



ADDENDUM 5
To Contract Documents for
EYECARE MEDICAL GROUP
53 SEWALL STREET
PORTLAND, ME 04102

E.M.G. - Phase 2 Addition & Renovation

This Addendum modifies, amends and supplements designated parts of the Contract Documents, Project Manual and Drawings for **E.M.G. - Phase 2 - Addition and Renovation** and is hereby made a part thereof by reference and shall be as binding as though inserted in its entirety in the locations specified herein. It shall be the responsibility of the Contractor to notify all Subcontractors and Suppliers he proposes to use for the various parts of the work of any changes or modifications contained in this Addendum.



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EYECARE MEDICAL GROUP
PHASE 2 ADDITION AND RENOVATION
ADDENDUM NO. 5
August 9, 2013

This Addendum modifies, amends and supplements designated parts of the Contract Documents, Project Manual and Drawings for E.M.G. - Phase 2 - Addition and Renovation and is hereby made a part thereof by reference and shall be as binding as though inserted in its entirety in the locations specified herein. It shall be the responsibility of the Contractor to notify all Subcontractors and Suppliers he proposes to use for the various parts of the work of any changes or modifications contained in this Addendum.

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GENERAL INFORMATION

- I. None

PART I- ADDENDUM FOR CIVIL SPECIFICATIONS AND DRAWINGS:

Changes to the Drawings

- I. ADD Fabco Stormsok as shown in the attached detail C-SK-ADD 5.I.

PART II- ADDENDUM FOR STRUCTURAL SPECIFICATIONS AND DRAWINGS:

Changes to the Drawings

- I. Sheet SF-100: Refer to attached Sketch SKS-I2 for revisions.
2. Sheet SF-100: Refer to attached Sketch SKS-I3 for revisions.
3. Sheet SF-100: Refer to attached Sketch SKS-I4 for revisions.

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PART III- ADDENDUM FOR ARCHITECTURAL PROJECT MANUALS AND DRAWINGS:

Changes to the Drawings

Sheet AI00.A

1. CHANGE the layout of Offices I06, I13 & I16 & Toilets I07, I14 & I15 as shown on the attached SKA-7.
2. CHANGE the window location as shown on the attached SKA-7.
3. DELETE the window in the west wall of Office AI06 (now Pvt Tlt AI07) as indicated on the attached SKA-7.
4. Change location of door AI17 for the Gas Room as shown on SKA-9.

Sheet AI01.A

5. CHANGE the ceiling plan and lighting as indicated on the attached SKA-8.
6. CHANGE the linear wall light in Pvt Tlt AI15 to be 2'-0" wide.
7. CHANGE text reading "ALUM. SOFFIT AT EXTERIOR CANOPY" to read "METAL SOFFIT PANELS AT EXTERIOR CANOPY".

Sheet A200

8. Replace sheet A200 with the attached sheet A200. This revises the brick color scheme and deletes the west window in Office AI06. A rendering is attached for reference to brick color scheme only.

Sheet A201

9. ADD pass-through slots at Check-Out AI22, elevation C3/A201, as shown in the attached SKA-10.
10. DELETE all glass at Reception BI01. Delete associated text and graphics on elevations B3, B4, B5, & C1 on A201.

Sheet A202

11. DELETE all glass at Nurse BI08. Delete associated text and graphics on elevations C1, C2, C3, & C5.
12. DELETE single door/drawer base cabinet shown on elevation AI/A202 for Staff Room BI02 and tag reading A3/A507. CHANGE counter and counter support configuration to include two (2) end panels in place of the cabinet. The clear width shall accommodate the Owner's under-counter refrigerator.

Sheet A507

13. DELETE all glass and associated accessories shown on detail B4/A507.

Sheet A600

14. CHANGE A600 Room Finish Schedule, Walls, to read "WP" (wall protection) for rooms listed below and as shown on the Interior Elevations.
Corridor BI04
Storage BI07

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Nurse B108
Post Op B109
Soiled Hold B111
Scrub B112
Linen B113
Crash Cart B114
Corridor B115

Sheet A201, A202, & A203

- 15.** CHANGE all notations of "WP" (wall protection) on the interior elevations to be full height to ceiling (DELETE notes reading "PTD GWB").

PART IV- ADDENDUM FOR MECHANICAL SPECIFICATIONS AND DRAWINGS:

Changes to the Specifications

1. Section 221116 - Domestic Water Piping – Supplemental Information: **ADD** Paragraph 2.5 as follows:

"2.5 CPVC PIPING

- A. CPVC Pipe: ASTM F 441/F 441M, Schedule 40
B. CPVC Socket Fittings: ASTM F 438 for Schedule 40

- D. CPVC Piping System: ASTM D 2846/D 2846M, SDR II, pipe and socket fittings
E. CPVC Tubing System: ASTM D 2846/D 2846M, SDR II, tube and socket fittings."

2. Section 221116 - Domestic Water Piping – Supplemental Information: **REVISE** Paragraph 3.1 D. to read as follows:

"D. Aboveground Domestic Water or Non-Potable Water Piping: Use the following piping materials for each size range:

1. **NPS 3** and Smaller: Type L copper or schedule 40 CPVC; socket fittings; and solvent-cemented joints.
2. **NPS 4 to NPS 6**: Type L copper or schedule 40 CPVC; socket fittings; and solvent-cemented joints."

3. Section 230548 – Mechanical Seismic Controls: **DELETE** the section in its entirety. **ADD** in its place, revised Section 230548 – Mechanical Seismic Controls, attached.

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4. Section 230900 - Instrumentation and Control for HVAC: **ADD** Sub-paragraph 2.2 B. 4. As follows:

“4. Alternate control manufacturers will be considered for approval. Final approval for alternate vendors shall be subject to owner/a-e review, based upon the alternate vendor’s ability to meet the specified requirements.”

5. Section 230993 – Sequence of Operations for HVAC Controls: **REVISE** Sub-paragraph I.7 F. 3. to read as follows:

“3. The return fan shall modulate to track the supply fan flows. Return air fan speed control shall be provided by a proportional integral derivative (PID) algorithm that modulates the VFD to maintain the specified offset, to be field set by the TAB technician to maintain positive pressure for the operating rooms, through all conditions.”

6. Section 230993 – Sequence of Operations for HVAC Controls: **REVISE** Paragraph I.10 A. to read as follows:

“A. Occupied Mode

1. VAV terminal unit modulates supply air to maintain constant airflow as scheduled.

2. On rise in space temperature above setpoint, as determined by temperature sensor located at the space, the reheat coil control valve shall close.

4. On drop in space temperature below setpoint, reheat coil control valve modulates open to maintain space temperature.

5. Electric humidifier (**Alternate NOI**) (one for each pair of OR’s) modulates through its package controller (interfaced with BAS) to maintain space humidity, as determined by exhaust duct mounted humidistat, at setpoint (30% RH, adj.). Humidity high limit switch de-energizes humidifier on rise in supply air humidity above high limit. Flow switch mounted at supply duct prohibits steam flow until proven airflow.”

7. Section 230993 – Sequence of Operations for HVAC Controls: **DELETE** Sub-paragraph I.10 B. in its entirety.

8. Section 230993 – Sequence of Operations for HVAC Controls: **DELETE** Paragraph I.12 C. in its entirety.

9. Section 230993 – Sequence of Operations for HVAC Controls: **RFEVISE** Paragraph I.12 D. to read as follows:

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“D. SAD-I

1. In occupied mode, SAD-I shall modulate to maintain constant flow as scheduled.
2. In unoccupied mode, SAD-I shall remain closed unless a call for heat, when spaces fall below unoccupied setpoint, at which time the damper shall open to maintain unoccupied setpoint until temperature is satisfied.”

10. Section 233113 – Metal Ducts: **DELETE** Paragraph 2.6 in their entirety. **ADD** in its place the following:

“2.9 DUCT LINER

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Certainteed Toughgard-2
 2. Knauf Textile Duct Liner with Hydroshield™ Technology
 3. John Mansville Linacousic RC
 4. McGill Airflow
- B. All products shall be certified by Greenguard Environmental Institute; independent testing of products for emissions of respirable particles and Volatile Organic Compounds (VOC's), including formaldehyde and other specific product-related pollutants. Greenguard provides independent, third-party certification of IAQ performance. Certification is based upon criteria used by EPA, OSHA and WHO.
- C. Liner Thickness:
1. General duty: 1 inch (R4.2)
 2. Ducts located outside of building or ventilated attics: 2” (R8.0).
- D. Fibrous-Glass Duct Liner :All ducts indicated on drawings, shall be insulated with duct liner meeting the requirements of ASTM C1071 and the additional following requirements:
1. Have a liquid water repellency rating not less than 4 when tested in accordance with INDA IST 80.6.
 2. Have a potential heat value not exceeding 3500 btu/lb when tested in accordance with NFPA 259 and meeting the classification of “Limited Combustible” as defined by NFPA 90A.
 3. Maximum rated velocity not less than 6000 FPM when tested in accordance with ASTM C 1071.
 4. Antimicrobial Erosion-Resistant Coating: Apply to the surface of the liner that will form the interior surface of the duct to act as a moisture repellent and erosion-resistant coating. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems. Resistant to microbial growth using a “no growth criteria” when tested in accordance with ASTM C 1138, G 21 and G22.
 5. Duct dimensions shown on the contract drawings are for airflow area. When ducts are acoustically lined, their dimensions shall be increased as necessary.

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6. Duct liner adhesive sealants shall meet requirement for "LEED IEQ Credit 4.1: Low Emitting Materials: Adhesive and Sealant". ITW TACC PF-101/PF-102, or approved equal.
- E. Flexible Elastomeric
1. Basis-of-Design Product: Subject to compliance with requirements, provide Armacell LLC; AP Armaflex, or a comparable product by one of the following:
 - a. Aeroflex USA Inc.; Aerocel.
 - b. RBX Corporation; Insul-Sheet 1800
 2. Armaflex: All ducts, where shown on the drawings, shall be lined with thick AP/Armaflex SA duct liner, or approved equal. The liner shall meet the requirements of NFPA 90A and UL 181.
 - a. Temperature Range: -40F to 180F.
 - b. Thermal conductivity: 0.27 @ 75°F (24°C) mean temp (ASTM C 518).
 - c. Water vapor transmission: less than 0.08 (1.16 x 10⁻¹³) (ASTM E 96, Procedure A)
 - d. Water vapor transmission: less than 0.2% by volume (ASTM C 209)
 - e. Microbial growth: none (ASTM C 1071), ASTM G21- fungal), ASTM G22 – bacterial).
 - f. Erosion Resistance: Does not break away, flake off or show evidence of delamination at velocities of 6,000ft./min. (ASTM C 1071)
 - g. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
 - h. Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A. Duct liner adhesive sealants shall meet requirement for "LEED IEQ Credit 4.1: Low Emitting Materials: Adhesive and Sealant".
 - i. Comply with ASTM C 534, Type II, Grade I, for sheet materials.
 - j. Provide product recognized under Underwriters Laboratories "UL 94 - Plastic Component Classification" and listed in Factory Mutual "FM Approval Guide."
- F. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 7-II, "Flexible Duct Liner Installation."
1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
 2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
 3. Butt transverse joints without gaps, and coat joint with adhesive.
 4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.

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5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.
 6. Apply adhesive coating on longitudinal seams in ducts with air velocity of 2500 fpm.
 7. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.
 8. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the following locations:
 - a. Fan discharges.
 - b. Intervals of lined duct preceding unlined duct.
 - c. Upstream edges of transverse joints in ducts where air velocities are higher than 2500 fpm or where indicated."
-
11. Section 233113 – Metal Ducts: **DELETE** Paragraph 2.8 in its entirety.
 12. Section 237313 – Modular Central-Station Air Handling Units: **DELETE** Paragraphs 1.5 A-D in their entirety.
 13. Section 237313 – Modular Central-Station Air Handling Units: **DELETE** Paragraph 2.2 E. in its entirety.
 14. Section 237313 – Modular Central-Station Air Handling Units: **DELETE** Sub-paragraph 2.3 F. 6. in its entirety.
 15. Section 237313 – Modular Central-Station Air Handling Units: **DELETE** Paragraph 2.3 G. in its entirety.
 16. Section 237313 – Modular Central-Station Air Handling Units: **ADD** Paragraph 2.11 as flows:

"2.11 Roof Curbs:
 - I. Materials: Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.
 - I. Curb Insulation and Adhesive: Comply with NFPA 90A. Materials: ASTM C 1071, Type I or II. **2 inches**. Application: Factory applied with adhesive and mechanical fasteners to the internal surface of curb. Liner Adhesive: Comply with ASTM C 916, Type I. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by

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manufacturer and without causing leakage in cabinet. Liner materials applied in this location shall have air-stream surface coated with a temperature-resistant coating or faced with a plain or coated fibrous mat or fabric depending on service air velocity. Liner Adhesive: Comply with ASTM C 916, Type I.

2. Curb Height: 14 inches.”

17. Section 237314 – Custom Air-Handling Units: **ADD** Paragraph 2.2 D. as follows:

“D. Seismic Qualification Testing and structural analysis shall be conducted in accordance with and strict adherence to the standards set forth within ASCE 7 by an independent approval agency with a complete list of certified models, options, and installation methods provided in an approved detailed report. The above referenced equipment shall be approved for seismic applications when properly installed and used as intended. The basis of the certification shall be obtained through a combination of testing of the active and energized components per ACI56, and analysis of the main force resisting members of the unit. Additional calculations shall be conducted to ensure components, accessories, and options remained intact and attached to the unit under seismic load conditions. The certification shall be based on a maximum Design Structural Response Acceleration at Short Period (Sds) value of .357 g's for IBC 2009. This is obtained from the Maximum Considered Earthquake Short Period Spectral Response Acceleration, Ss, of .352 g's as determined by the ASCE 7 seismic maps for Soil Site Class D with 5 percent damping. Occupancy Category II and Seismic Design Category C shall be covered under this certification, limited by the Sds value stated above. A seismic importance factor, Ip, of 1.5 shall apply to the certification to include essential facility requirements and life safety applications for post event functionality.”

18. Section 237314 – Custom Air-Handling Units: **DELETE** Sub-paragraph 2.3 D. 7. In its entirety.

19. Section 237314 – Custom Air-Handling Units: **DELETE** Sub-paragraph 2.3 D. 7. In its entirety.

20. Section 237314 – Custom Air-Handling Units: **ADD** Paragraph 2.12 as flows:

“2.12 Roof Curbs:

3. Materials: Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.
4. Curb Insulation and Adhesive: Comply with NFPA 90A. Materials: ASTM C 1071, Type I or II. **2 inches**. Application: Factory

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applied with adhesive and mechanical fasteners to the internal surface of curb. Liner Adhesive: Comply with ASTM C 916, Type I. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in cabinet. Liner materials applied in this location shall have air-stream surface coated with a temperature-resistant coating or faced with a plain or coated fibrous mat or fabric depending on service air velocity. Liner Adhesive: Comply with ASTM C 916, Type I.

5. Curb Height: 14 inches.”

CHANGES TO THE DRAWINGS

1. Sheet PL-100: **DELETE** entire sheet. **ADD** its place attached Sheet PL-100.
2. Sheet PL-101: **DELETE** entire sheet. **ADD** its place attached Sheet PL-101.
3. Sheet PL-102: **DELETE** entire sheet. **ADD** its place attached Sheet PL-102.
4. Sheet PL-104: **DELETE** entire sheet. **ADD** its place attached Sheet PL-104.
5. Sheet MD-100: **DELETE** entire sheet. **ADD** its place attached Sheet MD-100.
6. Sheet MH-100: **DELETE** entire sheet. **ADD** its place attached Sheet MH-100.
7. Sheet MH-101: **DELETE** entire sheet. **ADD** its place attached Sheet MH-101.
8. Sheet MH-102: **DELETE** entire sheet. **ADD** its place attached Sheet MH-102.
9. Sheet MH-400: **DELETE** entire sheet. **ADD** its place attached Sheet MH-400.
10. Sheet MP-100: **DELETE** entire sheet. **ADD** its place attached Sheet MP-100.
11. Sheet MH-600: **DELETE** entire sheet. **ADD** its place attached Sheet MH-600.

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PART V- ADDENDUM FOR ELECTRICAL SPECIFICATIONS AND DRAWINGS:

Changes to the Specifications

1. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: **ADD** Paragraph 3.2, H. as follows:
 - H. Branch Circuits from isolated power supplies: Type XHHW-2 single conductors in raceway.
2. Section 283111 - Digital, Addressable Fire Alarm System: **DELETE** entire section. **ADD** in its place attached Section 283111 – Fire Alarm System.

Changes to the Drawings

1. Sheet E000: At Detail G9, **DELETE** the description for Expeditor Console System Box Type A. **ADD** in its place the following description:

Expeditor Console System Box Type A, Single-gang telecommunications device mounting ring. Cable shall be installed by Expeditor system vendor prior to walls being enclosed.
2. Sheet ELI00: Refer to attached Sketches SKE-09 and SKE-10 for revisions.
3. Sheet EPI00: Refer to attached sketches SKE-06 and SKE-07 for revisions.
4. Sheet EPI01: At Post Op BI09, **DELETE** the six wall mounted telephone outlets added under Addendum N03.
5. Sheet EPI01: At Nurse BI23, **DELETE** the indicated receptacles and tel/data outlets. Existing items in this room shall remain.
6. Sheet EPI01: Refer to attached sketches SKE-11, SKE-12, and SKE-13 for further revisions.
7. Sheet EPI02: Clarification: The chiller to be relocated is fed from a 90-amp, 3-pole circuit breaker in existing Panel DP.
8. Sheet EPI02: In lieu of indicated locations for RTU-1, EF-4, and EF-5, the units shall be located as indicated on attached Sketch SKE-08.
9. Sheet FAI00: **DELETE** entire sheet. **ADD** its place attached Sheet FAI00.
10. Sheet FAI01: **DELETE** entire sheet. **ADD** its place attached Sheet FAI01.

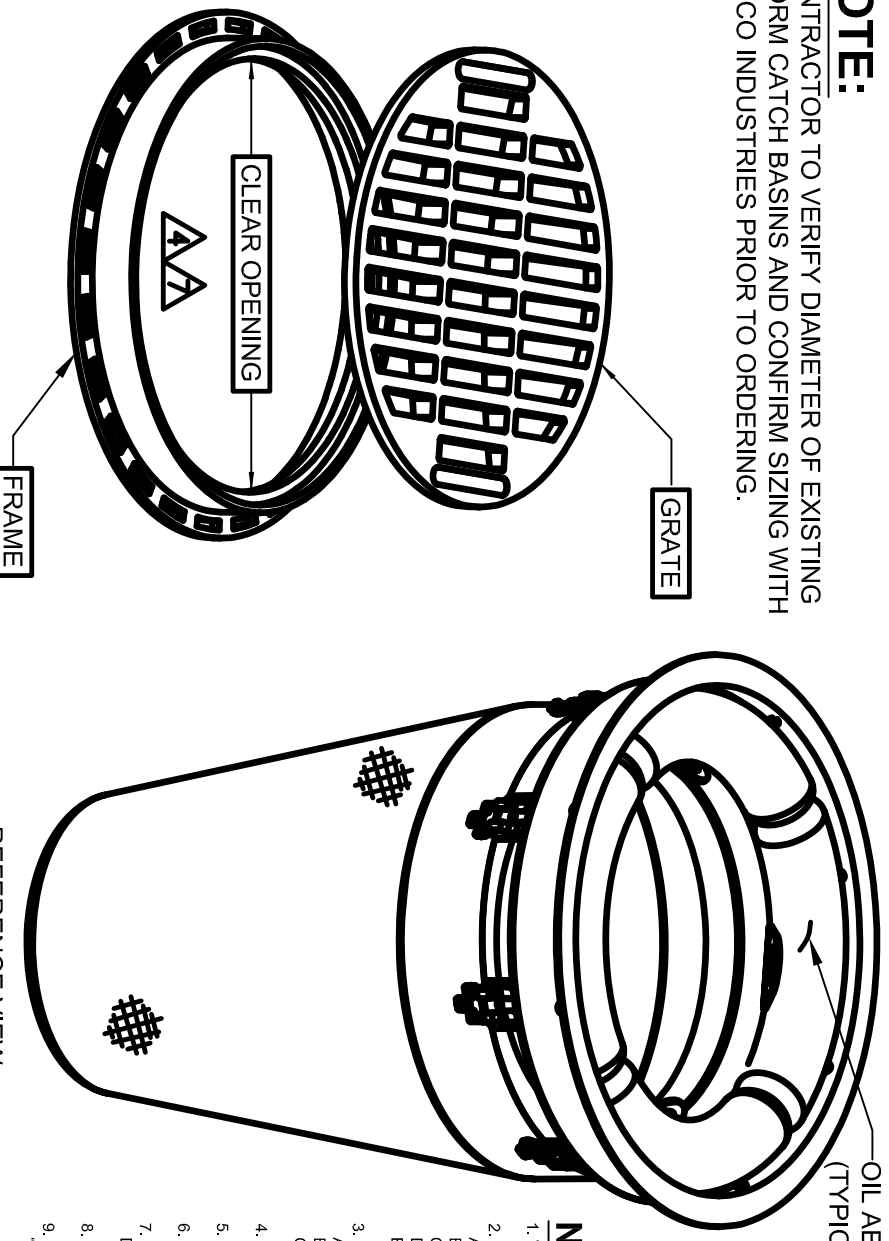
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- ii. Sketch SKE-4 Issued under Addendum 4: DELETE Note N02 in its entirety. ADD in its place Note N02 as follows:
 - 2. In areas with inaccessible ceilings, provide conduit to nearest accessible corridor ceiling - 1" Conduit to single-gang boxes, 1-1/4" conduit to double-gang boxes. In areas with accessible ceilings, Division 26 shall provide telecommunication device mounting rings and Division 27 shall install cables without conduit prior to walls being enclosed.

