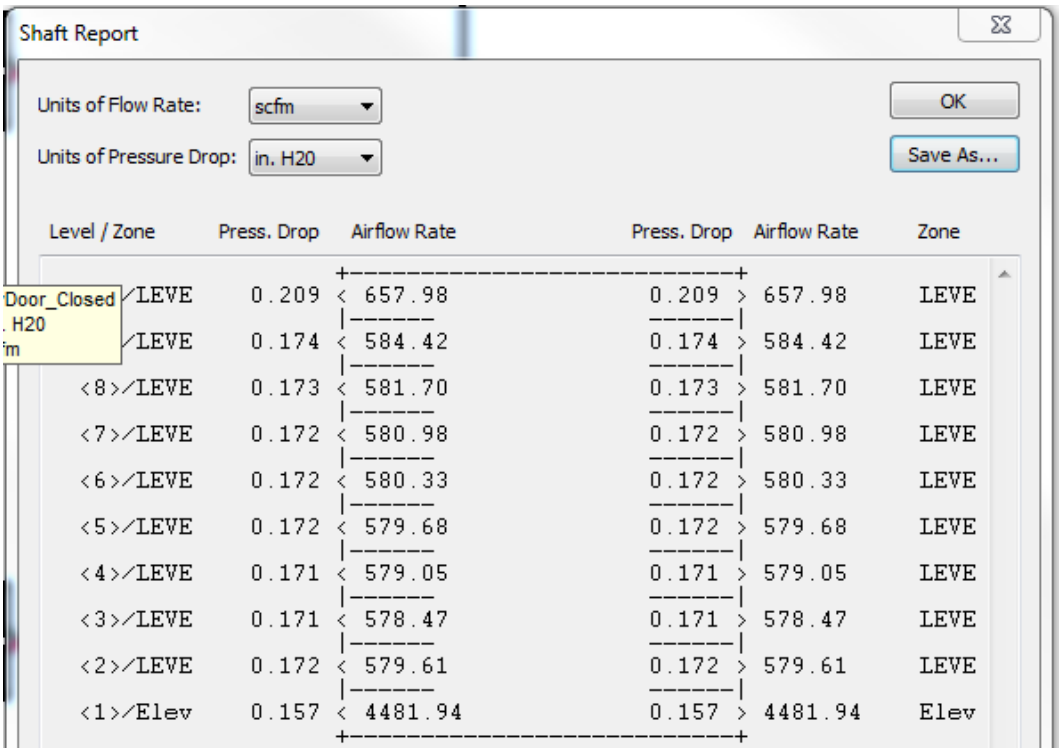


Figure 5: Elevator 4, Shaft Report – Summer Design Conditions

1.2 Results – Winter Design Day

Figures 6-10 below show CONTAM's shaft reports for the winter design conditions (21.2°F, no wind). As was the case for the summer design conditions as well, the stairwell pressure drops all fall in the required 0.10-0.35 in. H_2O range required by code, and the hoistway pressure drops are in the required 0.10-0.25 in. H_2O range.

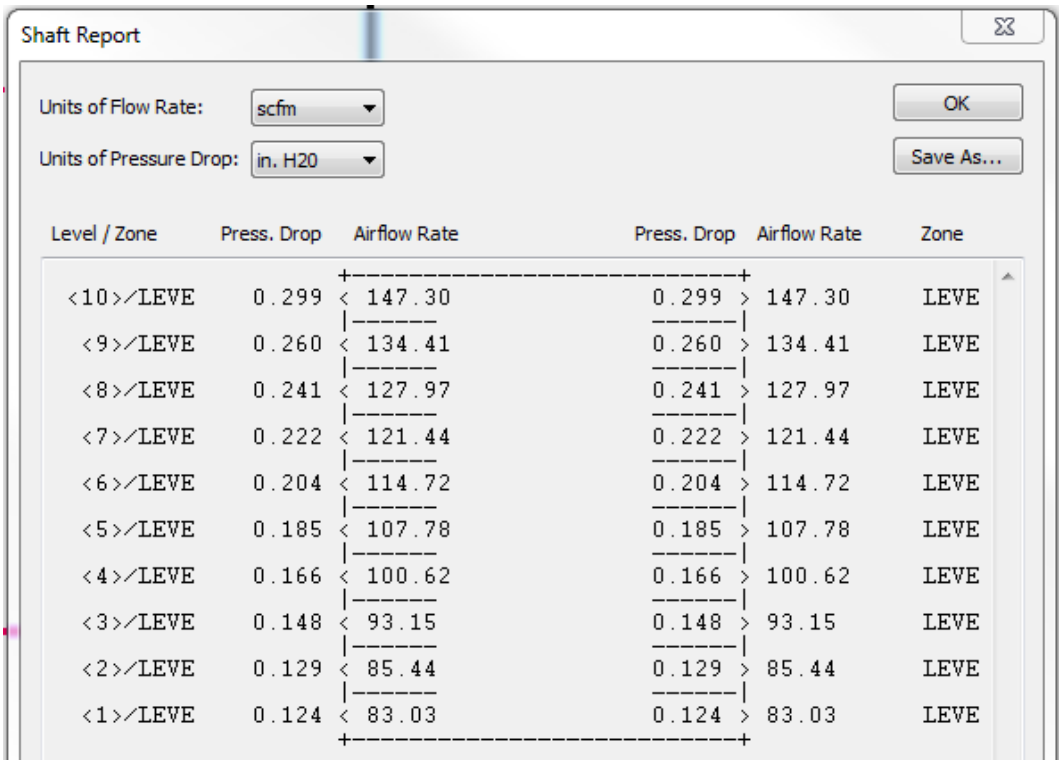


Figure 6: Stair 1, Shaft Report – Winter Design Conditions.

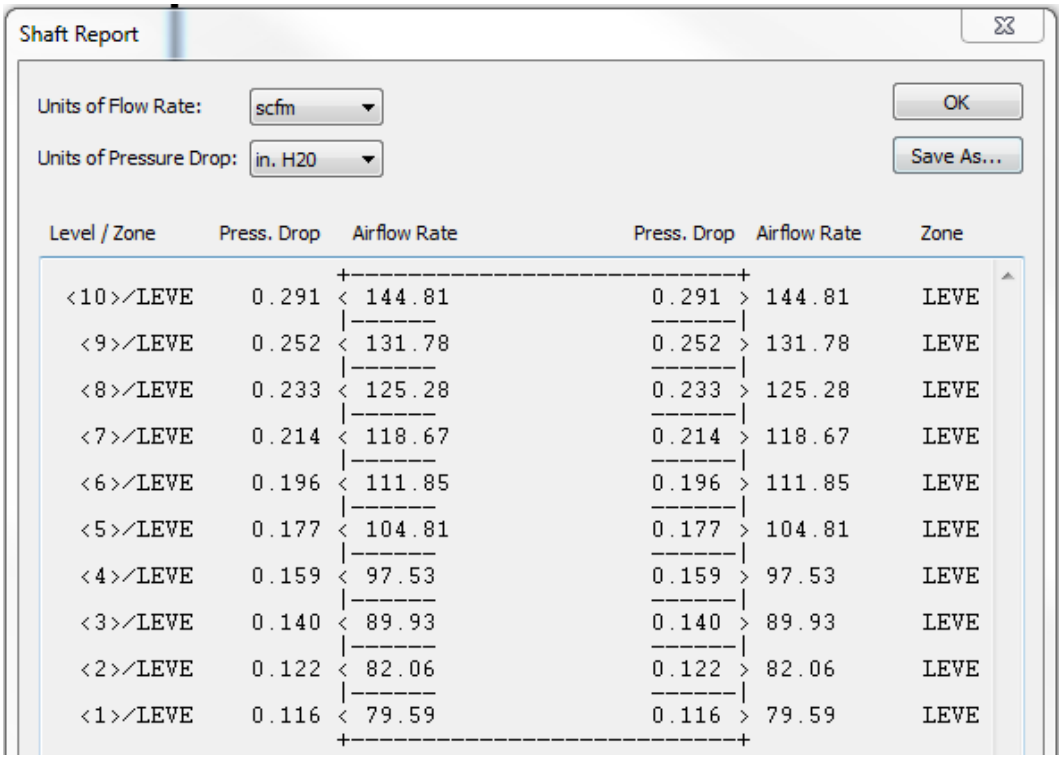


Figure 7: Stair 2, Shaft Report – Winter Design Conditions.

