ADDENDUM NO. CC-2

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TELEGRAPH DISTRICT
401 BUILDING RENOVATION
LINCOLN, NEBRASKA
DLR GROUP PROJECT NO. 10-16202-00
MARCH 18, 2016

COMBINED CONTRACT

February 26, 2016

NOTICE TO BIDDERS: Amend the Project Manual and Drawings to the above referenced project as follows:

PROJECT MANUAL

ITEM NO. 1 GENERAL PRE-BID MEETING ATTENDANCE RECORD

A. Attached to this addendum, Pre-bid Meeting Attendance Record.

ITEM NO. 2 DOCUMENT 003143 PERMIT APPLICATION

A. Clarification: The Owner has submitted and paid all Building Application Review fees in full.

ITEM NO. 3 DOCUMENT 004113 BID FORM –STIPULATED SUM (SINGLE-PRIME CONTRACT

A. "The undersigned bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect. Substantial Completion date for the Third Floor phase shall be October 15, 2016. The Substantial Completion date for Second Floor is November 1, 2016. The Substantial Completion date for First Floor is November 15, 2016 and the Substantial Completion date for the Lower Level/Basement is December 1, 2016". Occupancy shall occur on January 1, 2017.

ITEM NO. 4 DOCUMENT 004321 ALLOWANCES

A. Add Section in its entirety. See attachment No. 1

ITEM NO. 5 DOCUMENT 004322 UNIT PRICES FORM

A. Delete Section in its entirety.

ITEM NO. 6 SECTION 013300 SUBMITTAL PROCEDURES

A. Delete Paragraph 2.1.A.1.a in its entirety and replace with the following: "The General Contractor shall arrange and pay for the services of an Electronic Document Submittal Service (EDSS).
   1. Submittal Service: Submittal Exchange (Tel: 1-800-714-0024): www.submittalexchange.com

ITEM NO. 7 SECTION 004323 ALTERNATES FORM

A. Under Paragraph 1.1 D. Project Location to read 401 S. 21st Street, Lincoln, Nebraska.
B. Delete Paragraph 1.4 Schedule of alternates in its entirety. Replace with the Following:

1.4 SCHEDULE OF ALTERNATES

A. Alternate No. 001: Provide Baked Enamel Steel Toilet Compartments in lieu of Plastic Toilet Compartments:

1. ADD____ DEDUCT____ NO CHANGE____ NOT APPLICABLE____.
2. _____ Dollars ($_____).
3. ADD____ DEDUCT____ calendar days to adjust the Contract Time for this alternate.

B. Alternate No. 002: Replace all instances of APC-2 with APC-1. Perimeter trim to remain:

1. ADD____ DEDUCT____ NO CHANGE____ NOT APPLICABLE____.
2. _____ Dollars ($_____).
3. ADD____ DEDUCT____ calendar days to adjust the Contract Time for this alternate.

C. Alternate No. 003: Provide alternate Carpet for CPT-1 as follows: Interface style, Detours, color: Slate:

1. ADD____ DEDUCT____ NO CHANGE____ NOT APPLICABLE____.
2. _____ Dollars ($_____).
3. ADD____ DEDUCT____ calendar days to adjust the Contract Time for this alternate.

D. Under Paragraph 1.5 a. Delete “2012” and replace with “2016”.

ITEM NO. 8 SECTION 075423 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. Under Paragraph 2.2.A delete the following: “fabric-backed”.

B. Under Paragraph 3.3

1. Delete Paragraph D in its entirety.
2. Delete Paragraph F in its entirety.
3. Delete Paragraph G in its entirety.

C. Under Paragraph 3.4 delete heading “ADHERED ROOFING INSTALLATION” and replace with “ADHERED ROOFING INSTALLATION (at West Deck Roof and East Canopy)”

D. Insert the following Paragraph:

3.5 MECHANICALLY FASTENED ROOFING INSTALLATION (Main Building Roof Area)

A. Mechanically fasten roofing over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing and allow to relax before retaining.

B. Accurately align roofing, and maintain uniform side and end laps of minimum dimensions required by manufacturer but at least 6". Stagger end laps.

C. Mechanically fasten or adhere roofing securely at terminations, penetrations, and perimeter of roofing.

D. Apply roofing with side laps shingled with slope of roof deck where possible.

E. In-Seam Attachment: Secure one edge of TPO sheet using fastening plates or metal battens centered within seam, and mechanically fasten TPO sheet to roof deck.

F. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet.
2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing that do not comply with requirements.

G. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.

ITEM NO. 9 SECTION 084226 ALL-GLASS ENTRANCES

A. Under Paragraph 2.3.B: Revise "Patch Fittings" to read "Top and Bottom Rail.

B. Under Paragraph 2.5B: Delete Paragraph and replace with the following: "Overhead Concealed Closures with hold open arm and Top Pivots: Center hung; BHMA A156.4, Grade 1; including 1 ¾" by 4" header a door only, plates, and accessories required for complete installation".

ITEM NO. 10 SECTION 089119 FIXED LOUVERS

A. Under Paragraph 2.3: Add Industrial Louvers Inc as approved to bid

ITEM NO. 11 SECTION 096516 RESILIENT SHEET FLOORING

A. Insert this section in its entirety.

ITEM NO. 12 SECTION 098436 SOUND ABSORBING CEILING PANELS

A. Under Paragraph 2.2.A insert the following: 13. Size: 22 inches High x 94 inches wide.

ITEM NO. 13 SECTION 102800 TOILET, BATH, AND LAUNDRY ACCESSORIES

A. Under Paragraph 2.3.H.1.c: Remove "-11" from the model number.

B. Under Paragraph 2.3.H.2: Remove "Surface Mount" and replace with "Recessed".

C. Under Paragraph 2.3.I.4: Revise to read "Size: 24 inches wide by 72 inches high.

ITEM NO. 14 SECTION 232300 REFRIGERANT PIPING

A. Part 2 – Products, Add the following under new Paragraph 2.4 ALUMINUM PIPE AND FITTINGS:

"A. Aluminum Tube: ASTM B210 seamless drawn aluminum tubing, cleaned and capped in accordance with ASTM B280, and complying with ASME B31.5 for allowable strength, and wall thickness.

B. Mechanically Joined Fittings: ETL tested to UL 207 and ETL listed, REFLOK copper-to-copper, aluminum-to-aluminum, or copper to aluminum fittings for connection of refrigerant piping. Fittings shall have dielectric coating to allow connection of dis-similar metals. Fittings shall be certified to a working pressure of 600 psi."

B. Paragraph 3.2, add the following: "V. Contractor may substitute REFLOK fittings for brazing of copper tubing. If REFLOK fittings are used to join tubing (copper or aluminum), brazing and nitrogen purge are eliminated."

ITEM NO. 15 SECTION 230548.13 VIBRATION CONTROLS FOR HVAC

A. Paragraph 1.2.A, Add the following: 3. Restrained spring isolators."
B. Part 2 – Products, Add the following Paragraph 2.3:

a. RESTRAINED SPRING ISOLATORS

A. Freestanding, Laterally Stable, Open-Spring Isolators with Vertical-Limit Stop Restraint:

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

- Ace Mountings Co., Inc.
- California Dynamics Corporation.
- Isolation Technology, Inc.
- Kinetics Noise Control, Inc.

- Mason Industries, Inc.
- Vibration Eliminator Co., Inc.
- Vibration Isolation.
- Vibration Mountings & Controls, Inc.

2. Housing: Steel housing with vertical-limit stops to prevent spring extension due to weight being removed.

   - Base with holes for bolting to structure with an elastomeric isolator pad attached to the underside. Bases shall limit floor load to 500 psig (3447 kPa).
   - Top plate with threaded mounting holes.
   - Internal leveling bolt that acts as blocking during installation.

3. Restraint: Limit stop as required for equipment and authorities having jurisdiction.
4. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
5. Minimum Additional Travel: 50 percent of the required deflection at rated load.
6. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
7. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

ITEM NO. 16 SECTION 235523.13 LOW INTENSITY, GAS FIRED, RADIANT HEATERS

A. Paragraph 2.2.A: Add the following: “4. Ambirad.” to the list of manufacturers.

ITEM NO. 17 SECTION 235533.16 GAS FIRED UNIT HEATERS

A. Paragraph 2.1.A: Add the following: “6. Re-Verber-Ray.” to the list of manufacturers.

ITEM NO. 18 SECTION 237200 AIR-TO-AIR ENERGY RECOVERY EQUIPMENT

A. Paragraph 2.1.A: Add the following: “8. Venmar.” to the list of manufacturers.

ITEM NO. 19 SECTION 238116 VARIABLE REFRIGERANT FLOW AIR-CONDITIONERS

A. Paragraph 2.1.A: Add the following: “4. Panasonic.”

ITEM NO. 20 SECTION 263213.14 DIESEL ENGINE GENERATORS

A. Paragraph 1.10- Pricing Added paragraph- “A. Provide a break-out cost for both a sound attenuated enclosure as defined in section 2.2 and a Nema 3R enclosure non sound attenuated enclosure.”
B. Paragraph 2.3.C: Change the word “Prime” to “Stand-by”
C. Paragraph 2.3.N.3: Change “10 percent” to “20 percent”
D. Paragraph 2.3.N.6: Change “2 Hz” to “3Hz”
E. Paragraph 2.5.F: Change “133 percent” to “100 percent”
F. Paragraph 2.9.I: The following sentence shall be modified to read, “Louvers: Fixed-engine, cooling-air inlet and *vertical radiator* discharge. Stormproof and drainable louvers prevent entry of rain and snow.

DRAWINGS

ITEM NO. 1 DRAWING A0.1 ROOM FINISH SCHEDULE

A. COMM Rooms 108, 209 and 310: Under floor finish column, Delete “SCT-1” and replace with “SEAL CONC”.

ITEM NO. 2 DRAWING D1.0 DEMOLITION PLAN, BASEMENT LEVEL

A. Revised Demolition drawing showing current condition and bid scope of work.

ITEM NO. 3 A1.1-1 TRASH ENCLOSURE, PLAN, ELEVATION AND DETAILS

A. See A1.1-1 for Trash Enclosure details

ITEM NO. 4 DRAWING A3.1 REFLECTED CEILING PLAN, FIRST LEVEL

A. Revised drawing showing Sound Absorbing Ceiling Units.

B. Revised drawing showing extents of Spray-foam Insulation on structure above.

ITEM NO. 5 DRAWING A3.2 REFLECTED CEILING PLAN, SECOND LEVEL

A. Revised drawing showing Sound Absorbing Ceiling Units

ITEM NO. 6 DRAWING A3.3 REFLECTED CEILING PLAN, THIRD LEVEL

A. Revised drawing showing Sound Absorbing Ceiling Units.

ITEM NO. 7 DRAWING A4.1 ROOF PLAN AND DETAILS

A. Revised drawing showing Penthouse level elevations and additional roof details.

ITEM NO. 8 DRAWING A9.1 DOOR AND FRAME SCHEDULE

A. Revise Door Schedule as follows:

1. Door 107A Height, 9’-0”
2. Door 111 Height, 9’-0”
3. Door 112 Height, 9’-0”
4. Door 206A Height, 9’-0”
5. Door 211 Height, 9’-0”
6. Door 213 Height, 9’-0”
7. Door 307A Height, 9’-0”
8. Door 312 Height, 9’-0”
9. Door 313 Height, 9’-0”

B. Under Door and Window Frame General Notes, Note G:
1. Allow for one inch of deflection.

ITEM NO. 9 DRAWING A10.2 GENERAL BUILDING DETAILS

A. Modify drawing as shown on Attachment A10.2-1.

ITEM NO. 10 DRAWING F1.0 FIRE PROTECTION PLANS

A. Provide an anti-freeze loop for the fire sprinkler piping serving the penthouse.

ITEM NO. 11 DRAWING M1.0 HVAC PLAN, BASEMENT LEVEL

A. Revise the drawing as shown in the attachment M1.0 for modifications to the HVAC plan.

ITEM NO. 12 DRAWING M1.1 HVAC PLAN, FIRST LEVEL

A. Revise the drawing as shown in the attachment M1.1 for modifications to the HVAC plan.

ITEM NO. 13 DRAWING M1.2 HVAC PLAN, SECOND LEVEL

A. Revise the drawing as shown in the attachment M1.2 for modifications to the HVAC plan.

ITEM NO. 14 DRAWING M1.3 HVAC PLAN, THIRD LEVEL

A. Revise the drawing as shown in the attachment M1.3 for modifications to the HVAC plan.

ITEM NO. 15 DRAWING M1.4 HVAC PLAN, PENTHOUSE

A. Revise the drawing to add a 44x20 fire smoke damper to the exhaust duct penetrating the penthouse floor down to the third level.