END OF ADDENDUM

NOTE:

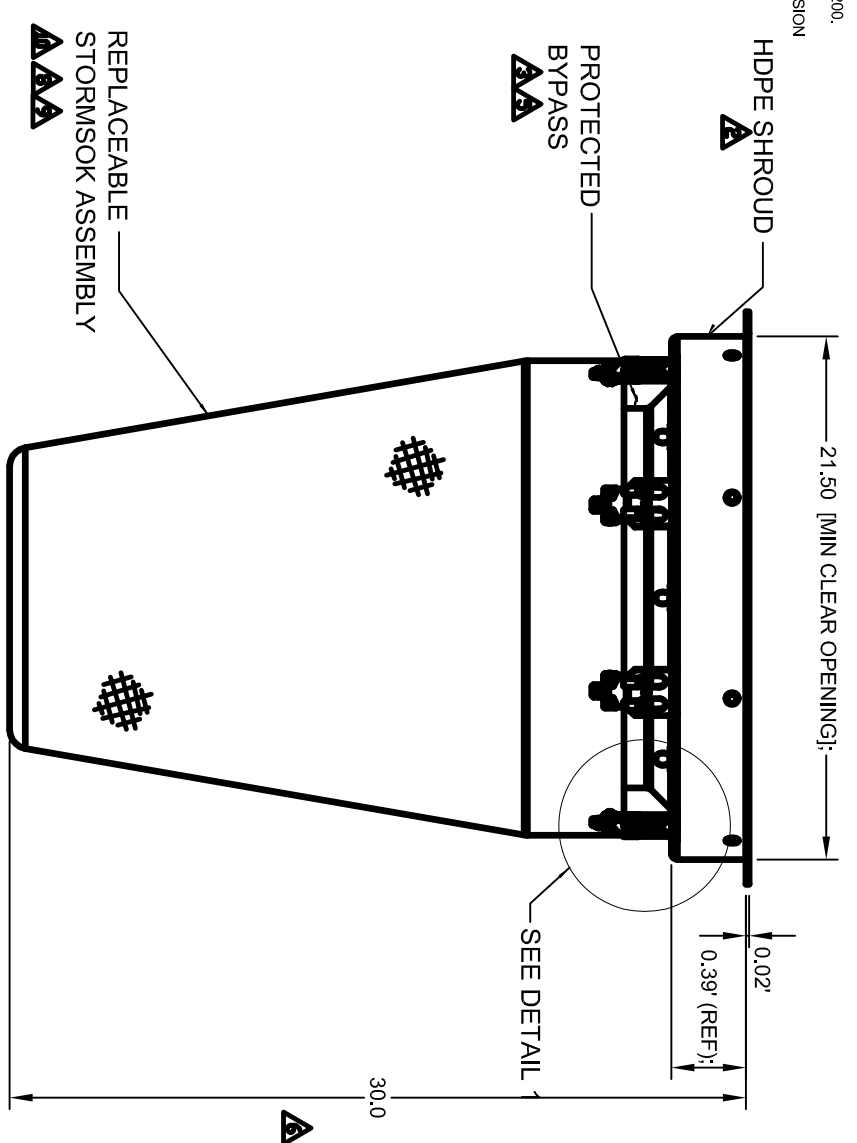
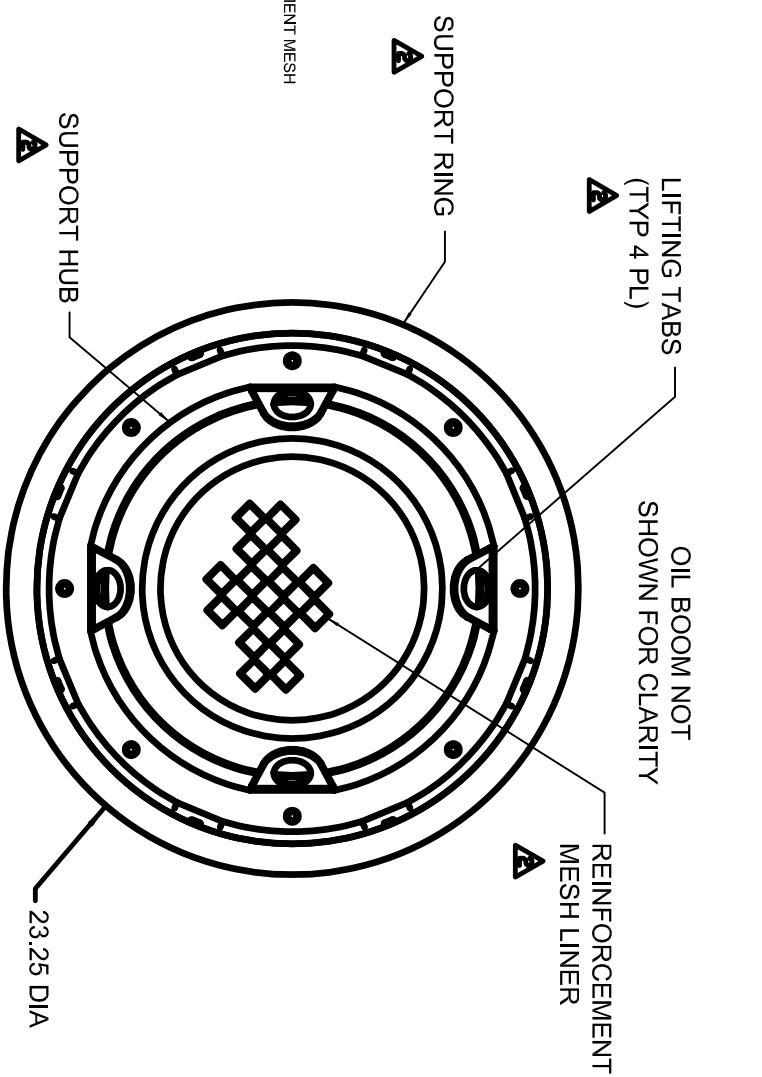
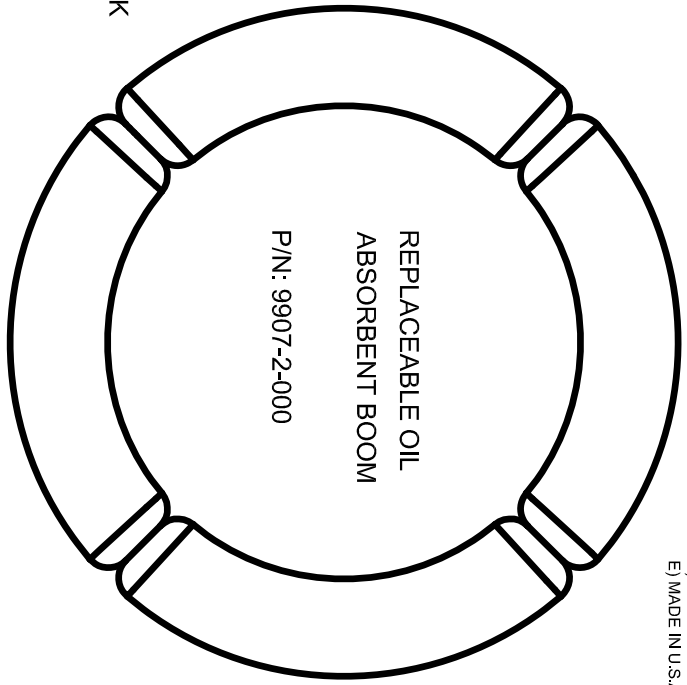
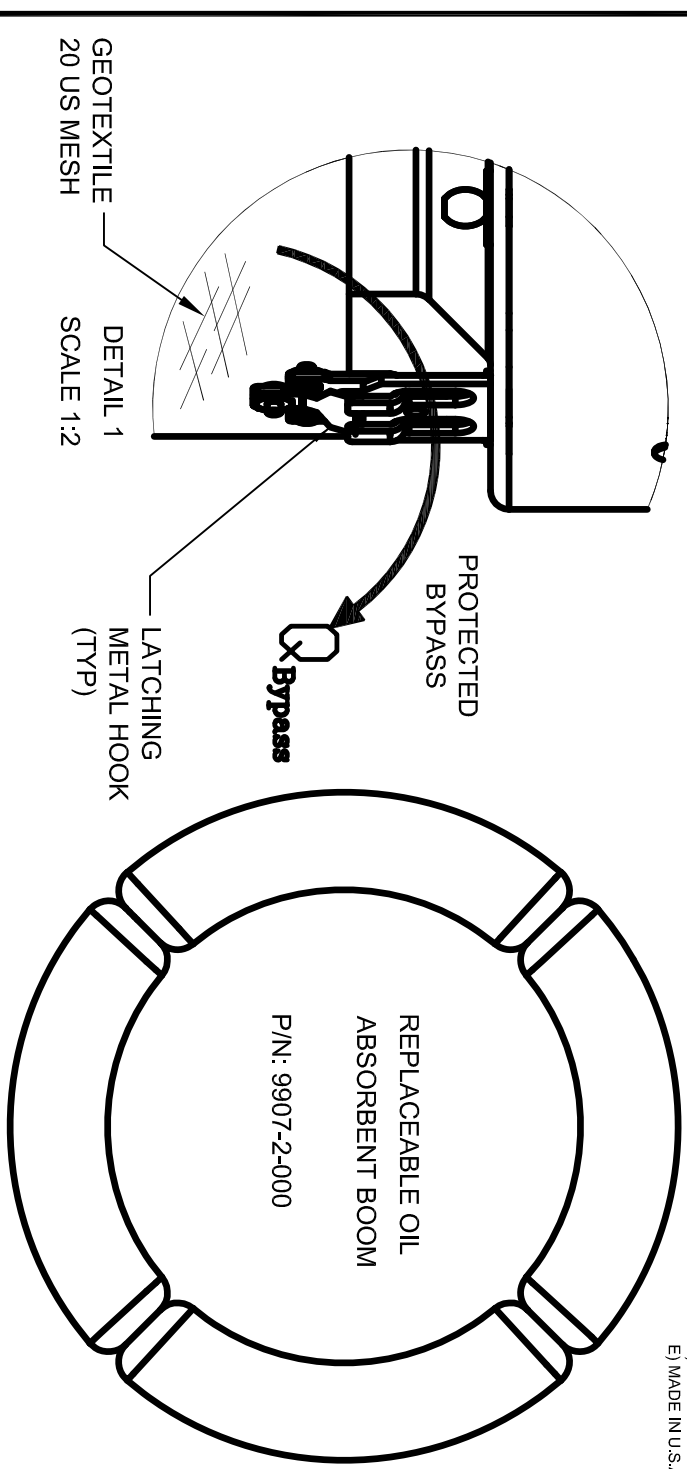
CONTRACTOR TO VERIFY DIAMETER OF EXISTING STORM CATCH BASINS AND CONFIRM SIZING WITH FABCO INDUSTRIES PRIOR TO ORDERING.



NOTES:

1. WEIGHT: 25 LB MAX.
2. MATERIAL:
 - A) SUPPORT RING: ALUMINUM ALLOY, ROLLED
 - B) SHROUD: HIGH DENSITY POLYETHYLENE (TYP WALL THICKNESS 0.125")
 - C) SUPPORT HUB: CRS; POWDER COATED
 - D) SACK MATERIAL: WOVEN POLYPROPYLENE GEOTEXTILE WITH REINFORCEMENT MESH
 - E) HARDWARE: ALUMINUM POP-RIVETS, CRS WASHERS
3. PERFORMANCE CHARACTERISTICS (TYP):
 - A) DEBRIS CAPACITY: 3.3 CUFT
 - B) FILTERED FLOW RATE: 1919 GPM (4.3 CFS)
 - C) BYPASS FLOW RATE: 874 GPM (1.9 CFS)
4. MINIMUM REQUIRED CLEAR OPENING: 21.5" DIAMETER
5. PROTECTED BYPASS PREVENTS RE-SUSPENSION OF FLOATABLES.
6. RECOMMENDED MINIMUM VAULT DEPTH: 2-IN BELOW SACK.
7. TYPICAL INSTALLATION: REMOVE STORM GRATE, INSTALL STORMSOCK DIRECTLY ON GRATE SUPPORT LEDGE, REINSTALL STORM GRATE.
8. USE ONLY FABCO REPLACEABLE STORMSOCK ASSEMBLY. P/N: 9792-1-200.
9. FOR EXTRA HEAVY DUTY STORMSOCK, INCLUDE PART NUMBER EXTENSION -HDS*. E.G. 9792-1-200-HDS
10. HEAVY DUTY OUTER MESH PROTECTION FOR SOK SHALL BE:
 - A) COLOR: SAFETY ORANGE
 - B) WEIGHT: 14LBS / 150LF
 - C) MATERIAL: DOUBLE PLY HDPE FABRIC
 - D) TREATMENT: UV-TREATED
 - E) MADE IN U.S.A.

REFERENCE VIEW
NOT TO SCALE



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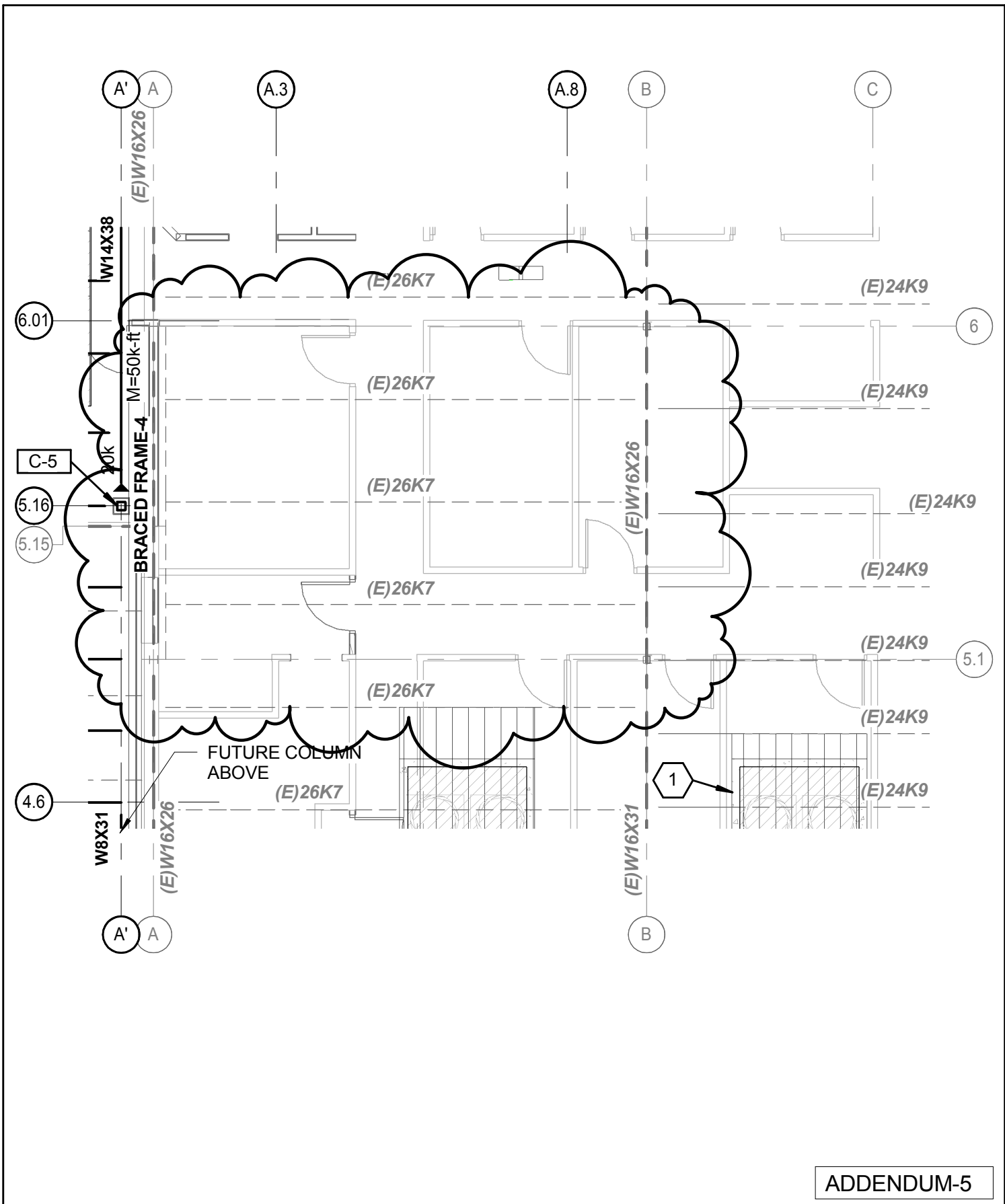
778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN:	CMW	DATE:	AUGUST 2013
DESIGNED:	RJM	SCALE:	N.T.S.
CHECKED:	RJM	JOB NO.	3165
FILE NAME:	3165-DET		

EYECARE MEDICAL GROUP PHASE
2 - ADDITION & RENOVATION

FABCO STORMSOCK DETAIL

FIGURE
C-SK-ADD
5.1



ADDENDUM-5



ARCHITECTURE
INTERIOR DESIGN
PLANNING

49 DARTMOUTH STREET
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53 Sewall Street, Portland, Maine 04102

TITLE
REVISED ROOF FRAMING PARTIAL
PLAN

JOB #	12084
DATE	08-08-2013
SCALE	1/8" = 1'-0"

SHEET
SKS-12

1

PROVIDE 24GA. GALVANIZED STEEL DECKING (MATCH EXISTING) SET ON TOP OF (E) DECKING - EXTEND TO NEAREST (E) ROOF JOIST BEYOND EACH END AS SHOWN. PROVIDE 4" CONCRETE SLAB, EXTEND 6" BEYOND UNIT EDGE IN EACH DIRECTION. FASTEN TO (E) DECKING USING #12 TEK SCREWS ON A 36/4 PATTERN w/10"O.C. STITCHES ALONG PANEL EDGES.

2

OMITTED

3

OMITTED

4

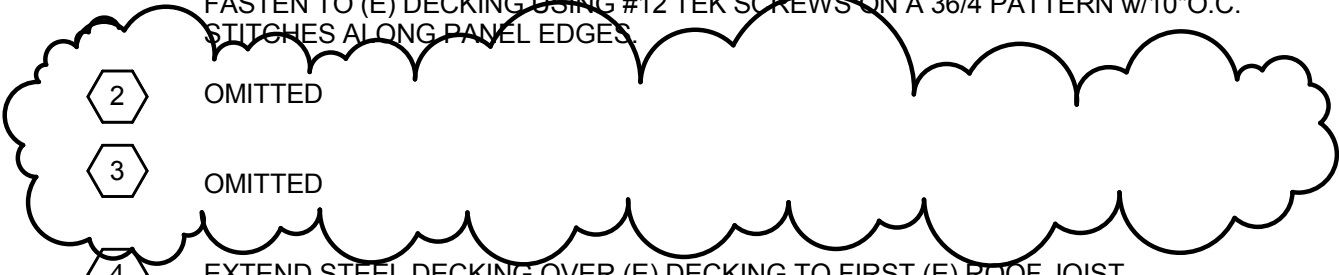
EXTEND STEEL DECKING OVER (E) DECKING TO FIRST (E) ROOF JOIST.

5

REMOVE (E) CONCRETE PAD UNDER (E) UNIT TO BE REMOVED AND RELOCATED.

6

REFER TO STANDARD DETAIL FOR COLUMN TIE-OFF TO MASONRY WALL - SEE D7/SF-100



ADDENDUM-5



ARCHITECTURE
INTERIOR DESIGN
PLANNING
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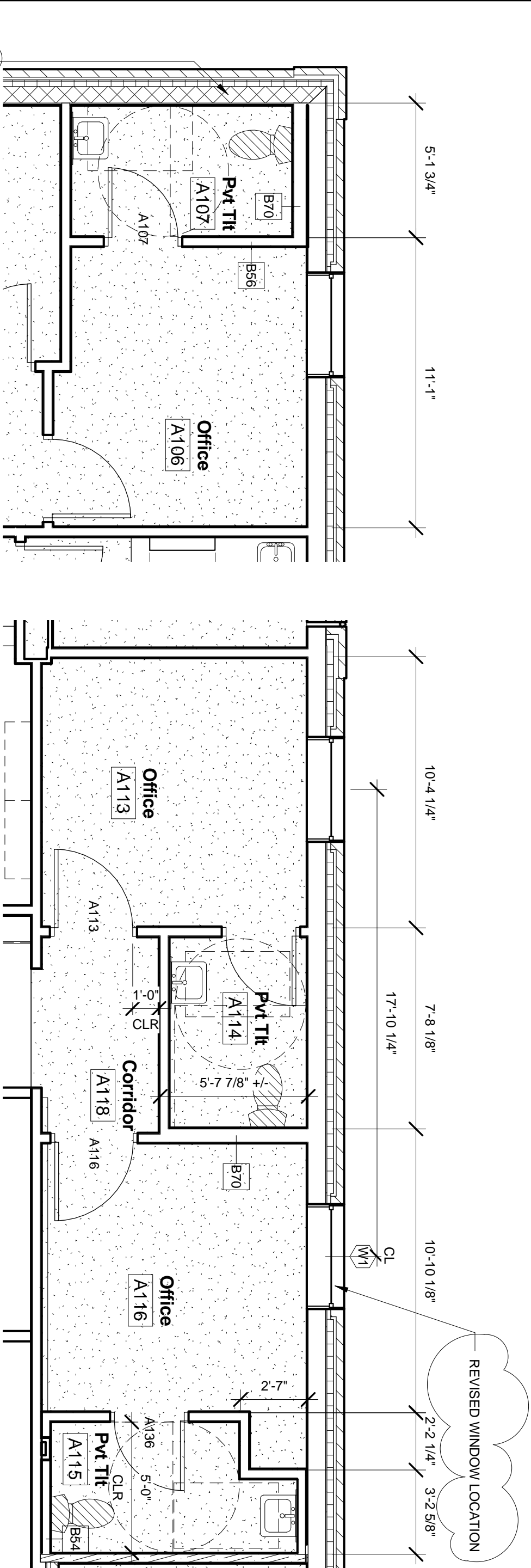
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53 Sewall Street, Portland, Maine 04102

TITLE
REVISED FRAMING PLAN
KEYNOTES

JOB # 12084
DATE 08-08-2013
SCALE 1/8" = 1'-0"