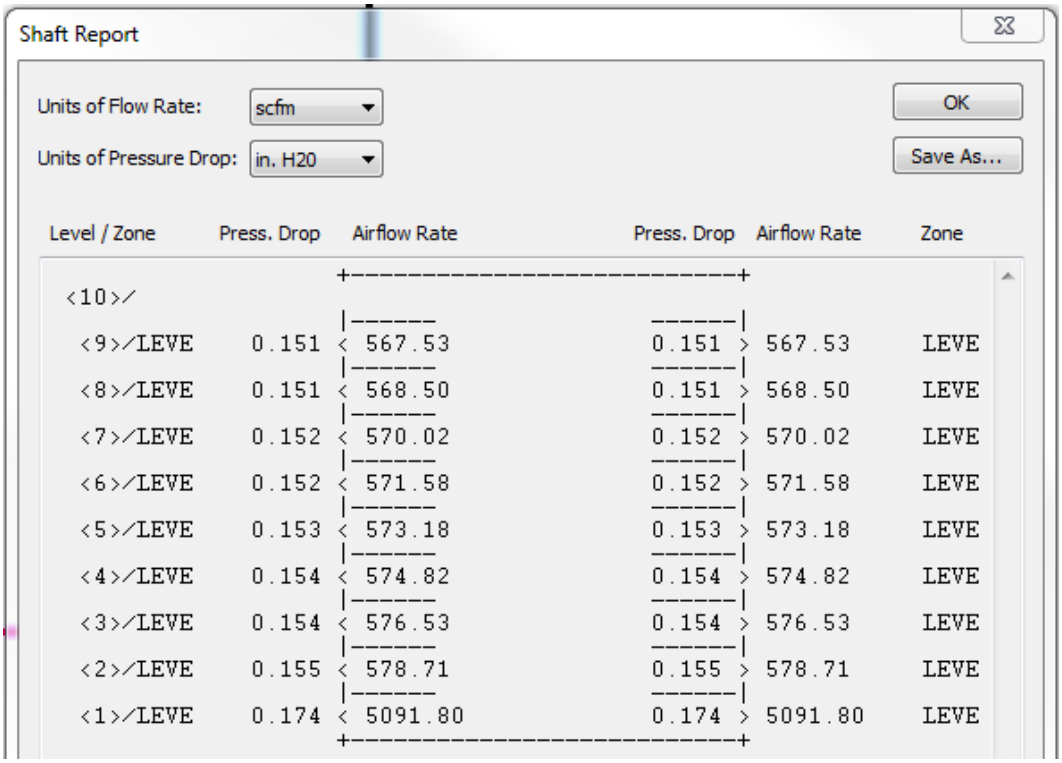
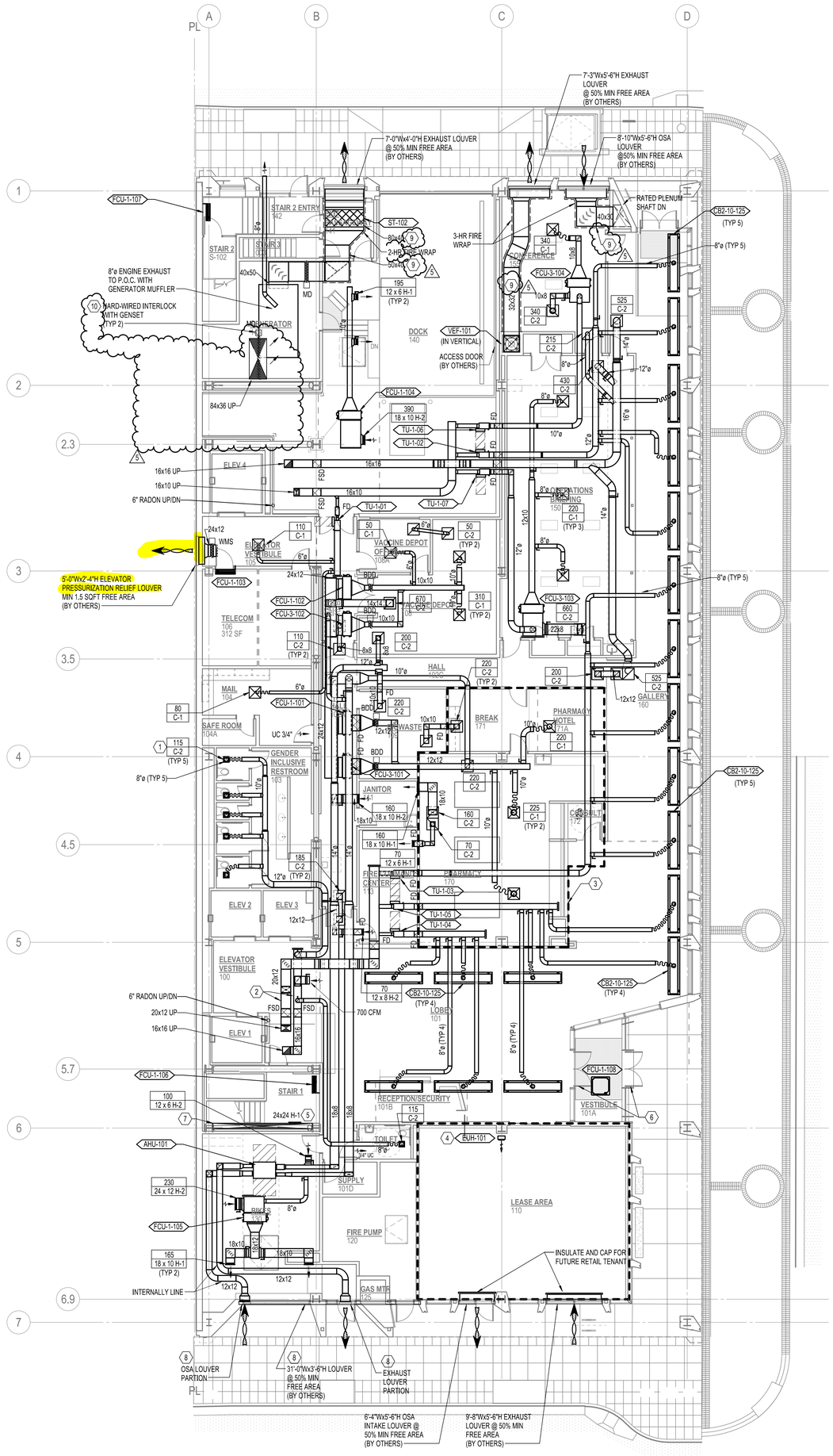


Figure 8: Elevator 1, Shaft Report – Winter Design Conditions.



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

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

D. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.

F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. ROUTE DUCT LOW TO ENABLE BALANCING DAMPERS AND FSD'S TO BE ACCESSED ALONG PERIMETER OF CLOUD CEILING WITHOUT NEED FOR ACCESS PANELS.

3. NO MECHANICAL EQUIPMENT NEEDING REGULAR MAINTENANCE ACCESS SHALL BE INSTALLED ABOVE THE PHARMACY.

4. COLD SHELL RETAIL SPACE WITH ELECTRIC UNIT HEATER TO PROVIDE TEMPORARY FREEZE PROTECTION.

5. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

6. ELEVATOR PRESSURIZATION RELIEF THROUGH LOBBY DOORS. DOORS TO BE ON EMERGENCY POWERED OPERATORS.

7. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

8. COORDINATE HIDDEN VERTICAL LOUVER MULLIONS WITH ARCHITECT TO PERMIT PARTITIONING OF 2'-0"Wx3'-6"H OUTSIDE AIR AND EXHAUST CONNECTIONS. OSA AND EXHAUST SHALL BE SEPARATED BY A MINIMUM OF 15FT. INSULATE AND CAP BACK SIDE OF ALL UNUSED PORTIONS OF LOUVER.