ITEM NO. 16 DRAWING M6.1 MECHANICAL SCHEDULES

A. On the Variable Refrigerant Flow (VRF) Heat Recovery Units Schedule, add Remark 8 to HP-1.

ITEM NO. 17 DRAWING M7.1 MECHANICAL P&ID'S

A. Revise the drawing as shown in the attachment M7.1 for modifications to the equipment control sequences.

ITEM NO. 18 DRAWING E1.1 POWER PLAN, FIRST LEVEL

A. Revise the drawing to add a toggle switch above the counter to control the sink garbage disposal located in Break Room 120.

ITEM NO. 19 DRAWING E1.2 POWER PLAN, SECOND LEVEL

A. Revise the drawing to add a toggle switch above the counter to control the sink garbage disposal located in Break Room 220.

ITEM NO. 20 DRAWING E1.3 POWER PLAN, SECOND LEVEL

A. Revise the drawing to add a toggle switch above the counter to control the sink garbage disposal located in Break Room 321.

ITEM NO. 21 DRAWING E4.1 POWER PLAN, SECOND LEVEL

A. Revise detail 3/E4.4 to add a toggle switch above the counter to control the sink garbage disposal located in Vending 008.

END OF ADDENDUM

Meeting Attendance Record

DLR Group
Architecture Engineering Planning Interiors

1111 Lincoln Mall
Suite 201
Lincoln, NE 68508

o: 402/742-4200
f: 402/742-7100

Date	March 3, 2016
Meeting Type	Pre-Bid Meeting
Meeting Location	401 S. 21st Street
Project	Telegraph District 401 Building Renovation
Project No.	10-16202-00

Attendees:

Name	Representing	Tel: E-mail:
Paul Tlamka	Kingery Construction	402-465-4400 rickw@kccobuilders.com
Tim Donner	Cheever Construction	402-477-6745 tdonner@cheeverconstruction.com
John Hyland	Hampton Construction	402-489-8858 jhyland@hampton1.com
Craig Beebe	Sampson	402-434-5450 craig.beebe@sampson-construction.com
Kyle Brasch	Sandquist Construction	402-466-2041 kyle@sandquistco1.com
Jared Brown	Brown Brothers Construction	402-304-6201 jaredbrown1@windstream.net
Steve Powell	Tru-Built Construction	402-477-4663 steve@tru-built.net
Marcus Wilson	Hausmann Construction	402-613-7306 marcus@hausmannconstruction.com

Blake Pittack	Brester Construction	402-423-2337 blakep@bresterconstruction.com
Jason Patefield	Brester Construction	402-423-2337 jasonp@bresterconstruction.com
Ryan Burbach	NGC	402-296-8419 ryan.burbach@ngcgroupinc.com
Eric Neff	NGC	402-403-1325 eneff@ngcgroupinc.com
Ben Bogner	NGC	402-261-2994 bbogner@ngcgroupinc.com
Carey McCoy	Eletech Inc.	402-679-7000 carey@eletechinc.com
Doug Anderson	Shanahan Mechanical & Electrical	402-784-2381 doug.anderson@IESCI.net
Andrew Johnson	Continental Fire	402-330-5170 Andrew.johnson@continental-fire.com
Kelly Malone	Titanium Fire	402-889-2309 kelly@titanium-fire.com
Ken Fougeron	Speedway	402-326-0577 kgfougeron@speedwayproperties.com
Adam Criswell	Speedway	402-323-3136 843-822-6992 akcriswell@speedwayproperties.com
Bob Branscombe	Speedway	402-323-3102 rpbranscombe@speedwayproperties.com
Sam England	Dickey-Hinds-Muir Construction	402-421-6000 adam.muir@dhmlincoln.com

Jason Knapp	JK Electric	jknapp@jkelectrics.com
Terry Beutler	Craftsman Window Coverings	402-740-7500 terryb@craftsmanwondowcoverings.com
Josh Vogel	KONE Elevator	402-306-2279 josh.vogel@kone.com
David Autry	Meininger Fire Protection	402-466-2616 402-466-2617 david@mfp-inc.com
Carl Ewing	Hayes Mechanical	402-810-1407 cewing@hayesmechanical.com
Mel Morton	Lacey Construction	402-443-1112 mel@laceyinc.com
Mark McTaggart	CCS	402-890-0958 mmctaggart@ccs-ne.com
Shawn Mencl	CCE	402-420-7435 smencl@cce-ne.com
Caleb Bridgeford	Kidwell	402-475-9151 cbridgeford@kidwell.us.com

SECTION 004321 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:

1. Lump-sum allowances.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.3 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 01: Exterior Perforated Fins

1. Lump-Sum Allowance: Include the sum of $240,000: Include for all fins and connections

B. Allowance No. 02: Kinetic Art/Signage

1. Lump-Sum Allowance: Include the sum of $65,000: Include for all Kinetic Art/Signage and all connections

C. Allowance No. 03: Generator Enclosure

1. Lump-Sum Allowance: Include the sum of $80,000: Include for all metal screen panels, steel posts and concrete footing.

END OF SECTION 004321

SECTION 096516 - RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes vinyl sheet flooring.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of flooring. Include flooring layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

1. Show details of special patterns.

C. Samples: For each exposed product and for each color and texture specified in manufacturer's standard size, but not less than 6-by-9-inch (150-by-230-mm) sections.

1. Samples for Verification exception: Samples for verification do not need to be submitted if the product manufacturer and color as listed under Part 2 - PRODUCTS is being supplied by the Contractor. If a different manufacturer and/or color are being provided, the Contractor will need to submit samples for verification purposes.

D. Product Schedule: For sheet flooring. Use same designations indicated on Drawings.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient sheet flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. <Double click to insert sustainable design text for flooring.>

2.2 SHEET VINYL FLOORING, SV-1

A. Bolon from Mats Inc.

B. Product Standard: ASTM F 1913.

C. Thickness: Manufacturer's standard.

D. Wearing Surface: Embossed.

E. Sheet Width: As standard with manufacturer.

F. Seamless-Installation Method: Heat welded.

G. Colors and Patterns: Efficio.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient sheet flooring manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by flooring and adhesive manufacturers to suit resilient sheet flooring and substrate conditions indicated.

C. Seamless-Installation Accessories:

1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

    a. Color: Match flooring.

D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient sheet flooring manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to resilient sheet flooring manufacturer's written instructions to ensure adhesion of resilient sheet flooring.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by resilient sheet flooring manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by resilient sheet flooring manufacturer. Proceed with installation only after substrate alkalinity falls within range

on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.

4. Moisture Testing: Proceed with installation only after substrates pass testing according to resilient sheet flooring manufacturer's written recommendations, but not less stringent than the following:
   a. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 Insert number percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient sheet flooring until it is the same temperature as the space where it is to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient sheet flooring.

3.2 RESILIENT SHEET FLOORING INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient sheet flooring.

B. Unroll resilient sheet flooring and allow it to stabilize before cutting and fitting.

C. Lay out resilient sheet flooring as follows:

1. Maintain uniformity of flooring direction.
2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches (152 mm) away from parallel joints in flooring substrates.
3. Match edges of flooring for color shading at seams.
4. Avoid cross seams.

D. Scribe and cut resilient sheet flooring to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.

E. Extend resilient sheet flooring into toe spaces, door reveals, closets, and similar openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on resilient sheet flooring as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install resilient sheet flooring on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of flooring installed on covers and adjoining flooring. Tightly adhere flooring edges to substrates that abut covers and to cover perimeters.

H. Adhere resilient sheet flooring to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

I. Seamless Installation:

1. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and heat weld with welding bead to permanently fuse sections into a seamless flooring. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient sheet flooring.

B. Floor Polish: Remove soil, adhesive, and blemishes from flooring surfaces before applying liquid floor polish.

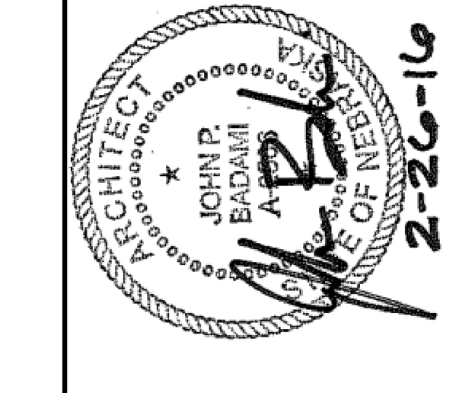
C. Cover resilient sheet flooring until Substantial Completion.