SHEET
SKS-14



1 Offices with Private Toilets - Revised Plan
 1/4" = 1'-0"



ARCHITECTURE
 INTERIOR DESIGN
 PLANNING

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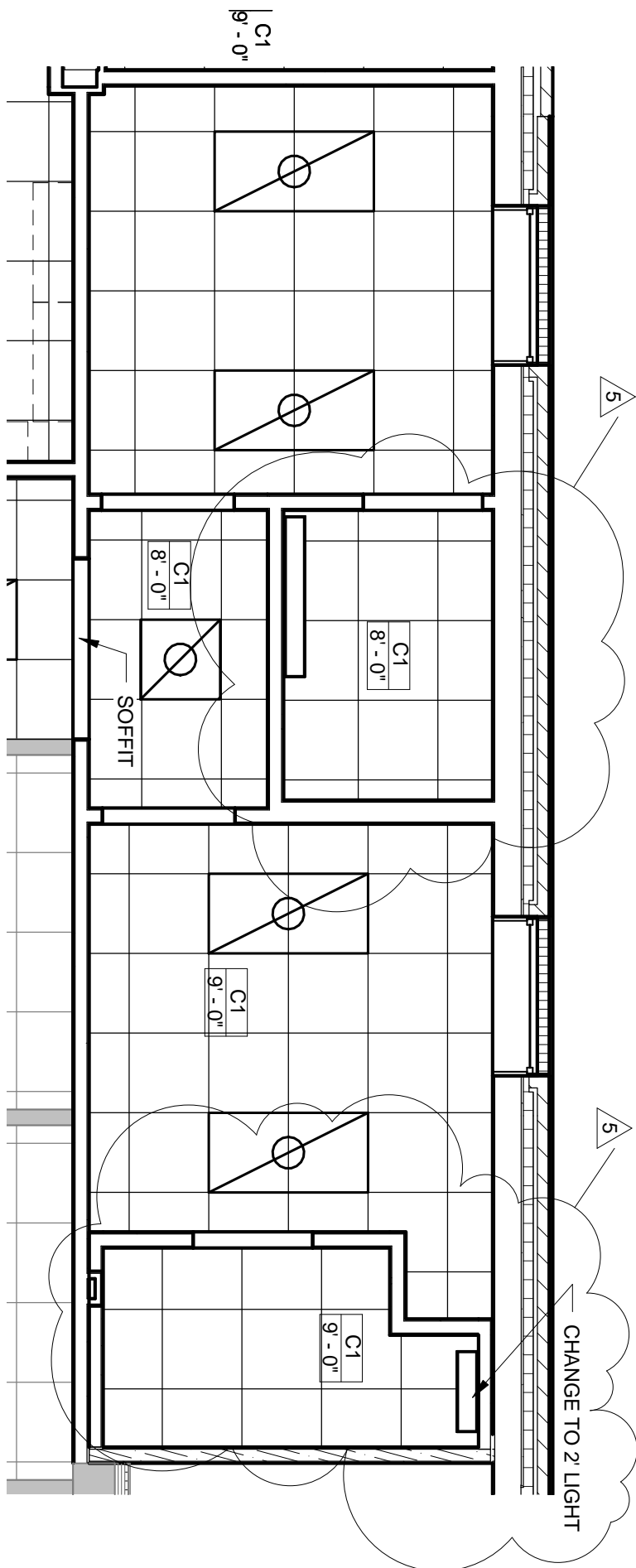
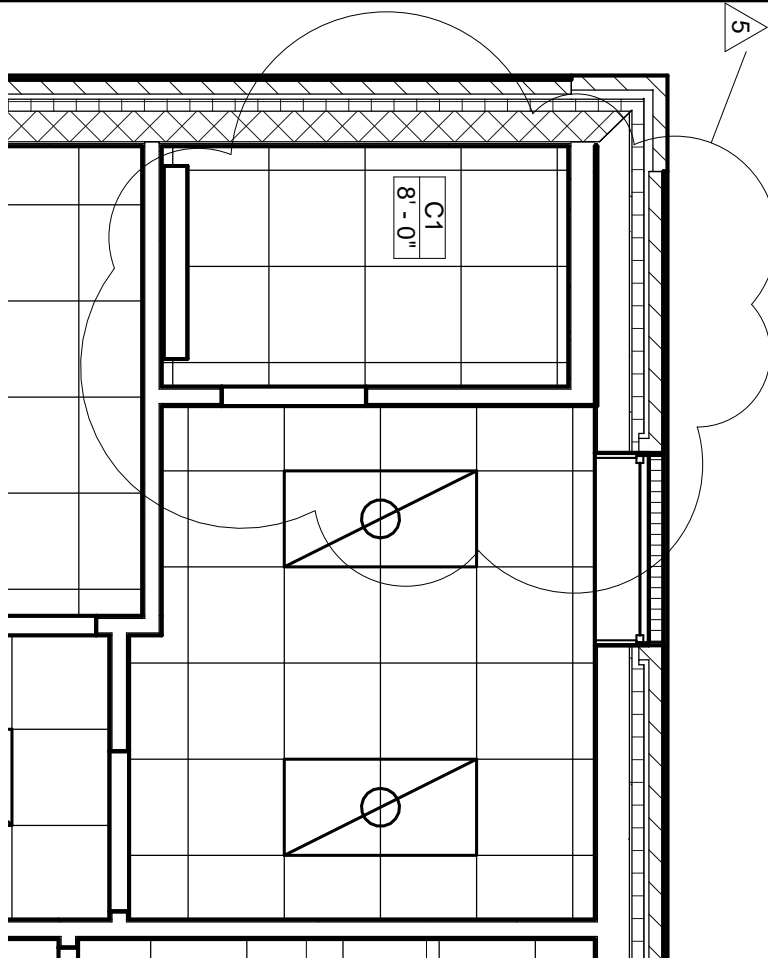
E. M. G.-PHASE 2-ADDITION & RENOVATION
 53 Sewall Street, Portland, ME 04102

TITLE
 Revised Floor Plan at Offices 106, 113 &
 116 & Toilets 107, 114 & 115

JOB # 12084
 DATE AUGUST 8TH, 2013
 SCALE 1/4" = 1'-0"

SHEET
 SKA-7

1 CEILING PLAN "A" - Addendum 5
 1/4" = 1'-0"



ADDENDUM 5

Checker

C:\Users\klein\Documents\EMG-12084-Central_REDESIGN ph2-3_klein.rvt



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 PLANNING
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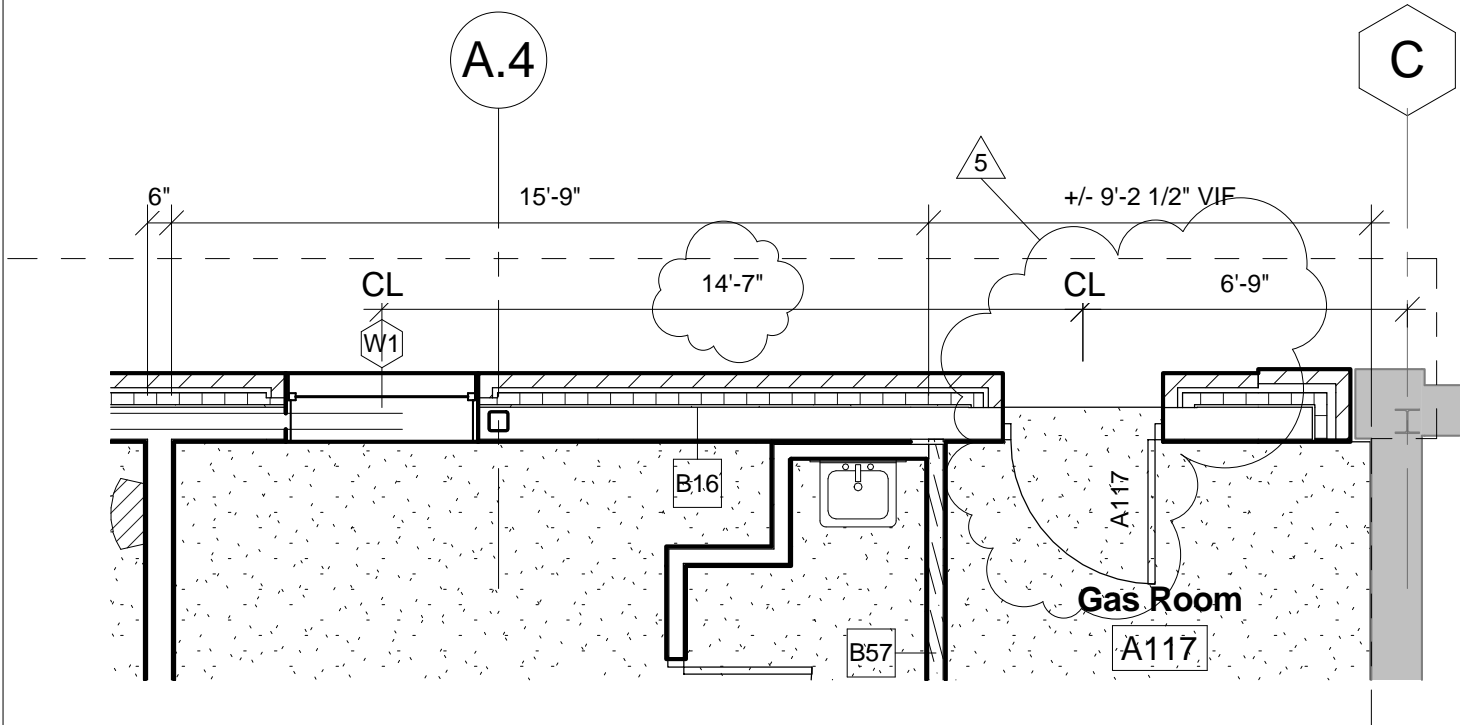
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E. M. G.-PHASE 2-ADDITION & RENOVATION
 53 Sewall Street, Portland, ME 04102

TITLE
 Revised Ceiling Plan at Offices 106, 113
 & 116 & Toilets 107, 114 & 115

JOB #	12084
DATE	AUGUST 8TH, 2013
SCALE	1/4" = 1'-0"

SHEET
 SKA-8



ADDENDUM 5



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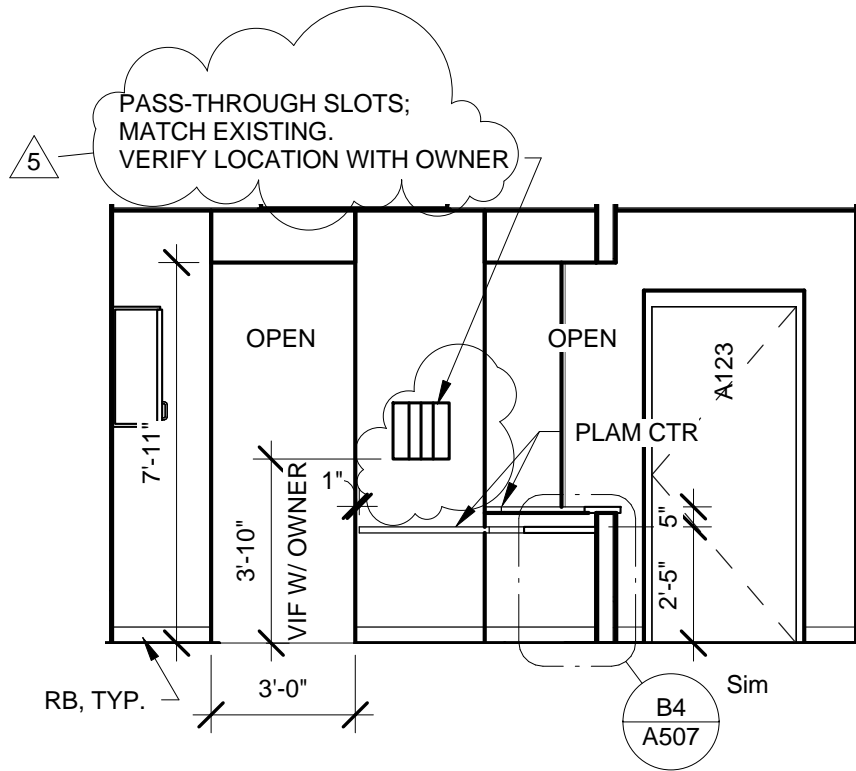
TITLE
Move door A117

JOB # 12084

DATE Date 5 08/06/13

SCALE 1/4" = 1'-0"

SHEET
SKA-9



1 Check-Out -ADDENDUM 5
 1/4" = 1'-0"

ADDENDUM 5



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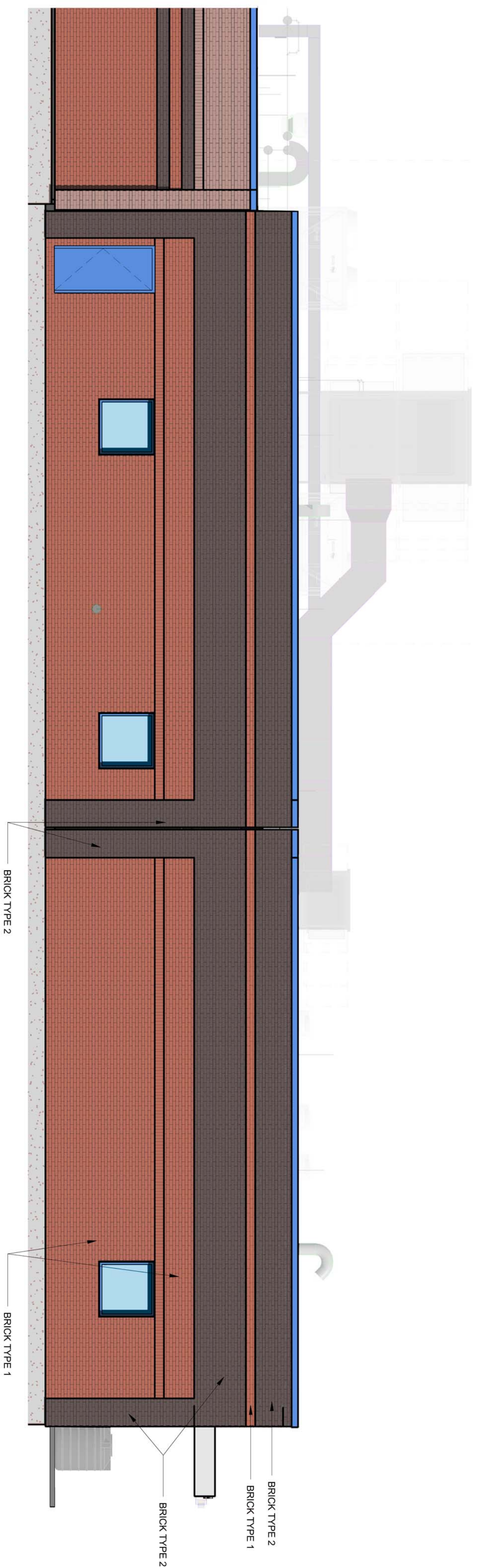
TITLE
 ADD pass-through at Check-Out A122

JOB # 12084

DATE 8-8-13

SCALE 1/4" = 1'-0"

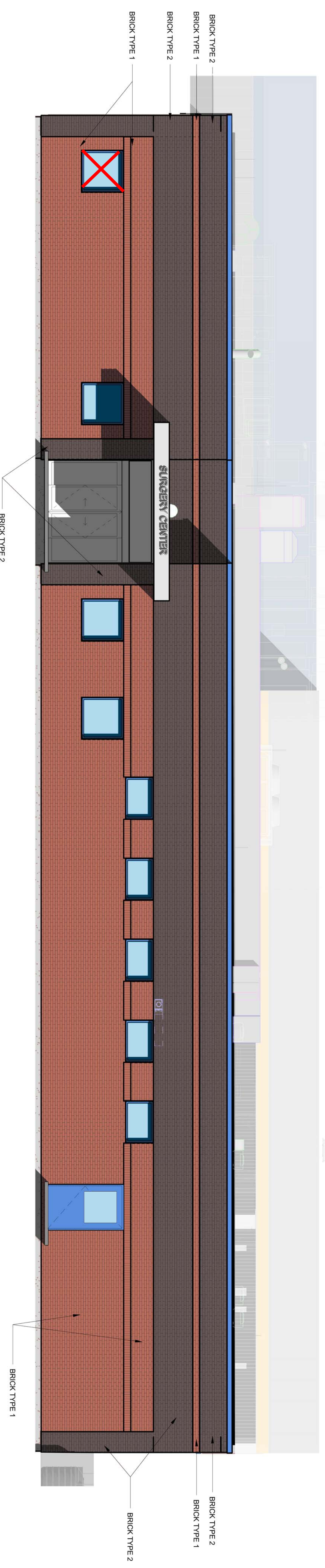
SHEET
 SKA-10



② Rendered View of EXTERIOR ELEVATION NORTH
3/16" = 1'-0"



③ Rendered View from PARKING



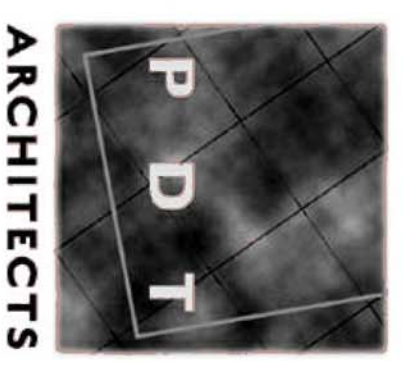
① Rendered View of EXTERIOR ELEVATION WEST
3/16" = 1'-0"

Eyecare Medical Group

Addition and Renovation

17 July 2013

SCALE: NA



ARCHITECTS

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SECTION 230548 - MECHANICAL SEISMIC CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes vibration and seismic controls for HVAC piping and equipment.

1.3 DEFINITIONS

- A. IBC: International Building Code.
- B. ICC-ES: ICC-Evaluation Service.

1.4 PERFORMANCE REQUIREMENTS

- A. NOTE: This information is copied from Structural Drawing S0.0 dated 9/26/2012.
- B. Building Code
 - 1. Maine Uniform Building And Energy Code
 - 2. International Building Code, 2009 Edition
 - 3. ASCE 7-05 Minimum Design Loads For Buildings And Other Structures
- C. Wind-Restraint Loading (outdoor equipment):
 - 1. Basic Wind Speed: 100 Mph
 - 2. Wind Load Importance Factor (Iw): 1.0
 - 3. Wind Exposure: C
- D. Seismic-Restraint Loading:
 - 1. Seismic Occupancy Category: II
 - 2. Mapped Spectral Response Accelerations:
 - a. Ss: 0.352
 - b. S1: 0.106
 - 3. Seismic Site Class: D
 - 4. Spectral Response Coefficients:

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- a. Sds: 0.357
- b. Sdl: 0.254

- 5. Seismic Design Category: C
- 6. Importance Factor (Ip): A factor assigned to each structure according to its occupancy category as prescribed in Section 11.5.1 of ASCE/SEI 7-05. The following components are Ip= 1.5:
 - a. Components containing hazardous materials:
 - 1) Gas (e.g., natural gas or LP gas)
 - b. Systems that maintain proper air pressure, temperature, and humidity in surgical suites.
 - 1) RTU-1

1.5 ACTION SUBMITTALS

A. Product Data

- 1. Catalog cuts or data sheets on vibration isolators and specific restraints detailing compliance with the specification.
- 2. Detailed schedules of flexibly and rigidly mounted equipment, showing vibration isolators and seismic restraints by referencing numbered descriptive drawings.

B. Shop Drawings

- 1. Submit fabrication details for equipment bases, including dimensions, structural member sizes, and support point locations.
- 2. Provide all details of suspension and support for equipment hung from the ceiling.
- 3. Where walls, floors, slabs, or supplementary steel work are used for seismic restraint locations, details of acceptable attachment methods for ducts, conduit, and pipe must be included and approved before the condition is accepted for installation. Restraint manufacturers' submittals must include spacing, static loads, and seismic loads at all attachment and support points.
- 4. Provide specific details of seismic restraints and anchors; include number, size, and locations for each piece of equipment.

C. Delegated-Design Submittal:

- 1. The contractor shall retain a specialty consultant or equipment manufacturer to develop a seismic restraint system and perform seismic calculations in accordance with the state and local codes and additional requirements specified in this section. Calculations, restraint selections, and installation details shall be done by a professional engineer experienced in seismic restraint design and installation and licensed in Maine.
- 2. The seismic restraint design, consisting of calculations, restraint selection, installation details, and other documentation, shall be submitted. This submittal shall be signed and sealed by a professional engineer, as stated above. This submittal will become part of the

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project design calculations, included in the project records, and when required, will be submitted to the authority having jurisdiction.

3. The seismic restraint design shall clearly indicate the attachment points to the building structure and all design forces (in X, Y, and Z direction) at the attachment points.
4. The seismic restraint engineer shall coordinate all attachments with the building's structural engineer of record, who shall verify the attachment methods and the ability of the building structure to accept the loads imposed.
5. The seismic restraint design shall be based on actual equipment data (dimensions, weight, center of gravity, etc.) obtained from submittals or the manufacturers. The equipment manufacturer shall verify that the attachment points on the equipment can accept the combination of seismic, weight, and other loads imposed. For life safety systems and other systems that must remain operational during and after an earthquake, the manufacturer shall provide certification that the equipment can accept the loads imposed and remain operational.
6. Analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure. Analysis shall detail anchoring methods, bolt diameter, embedment, and/or welded length.
7. All seismic restraint devices shall be designed to accept, without failure, the forces as calculated per code, acting through the equipment or system's center of gravity.
8. All seismic restraints and combination isolator/restraints should have verification of their seismic capabilities. Manufacturers may verify their capabilities by testing that is witnessed by an independent professional engineer. A manufacturers' association is currently developing a uniform set of test standards. Independent approval can also be obtained by agencies such as the Office of Statewide Health, Planning and Development (OSHPD) from the State of California, NES, ICC ES, Factory Mutual, Underwriters Lab, Seismic Source International, etc.

1.6 QUALITY ASSURANCE

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Novia Associates
 2. Kinetics Noise Control.
 3. Mason Industries.
 4. Vibration Eliminator Co., Inc.
 5. Vibration Mountings & Controls, Inc.
 6. Amber/Booth Company, Inc.

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7. B-Line Systems, Inc.
8. Vibration Eliminator Co., Inc.