9. DUCT CONNECTION TO BAR GRILLE TO BE ALUMINUM AND SLOPED TO DRAIN THRU BAR GRILLE.

10. DAMPER TO BE SPRING OPEN AND MOTOR CLOSED TO COMPLY WITH NFPA 110-7.7.5. DAMPER SHALL CLOSE WHEN GENERATOR IS NOT ENABLED.

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Multnomah County

Revisions

1	ADD# 2 MAIN BLDG	02/16/17
2	COP PLAN REVIEW	02/23/17
3	RFI 15	03/09/17
4	ASI #2	03/16/17
5	COP PLAN REVIEW	05/05/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

FIRST FLOOR PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER 20070525 OREGON DEC. 31, 2017 JEFFREY S. BECKSTROM
EXPIRES 12-31-2017

Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-102-01

CONSTRUCTION DOCUMENTS

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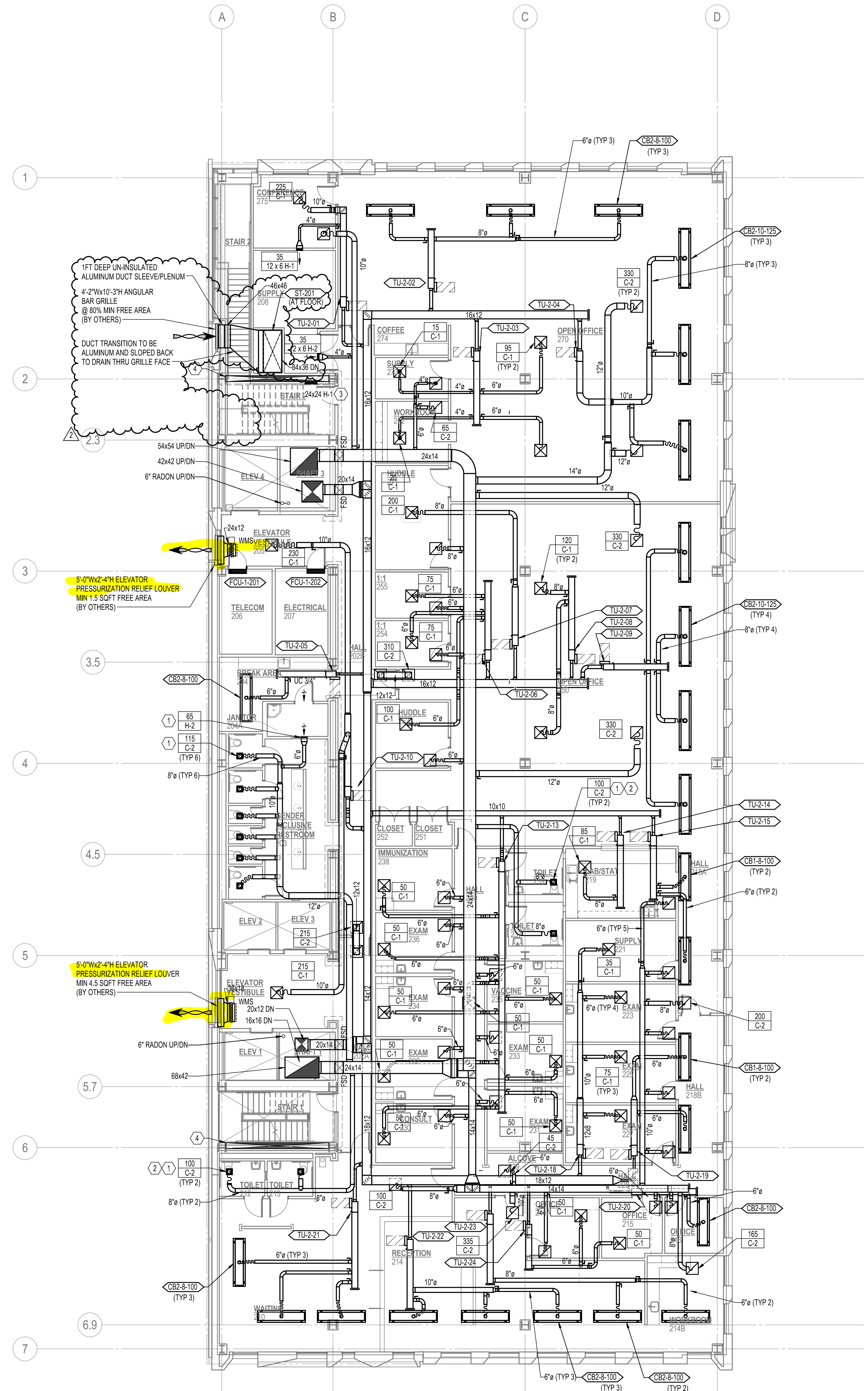

SECOND FLOOR PLAN - HVAC
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D. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

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F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. PROVIDE 1-INCH DOOR UNDERCUT.

3. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

4. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

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Multnomah County

Revisions

1	COP PLAN REVIEW	02/23/17
2	COP PLAN REVIEW	05/05/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

SECOND FLOOR PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER OREGON JEFFREY S. BECKSFORT
EXPIRES 12-31-2017

Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-103-02

CONSTRUCTION DOCUMENTS

5/5/2017 9:28:19 AM

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

D. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.

F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

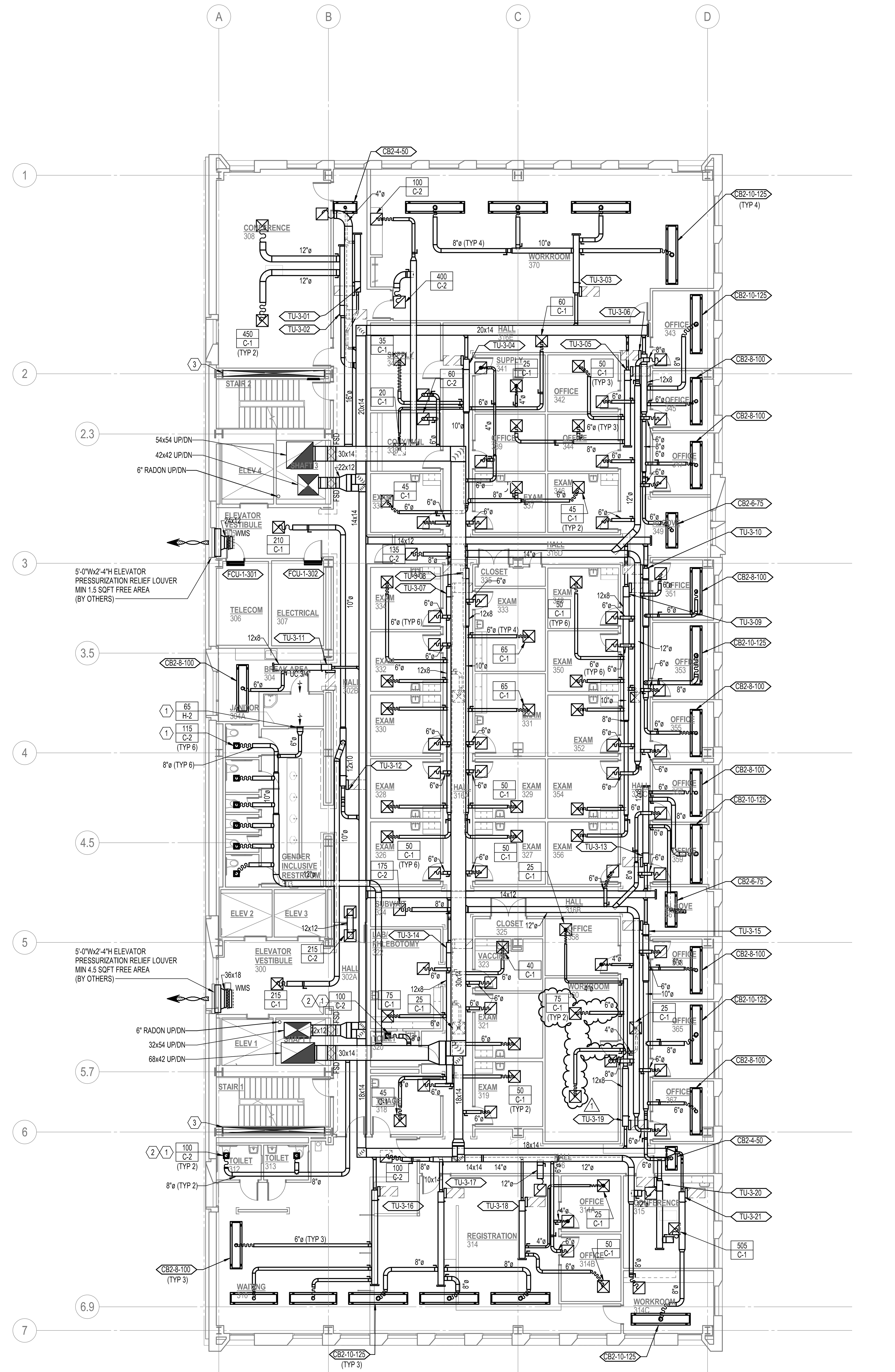
H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. PROVIDE 1-INCH DOOR UNDERCUT.

3. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.



1 THIRD FLOOR PLAN - HVAC
1/8" = 1'-0"

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Multnomah County

Revisions
1 ADD# 2 MAIN BLDG 02/16/17

MAIN BLDG CONFORMED SET
04/13/2017

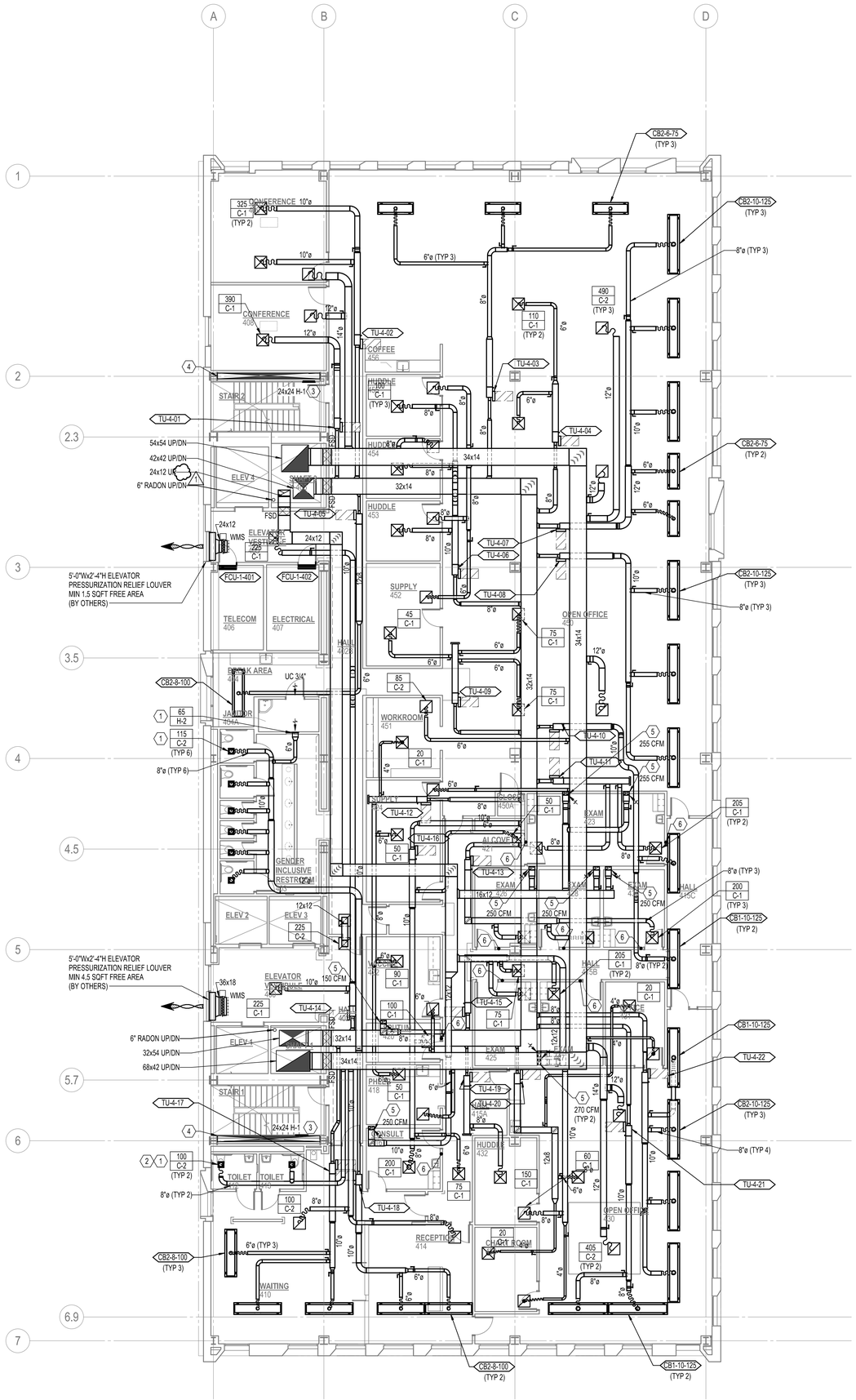
MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title
THIRD FLOOR PLAN - HVAC

Date: 2017.01.12
Job No: P21926
Drawn By: SAN
Checked By: JSB

Drawing No.
M-104-03
CONSTRUCTION DOCUMENTS

2/16/2017 10:41:29 AM



1 FOURTH FLOOR PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

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F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. PROVIDE 1-INCH DOOR UNDERCUT.

3. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

4. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

5. 12x6 EXHAUST DUCT DOWN TO TYPE H-3 10x10 EXHAUST GRILLE MOUNTED AT 1FT AFF. AIRFLOW AS INDICATED.