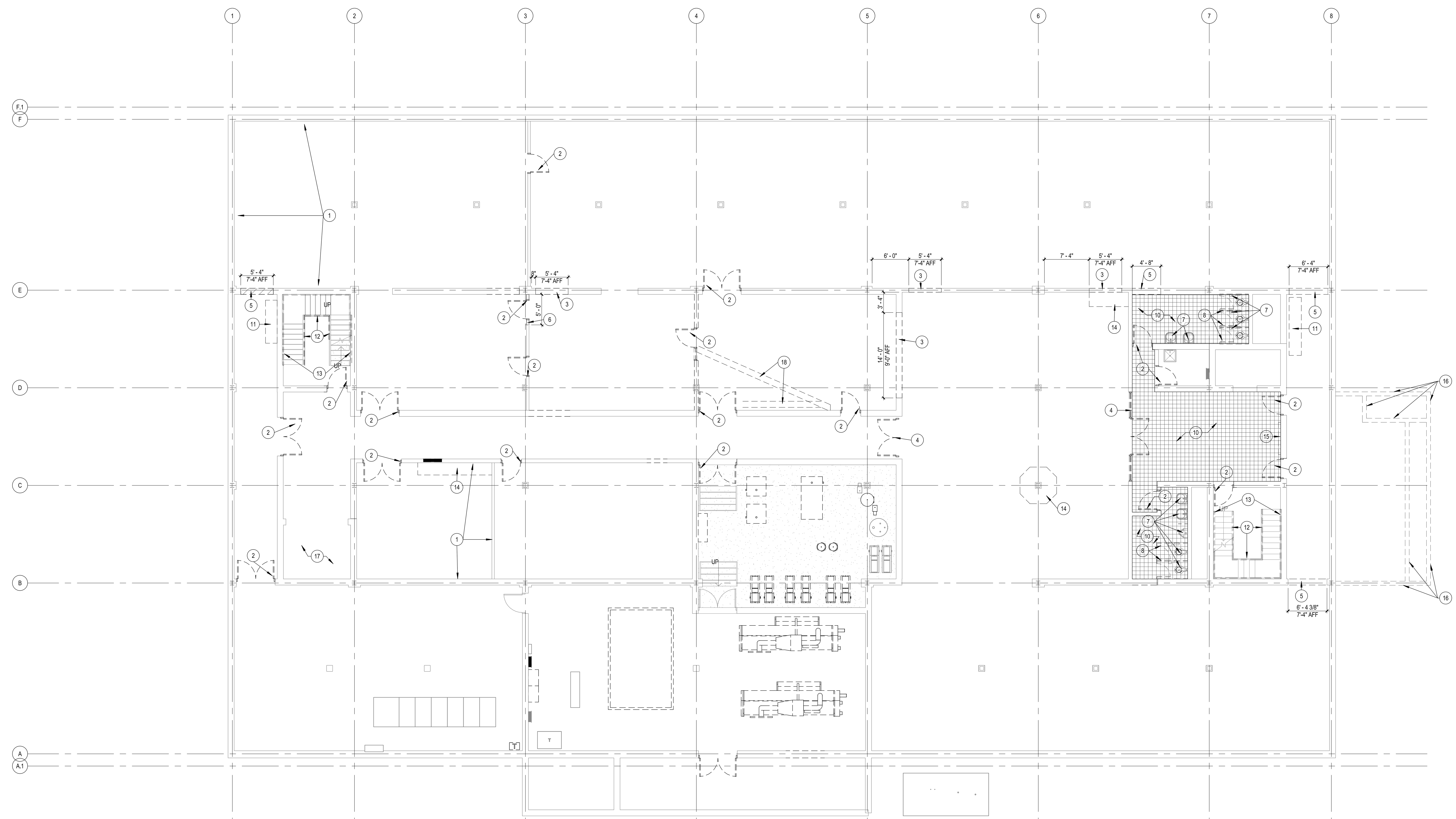
END OF SECTION 096516

1. REMOVE TACK WALL BOARD AND ASSOCIATED FURRING
2. REMOVE DOOR AND FRAME IN ITS ENTIRETY AND DISPOSE OFF SITE
3. REMOVE CMU WALL TO EXTENTS SHOWN
4. REMOVE ALUMINUM FRAME AND DOORS AND DISPOSE OFF-SITE
5. REMOVE PORTION OF REINFORCED CONCRETE WALL TO EXTENTS SHOWN
6. REMOVE PORTION OF METAL STUD WALL TO EXTENTS SHOWN
7. REMOVE PLUMBING FIXTURE AND DISPOSE OFF-SITE
8. REMOVE TOILET PARTITION, ACCESSORIES AND ASSOCIATED SUPPORT AND DISPOSE OFF-SITE
9. REMOVE HM WINDOW FRAME AND DISPOSE OFF-SITE
10. REMOVE QUARRY TILE AND ASSOCIATED SETTING BED. FILL TO MATCH HEIGHT OF EXISTING CONCRETE SLAB FOR THE REST OF THE FLOOR LEVEL. PREPARE FOR NEW FINISH.
11. REMOVE ELEVATOR EQUIPMENT AND CONTROLS IN THEIR ENTIRETY
12. REMOVE GUARDRAIL AND HANDRAILS FROM STAIR LEAVING STAIR IN PLACE -TYP FOR ENTIRE STAIR TOWER
13. REMOVE WALL MOUNTED HANDRAILS FROM STAIR -TYP FOR ENTIRE STAIR TOWER
14. REMOVE CASEWORK IN ITS ENTIRETY
15. REMOVE DISPLAY CASE AND RETURN TO OWNER
16. REMOVE FOUNDATION STOOP IN ITS ENTIRETY, SEE SHEET D1.1 FOR ADDITIONAL INFORMATION
17. REMOVE FREIGHT ELEVATOR, RAILS AND ASSOCIATED COMPONENTS IN ITS ENTIRETY. COORDINATE REMOVAL WITH ELEVATOR SUPPLIER
18. REMOVE PORTION OF CONCRETE SLAB-ON-GRADE FOR INSTALLATION OF UNDERSLAB PIPING. SEE MECH FOR FURTHER INFORMATION

DEMOLITION NOTES

A. DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION SHEETS.
B. COORDINATE DEMOLITION AND PHASING EFFORTS WITH ARCHITECT AND OWNER'S REPRESENTATIVES. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS AND TO PROVIDE BUILDING USER'S SAFETY. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH OWNER'S REPRESENTATIVE.
C. COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER AND AS SPECIFIED.
D. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE DEMOLITION AND CONSTRUCTION WORK FROM GENERAL PUBLIC AND AS DEEMED NECESSARY BY OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
E. MAINTAIN A SECURE AND WEATHER-TIGHT ENCLOSURE.
F. VERIFY EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS AND NOTIFY ARCHITECT OF DISCREPANCIES.
G. REMOVE EXISTING WALLS, DOORS, MILLWORK, PLUMBING FIXTURES, CEILINGS, SOFFITS, MARKERBOARDS, ETC. IN THEIR ENTIRETY AND AS REQUIRED TO EXECUTE DEMOLITION AND CONSTRUCTION WORK DESCRIBED ON THE DRAWINGS.
H. PROVIDE PROTECTION FOR EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
I. REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND /OR CONDITION.
J. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
K. VERIFY AND MAINTAIN LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF SERVICE.
L. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
M. CAP DISCONNECTED MECHANICAL PIPING LINES WITHIN WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
N. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
O. AVOID DISTURBING OF SOILS WITHIN ZONE OF INFLUENCE AROUND EXISTNG FOOTINGS AND FLOOR SLABS AS DIRECTED BY GEOTECHNICAL ENGINEER.
P. WHERE CMU WALLS ARE INDICATED TO BE REMOVED; PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY REMOVING CMU IN TOOTH-IN PATTERN BOTH SIDES OF DEMOLITION FOR CONTRACTOR TO TOOTH IN NEW CMU PATCHES.
Q. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED; PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION.
R. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY EXISTING STRUCTURAL CONDITIONS PRIOR TO DEMOLITION. ANY STRUCTURAL CONCERNS NEED TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR DIRECTION BEFORE COMMENCEMENT OF DEMOLITION WORK.
S. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO TEMPORARILY BRACE EXISTING STRUCTURES AS REQUIRED TO ENSURE SAFETY AND STABILITY DURING CONSTRUCTION.





DEMOLITION PLAN, BASEMENT LEVEL
SCALE: 1/8" = 1'-0"
NORTH

DEMOLITION PLAN, BASEMENT LEVEL
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

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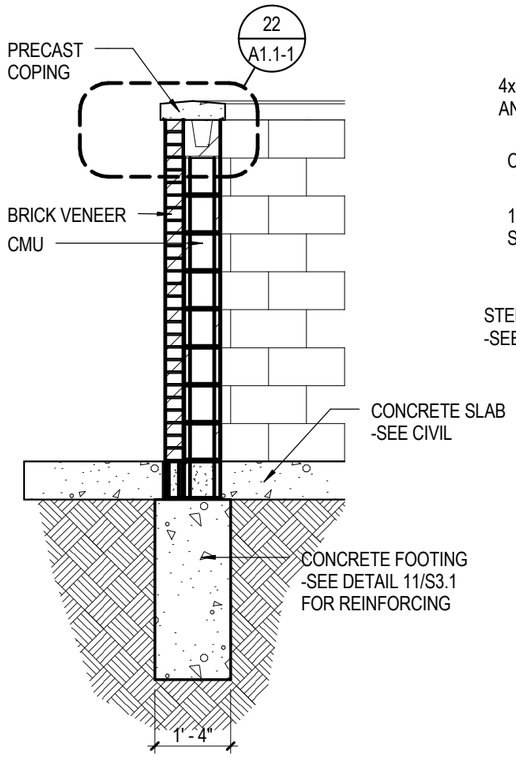

11 A1.1-1 WALL SECTION
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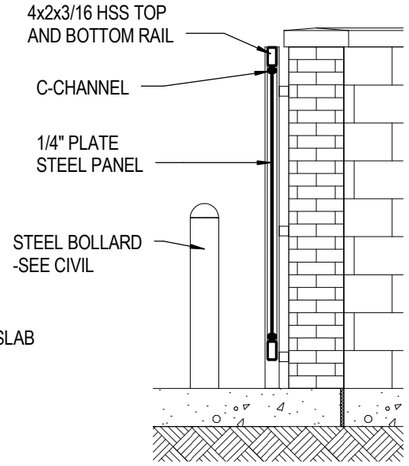

12 A1.1-1 WALL SECTION
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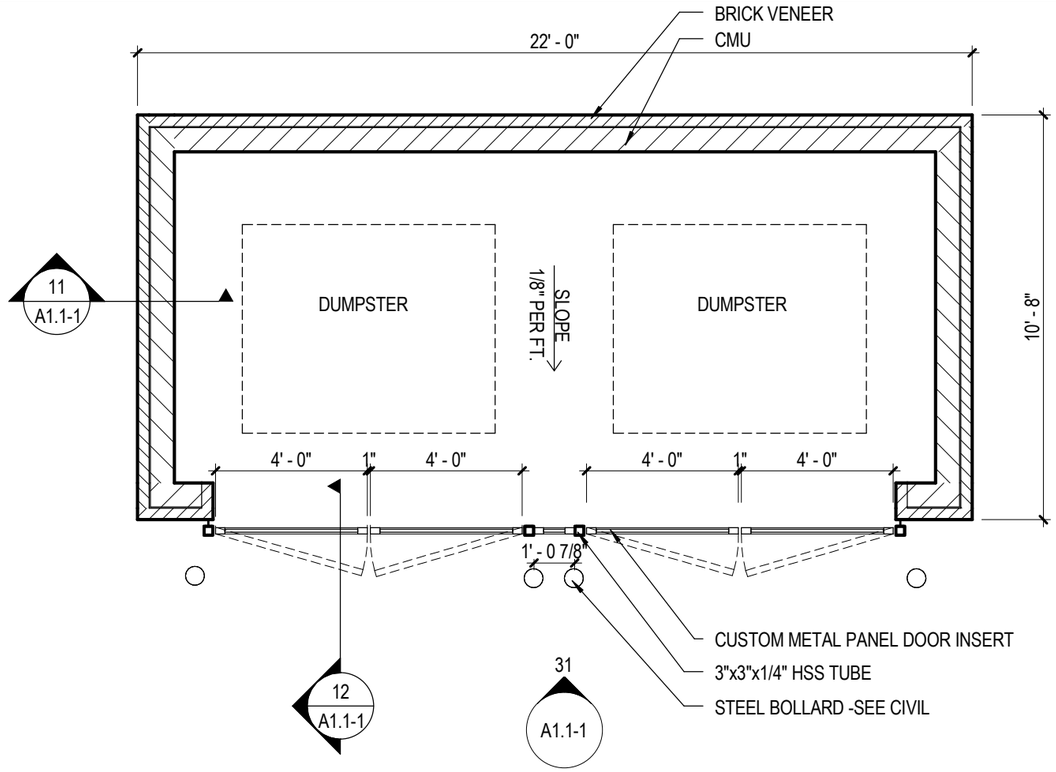

14 A1.1-1 TRASH ENCLOSURE, PLAN
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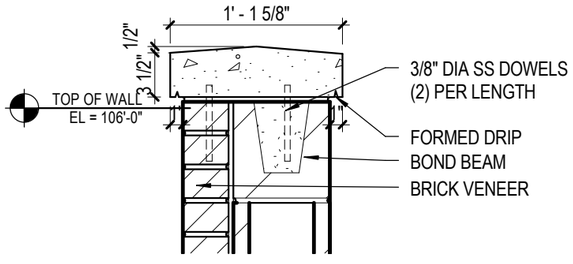