2.2 VIBRATION ISOLATORS

- A. Pads: Isolation pads shall be neoprene elastomer in-shear pads, used in conjunction with steel shims where required, having static deflections as tabulated. Neoprene pads shall be produced from a high quality neoprene elastomer. Pads shall be 50 durometer and shall be designed for a maximum of 60 psi loading. Pads shall be designed for a maximum deflection of approximately 20% of its unloaded thickness, 0.15". The elastomer shall be oil and water resistant, offer a long life expectancy consistent with neoprene compounds, and has been designed to operate within the safe stress limits of the material. Pads shall be available up to 18" x 18" x 3/4" thick sheets and shall be pre-scored into 2" x 2" squares and can be easily cut-to-fit as needed. All pads shall be elastomer in-shear and shall be molded using 2500 psi minimum tensile strength, oil resistant neoprene compounds with no color additives. Neoprene vibration isolators shall be Model RSP as manufactured by Kinetics Noise Control, Inc.
- B. Mounts: Double-deflection type, with molded, oil-resistant rubber, hermetically sealed compressed fiberglass, or neoprene isolator elements with factory-drilled, encapsulated top plate for bolting to equipment and with baseplate for bolting to structure. Color-code or otherwise identify to indicate capacity range.
 1. Materials: Welded steel housing containing two separate and opposing, oil-resistant rubber or neoprene elements that prevent central threaded element and attachment hardware from contacting the housing during normal operation.
 2. Neoprene: Shock-absorbing materials compounded according to the standard for bridge-bearing neoprene as defined by AASHTO.
- C. Restrained Mounts: All-directional mountings with seismic restraint.
 1. Materials: Welded steel housing containing two separate and opposing, oil-resistant rubber or neoprene elements that prevent central threaded element and attachment hardware from contacting the housing during normal operation.
 2. Neoprene: Shock-absorbing materials compounded according to the standard for bridge-bearing neoprene as defined by AASHTO.
- D. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.
 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to weight being removed; factory-drilled baseplate bonded to 1/4-inch- thick, neoprene or rubber isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
 2. Restraint: Seismic.
 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

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- E. **Elastomeric Hangers:** Single or double-deflection type, fitted with molded, oil-resistant elastomeric isolator elements bonded to steel housings with threaded connections for hanger rods. Color-code or otherwise identify to indicate capacity range.
- F. **Spring Hangers:** Combination coil-spring and elastomeric-insert hanger with spring and insert in compression.
1. **Frame:** Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
 2. **Outside Spring Diameter:** Not less than 80 percent of the compressed height of the spring at rated load.
 3. **Minimum Additional Travel:** 50 percent of the required deflection at rated load.
 4. **Lateral Stiffness:** More than 80 percent of rated vertical stiffness.
 5. **Overload Capacity:** Support 200 percent of rated load, fully compressed, without deformation or failure.
 6. **Elastomeric Element:** Molded, oil-resistant rubber or neoprene. Steel-washer-reinforced cup to support spring and bushing projecting through bottom of frame.
 7. **Self-centering hanger rod cap** to ensure concentricity between hanger rod and support spring coil.
- G. **Spring Hangers with Vertical-Limit Stop:** Combination coil-spring and elastomeric-insert hanger with spring and insert in compression and with a vertical-limit stop.
1. **Frame:** Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
 2. **Outside Spring Diameter:** Not less than 80 percent of the compressed height of the spring at rated load.
 3. **Minimum Additional Travel:** 50 percent of the required deflection at rated load.
 4. **Lateral Stiffness:** More than 80 percent of rated vertical stiffness.
 5. **Overload Capacity:** Support 200 percent of rated load, fully compressed, without deformation or failure.
 6. **Elastomeric Element:** Molded, oil-resistant rubber or neoprene.
 7. **Adjustable Vertical Stop:** Steel washer with neoprene washer "up-stop" on lower threaded rod.
 8. **Self-centering hanger rod cap** to ensure concentricity between hanger rod and support spring coil.
- H. **Pipe Riser Resilient Support:** All-directional, acoustical pipe anchor consisting of 2 steel tubes separated by a minimum of 1/2-inch- thick neoprene. Include steel and neoprene vertical-limit stops arranged to prevent vertical travel in both directions. Design support for a maximum load on the isolation material of 500 psig and for equal resistance in all directions.
- I. **Resilient Pipe Guides:** Telescopic arrangement of 2 steel tubes or post and sleeve arrangement separated by a minimum of 1/2-inch- thick neoprene. Where clearances are not readily visible, a factory-set guide height with a shear pin to allow vertical motion due to pipe expansion and contraction shall be fitted. Shear pin shall be removable and reinsertable to allow for selection of pipe movement. Guides shall be capable of motion to meet location requirements.

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2.3 VIBRATION ISOLATION EQUIPMENT BASES

- A. Inertia Base: Factory-fabricated, welded, structural-steel bases and rails ready for placement of cast-in-place concrete.
 - 1. Design Requirements: Lowest possible mounting height with not less than 1-inch clearance above the floor. Include equipment anchor bolts and auxiliary motor slide bases or rails.
 - 2. Structural Steel: Steel shapes, plates, and bars complying with ASTM A 36/A 36M. Bases shall have shape to accommodate supported equipment.
 - 3. Support Brackets: Factory-welded steel brackets on frame for outrigger isolation mountings and to provide for anchor bolts and equipment support.
 - 4. Fabrication: Fabricate steel templates to hold equipment anchor-bolt sleeves and anchors in place during placement of concrete. Obtain anchor-bolt templates from supported equipment manufacturer.

2.4 SEISMIC-RESTRAINT DEVICES

- A. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by an evaluation service member of ICC-ES. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.
- B. Snubbers: Factory fabricated using welded structural-steel shapes and plates, anchor bolts, and replaceable resilient isolation washers and bushings.
 - 1. Anchor bolts for attaching to concrete shall be seismic-rated, drill-in, and stud-wedge or female-wedge type.
 - 2. Resilient Isolation Washers and Bushings: Oil- and water-resistant neoprene.
 - 3. Maximum 1/4-inch air gap, and minimum 1/4-inch- thick resilient cushion.
- C. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
- D. Restraint Cables: ASTM A 603 galvanized or ASTM A 492 stainless-steel (match adjacent duct type) cables with end connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.
- E. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections to hanger rod.
- F. Bushings for Floor-Mounted Equipment Anchor Bolts: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchor bolts and studs.
- G. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices used.

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- H. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
- I. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.
- J. Expansion-type anchor bolts are not permitted for non-isolated equipment in excess of 10 hp
- K. Adhesive Anchor Bolts: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.5 FACTORY FINISHES

- A. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.
 - 1. Powder coating on springs and housings.
 - 2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
 - 3. Baked enamel or powder coat for metal components on isolators for interior use.
 - 4. Color-code or otherwise mark vibration isolation and seismic- and wind-control devices to indicate capacity range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 COORDINATION AND EXECUTION

- A. All vibrating equipment shall be isolated to prevent vibration transmission to the building structure.
- B. Coordinate with vibration/seismic restraint manufacturer and the structural engineer of record to locate and size structural supports underneath vibration/seismically restrained equipment (e.g.

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roof curbs, cooling towers and other similar equipment). Installation of all seismic restraint materials specified in this section shall be accomplished as per the manufacturer's written instructions. Adjust isolators and restraints after piping systems have been filled and equipment is at its operating weight, following the manufacturer's written instructions.

- C. Isolated and restrained equipment, duct and piping located on roofs must be attached to the structure. Supports (e.g., sleepers) that are not attached to the structure will not be acceptable.
- D. Attach piping to the trapeze per seismic restraint manufacturer's design. Install cables so they do not bend across sharp edges of adjacent equipment or building structures.
- E. Do not brace or support equipment to separate portions of the structure that may act differently in response to an earthquake. For example, do not connect a Transverse restraint to a wall and then a longitudinal restraint to either a floor/ceiling/roof at the same braced location.
- F. Install vertical braces to stiffen hanger rods and prevent buckling per seismic restraint manufacturer's design. Clamp vertical brace to hanger rods. Requirements apply equally to hanging equipment. Do not weld vertical braces to hanger rods.

3.3 VIBRATION-CONTROL AND SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Comply with requirements in Division 7 for installation of roof curbs, equipment supports, and roof penetrations.
- B. Component Supports: Mechanical component supports (including those with $I_p=1.0$ and above) and the means by which they are attached to the component shall be designed for the forces and displacements determine in ASCE 7-05 (Sections 13.3.1 and 13.3.2). Such supports include structural members, braces, frames, skirts, saddles, pedestals, cables, guys, snubbers, and tethers, as well as forged or cast as a part of the mechanical or electrical component.
 - 1. Install fasteners, straps and brackets as required to secure the equipment.
 - 2. Install seismic snubbers on HVAC equipment supported by floor-mounted, non-seismic vibration isolators. Position snubbers as necessary and attach to equipment base and supporting structure as required.
 - 3. Install neoprene grommet washers or fill the gap with epoxy on equipment anchor bolts where clearance between anchor and equipment support hole exceeds 0.125 inch.
 - 4. Where HVAC piping or ductwork component are attached to structures that could displace relative to one another, the components shall be designed to accommodate the seismic relative displacements ad per ASCE 7-05.
 - 5. Roof Mounted Equipment: Provide on a structural frame, seismically rated roof curb, or structural curb frame mechanically connected to the structure. Items shall not be mounted onto sleepers or pads that are not mechanically and rigidly attached to the structure. Restraint must be adequate to resist both seismic and wind forces.
 - 6. Vibration Isolated Equipment:

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- a. Installation of all vibration isolation materials and supplemental equipment bases specified in this section shall be accomplished as per the manufacturer's written instructions and adjust mountings to level equipment.
 - b. On completion of installation (per manufacturers recommendations) of all isolation materials and before startup of isolated equipment all debris shall be cleared from areas surrounding and from beneath all isolated equipment, leaving equipment free to move on the isolation supports.
 - c. No rigid connections between equipment and building structure shall be made that degrades the noise and vibration isolation system herein specified. Electrical conduit connections to isolated equipment shall be looped to allow free motion of isolated equipment.
 - d. Ensure pipe, duct and electrical connections to isolated equipment do not reduce system flexibility. Ensure that pipe, conduit and duct passing through walls and floors do not transmit vibrations.
 - e. Unless indicated otherwise, piping connected to isolated equipment shall be isolated as follows:
 - 1) Up to (NPS) 4" Diameter: first 3 points of support.
 - 2) (NPS) 5" Diameter and larger: first 4 points of support.
 - 3) First point of support shall have a static deflection equal to the deflection of isolated equipment; with a maximum of 2". Subsequent support points shall have a static deflection no less than 1".
 - 4) Deflection shall be not less than that for the equipment to which the piping is connected.
 - 5) Block and shim level bases so that the ductwork and piping connections can be made to a rigid system at the operating level, before isolator adjustment is made. Ensure that there is no physical contact between isolated equipment and building structure.
7. Piping Systems (ASCE 7-05 Section 13.6.8), provide seismic restraints:
- a. Piping designated as having a Component Importance Factor, IP, greater than 1.0.
8. Restraint Spacing For Piping:
- a. For ductile piping: Transverse supports a maximum of 40' o.c.
 - b. For ductile piping: Longitudinal supports a maximum of 80' o.c.
 - c. For non-ductile piping (e.g., cast iron, PVC) space Transverse supports a maximum of 20' o.c., and Longitudinal supports a maximum of 40' o.c.
 - d. For piping with hazardous material inside (e.g., natural gas) space Transverse supports a maximum of 20' o.c., and Longitudinal supports a maximum of 40' o.c.
 - e. For pipe risers, restrain the piping at floor penetrations using the same spacing requirements as above.

3.4 SEISMIC-RESTRAINT DEVICES

- A. Install restraint cables so they do not bend across edges of adjacent equipment or building structure. Tie back to structure at 45 degrees to the structure.
- B. Longitudinal restraints for single pipe supports shall be attached rigidly to the pipe, not to the pipe hanger.

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- C. For supports with multiple pipes (trapezes), secure pipes to trapeze member with clamps approved for application.
- D. Install flexible metal hose loops in piping which crosses building seismic joints, sized for the anticipated amount of movement.
- E. Install flexible piping connectors where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment.
- F. Where pipe sizes reduce below required dimensions noted above, the final restraint shall be installed at the transition location.
- G. Where duct sizes reduce below required dimensions noted above, the final restraint shall be installed at the transition location.
- H. Longitudinal restraints for single conduit supports shall be attached rigidly to the pipe, not to the pipe/conduit hanger.
- I. Rod Stiffener Clamps are required where the hanger rod exceeds the maximum length shown in the seismic calculation sheets. They are only required at restraint locations.
- J. Seismically Rated Beam Clamps are required where welding to or penetrations to steel beams are not approved.
- K. Adjust restraint cables so that they are not visibly slack. Cable not to support weight during normal operation.
- L. Seismic systems are to be compatible with requirements for anchoring and guiding of systems.
- M. Drilled or power driven anchors or fasteners shall not be permitted for use with seismic control measures.
- N. Friction due to gravity does not constitute a seismic attachment.
- O. Seismic restraint connections are not to be connected to the bottom chord of steel joists or the bottom flange of steel beams.
- P. Standard beam clamps can be used to support restrained components; they cannot be used to connect the seismic restraint to the structure – only for the hanger rods.
- Q. Brace remaining piping and ductwork, electrical components to code requirements.

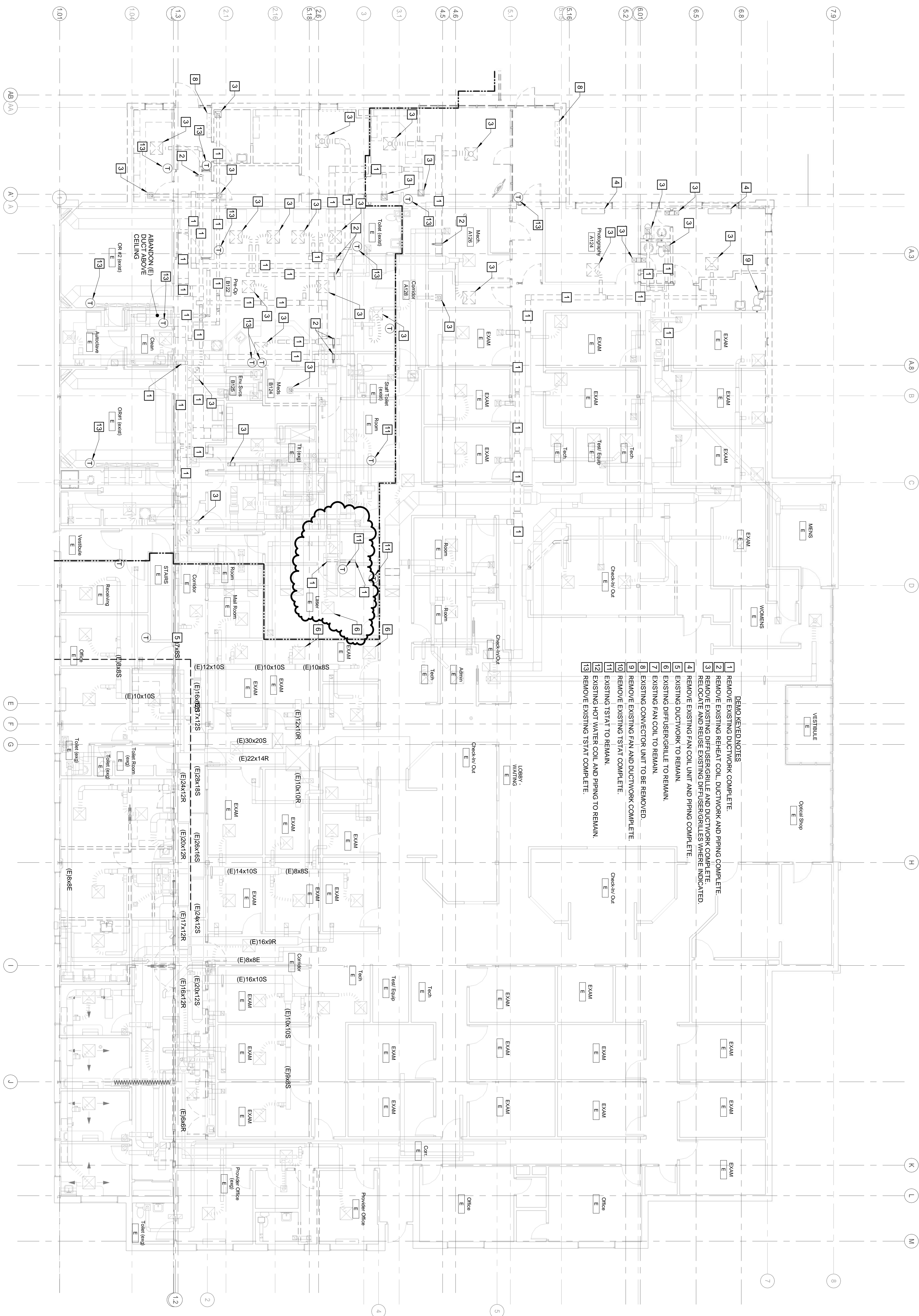
3.5 ADJUSTING

- A. Adjust isolators after piping system is at operating weight.

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- B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.
- C. Adjust active height of spring isolators.
- D. Adjust restraints to permit free movement of equipment within normal mode of operation.

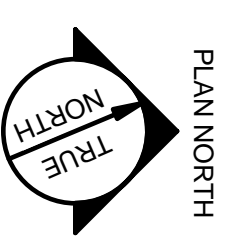
END OF SECTION 230548



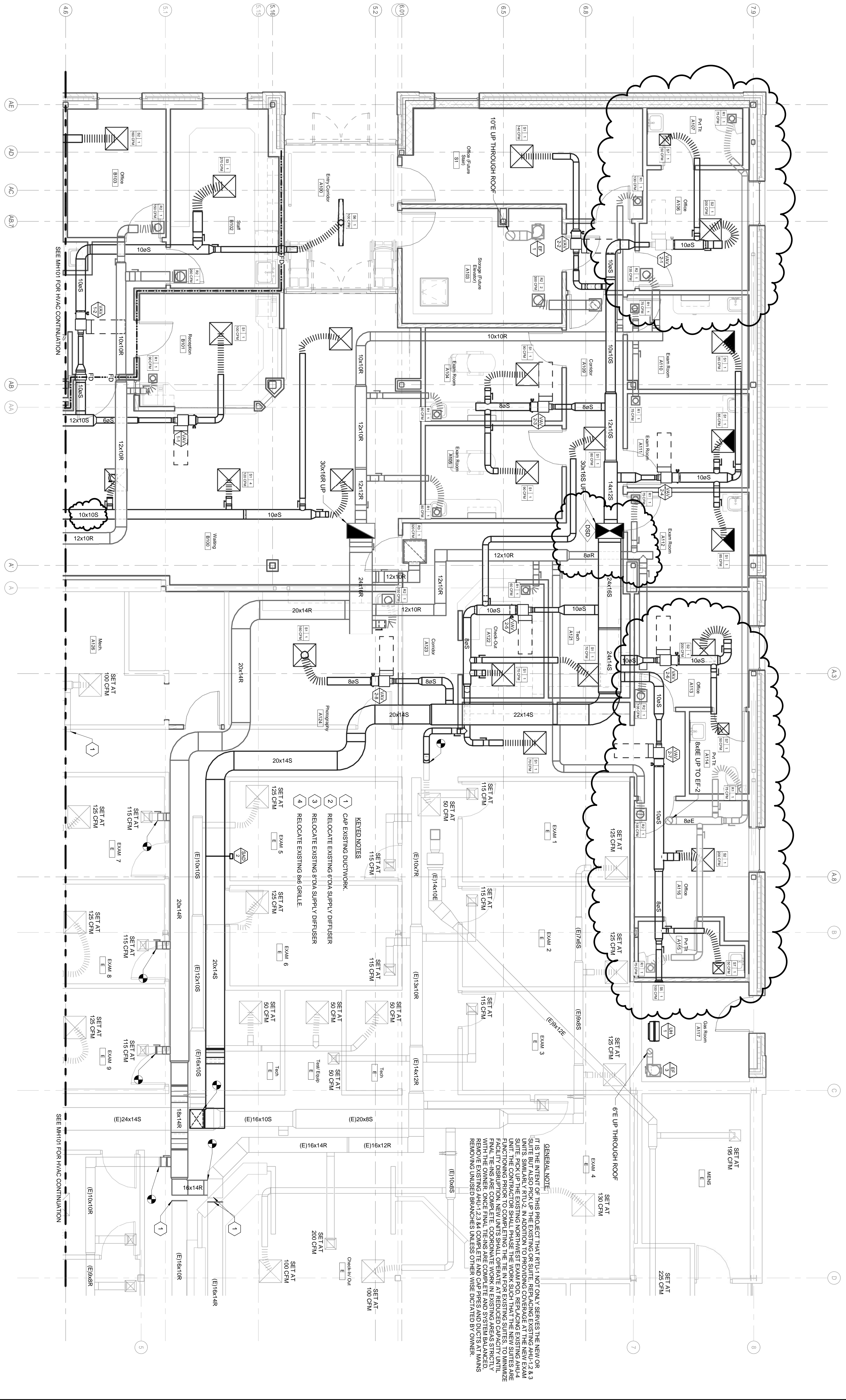
- DEMOLISHED NOTES**
- 1 REMOVE EXISTING DUCTWORK COMPLETE.
 - 2 REMOVE EXISTING REHEAT COIL, DUCTWORK AND PIPING COMPLETE.
 - 3 REMOVE EXISTING DIFFUSERGRILLE AND DUCTWORK COMPLETE.
 - 4 RELOCATE AND REUSE EXISTING DIFFUSERGRILLES WHERE INDICATED.
 - 5 REMOVE EXISTING FAN COIL UNIT AND PIPING COMPLETE.
 - 6 EXISTING DUCTWORK TO REMAIN.
 - 7 EXISTING DIFFUSERGRILLE TO REMAIN.
 - 8 EXISTING FAN COIL TO REMAIN.
 - 9 REMOVE EXISTING FAN AND DUCTWORK COMPLETE.
 - 10 REMOVE EXISTING TSTAT COMPLETE.
 - 11 EXISTING TSTAT TO REMAIN.
 - 12 EXISTING HOT WATER COIL AND PIPING TO REMAIN.
 - 13 REMOVE EXISTING TSTAT COMPLETE.

A1 MECHANICAL DEMOLITION PLAN - PHASE 2
 1/8" = 1'-0"

No.	DATE	DESCRIPTION
5	08-08-2013	ADDENDUM-5



<p>MD100</p>	<p>SHEET</p>	<p>TITLE MECHANICAL DEMOLITION PLAN - PHASE 2</p>	<p>ISSUE: JULY 11, 2013</p>	<p>SCALE: 1/8" = 1'-0"</p>	<p>DRWN. CHK Checker</p>	<p>PDT JOB NO. 12064</p>		<p>E.M.G. - PHASE 2 ADDITION & RENOVATION</p> <p>53 Sewall Street, Portland, ME 04102</p>	<p>Copyright 2012 PDT Architects No reproduction or use of this drawing is permitted without written permission of PDT Architects.</p>	<p>ALLIED PROJECT NO.: 12064 CAD FILE:</p>	<p>Allied Engineering Structural Mechanical Electrical Commissioning 169 Venable Street Portland, Maine 04103 Tel: 207.251.2266 Fax: 207.251.2267 Web: www.allied-eng.com</p>	<p>ARCHITECTS 46 BARNHURST STREET PORTLAND, MAINE 04101 207.775-1059 www.pdtarch.com</p>
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GENERAL NOTE:
 IT IS THE INTENT OF THIS PROJECT THAT RTU-1, NOT ONE X SERVICES THE NEW OR SUITE BUT ALSO PICK UP THE EXISTING OR SUITE, REPLACING EXISTING AHU-1, 2 & 3 UNITS SIMILARLY RTU-2, IN ADDITION TO PROVIDING COVERAGE AT THE NEW EXAM SUITE. PICK UP THE EXISTING NORTHWEST EXAM POD, REPLACING EXISTING AHU-4 & 5 UNITS SIMILARLY RTU-2, IN ADDITION TO PROVIDING COVERAGE AT THE NEW EXAM SUITE. FUNCTIONING PRIOR TO COMPLETING THE PLAN FOR EXISTING SUITES. TO MINIMIZE FACILITY DISRUPTION, NEW UNITS SHALL OPERATE AT REDUCED CAPACITY UNTIL FINAL TESTS ARE COMPLETE. COORDINATE WORK IN EXISTING AREAS STRICTLY TO REMOVE EXISTING AHU 2, 3, 4 COMPETE AND CAP PIPES AND DUCTS AT MENS REMOVING UNUSED BRANCHES UNLESS OTHERWISE DICTATED BY OWNER.