6. PROVIDE AIRFLOW DIRECTION INC. BALL-IN-THE-WALL VISUAL ROOM PRESSURE MOINTOR.

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Multnomah County

Revisions

1 ADD# 2 MAIN BLDG 02/16/17

MAIN BLDG CONFORMED SET
04/13/2017

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

FOURTH FLOOR PLAN - HVAC

OREGON REGISTERED PROFESSIONAL ENGINEER
JAMES S. BECKER
EXPIRES 12-31-2017
02-16-2017

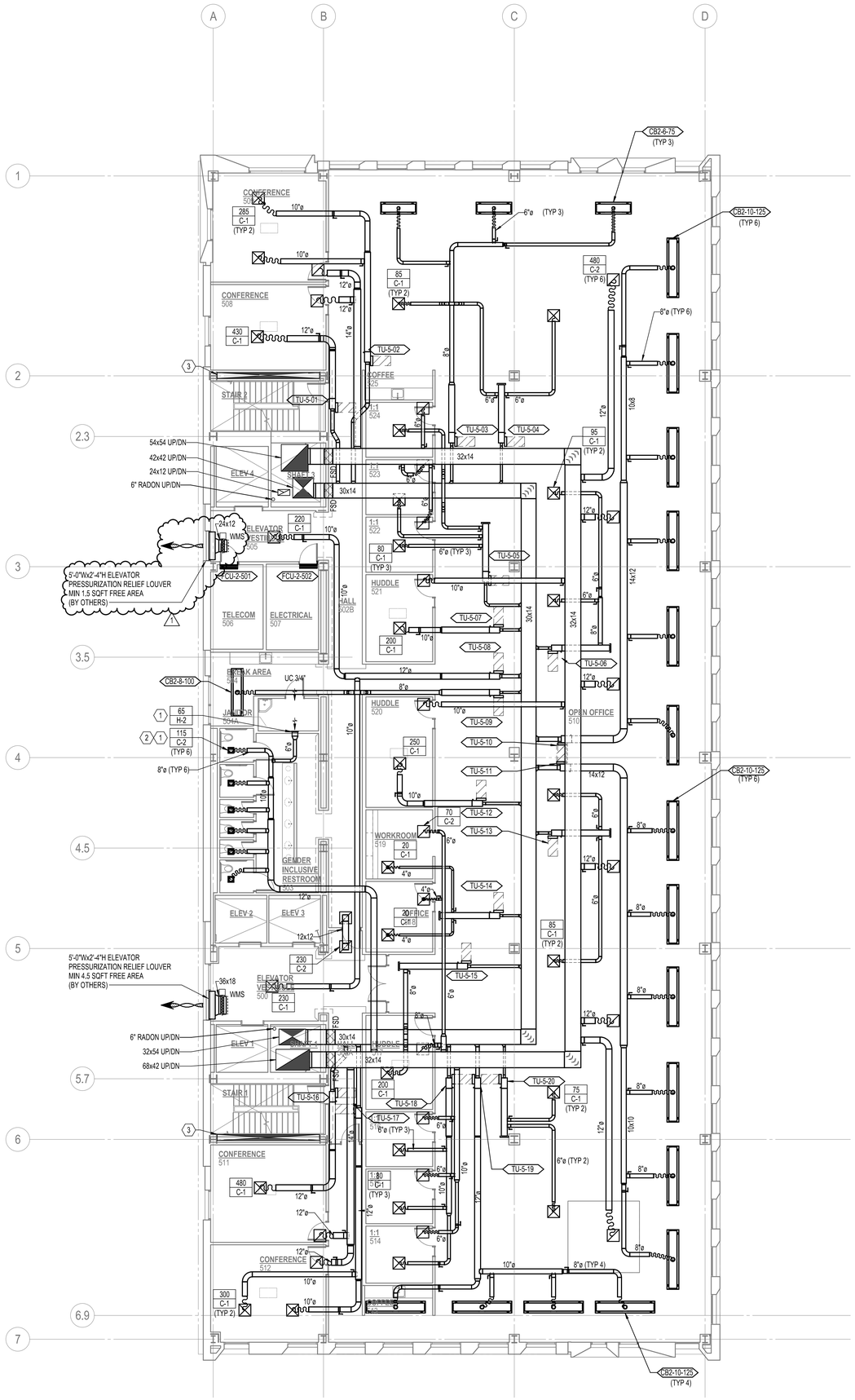
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-105-04

CONSTRUCTION DOCUMENTS

2/16/2017 10:41:39 AM



1 FIFTH FLOOR PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

D. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.

F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. RESTROOM/JANITOR ROOMS TO BE PROVIDE WITH TRANSFER AND EXHAUST DUCTS AND GRILLES. EXHAUST TO BE ROUTED TO AHU EXHUAST RISER.

2. NOT USED.

3. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

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Multnomah County

Revisions

1 ADD# 2 MAIN BLDG 02/16/17

MAIN BLDG CONFORMED SET
04/13/2017

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

FIFTH FLOOR PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER
OREGON
JEFFREY S. BECKETT
02-15-2017
EXPIRES: 12-31-2017

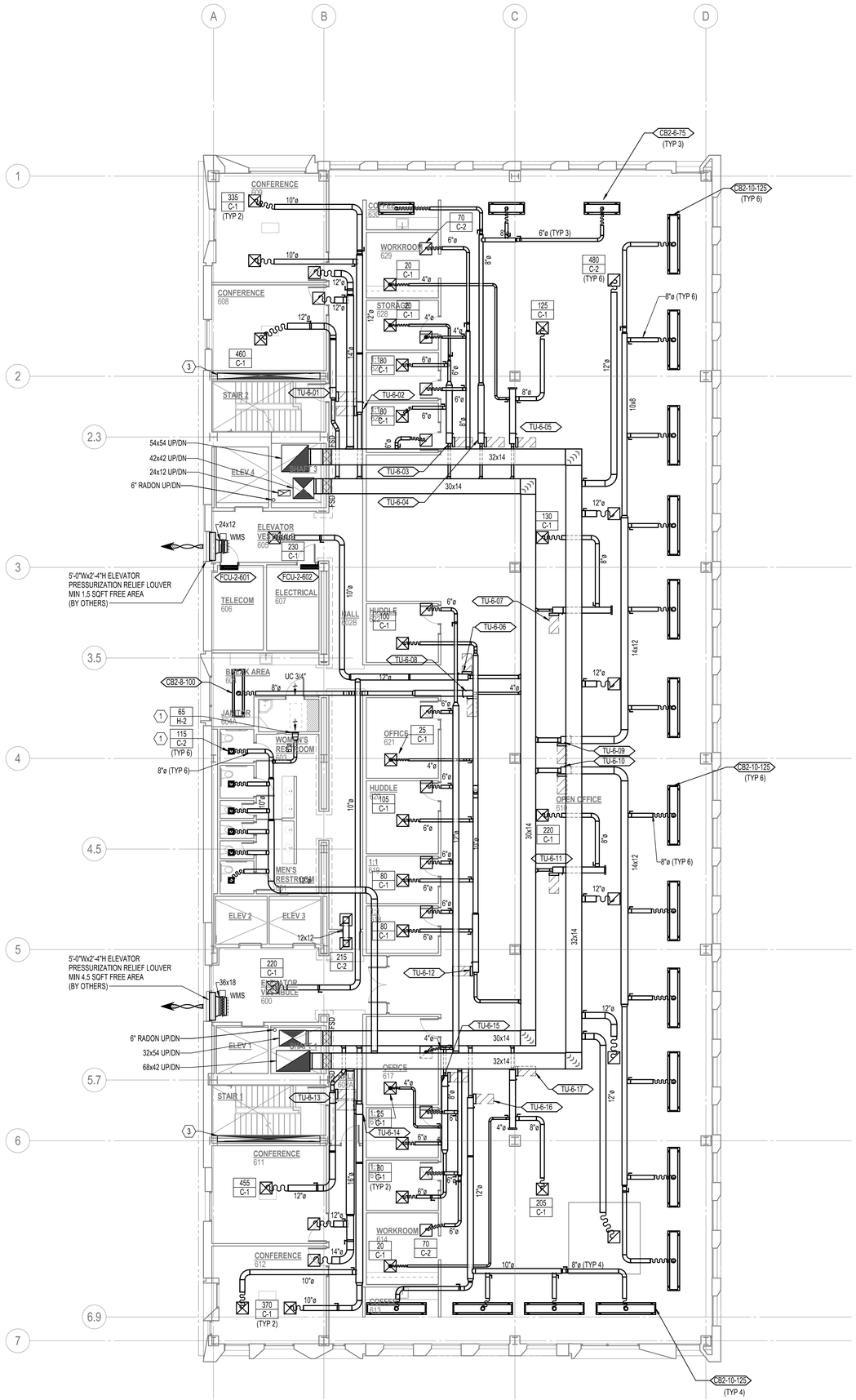
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-106-05

CONSTRUCTION DOCUMENTS

2/16/2017 10:41:47 AM



1 SIXTH FLOOR PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

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F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. NOT USED.

3. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

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Multnomah County

Revisions

MAIN BLDG CONFORMED SET
04/13/2017

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

SIXTH FLOOR PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER
OREGON
JEFFREY S. BECKMAN
DEC. 31, 2017
EXPIRES: 12-31-2017