22 A1.1-1 SECTION DETAIL
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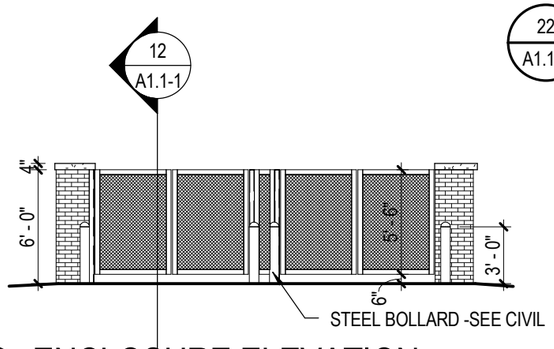

31 A1.1-1 ENCLOSURE ELEVATION
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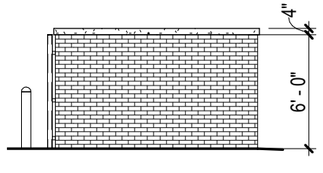

32 A1.1-1 ENCLOSURE ELEVATION
SCALE: 1/8" = 1'-0"

TRASH ENCLOSURE, PLAN, ELEVATIONS AND DETAILS
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

A1.1-1
10-16202-00
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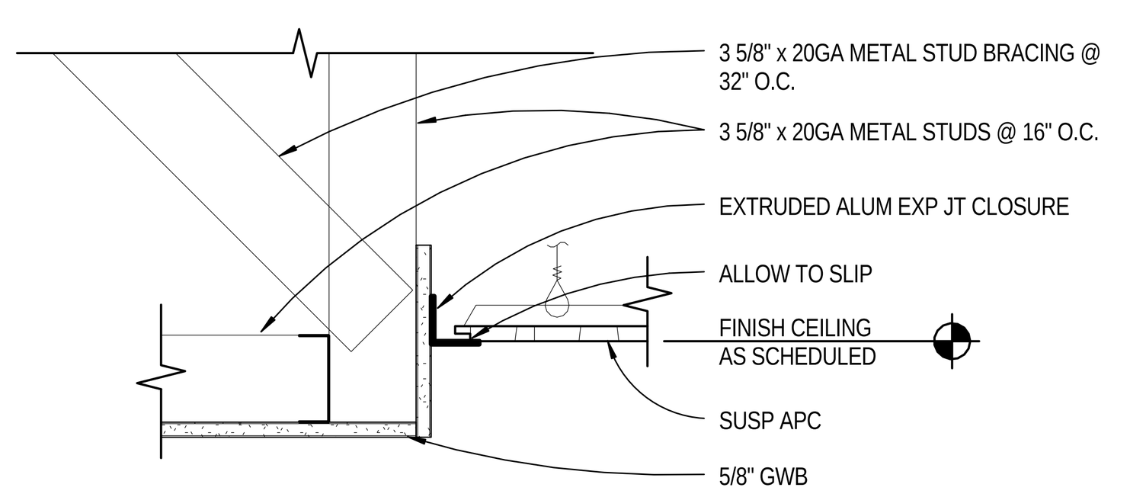
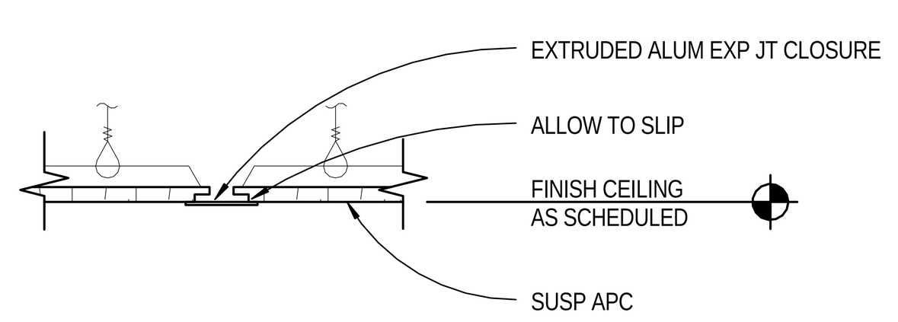


11 A3.1 EXP JT AT GWB BULKHEAD
SCALE: 1 1/2" = 1'-0"



12 A3.1 CLG-EXP JT APC
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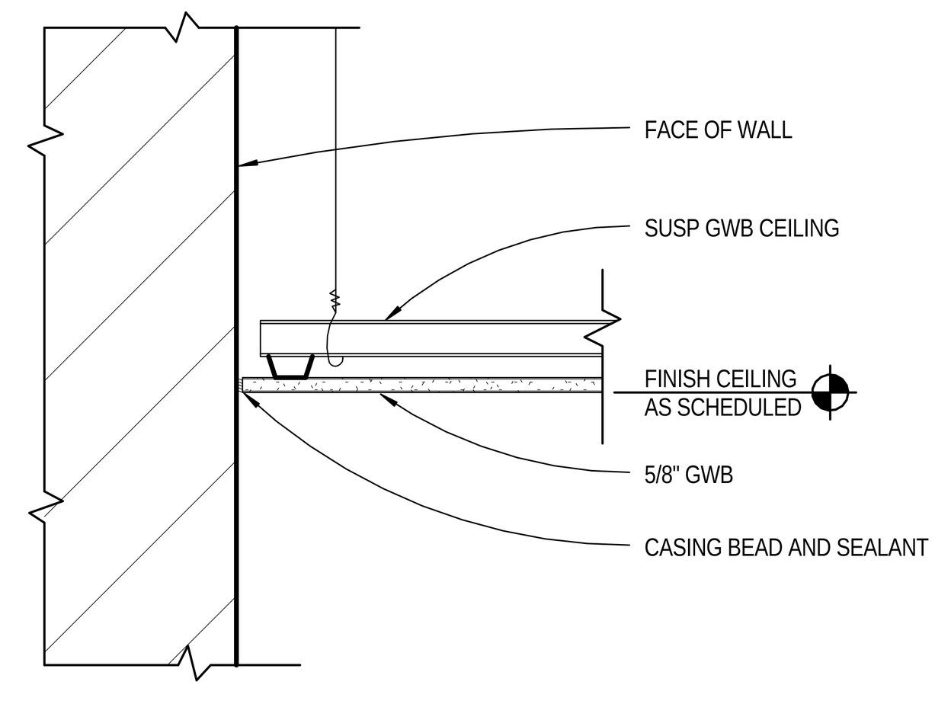
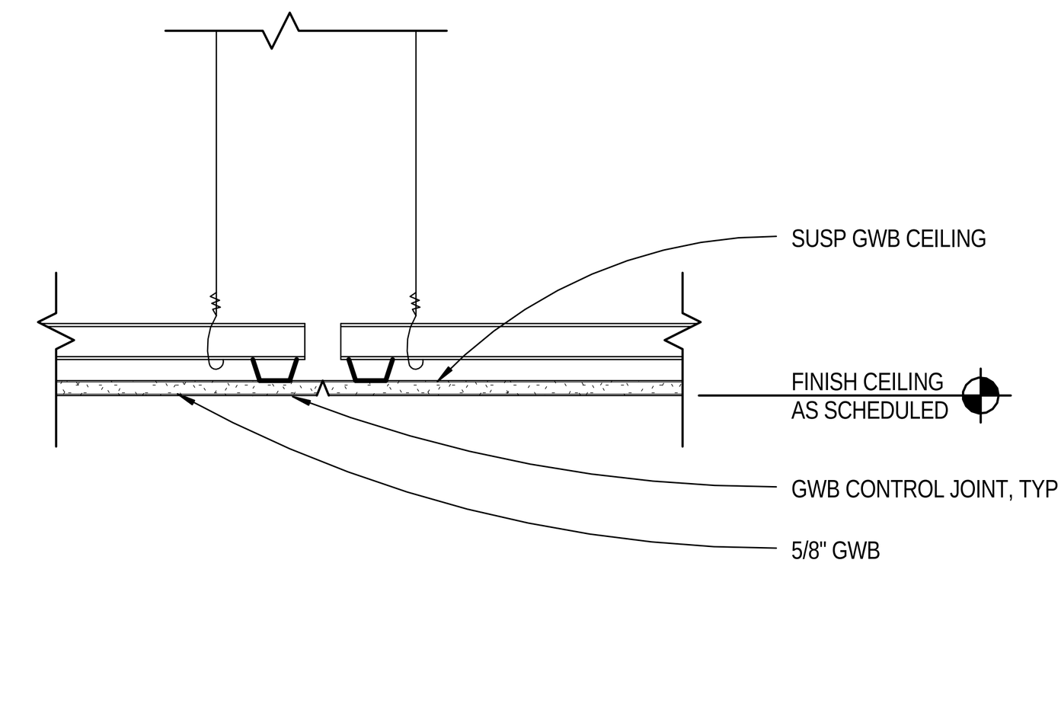


A TYP SUSP GWB PERIMETER JOINT



B TYP SUSP GWB CONTROL JOINT

13 A3.1 GWB CEILING DETAILS
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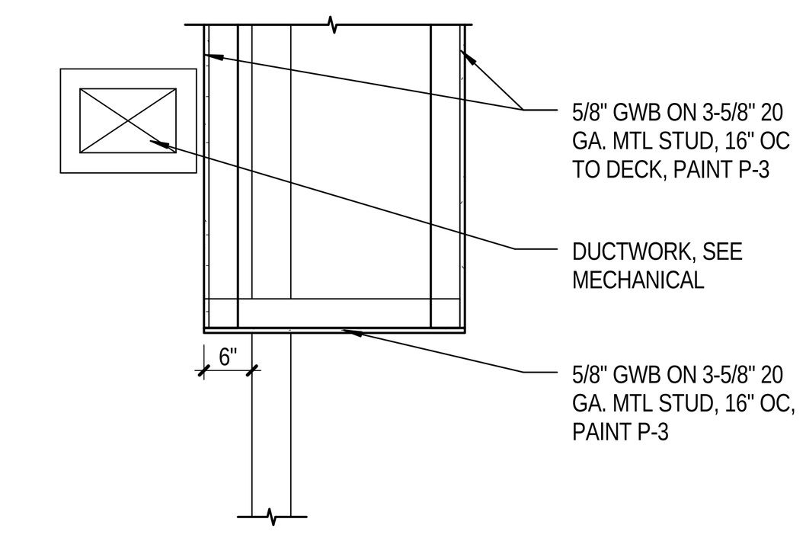