- KEYNOTES**
- 1 CAP EXISTING DUCTWORK
 - 2 RELOCATE EXISTING 6" DPA SUPPLY DIFFUSER
 - 3 RELOCATE EXISTING 8" DPA SUPPLY DIFFUSER
 - 4 RELOCATE EXISTING 8" GRILLE

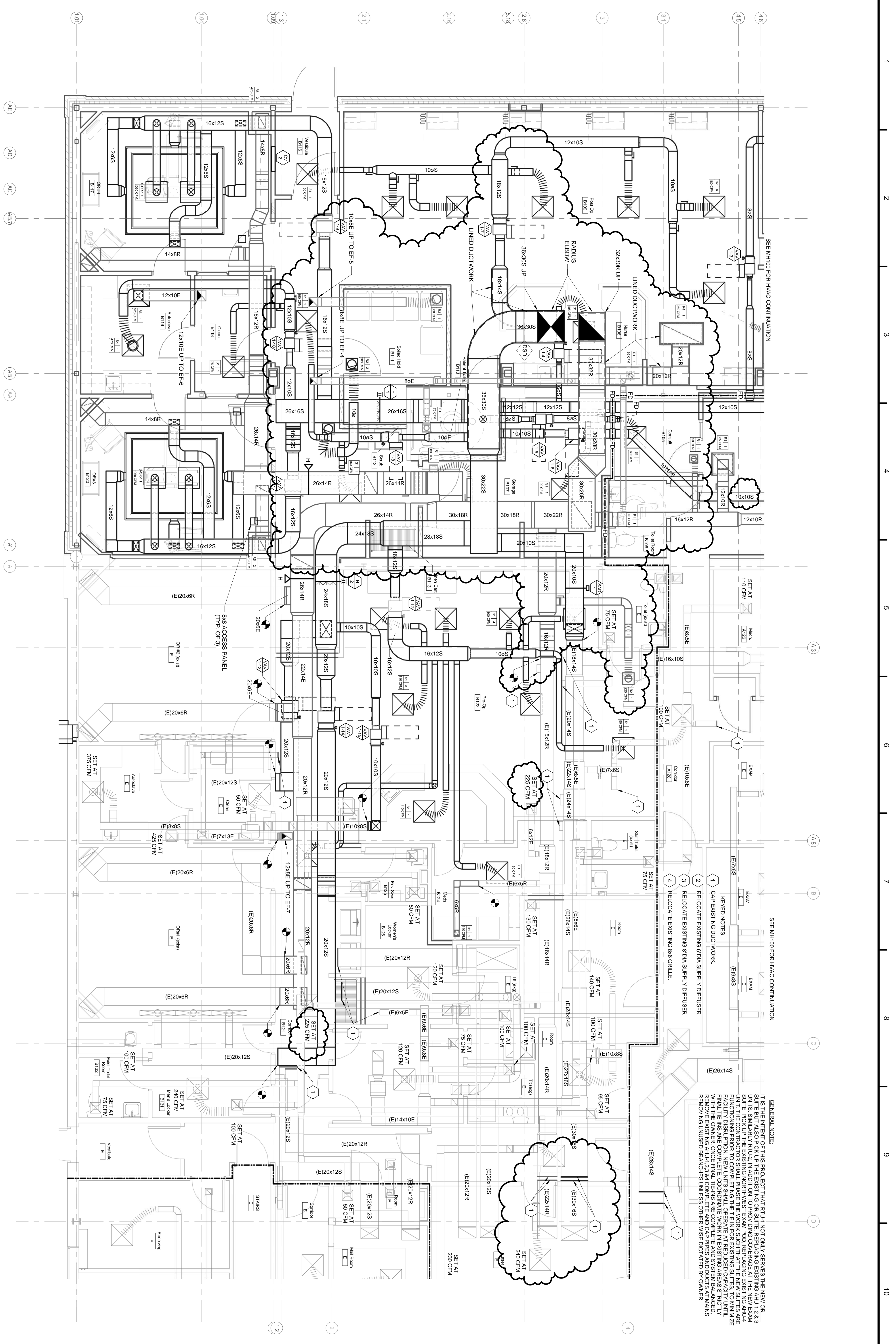


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5	08-08-2013	ADDENDUM-5

A1 MECHANICAL DUCTWORK ENLARGED AREA A PLAN - PHASE 2

1/4" = 1'-0"

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	TITLE MECHANICAL DUCTWORK ENLARGED AREA A PLAN - PHASE 2	SHEET MH100	ISSUE: JULY 11, 2013	SCALE: 1/4" = 1'-0"	DRWN: CHK Checker	PDI JOB NO. 12084



MECHANICAL DUCTWORK ENLARGED AREA B PLAN - PHASE 2

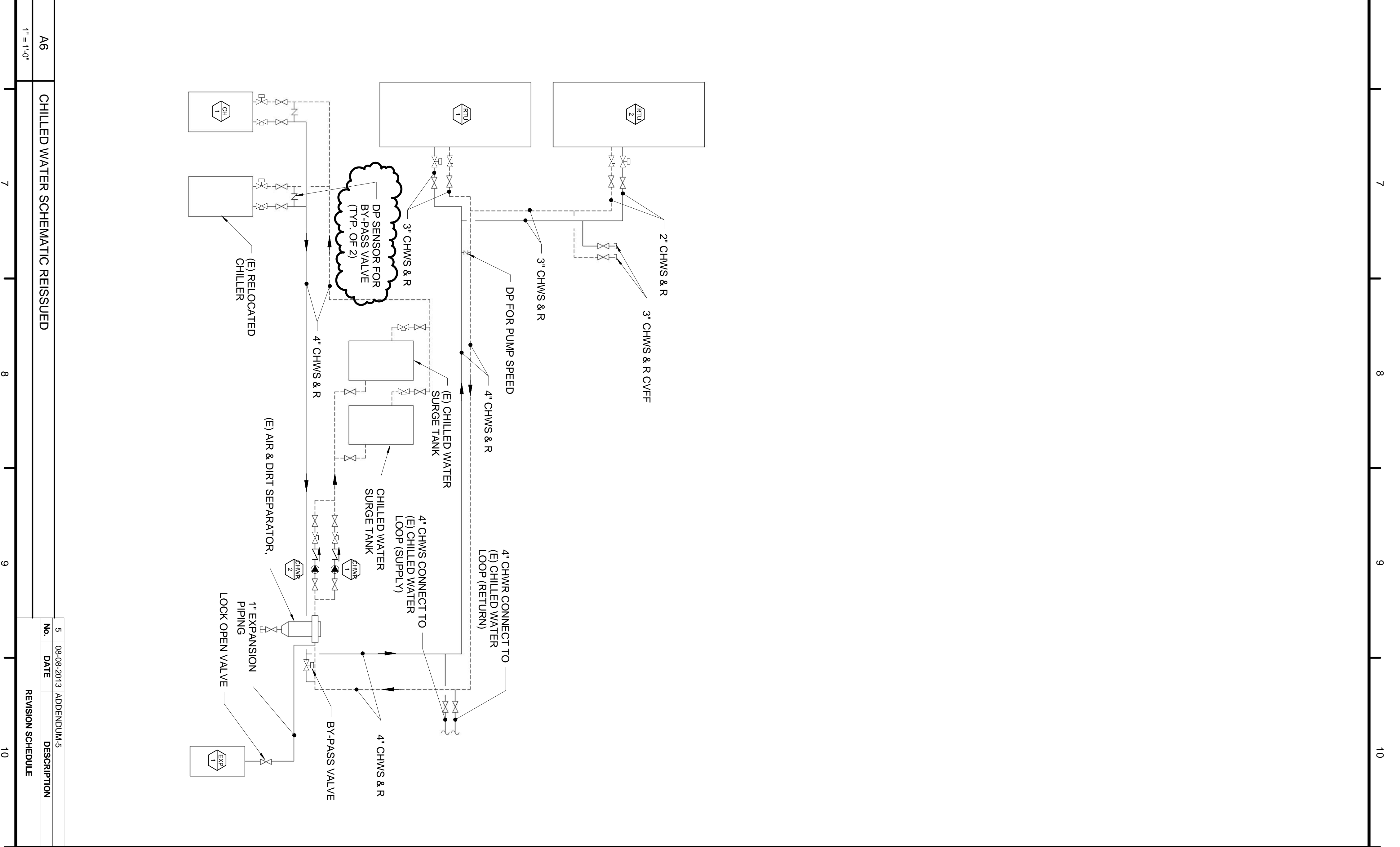
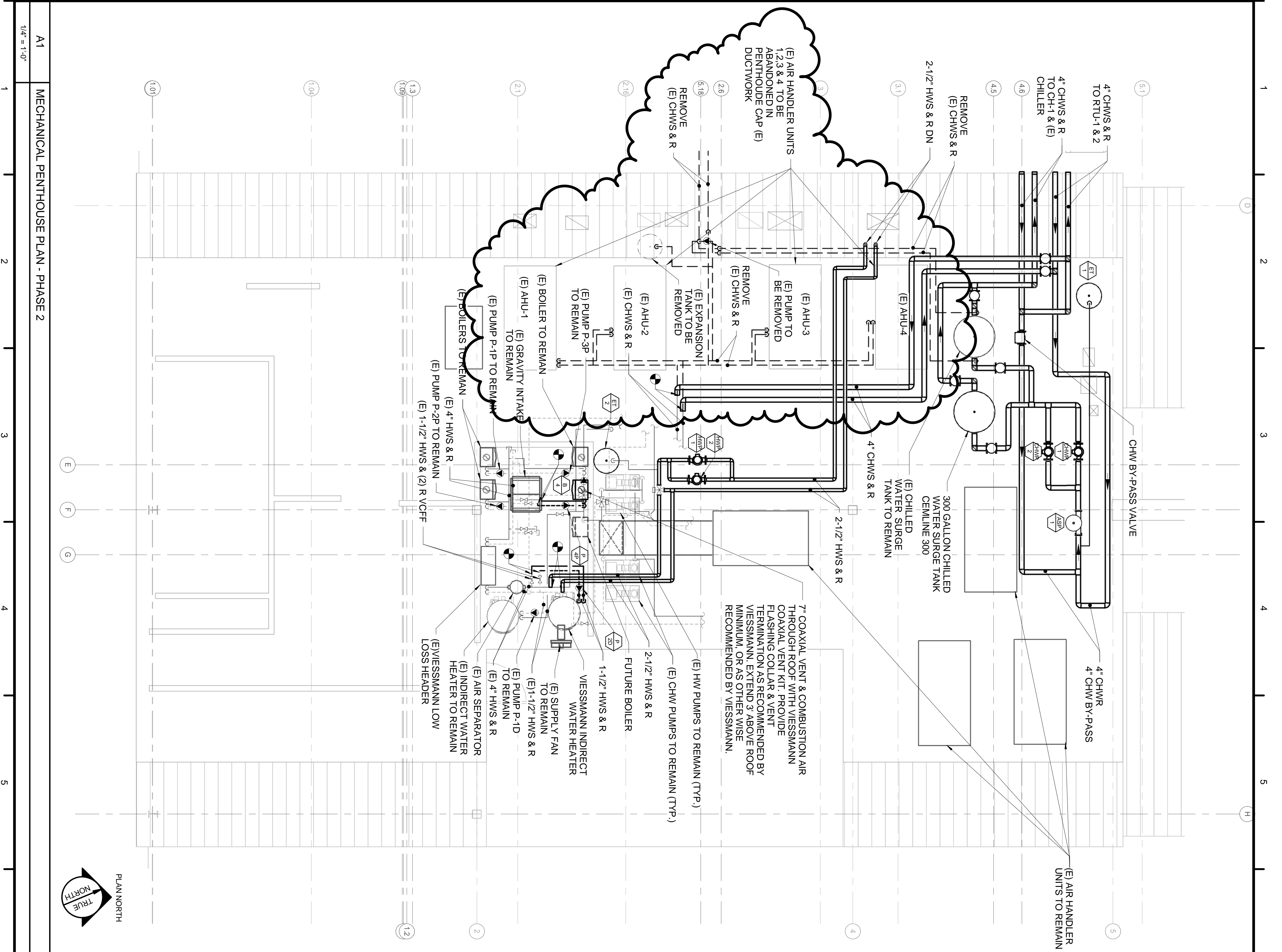
1/4" = 1'-0"

PLAN NORTH

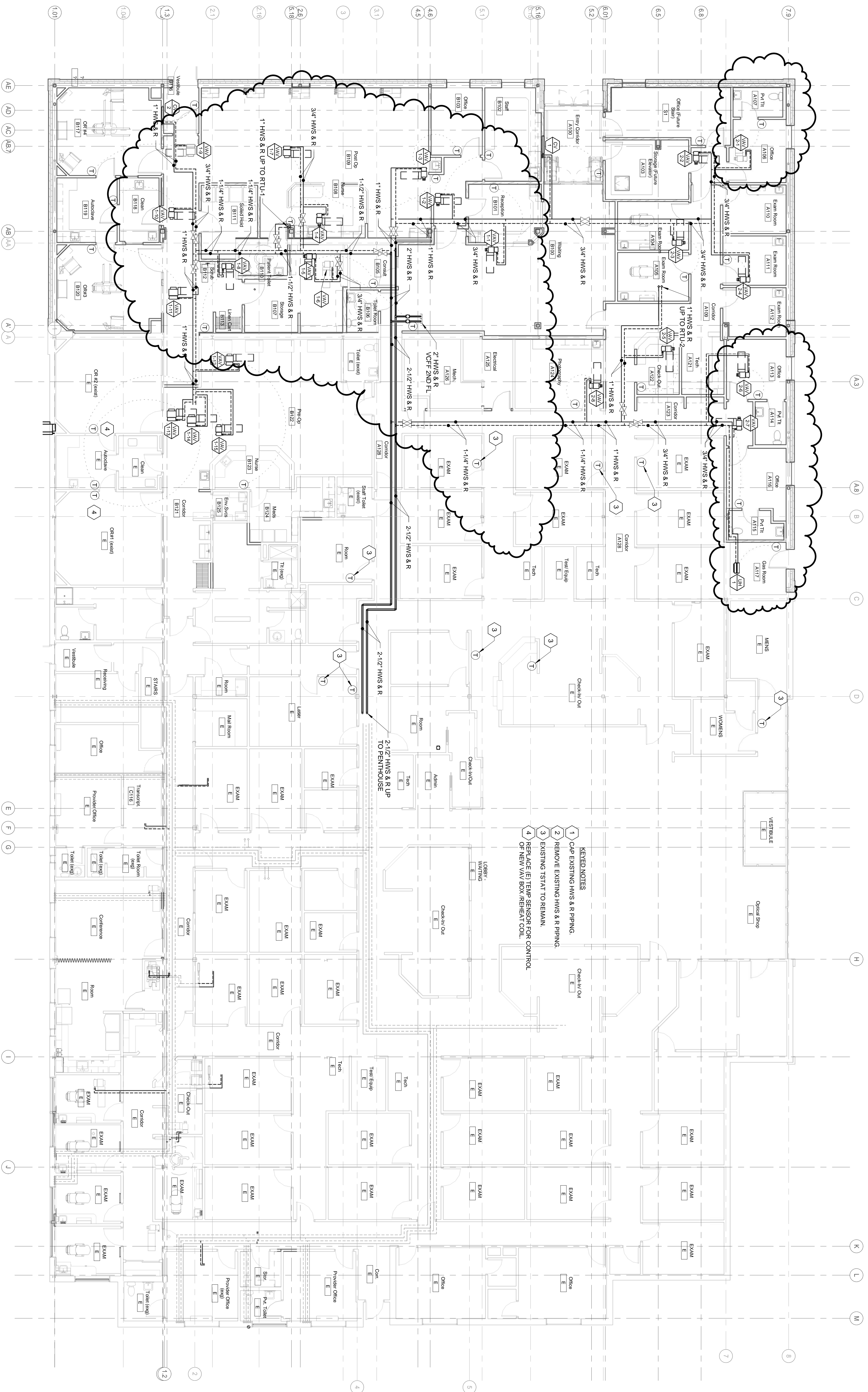
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REVISION SCHEDULE

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<p>NO. 5 DATE: 08-08-2013 DESCRIPTION: APPENDUM-5 REVISION SCHEDULE</p>	<p>SCALE: As indicated</p> <p>ISSUE: JULY 11, 2013</p> <p>TITLE: MECHANICAL PENTHOUSE PART PLAN</p> <p>SHEET: MH400</p>	<p>DRWN. CHK: CHK</p> <p>PDT JOB NO.: 12084</p>	<p>ALLIED PROJECT NO.: 12084</p> <p>OAD FILE:</p> <p>COPYRIGHT 2012 PDT Architects No reproduction or use of any part of this drawing is permitted without the express written permission of PDT Architects.</p>	



- KEYNOTES**
- 1 CAP EXISTING HWS & R PIPING.
 - 2 REMOVE EXISTING HWS & R PIPING.
 - 3 EXISTING STAT TO REMAIN.
 - 4 REPLACE (E) TEMP SENSOR FOR CONTROL OF NEW VAV BOX/REHEAT COIL.

A1 MECHANICAL PIPING PLAN - PHASE 2

No.	DATE	DESCRIPTION
5	08-08-2013	APPENDIX-5



MP100

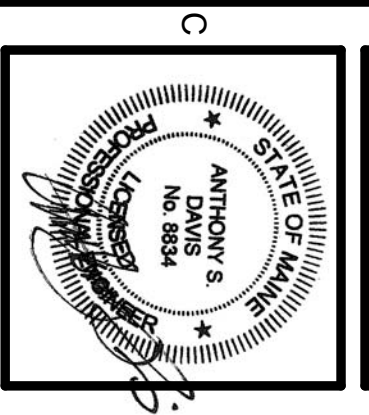
TITLE
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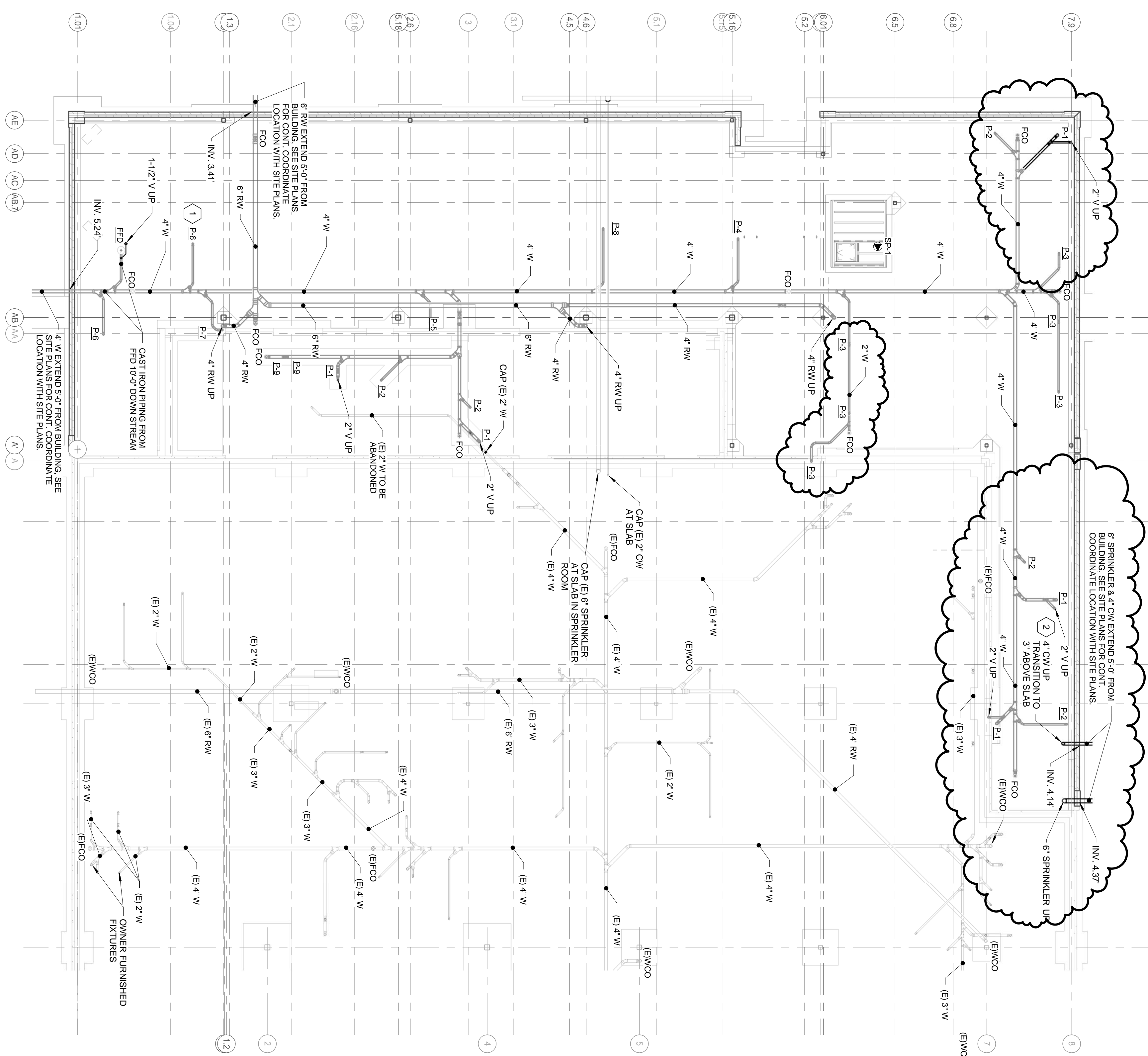
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- KEYED NOTES:
- 1) FIXTURE DESIGNATION IS FOR REFERENCE ONLY. COORDINATING ROUGH-IN & SIZING OF FIXTURES AND INSTALLING THE FIT-UP PACKAGE (TYP) AND EXTEND 3\"/>