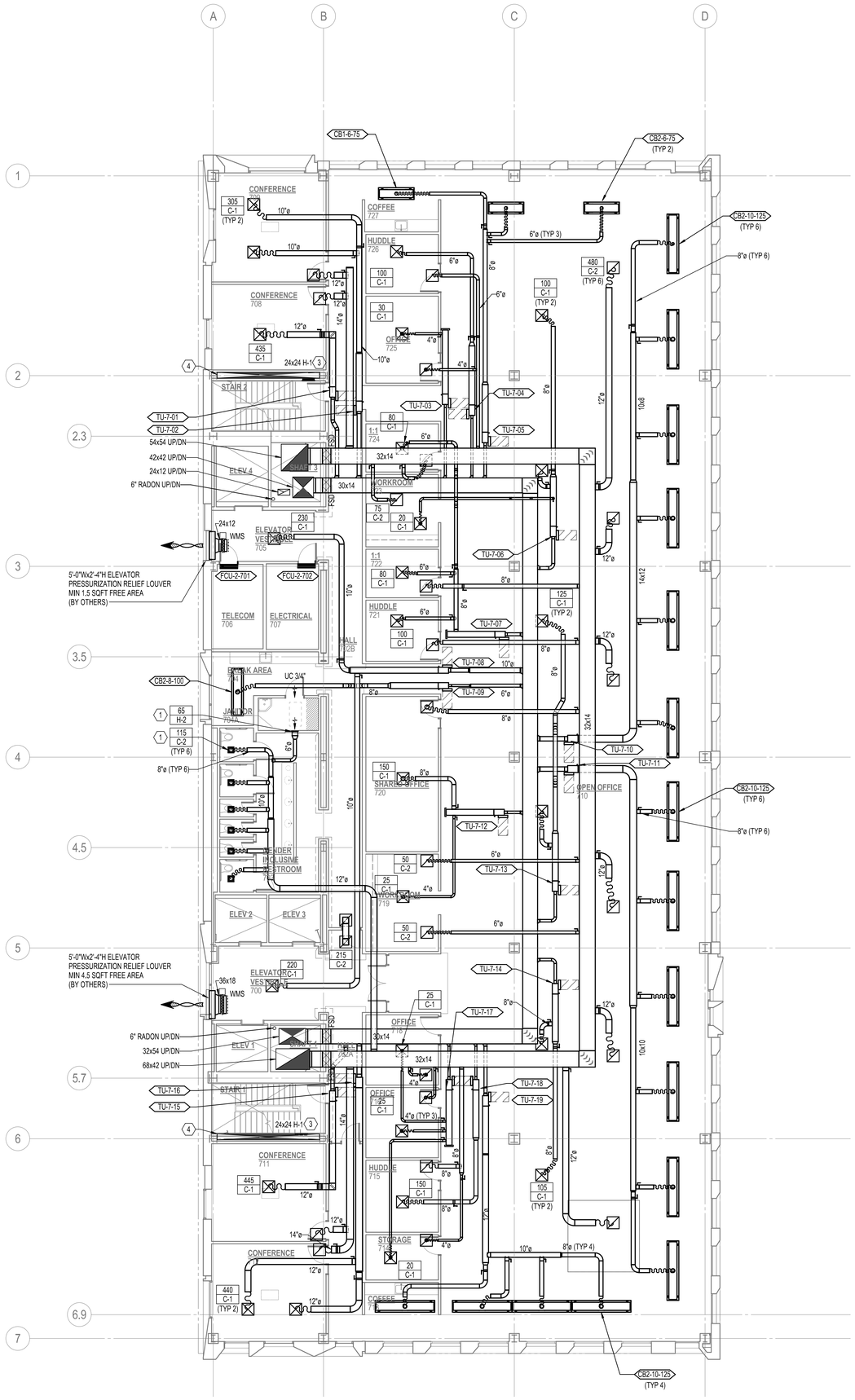
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-107-06

CONSTRUCTION DOCUMENTS

1/10/2017 11:54:15 AM



1 SEVENTH FLOOR PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

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F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING..

2. NOT USED.

3. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

4. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

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Multnomah County

Revisions

MAIN BLDG CONFORMED SET
04/13/2017

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

SEVENTH FLOOR PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER
JAMES S. BECKWITH
01-13-2017
EXPIRES: 12-31-2017

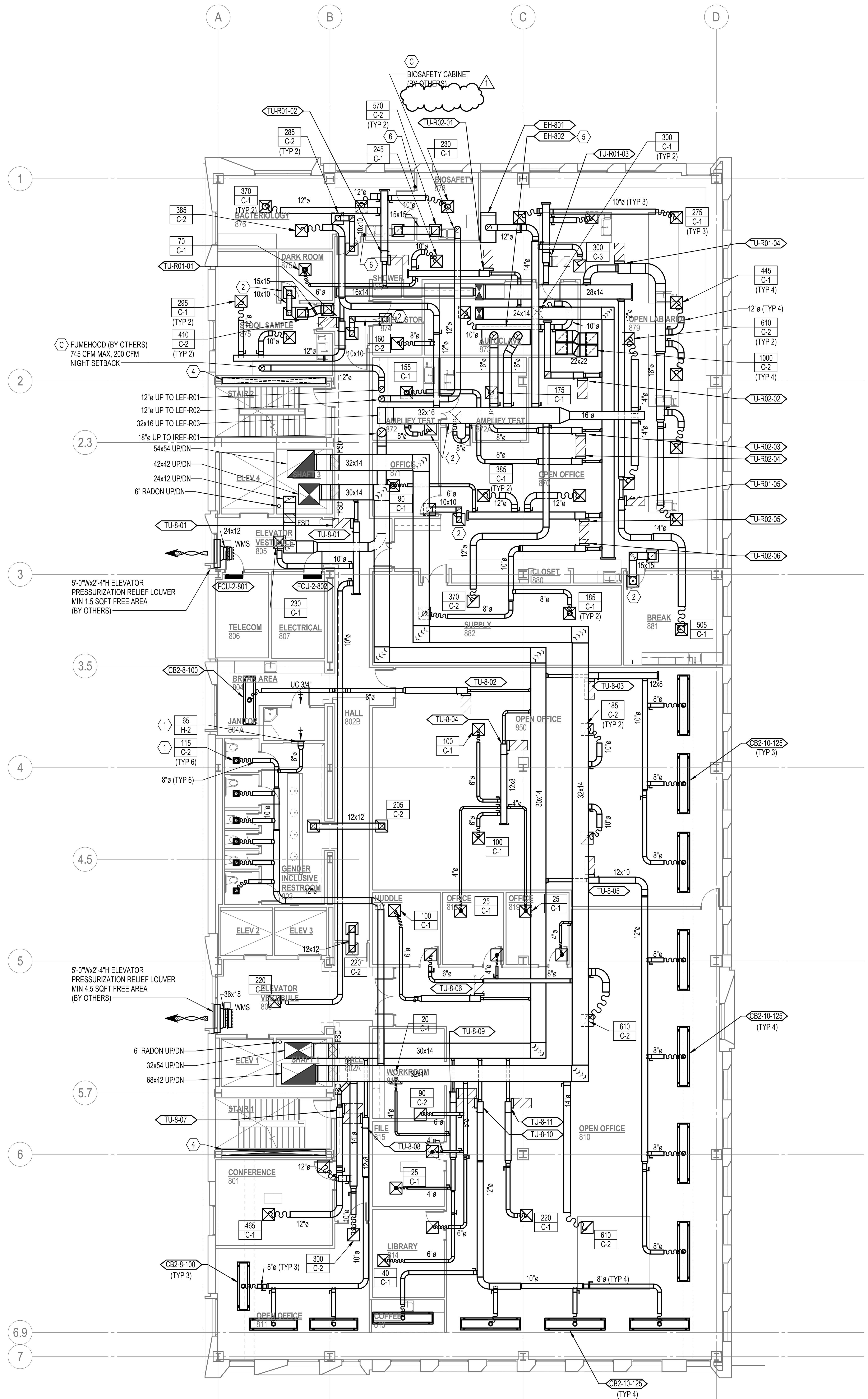
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-108-07

CONSTRUCTION DOCUMENTS

1/10/2017 11:54:26 AM



1 EIGHTH FLOOR PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

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G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. RETURN/EXHAUST GRILLE AIRFLOW TO MATCH SUPPLY DIFFUSER AIRFLOW. GRILLE TO BE TYPE C-2.

3. NOT USED.

4. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

5. MOUNT EXHAUST HOOD WITHIN 3-INCHES OF AUTOCLAVE AND POSITION DIRECTLY OVER OPEN DOOR. RUN 3/4" CONDENSATE DRAIN DOWN TO FLOOR SINK BETWEEN AUTOCLAVES.