15 A3.1 CLG-DETAIL SOFFIT
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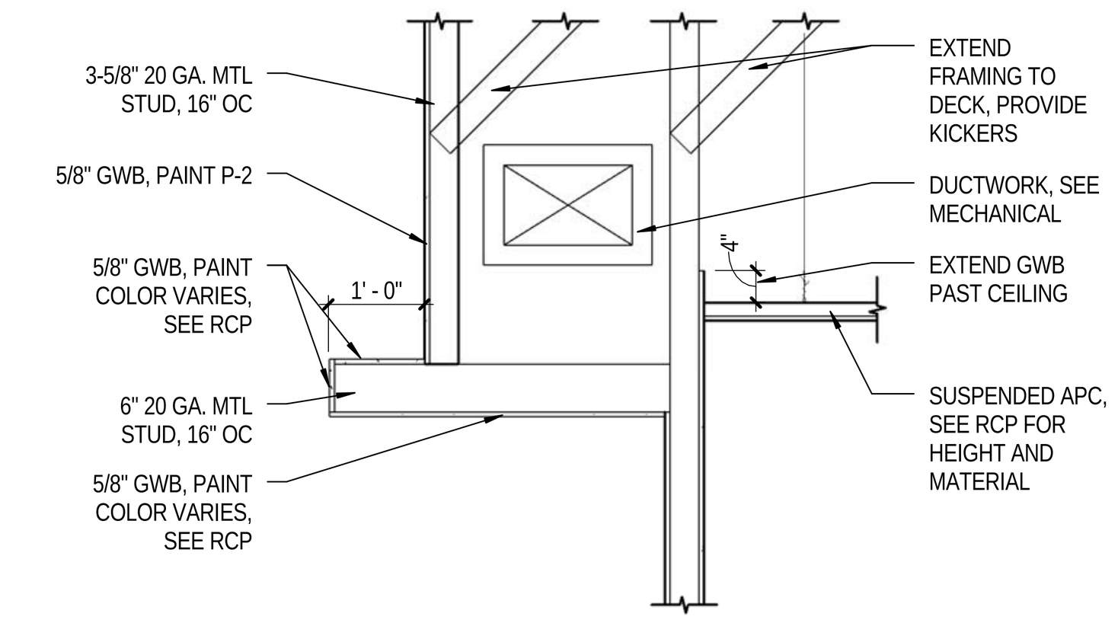

16 A3.1 CLG-DETAIL EYEBROW
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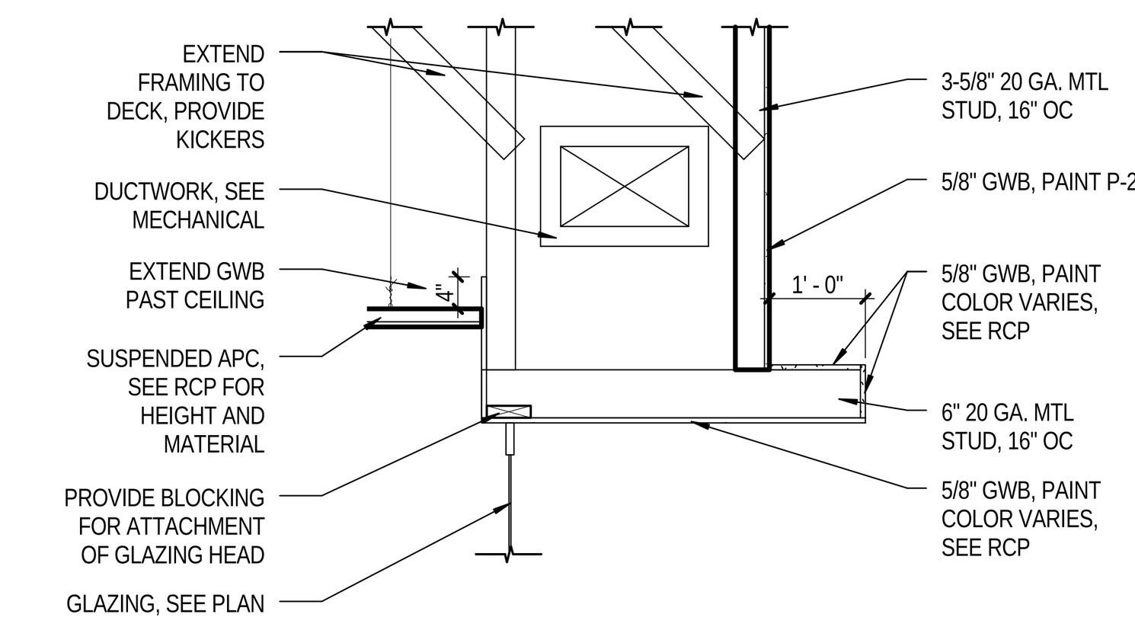

26 A3.1 CLG-DETAIL EYEBROW AT GLAZING
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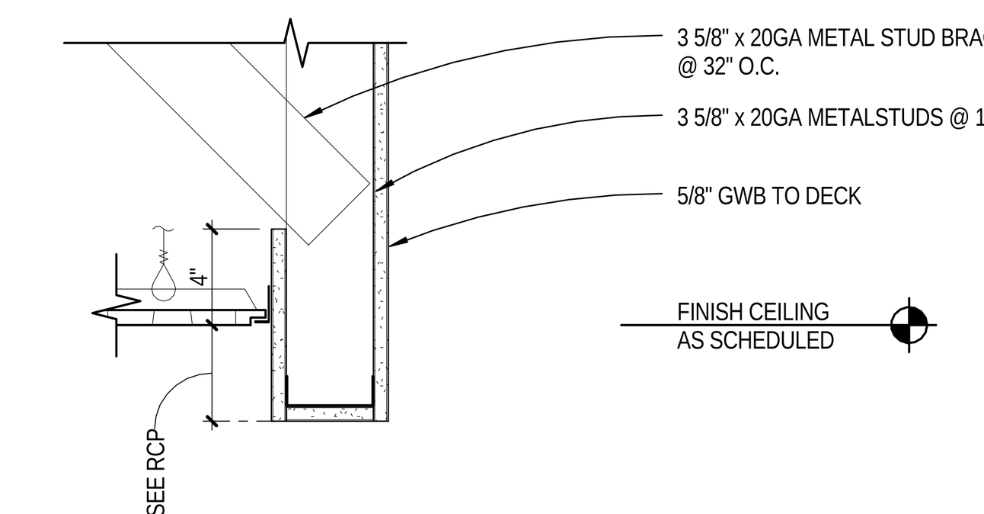

36 A3.1 GWB BULKHEAD
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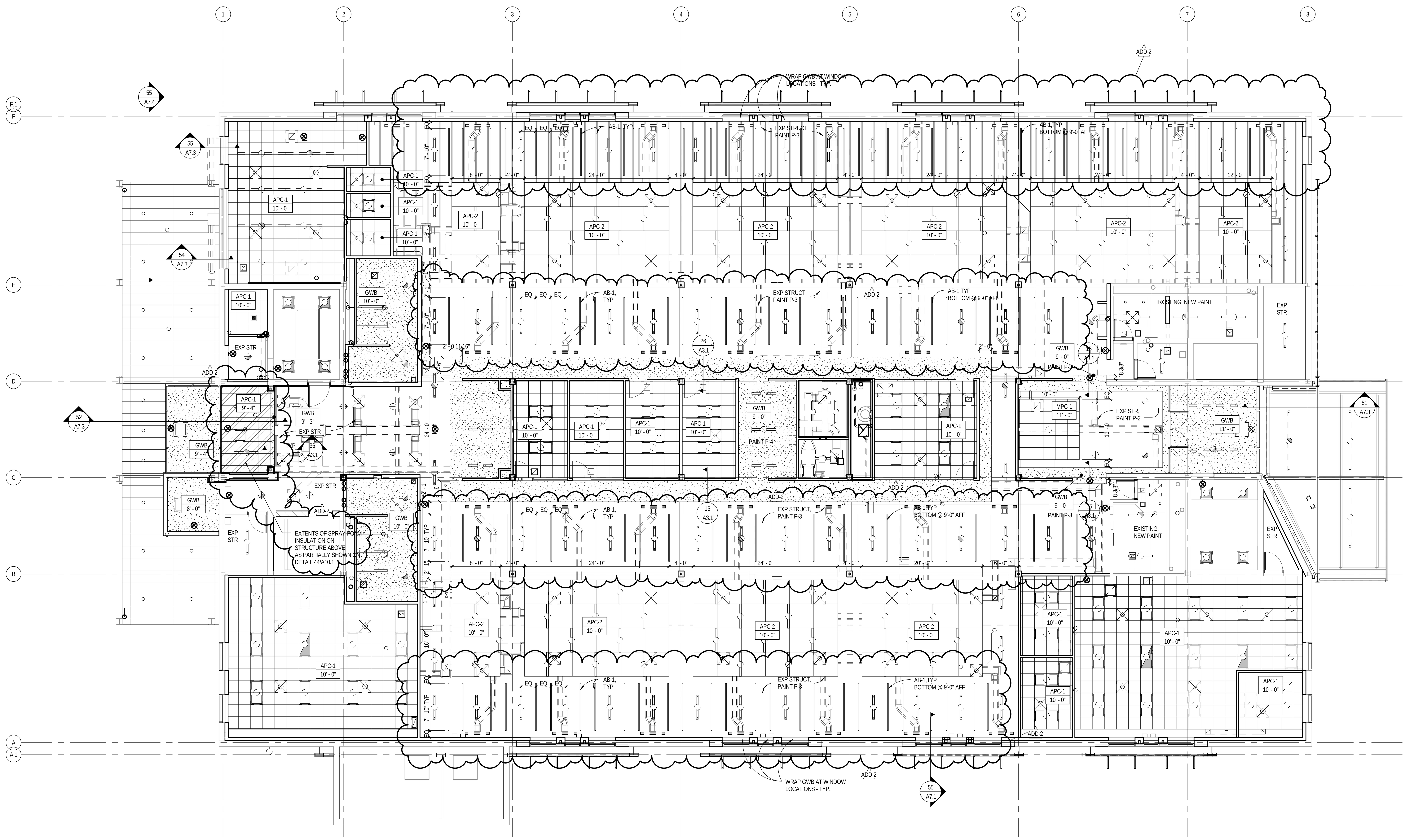

REFELCTED CEILING PLAN, FIRST LEVEL
SCALE: 1/8" = 1'-0"
NORTH

REFLECTED CEILING PLAN, FIRST LEVEL
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

A3.1
10-16202-00
2/26/2016
Revisions
ADD-2 3/3/16 Addendum 2

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ARCHITECT JOHN P. BAZAAR STATE OF NEBRASKA
2-26-16