A1	PLUMBING UNDER SLAB PIPING PLAN - PHASE 2		
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No.	5	08-08-2013	APPENDUM-5
DATE			
DESCRIPTION			

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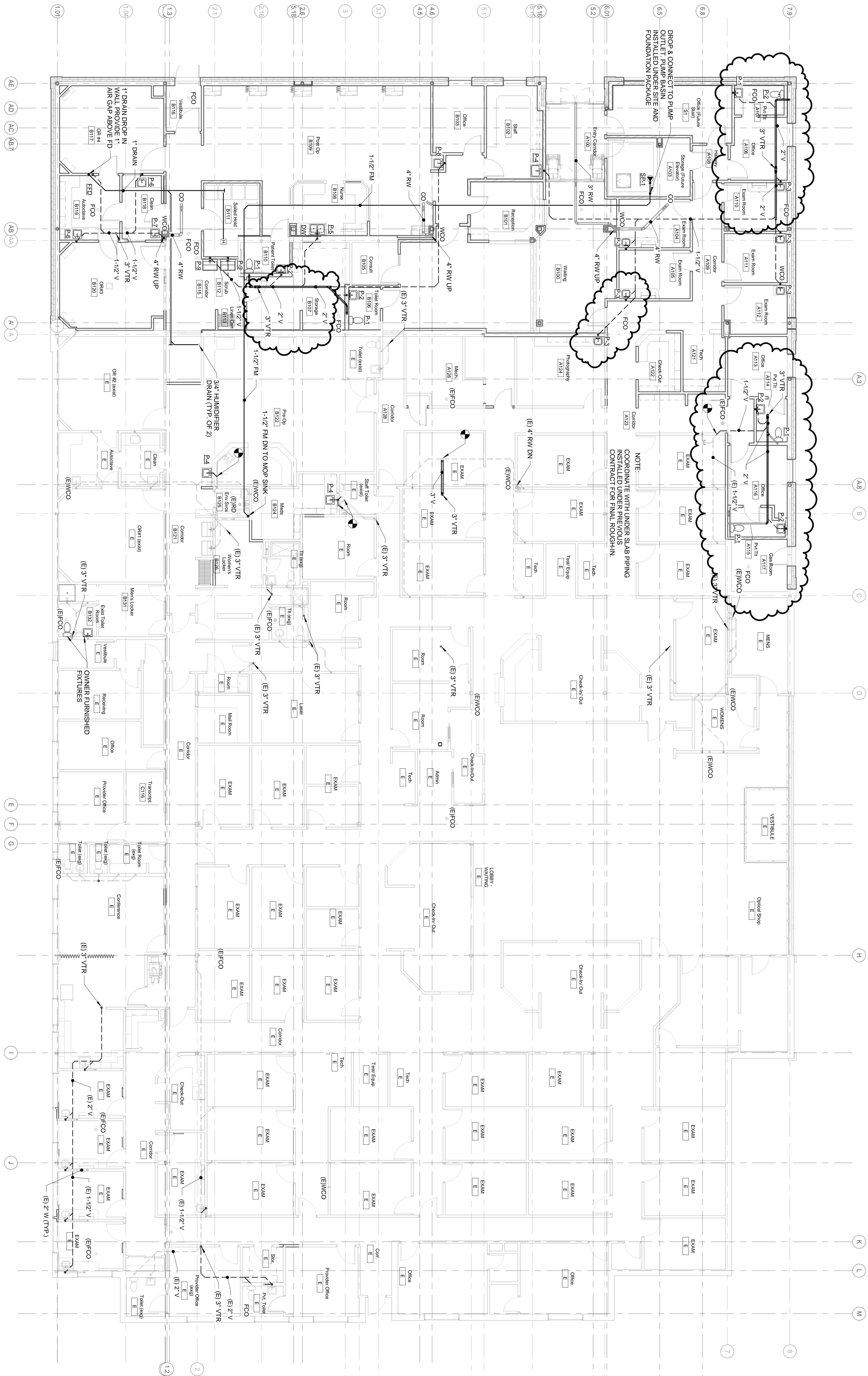
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NOTE:
COORDINATE WITH UNDER SLAB PIPING
CONTRACT FOR FINAL ROUGH-IN.

PLUMBING SANITARY PIPING PLAN - PHASE 2

1/8" = 1'-0"

TRUE NORTH

PLANNING NORTH

NO. DATE DESCRIPTION

5 08-08-2013 ADDENDUM-5

REVISION SCHEDULE

PL101

SHEET

PLUMBING SANITARY PIPING PLAN - PHASE 2

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REGISTERED PROFESSIONAL ENGINEER

NO. 838

EXPIRES 12/31/14

3.0

PLUMBING SANITARY PIPING PLAN - PHASE 2

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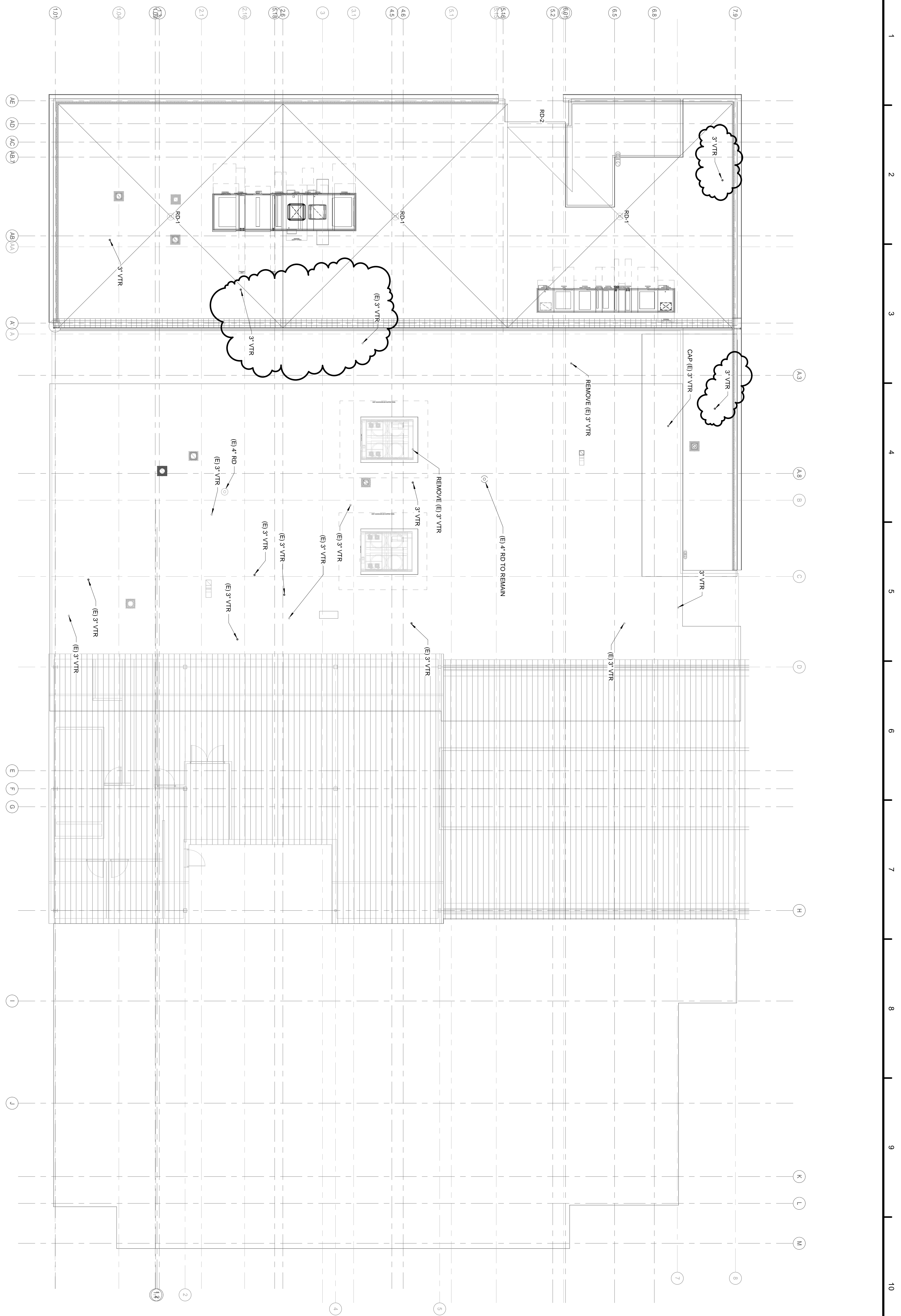
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A1 PLUMBING ROOF PLAN - PHASE 2
1/8" = 1'-0"

No.	DATE	DESCRIPTION
5	08-08-2013	APPENDUM-5

REVISION SCHEDULE



SHEET
PL104

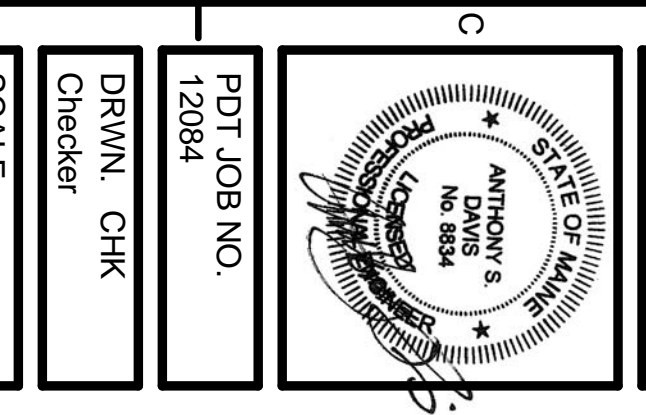
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PLUMBING ROOF
PLAN - PHASE 2

ISSUE:
JULY 11, 2013

SCALE:
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SECTION 283111 - FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Magnetic door holders.
7. Remote annunciator.
8. Addressable interface device.
9. Digital alarm communicator transmitter.

B. Related Requirements:

1. Section 280513 "Conductors and Cables for Electronic Safety and Security" for cables and conductors for fire-alarm systems.

1.3 DEFINITIONS

- A. EMT: Electrical Metallic Tubing.
- B. FACP: Fire Alarm Control Panel.
- C. HLI: High Level Interface.
- D. NICET: National Institute for Certification in Engineering Technologies.
- E. PC: Personal computer.

1.4 ACTION SUBMITTALS

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

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PHASE 2 – ADDITION & RENOVATION

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Show field wiring required for HVAC unit shutdown on alarm.
12. Locate detectors according to manufacturer's written recommendations.
13. For addressable systems, include floor plans to indicate final outlet locations showing address of each addressable device.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire-alarm system design.
 - b. NICET-certified, fire-alarm technician; Level IV minimum.
 - c. Licensed or certified by authorities having jurisdiction.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

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

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Field quality-control reports.

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PHASE 2 – ADDITION & RENOVATION

1.6 Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Division 01, include the following and deliver copies to authorities having jurisdiction:

- a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
- c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
- d. Riser diagram.
- e. Device addresses.
- f. Record copy of site-specific software.
- g. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
 - 1) Equipment tested.
 - 2) Frequency of testing of installed components.
 - 3) Frequency of inspection of installed components.
 - 4) Requirements and recommendations related to results of maintenance.
 - 5) Manufacturer's user training manuals.
- h. Manufacturer's required maintenance related to system warranty requirements.
- i. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

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

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

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PHASE 2 – ADDITION & RENOVATION

1.9 PROJECT CONDITIONS

- A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.
- B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
 - 1. Notify Construction Manager and Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.
 - 2. Do not proceed with interruption of fire-alarm service without Owner's written permission.
- C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.10 SEQUENCING AND SCHEDULING

- A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.
- B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Under the Base Bid: The existing zoned fire alarm control panel shall be removed and the entire system shall be upgraded to a noncoded, addressable system, with multiplexed signal transmission and horn/strobe evacuation as specified herein and indicated on the drawings. Existing notification appliances shall be permitted to be re-used where they are compatible with the system to be provided.

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PHASE 2 – ADDITION & RENOVATION

- B. Under Alternate #2: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.
- C. All components provided shall be listed for use with the selected system.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:
 - 1. Manual stations.
 - 2. Heat detectors.
 - 3. Smoke detectors.
 - 4. Duct smoke detectors.
 - 5. Combustible gas detectors.
 - 6. Automatic sprinkler system water flow.
 - 7. Preaction system.
- B. Fire-alarm signal shall initiate the following actions:
 - 1. Continuously operate alarm notification appliances.
 - 2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
 - 3. Transmit an alarm signal to the remote alarm receiving station.
 - 4. Release fire and smoke doors held open by magnetic door holders.
 - 5. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
 - 6. Close smoke dampers in air ducts of designated air-conditioning duct systems.
 - 7. Activate preaction system.
 - 8. Record events in the system memory.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
 - 1. Valve supervisory switch.
 - 2. High- or low-air-pressure switch of a dry-pipe or preaction sprinkler system.
 - 3. User disabling of zones or individual devices.
- D. System trouble signal initiation shall be by one or more of the following devices and actions:
 - 1. Open circuits, shorts, and grounds in designated circuits.
 - 2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 - 3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
 - 4. Loss of primary power at fire-alarm control unit.
 - 5. Ground or a single break in internal circuits of fire-alarm control unit.
 - 6. Abnormal ac voltage at fire-alarm control unit.
 - 7. Break in standby battery circuitry.

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PHASE 2 – ADDITION & RENOVATION

8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.4 FIRE-ALARM CONTROL UNIT – Base Bid

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

1. [Edwards Systems Technology](#).
2. [Fire-Lite Alarms](#).
3. [Notifier](#).

B. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.
 - a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
 - b. Include a real-time clock for time annotation of events on the event recorder and printer.
 - c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.
 - d. The FACP shall be listed for connection to a central-station signaling system service.
 - e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.

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PHASE 2 – ADDITION & RENOVATION

2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
 3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.
- C. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.
 2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.
- D. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:
1. Pathway Class Designations: NFPA 72, Class B.
 2. Pathway Survivability: Level 0.
 3. Install no more than 100 addressable devices on each signaling-line circuit.
 4. Serial Interfaces:
 - a. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).
 - b. One USB or RS 232 port for PC configuration.
- E. Smoke-Alarm Verification:
1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
 2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
 3. Record events by the system printer.
 4. Sound general alarm if the alarm is verified.
 5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.
- F. Notification-Appliance Circuit:
1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
 2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
 3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.
- G. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.
- H. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change

EYECARE MEDICAL GROUP
PHASE 2 – ADDITION & RENOVATION

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

- I. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.
- J. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory and digital alarm communicator transmitters shall be powered by 24-V dc source.
 - 1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.
- K. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.
 - 1. Batteries: Sealed lead calcium.
- L. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.5 FIRE-ALARM CONTROL UNIT – Alternate #2

- A. Manufacturer: The existing fire alarm control unit was manufactured by Notifier.
- B. Provide common components, control panel modifications, power supplies relays, batteries, programming, etc. as required to support full operation of components added to the system under the work of this section.

2.6 MANUAL FIRE-ALARM BOXES

- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. Where surface mounted, provide manufacturer's surface back box.
 - 1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
 - 2. Station Reset: Key- or wrench-operated switch per local fire department requirements.

2.7 SYSTEM SMOKE DETECTORS

- A. General Requirements for System Smoke Detectors:

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1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.
 - a. Multiple levels of detection sensitivity for each sensor.
 - b. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.
 - d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).

C. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.
 - d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).
3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.8 HEAT DETECTORS

- A. General Requirements for Heat Detectors: Comply with UL 521.
 - 1. Temperature sensors shall test for and communicate the sensitivity range of the device.
- B. Heat Detector, Combination Type: Actuated by either a fixed temperature of **135 deg F (57 deg C)** or a rate of rise that exceeds **15 deg F (8 deg C)** per minute unless otherwise indicated.
 - 1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
 - 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
- C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of **190 deg F (88 deg C)**.
 - 1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
 - 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.9 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.
 - 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.
- B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured **10 feet (3 m)** from the horn, using the coded signal prescribed in UL 464 test protocol.
- C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum **1-inch- (25-mm-)** high letters on the lens.
 - 1. Rated Light Output:
 - a. 15/30/75/110 cd, selectable in the field.
 - 2. Mounting: Wall mounted unless otherwise indicated.
 - 3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
 - 4. Flashing shall be in a temporal pattern, synchronized with other units.
 - 5. Strobe Leads: Factory connected to screw terminals.
 - 6. Mounting Faceplate: Factory finished, red.

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2.10 MAGNETIC DOOR HOLDERS

- A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.
 - 1. Electromagnets: Require no more than 3 W to develop 25-lbf (111-N) holding force.
 - 2. Wall-Mounted Units: Flush mounted unless otherwise indicated.
 - 3. Rating: 24-V ac or dc.
 - 4. Rating: 120-V ac.
- B. Material and Finish: Match door hardware.

2.11 REMOTE ANNUNCIATOR

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

2.12 ADDRESSABLE INTERFACE DEVICE

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

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PHASE 2 – ADDITION & RENOVATION

2.13 DIGITAL ALARM COMMUNICATOR TRANSMITTER

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
 - 1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

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- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
 - 1. Devices placed in service before all other trades have completed cleanup shall be replaced.
 - 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
 - 1. Under Alternate #2, connect new equipment to existing control panel in existing part of the building.
 - 2. Connect new equipment to existing monitoring equipment at the supervising station.
 - 3. Under Alternate #2, expand, modify, and supplement existing control equipment as necessary to extend existing functions to the new devices. New components shall be capable of merging with existing configuration without degrading the performance of the system.
- C. Install wall-mounted equipment, with tops of cabinets not more than **78 inches (1980 mm)** above the finished floor.
- D. Manual Fire-Alarm Boxes:
 - 1. Install manual fire-alarm box in the normal path of egress within **60 inches (1520 mm)** of the exit doorway.
 - 2. Mount manual fire-alarm box on a background of a contrasting color.
 - 3. The operable part of manual fire-alarm box shall be between **42 inches (1060 mm)** and **48 inches (1220 mm)** above floor level. All devices shall be mounted at the same height unless otherwise indicated.
- E. Smoke- or Heat-Detector Spacing:
 - 1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
 - 2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
 - 3. Smooth ceiling spacing shall not exceed **30 feet (9 m)**.
 - 4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A or Annex B in NFPA 72.

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5. HVAC: Locate detectors not closer than **36 inches (910 mm)** from air-supply diffuser or return-air opening.
 6. Lighting Fixtures: Locate detectors not closer than **12 inches (300 mm)** from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.
- F. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.
- G. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than **36 inches (9100 mm)** long shall be supported at both ends.
1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.
- H. Audible Alarm-Indicating Devices: Install not less than **6 inches (150 mm)** below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.
- I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least **6 inches (150 mm)** below the ceiling. Install all devices at the same height unless otherwise indicated.

3.3 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Division 08. Connect hardware and devices to fire-alarm system.
1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.
- B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than **36 inches (910 mm)** from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
1. Smoke dampers in air ducts of designated HVAC duct systems.
 2. Magnetically held-open doors.
 3. Supervisory connections at valve supervisory switches.
 4. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.