6. PROVIDE AIRFLOW DIRECTION INC. BALL-IN-THE-WALL VISUAL ROOM PRESSURE MOINTOR.

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Multnomah County

Revisions

1 ADD# 2 MAIN BLDG 02/16/17

MAIN BLDG CONFORMED SET
04/13/2017

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

EIGHTH FLOOR PLAN - HVAC

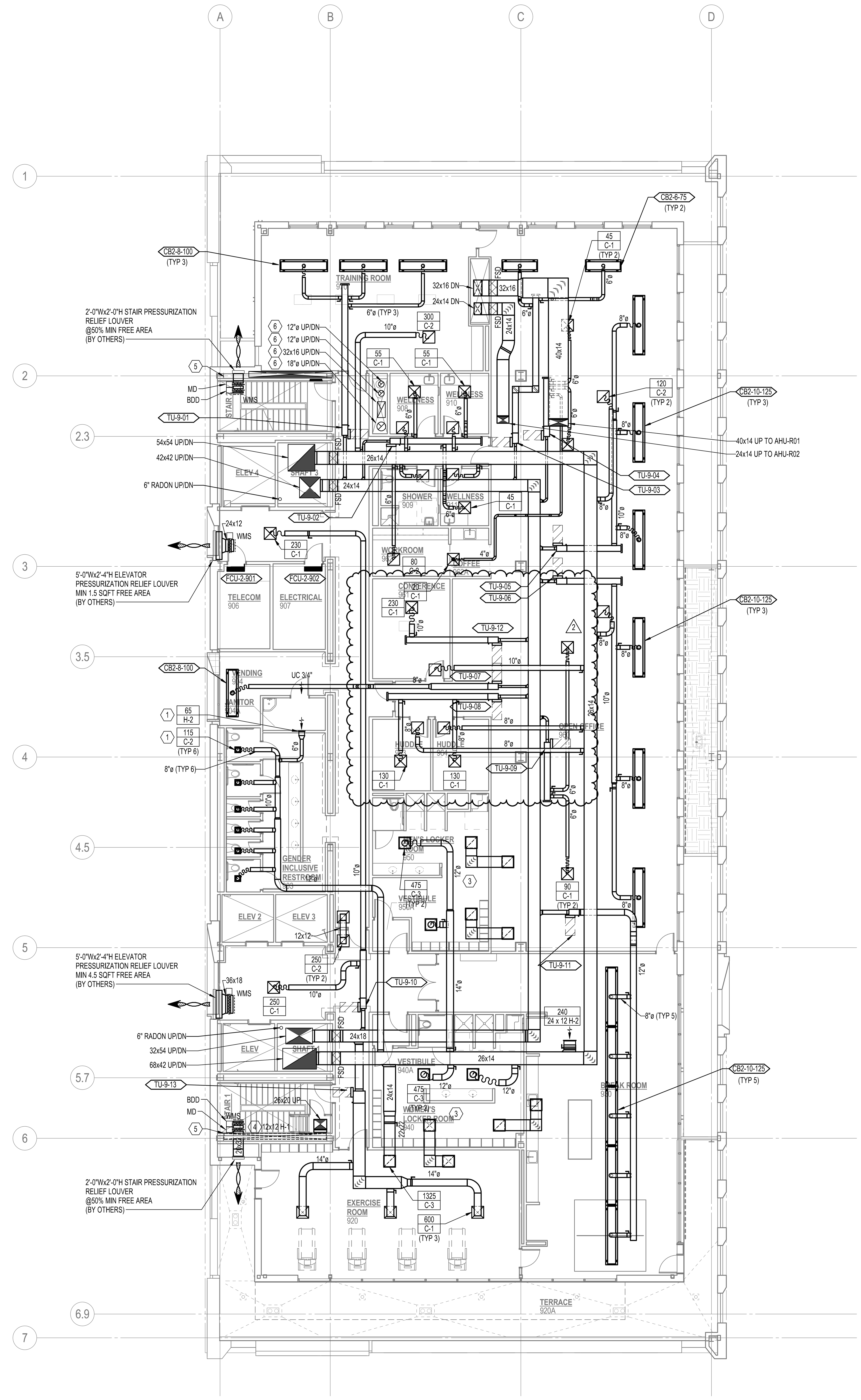
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-109-08

CONSTRUCTION DOCUMENTS

2/16/2017 10:41:57 AM



1 NINTH FLOOR PLANS - HVAC ALTERNATE 1
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

C. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. ALL DUCTWORK SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS AND UNDERSIDE OF BEAMS AND JOISTS.

D. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.

F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. PROVIDE OPPOSED BLADE DAMPER AT GRILLE FACE FOR BALANCING AND NOISE MASKING.

2. NOT USED.

3. ALL GRILLES AND EXHAUST DUCTS THIS AREA TO BE ALUMINUM.

4. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

5. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION.

6. OFFSET DUCTS IN CEILING TO CONNECT TO LAB FANS ON ROOF.

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Multnomah County

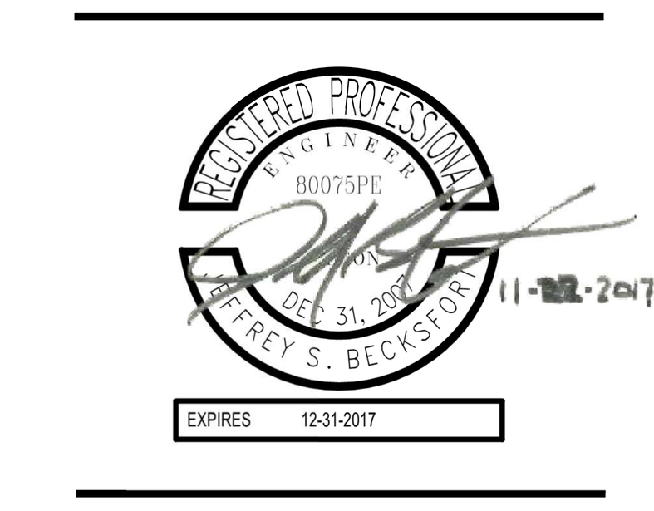
Revisions

1	RFI 0348	10/27/17
2	PR 010	11/22/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

NINTH FLOOR PLANS - HVAC ALTERNATE 1



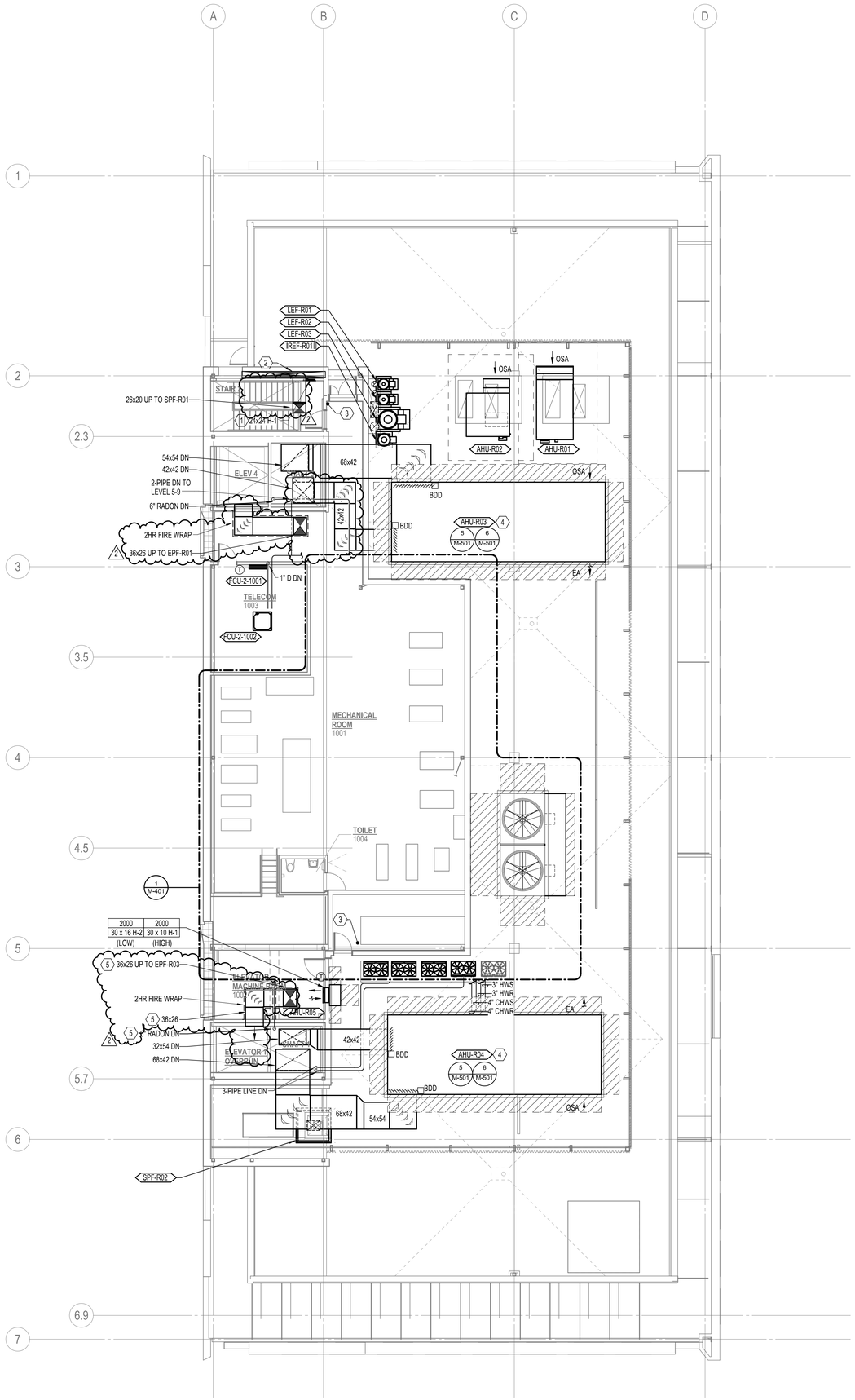
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-110-09 ALT-1