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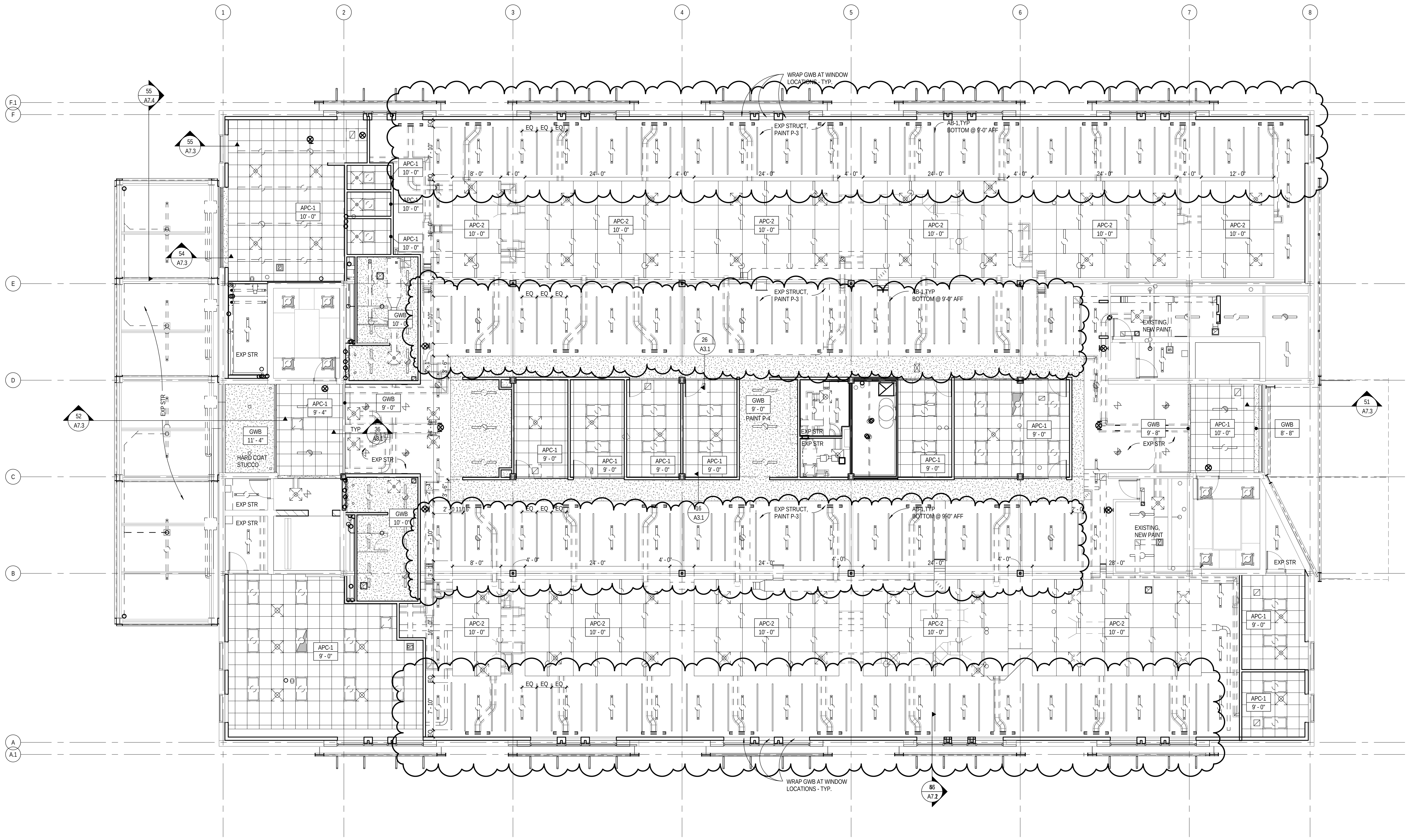
LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL
SOME NOTES MAY NOT APPLY TO THIS SHEET



REFLECTED CEILING PLAN, SECOND LEVEL
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

A3.2

10-16202-00
2/26/2016
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ADD-1 3/11/16 Addendum 1
ADD-2 3/18/16 Addendum 2

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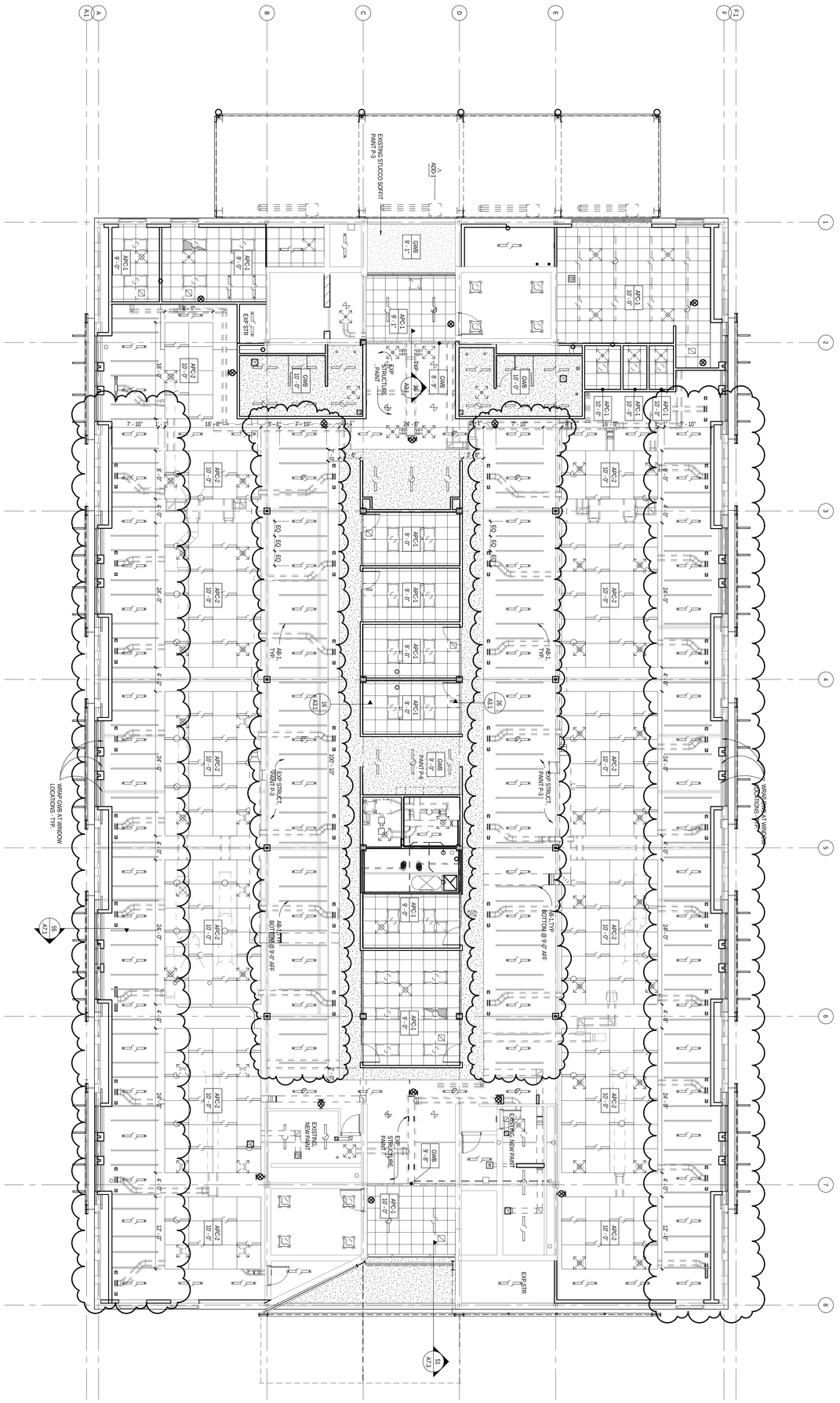
NORTH

SCALE: 1/8" = 1'-0"

REFLECTED CEILING PLAN, THIRD LEVEL



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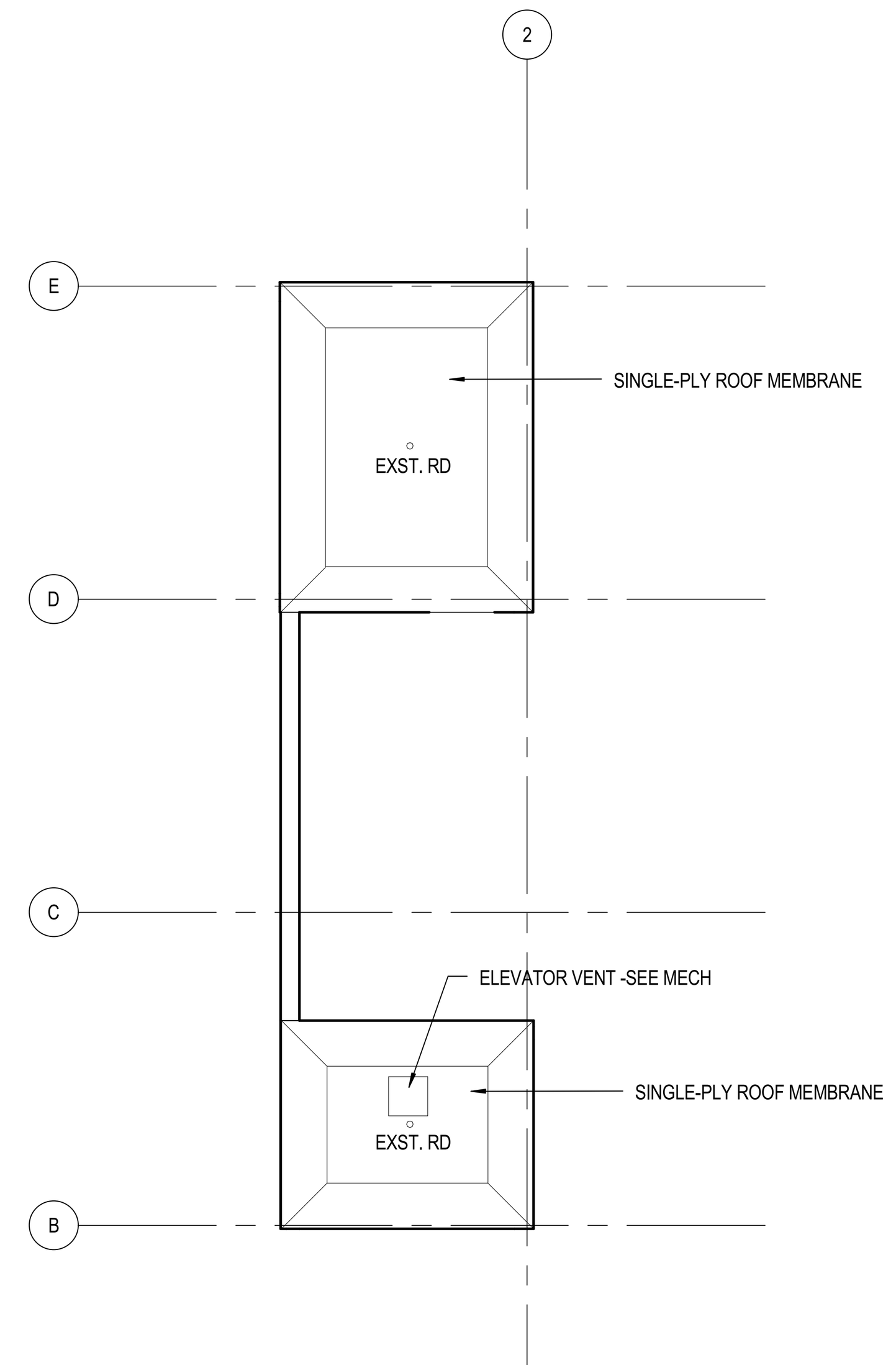
2/26/2016
Revisions
ADD-1 3/11/16 Addendum 1
ADD-2 3/18/16 Addendum 2

REFLECTED CEILING PLAN, THIRD LEVEL
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