3.4 IDENTIFICATION

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

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PHASE 2 – ADDITION & RENOVATION

3.5 GROUNDING

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

3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Visual Inspection: Conduct visual inspection prior to testing.
 - a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 - b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.
 - 2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
 - 4. Test visible appliances for the public operating mode according to manufacturer's written instructions.
 - 5. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- D. Fire-alarm system will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.7 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

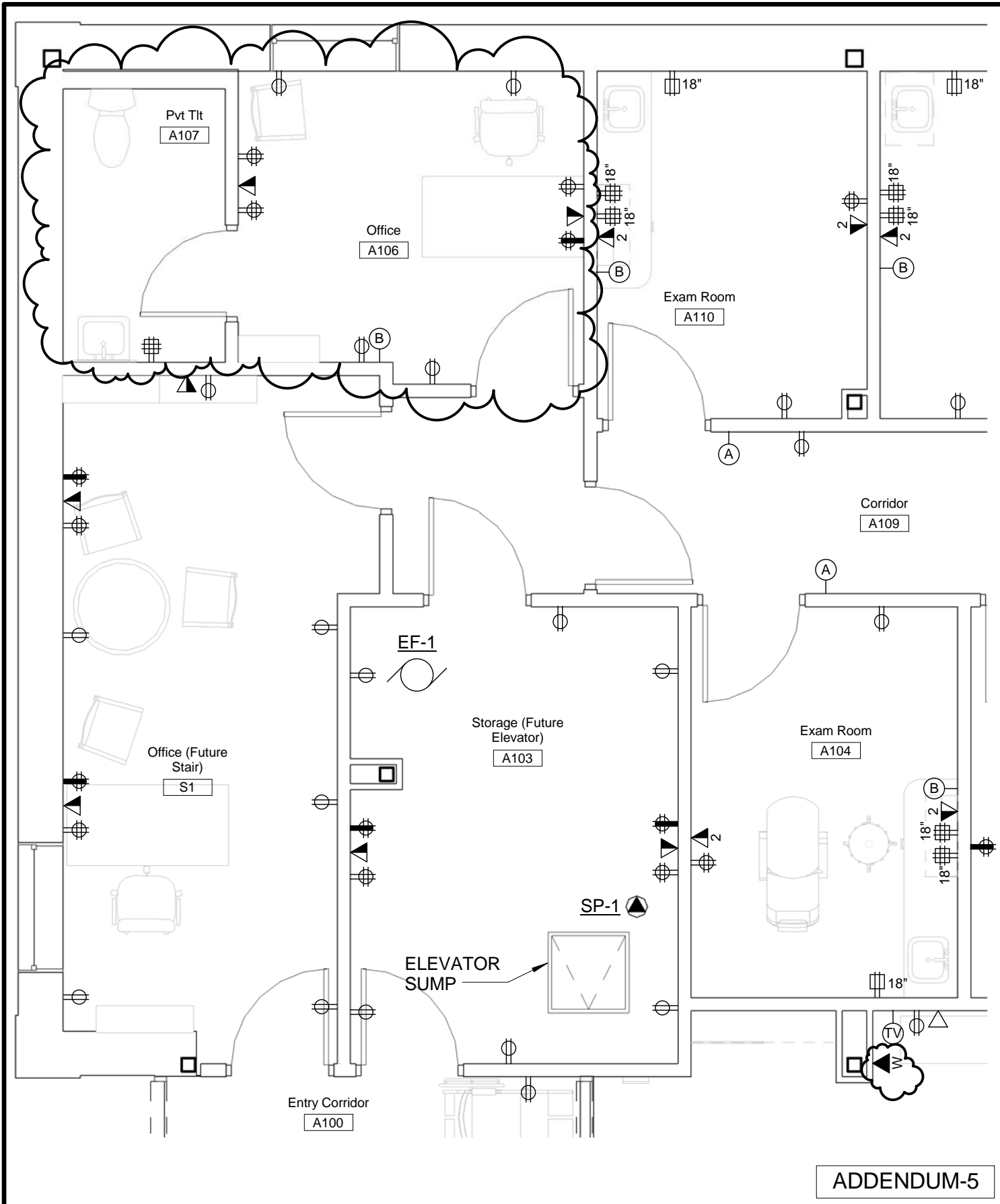
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- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system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

3.8 DEMONSTRATION

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

END OF SECTION 283111



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ADDENDUM-5



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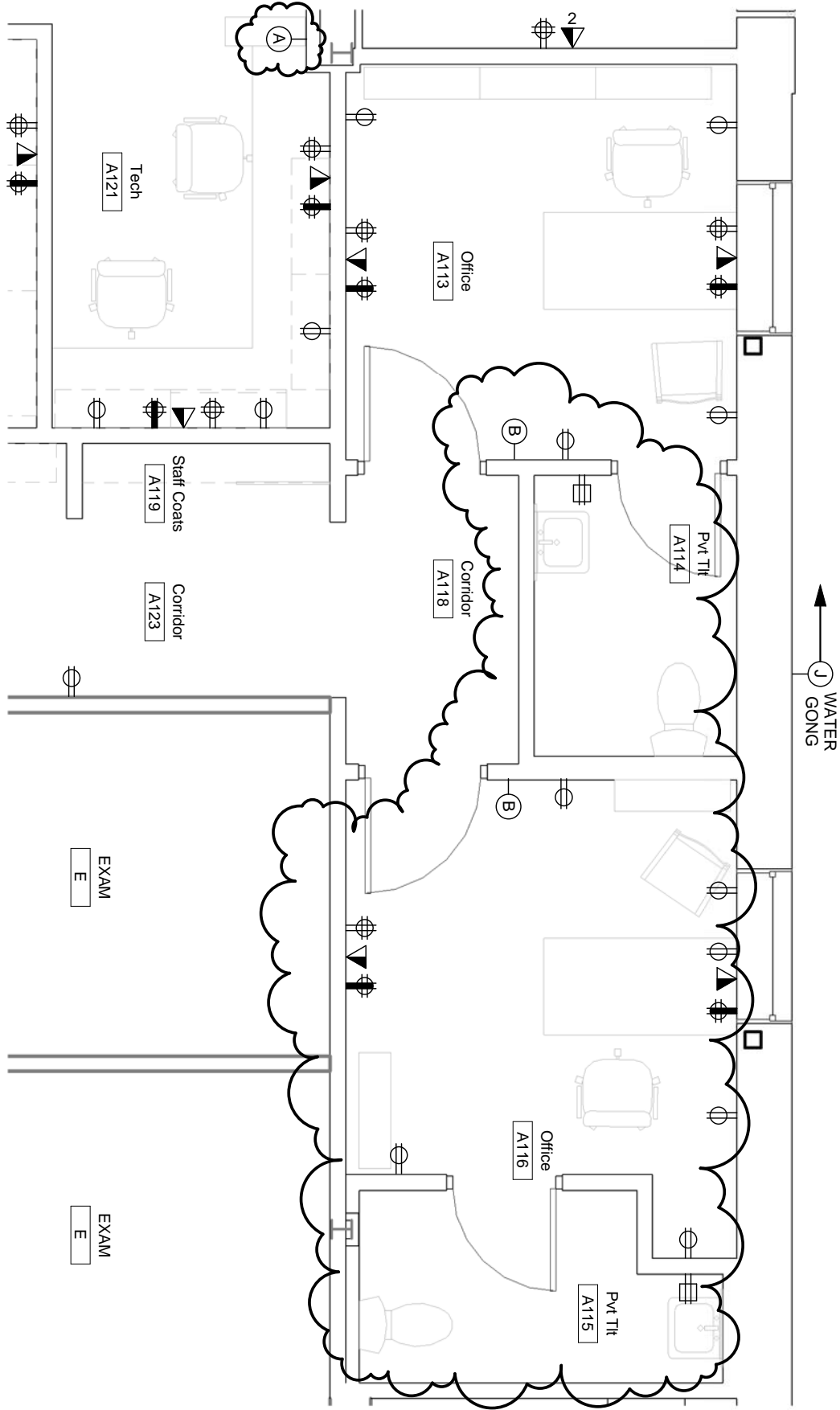
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TITLE
CHANGES TO OFFICE A106 AREA
POWER AND TEL/DATA - EP100

JOB # 12084
DATE 08-09-2013
SCALE 1/4" = 1'-0"

SHEET
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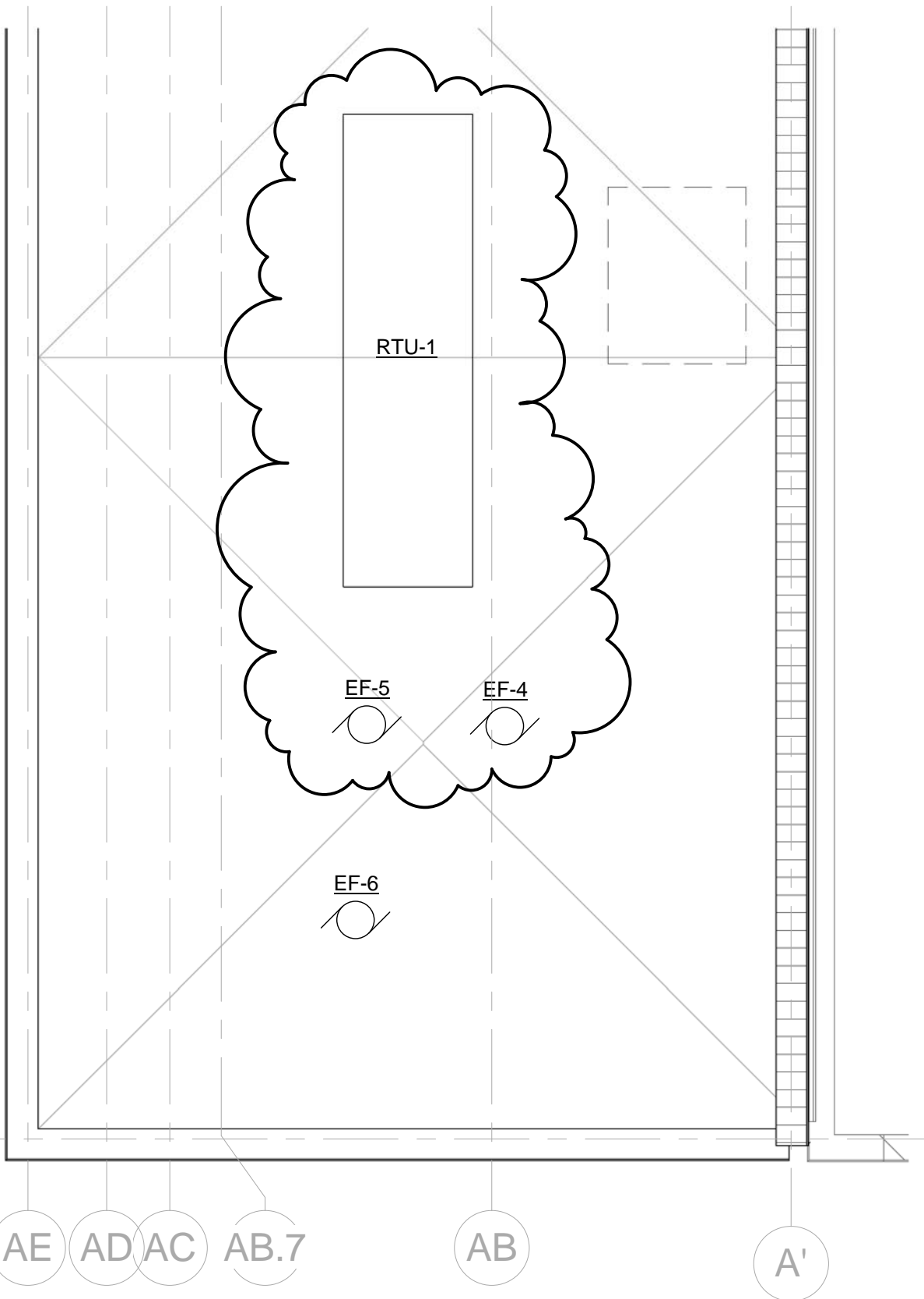
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TITLE
CHANGES TO OFFICE A116 AREA
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CHANGES TO RTU-1, EF-4, EF-5 -
EP102

JOB # 12084

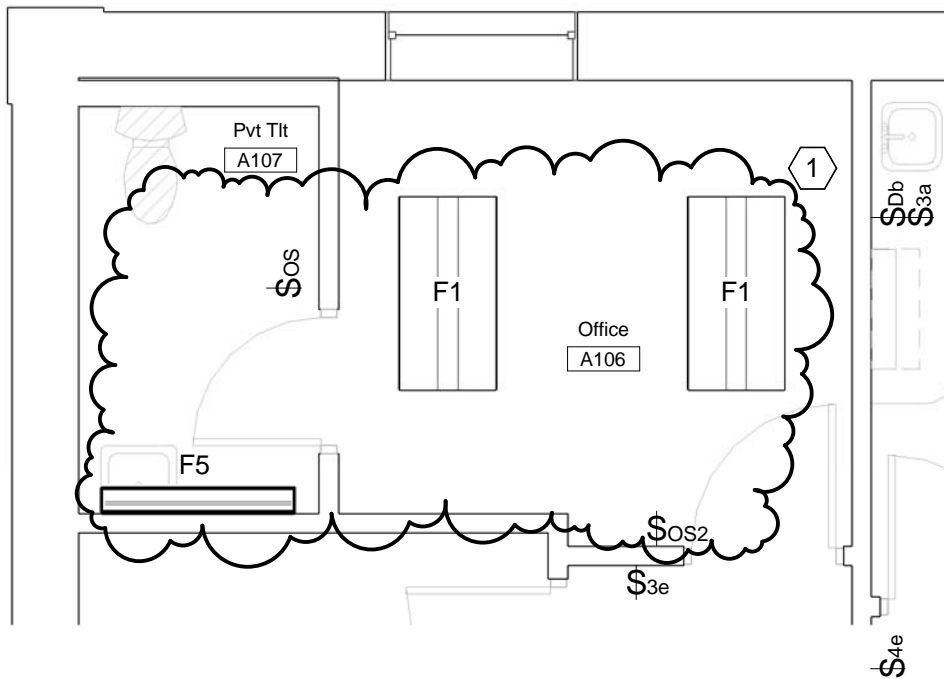
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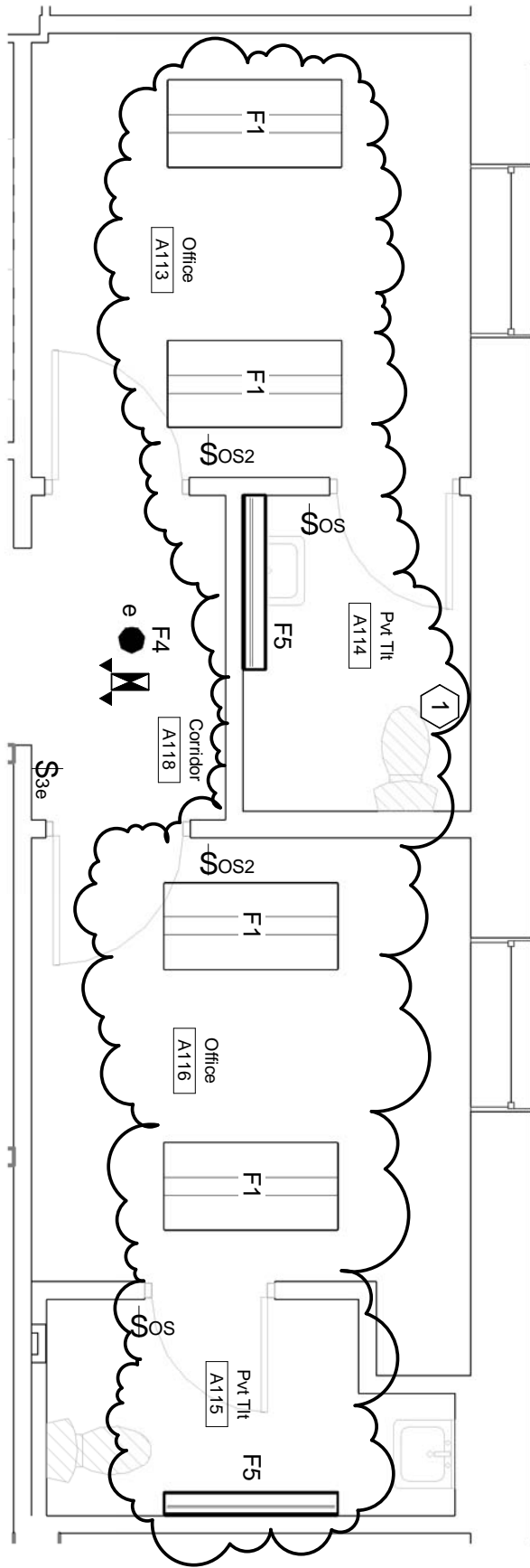
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LIGHTING - EL100

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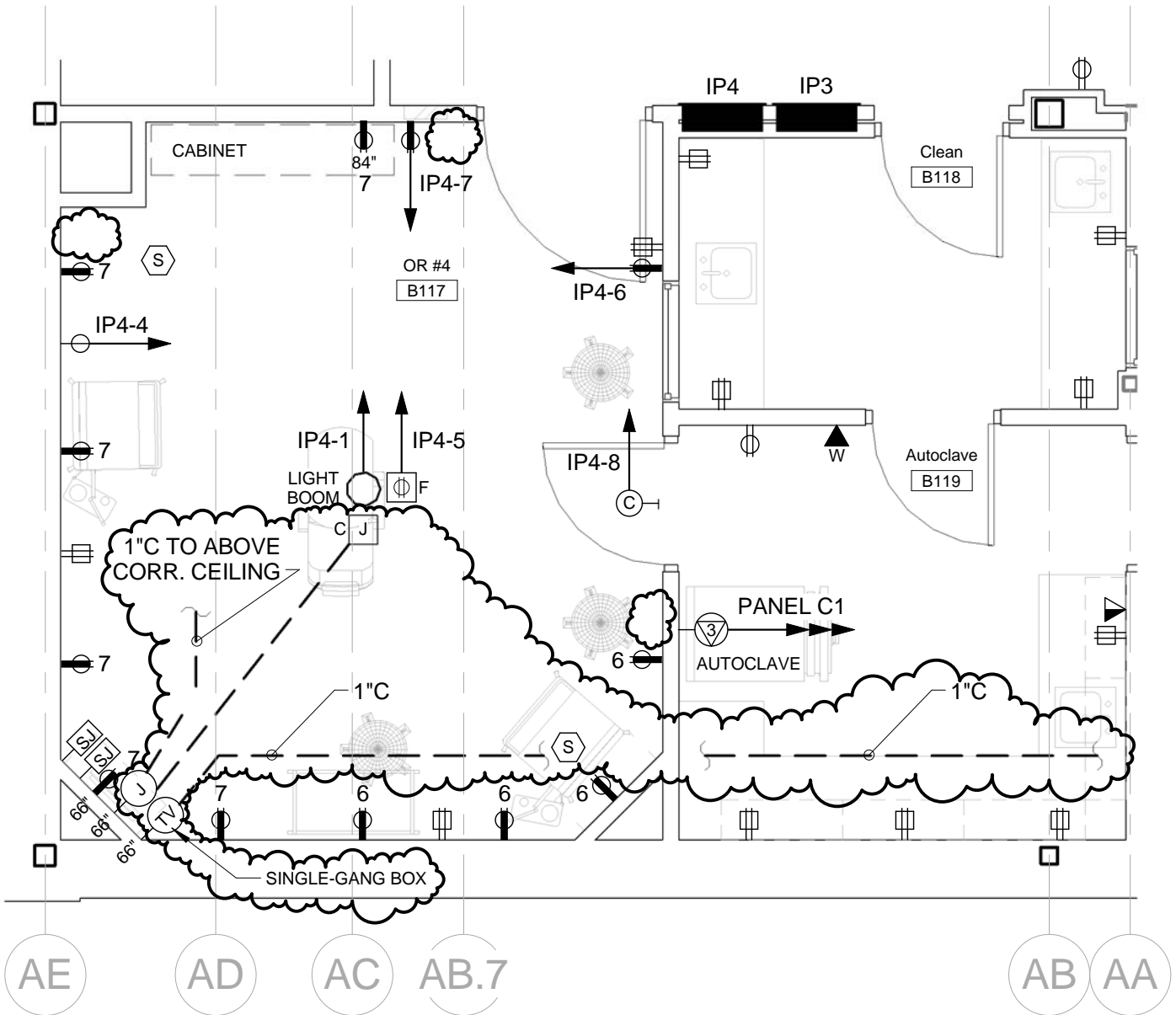
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LIGHTING - EL100