CONSTRUCTION DOCUMENTS

11/22/2017 11:45:37 AM



1 ROOF PLAN & MECHANICAL PENTHOUSE PLAN - HVAC
1/8" = 1'-0"

GENERAL NOTES:

A. PROVIDE VOLUME DAMPER AT EACH BRANCH INLET/OUTLET.

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F. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES AND RADIANT PANELS.

G. ALL DETAILS APPLY TO THIS SHEET WHETHER TAGGED OR NOT.

H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. STAIR PRESSURIZATION SUPPLY GRILLE WITH REMOVABLE FACE AND OPPOSED BLADE BALANCING DAMPER.

2. CAVITY TO SERVE AS AIRTIGHT PLENUM FOR STAIR PRESSURIZATION. PRESSURE TEST @ 0.30" SP. 5% MAXIMUM LEAKAGE RATE OUT OF THE PLENUMS INTO SPACES NOT SERVED BY THE PLENUM.

3. PROVIDE PUSH-BUTTON SWITCH FOR EMERGENCY SHUT DOWN OF ELECTRICAL POWER AND GAS SUPPLY TO BOILERS AND GAS WATER HEATERS.

4. COIL CONNECTIONS AND COIL PULL TO BE WITHIN RETURN AIR SECTION.

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Multnomah County

Revisions

1	ADD# 2 MAIN BLDG	02/16/17
2	COP PLAN REVIEW	05/05/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

ROOF PLAN & MECHANICAL PENTHOUSE PLAN - HVAC

REGISTERED PROFESSIONAL ENGINEER
800775PE
OREGON
DEC. 31, 2017
JEFFREY S. BECKSTOFFER
EXPIRES 12-31-2017

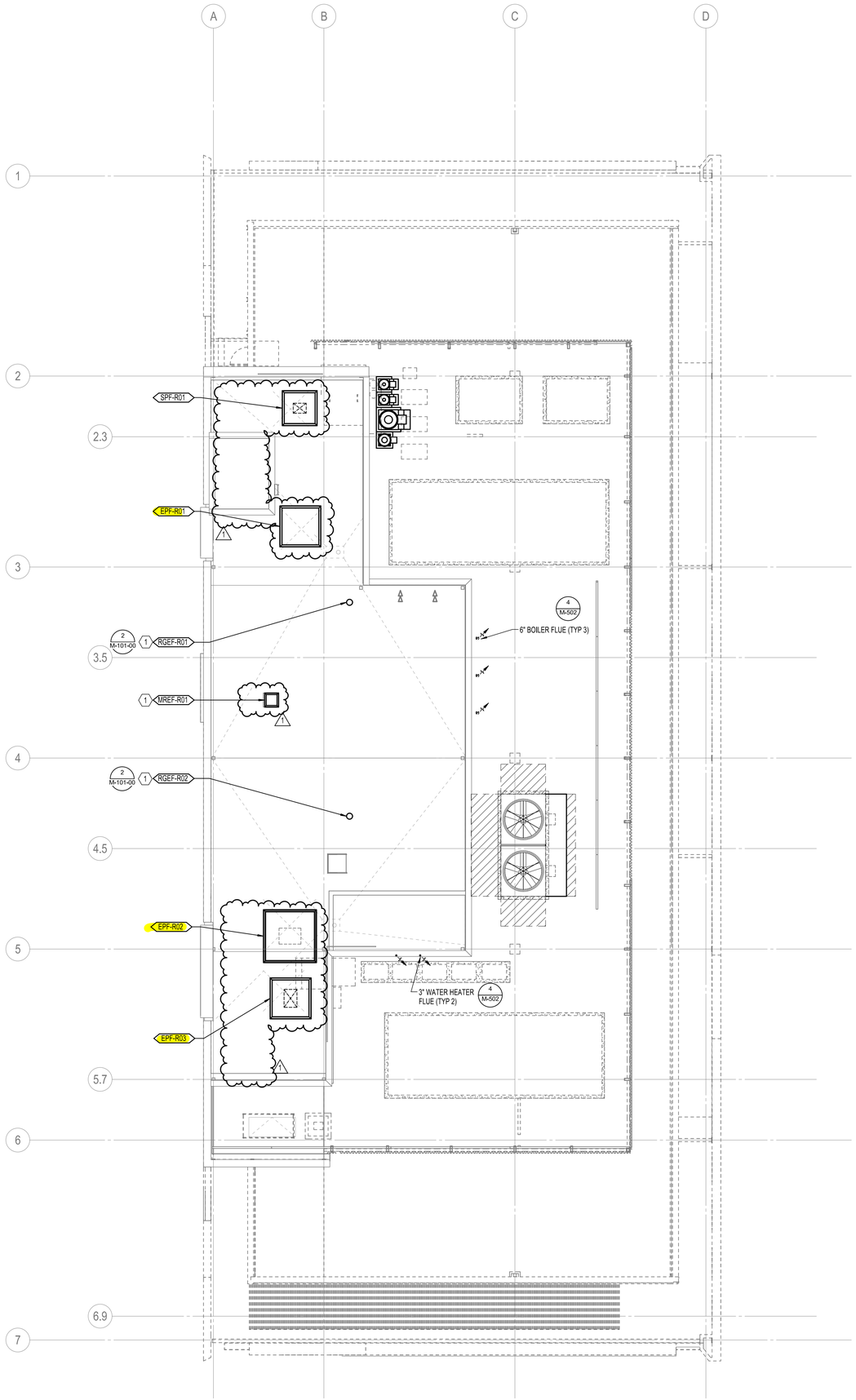
Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-111-10

CONSTRUCTION DOCUMENTS

5/5/2017 9:28:29 AM



1 PENTHOUSE ROOF - HVAC
1/8" = 1'-0"

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H. ALL RETURN AND EXHAUST AIRFLOWS TO MATCH SUPPLY FLOW RATES UNLESS OTHERWISE NOTED ON DRAWINGS.

NOTES:

1. LOCATE RADON EXHAUST FANS A MINIMUM OF 20FT FROM ANY OSA OR PRESSURIZATION FAN INTAKE.

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Multnomah County

Revisions

1 COP PLAN REVIEW 05/05/17

MULTNOMAH COUNTY HEALTH DEPARTMENT HEADQUARTERS

Drawing Title

PENTHOUSE ROOF - HVAC

REGISTERED PROFESSIONAL ENGINEER
80075PE
OREGON
DEC 31, 2010
JEFFREY S. BECKSTOFFER
EXPIRES 12-31-2017

Date:	2017.01.12
Job No:	P21926
Drawn By:	SAN
Checked By:	JSB

Drawing No.

M-112-11

CONSTRUCTION DOCUMENTS

5/5/2017 9:28:37 AM