ARCHITECT
JOHN P. BADAME
STATE OF NEBRASKA
2-26-16



21 A4.1 STAIR/ELEVATOR TOWER ROOF PLAN
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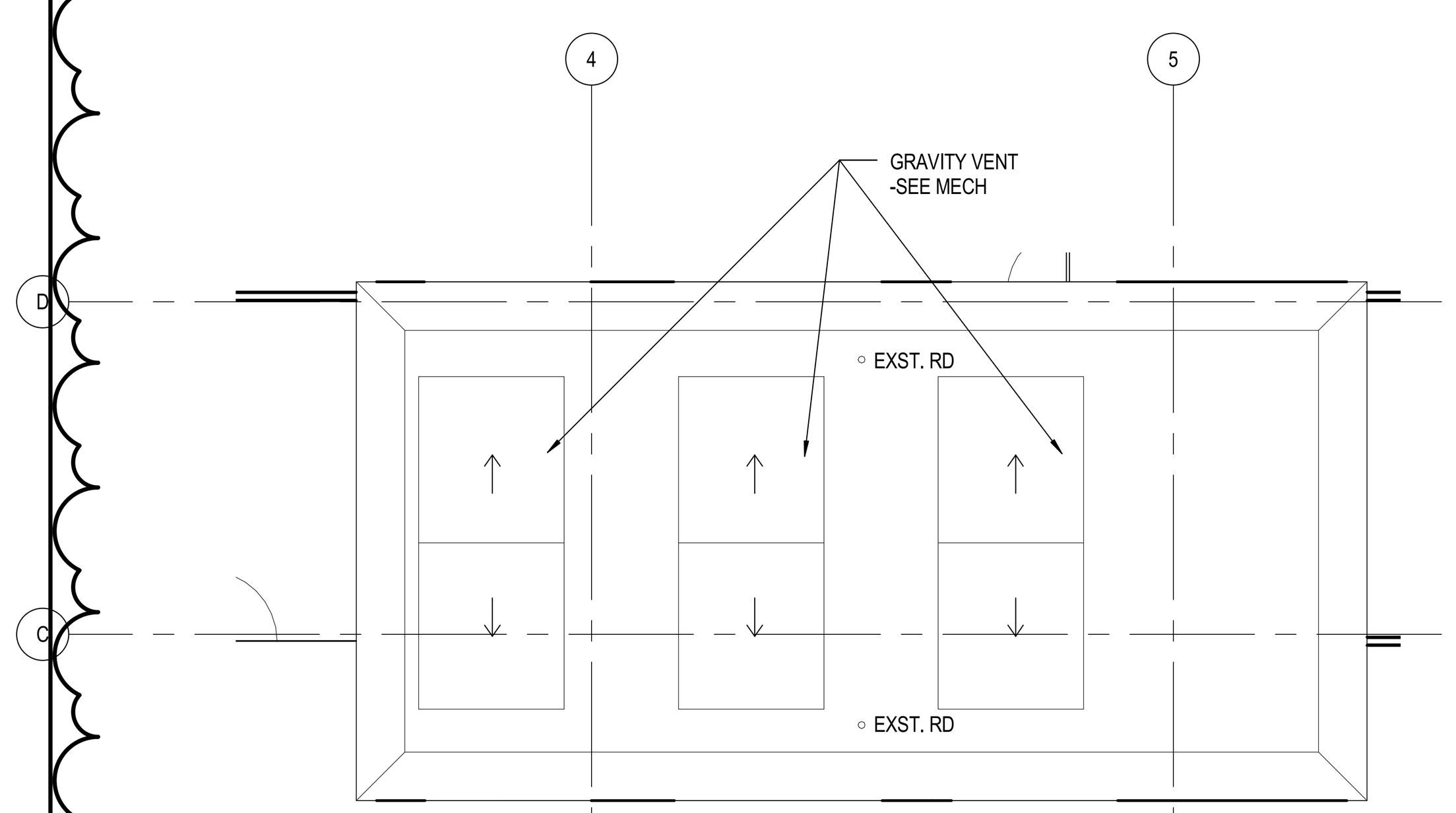
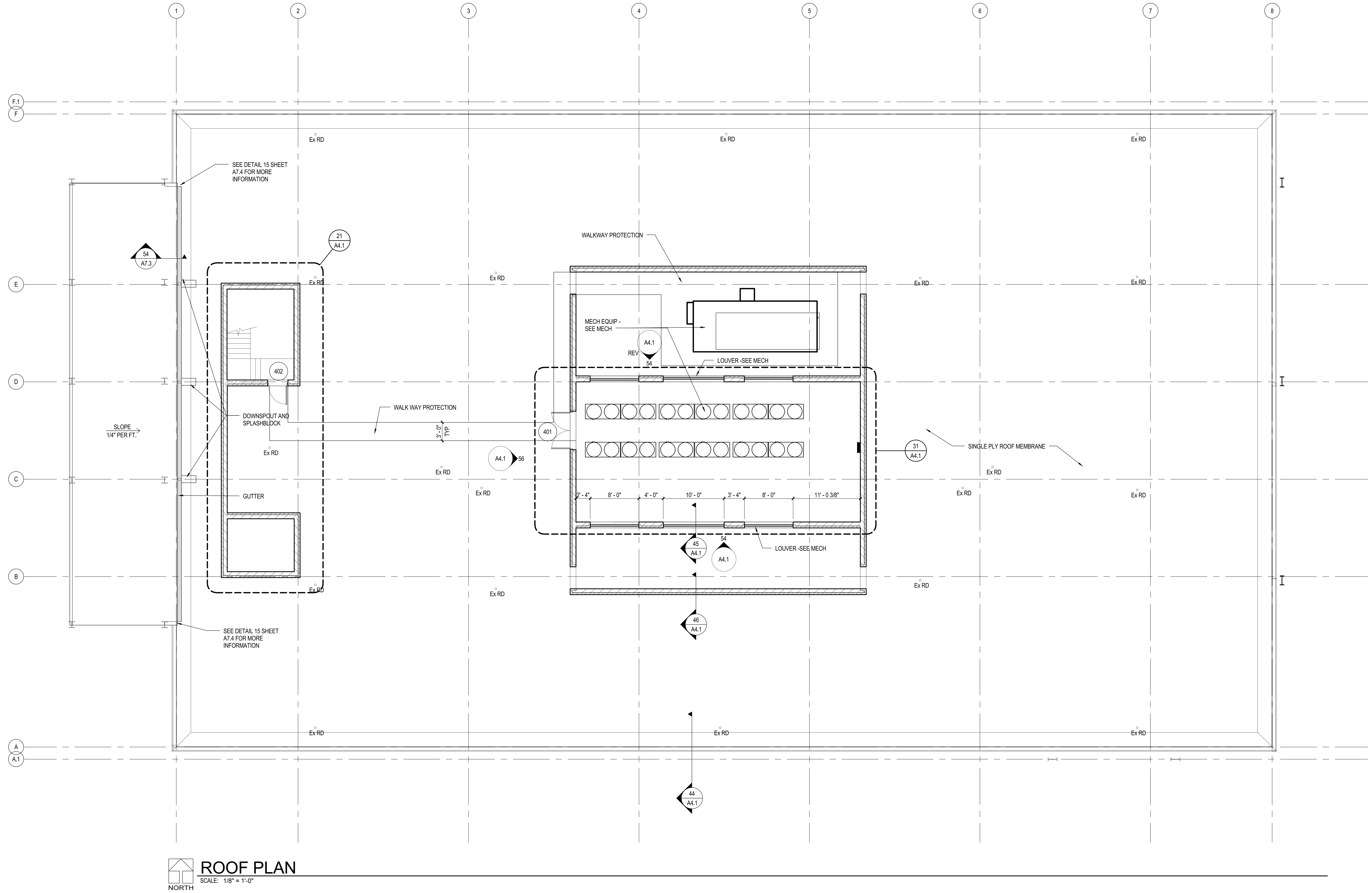


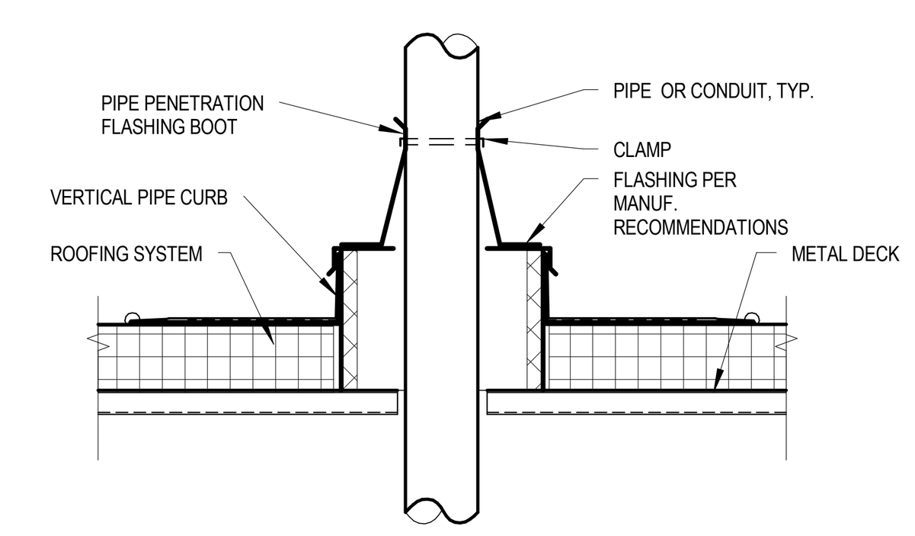
31 A4.1 PENTHOUSE ROOF PLAN
SCALE: 1/8" = 1'-0"

ADD-2



ROOF PLAN
SCALE: 1/8" = 1'-0"