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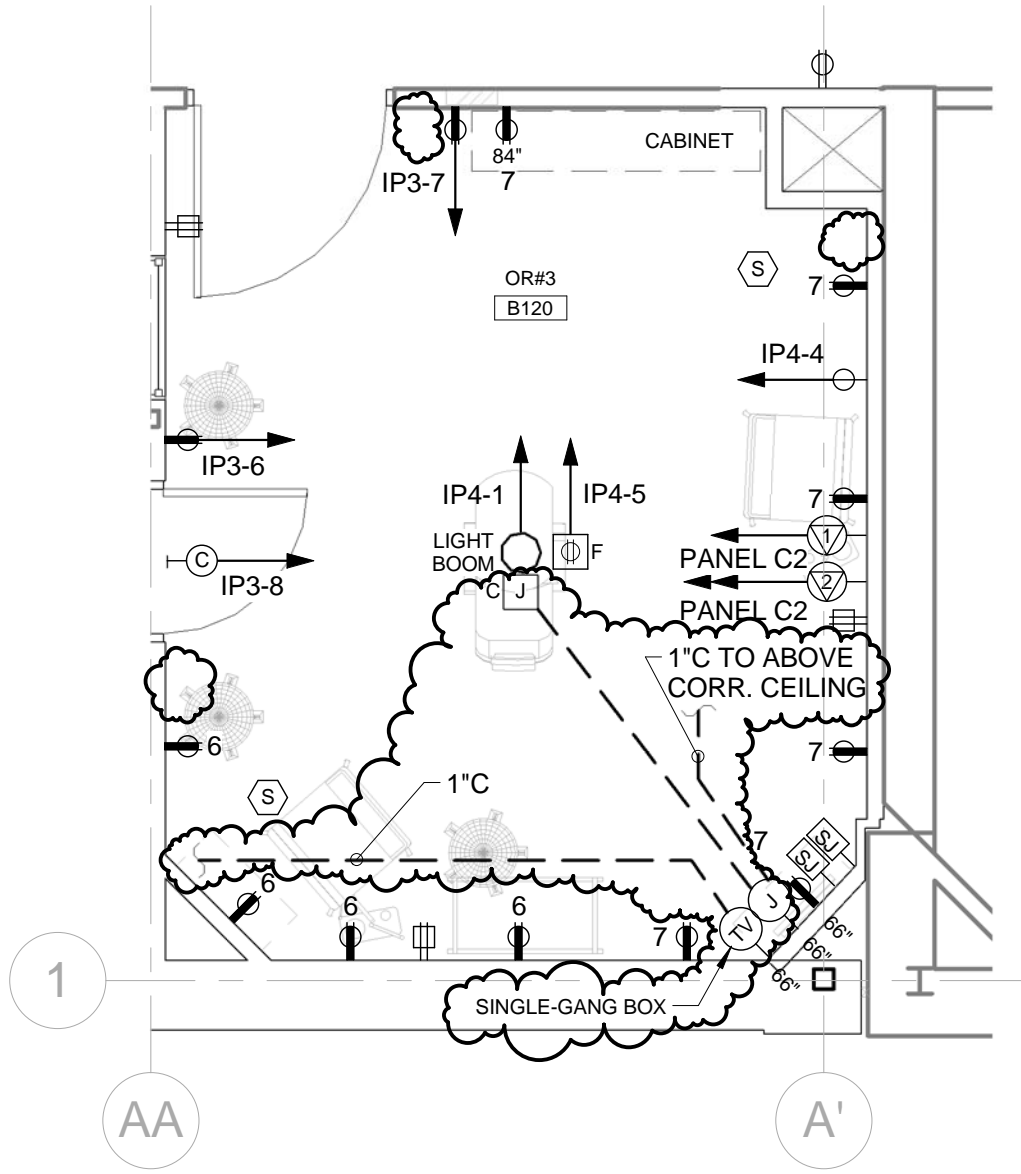
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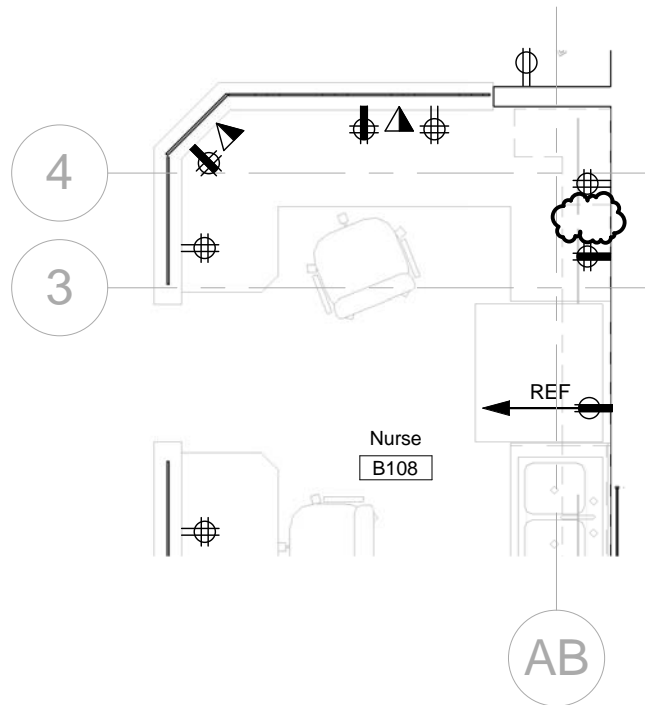
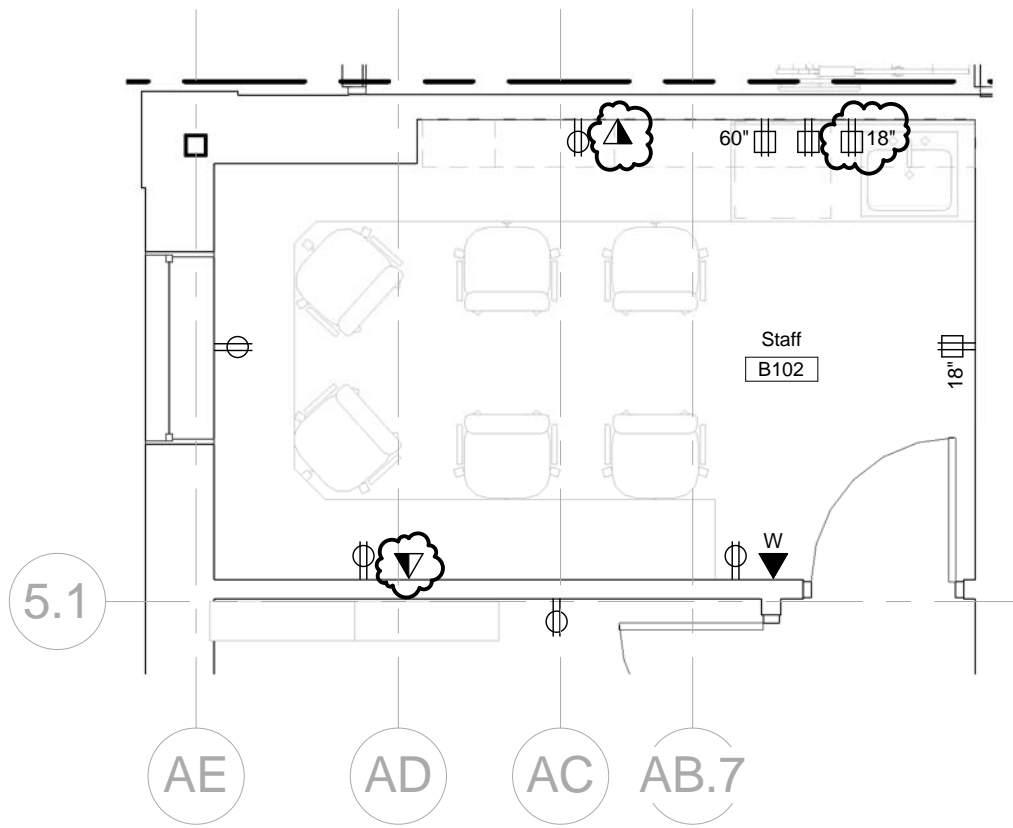
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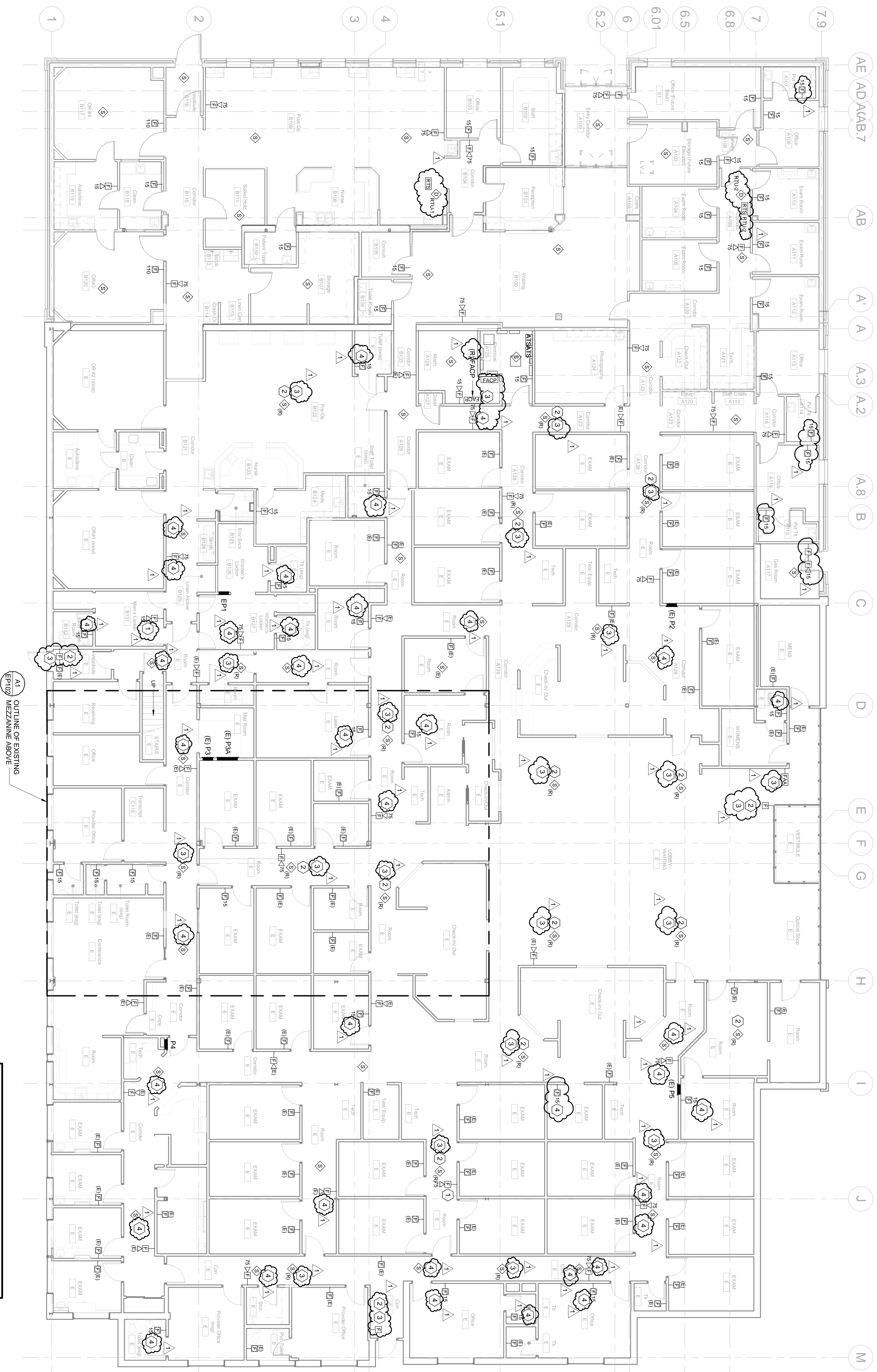
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B108 POWER & TEL/DATA - EP101

JOB # 12084

DATE 08-09-2013

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A1 FIRE ALARM PLAN

1/8" = 1'-0"

A8 KEY NOTES

- 1 UNDER BASE BID ONLY, REMOVE EXISTING FIRE ALARM STROBE AND PROVIDE HORNS-STROBE IN ITS PLACE.
- 2 UNDER BASE BID ONLY, REMOVE EXISTING FIRE ALARM ITEM, AND PROVIDE INDICATED ITEM IN ITS PLACE.
- 3 EXISTING ITEM SHALL REMAIN UNDER ALTERNATE #2
- 4 DELETE UNDER ALTERNATE #2

REVISION SCHEDULE

No.	DATE	DESCRIPTION
1	08-09-2013	ADDENDUM-5

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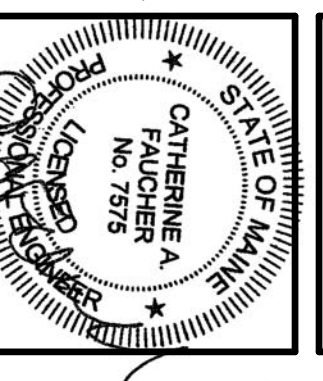
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FIRE ALARM
PLAN

ISSUE:
JULY 11, 2013

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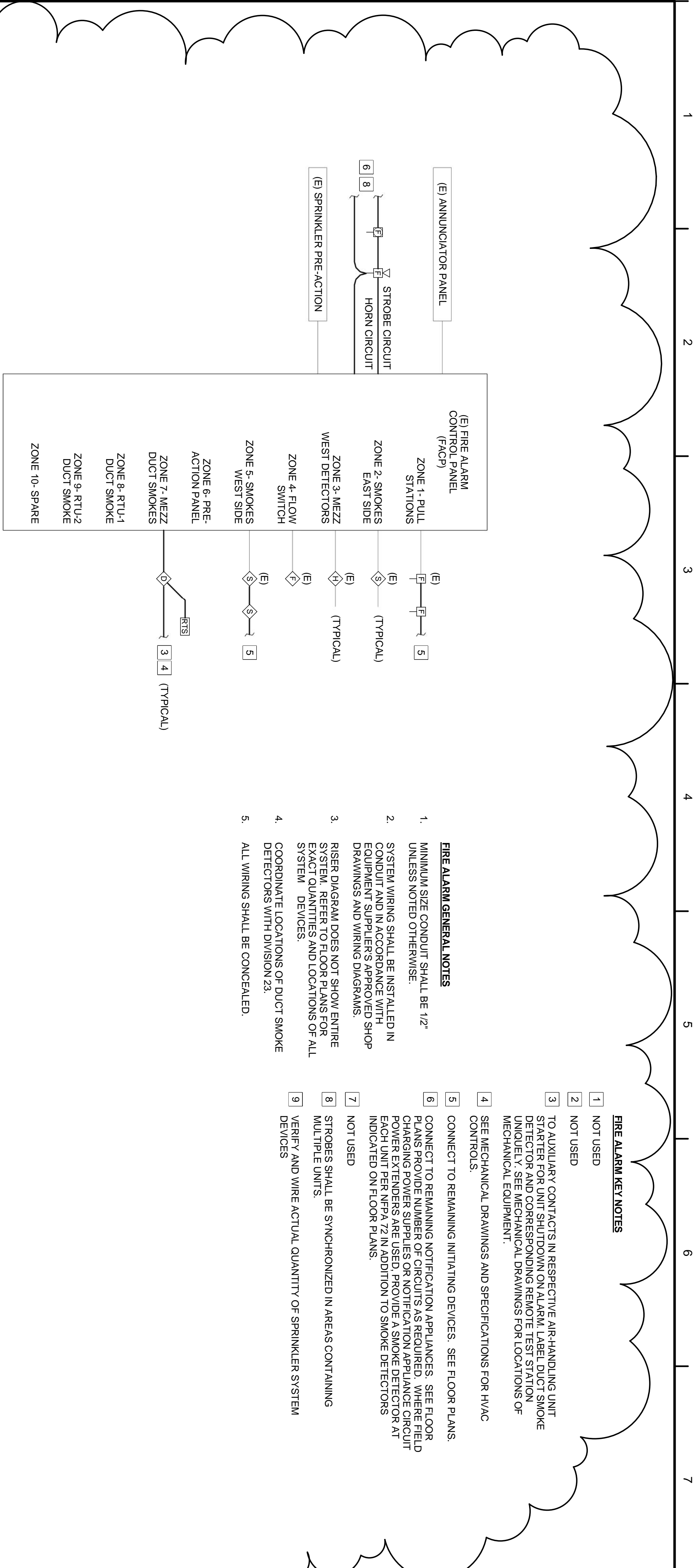
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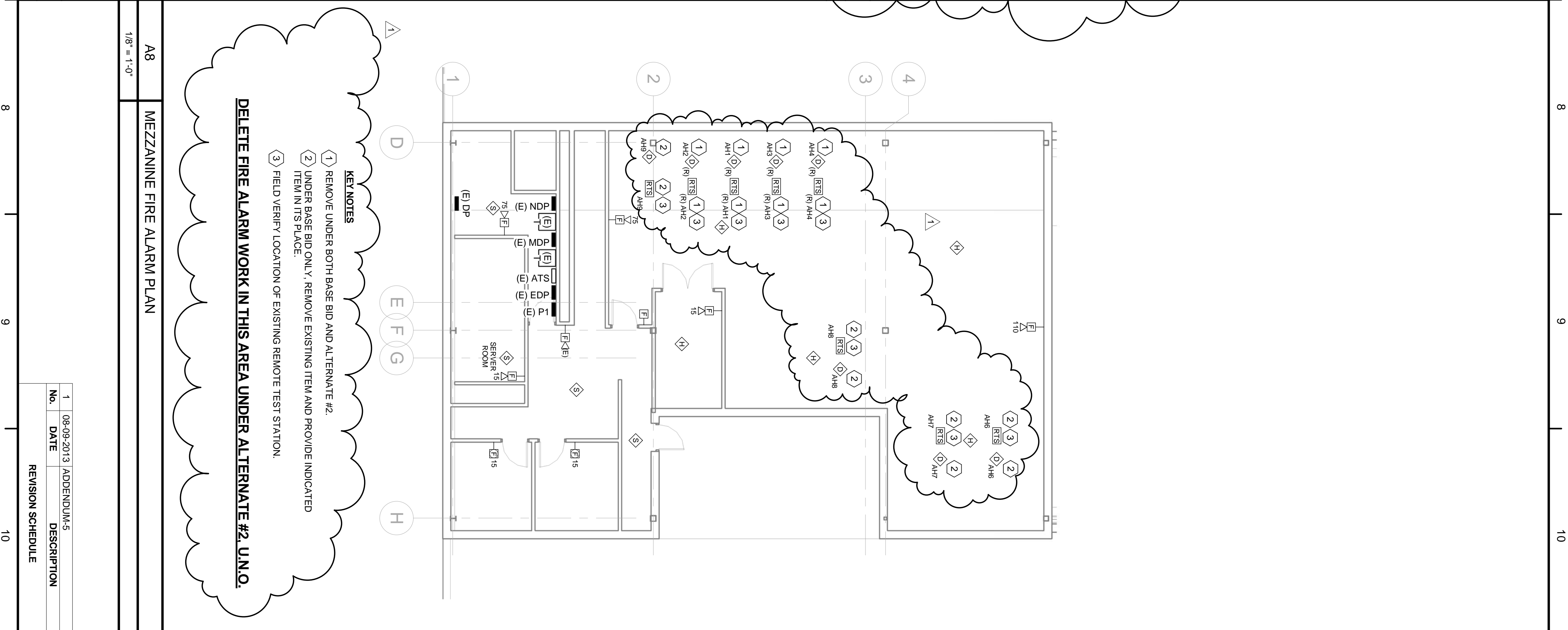
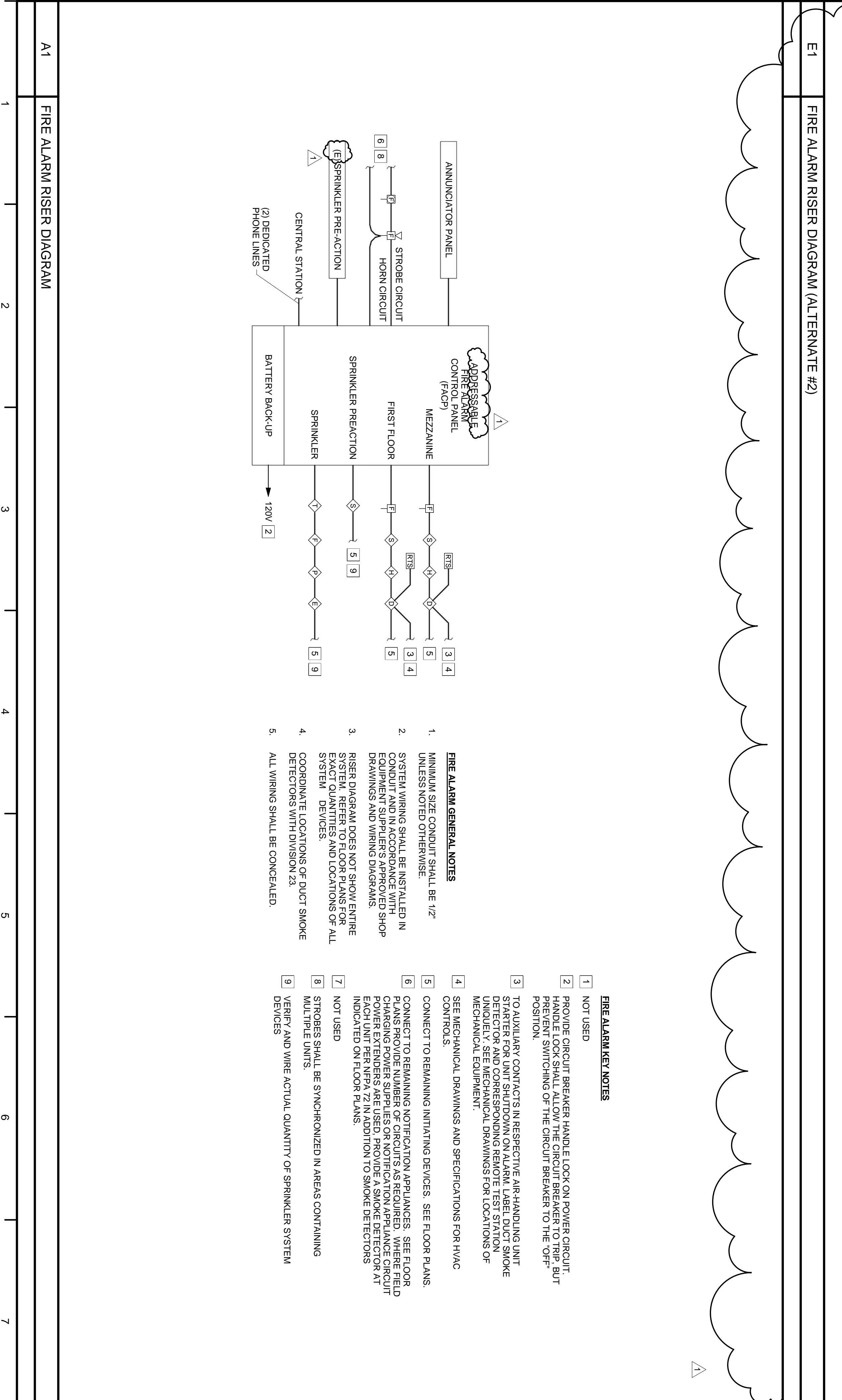
- FIRE ALARM GENERAL NOTES**
1. MINIMUM SIZE CONDUIT SHALL BE 1/2" UNLESS NOTED OTHERWISE.
 2. SYSTEM WIRING SHALL BE INSTALLED IN CONDUIT AND IN ACCORDANCE WITH THE DRAWINGS AND WIRING DIAGRAMS.
 3. RISER DIAGRAM DOES NOT SHOW ENTIRE SYSTEM. REFER TO FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF ALL SYSTEM DEVICES.
 4. COORDINATE LOCATIONS OF DUCT SMOKE DETECTORS WITH DIVISION 23.
 5. ALL WIRING SHALL BE CONCEALED.

- FIRE ALARM KEY NOTES**
1. NOT USED
 2. NOT USED
 3. TO AUXILIARY CONTACTS IN RESPECTIVE AIR-HANDLING UNIT STARTER FOR UNIT SHUTDOWN ON ALARM. LABEL DUCT SMOKE DETECTOR AND CORRESPONDING REMOTE TEST STATION UNIQUELY. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT.
 4. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR HVAC CONTROLS.
 5. CONNECT TO REMAINING INITIATING DEVICES. SEE FLOOR PLANS.
 6. CONNECT TO REMAINING NOTIFICATION APPLIANCES. SEE FLOOR PLANS PROVIDE NUMBER OF CIRCUITS AS REQUIRED. WHERE FIELD CHARGING POWER SUPPLIES OR NOTIFICATION APPLIANCE CIRCUIT BREAKERS ARE USED, PROVIDE A SMOKE DETECTOR AT EACH UNIT PER NFPA 72 IN ADDITION TO SMOKE DETECTORS INDICATED ON FLOOR PLANS.
 7. NOT USED
 8. STROBES SHALL BE SYNCHRONIZED IN AREAS CONTAINING MULTIPLE UNITS.
 9. VERIFY AND WIRE ACTUAL QUANTITY OF SPRINKLER SYSTEM DEVICES

FIRE ALARM KEY NOTES

1. NOT USED
2. PROVIDE CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
3. TO AUXILIARY CONTACTS IN RESPECTIVE AIR-HANDLING UNIT STARTER FOR UNIT SHUTDOWN ON ALARM. LABEL DUCT SMOKE DETECTOR AND CORRESPONDING REMOTE TEST STATION UNIQUELY. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT.
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5. CONNECT TO REMAINING INITIATING DEVICES. SEE FLOOR PLANS.
6. CONNECT TO REMAINING NOTIFICATION APPLIANCES. SEE FLOOR PLANS PROVIDE NUMBER OF CIRCUITS AS REQUIRED. WHERE FIELD CHARGING POWER SUPPLIES OR NOTIFICATION APPLIANCE CIRCUIT BREAKERS ARE USED, PROVIDE A SMOKE DETECTOR AT EACH UNIT PER NFPA 72 IN ADDITION TO SMOKE DETECTORS INDICATED ON FLOOR PLANS.
7. NOT USED
8. STROBES SHALL BE SYNCHRONIZED IN AREAS CONTAINING MULTIPLE UNITS.
9. VERIFY AND WIRE ACTUAL QUANTITY OF SPRINKLER SYSTEM DEVICES

- FIRE ALARM GENERAL NOTES**
1. MINIMUM SIZE CONDUIT SHALL BE 1/2" UNLESS NOTED OTHERWISE.
 2. SYSTEM WIRING SHALL BE INSTALLED IN CONDUIT AND IN ACCORDANCE WITH THE DRAWINGS AND WIRING DIAGRAMS.
 3. RISER DIAGRAM DOES NOT SHOW ENTIRE SYSTEM. REFER TO FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF ALL SYSTEM DEVICES.
 4. COORDINATE LOCATIONS OF DUCT SMOKE DETECTORS WITH DIVISION 23.
 5. ALL WIRING SHALL BE CONCEALED.



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DRWN. CHK
Checker

SCALE:
As indicated

ISSUE:
JULY 11, 2013

TITLE
FIRE ALARM
PLAN MEZZANINE
AND FIRE ALARM
RISER

SHEET
FA101

No.	DATE	DESCRIPTION
1	08-09-2013	ADDENDUM-5

REVISION SCHEDULE