ADD-2



43 A4.1 TYPICAL ROOF PENETRATION
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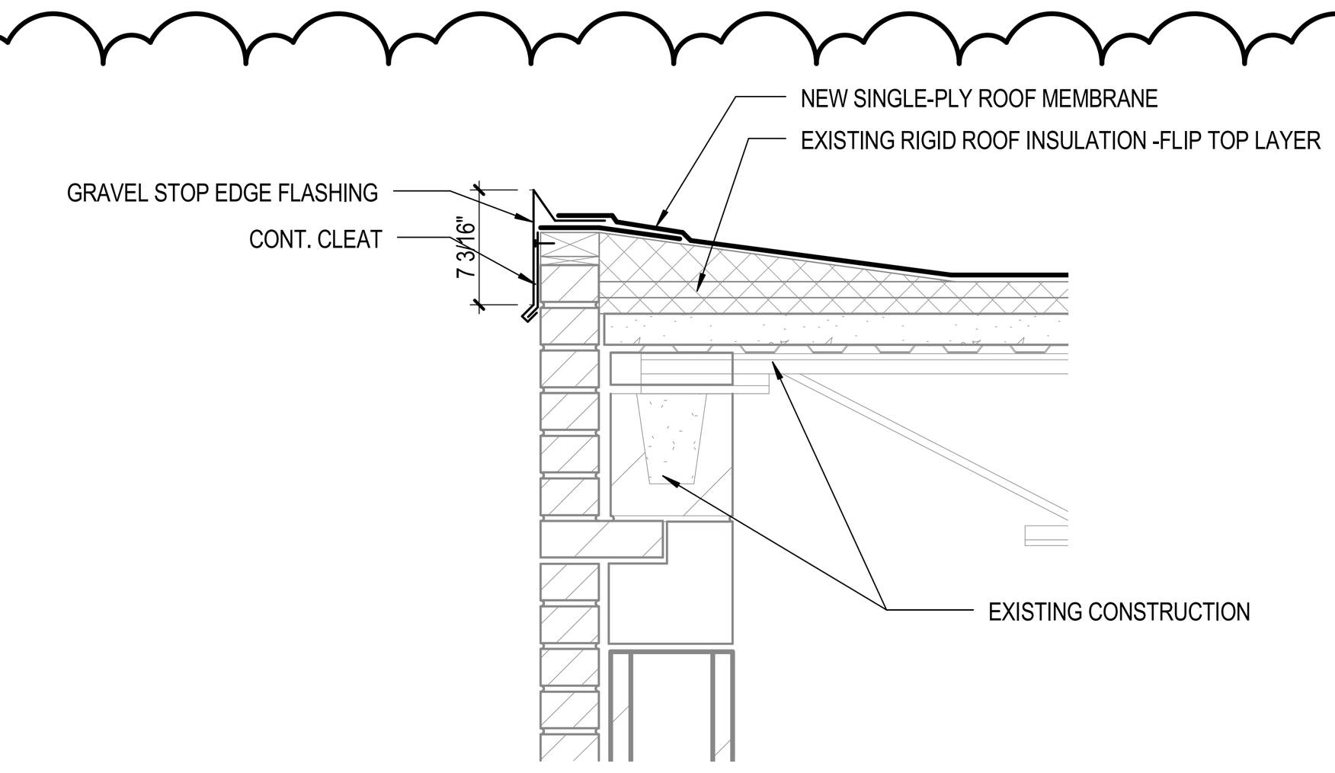
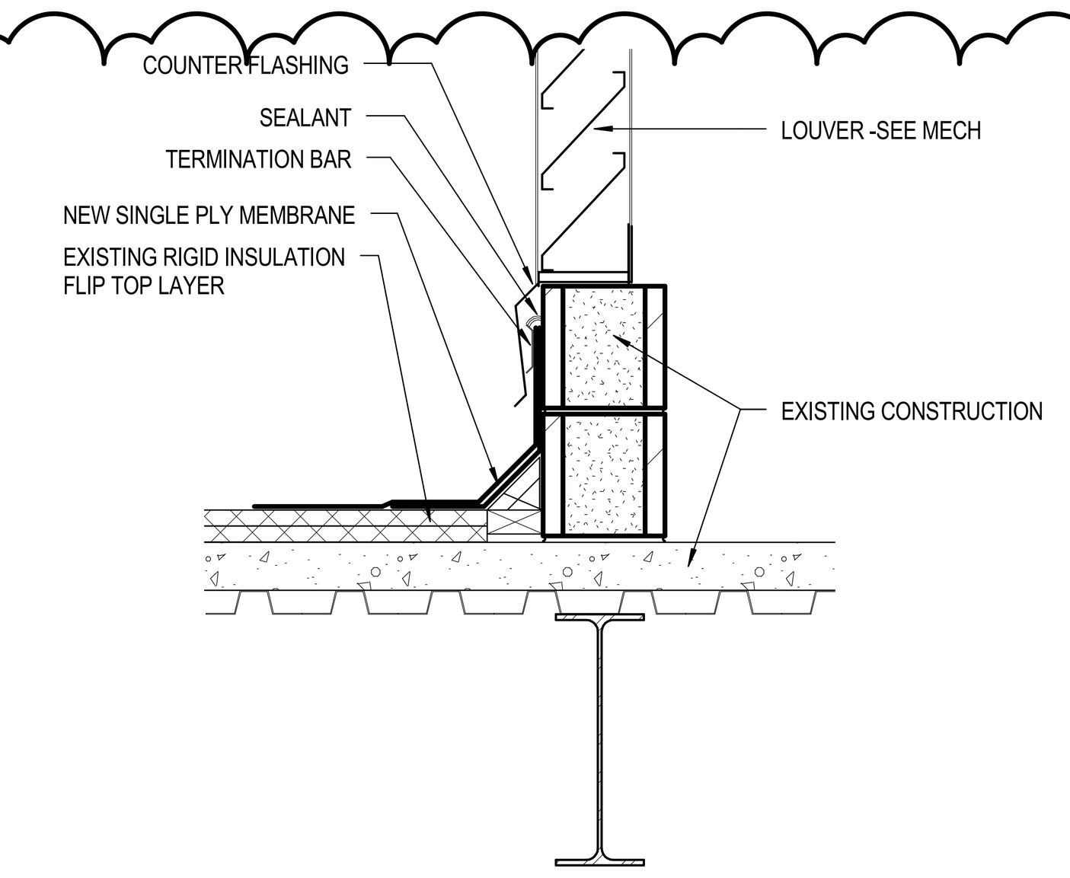


44 A4.1 TYP GRAVEL STOP ROOF EDGE
SCALE: 1" = 1'-0"



45 A4.1 SECTION DETAIL
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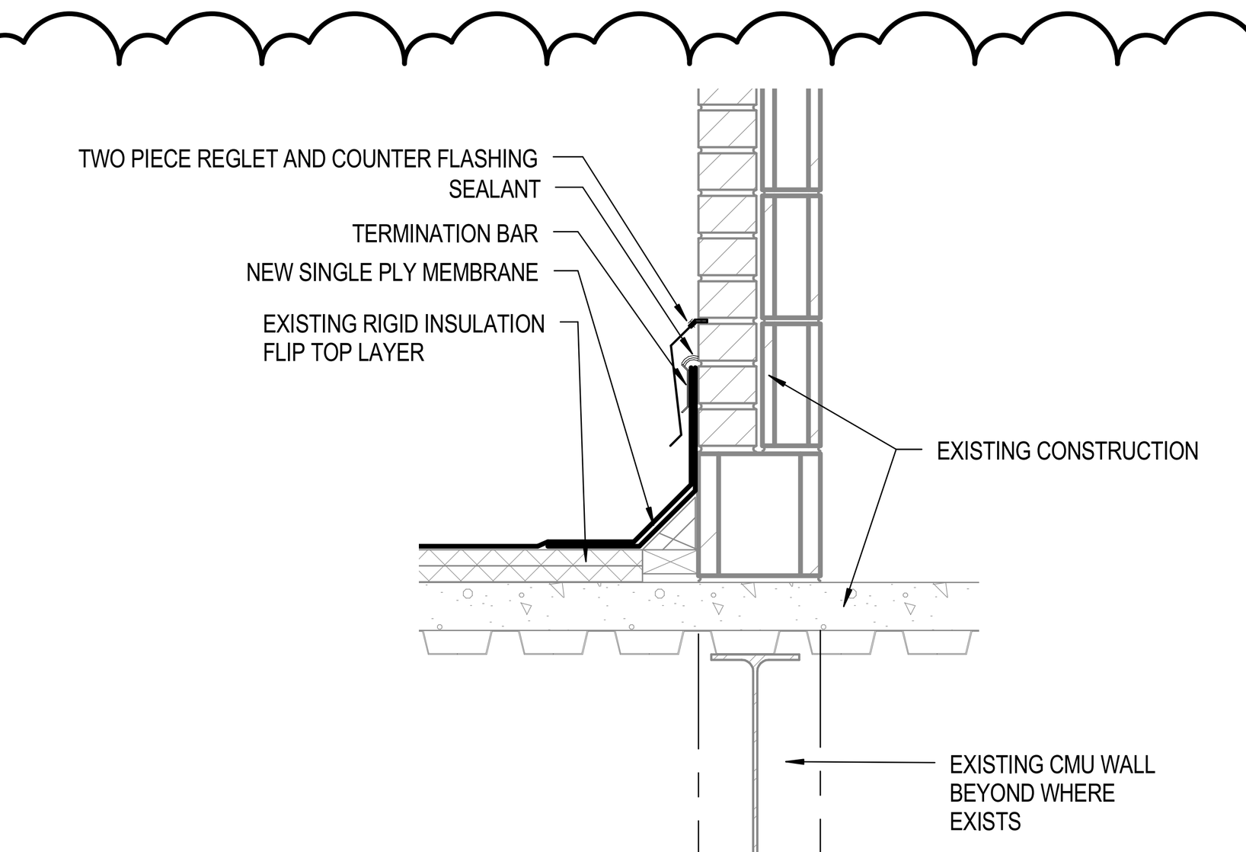

46 A4.1 SECTION DETAIL
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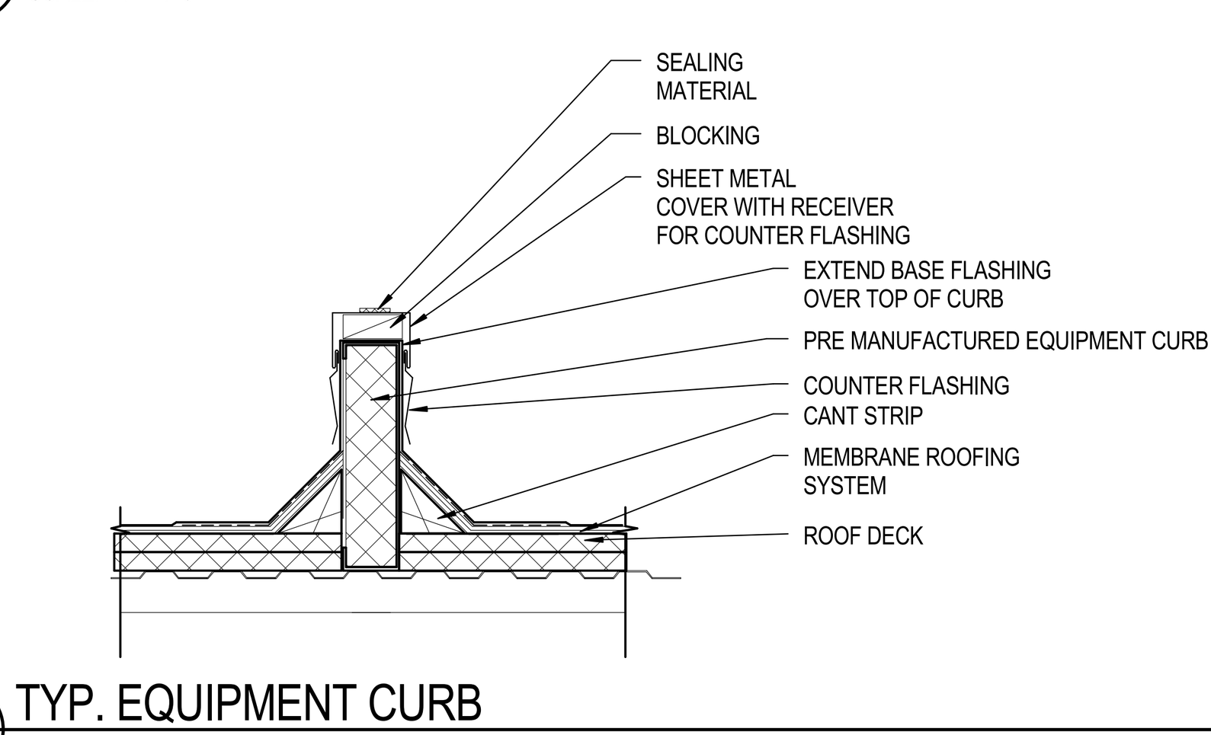

53 A4.1 TYP. EQUIPMENT CURB
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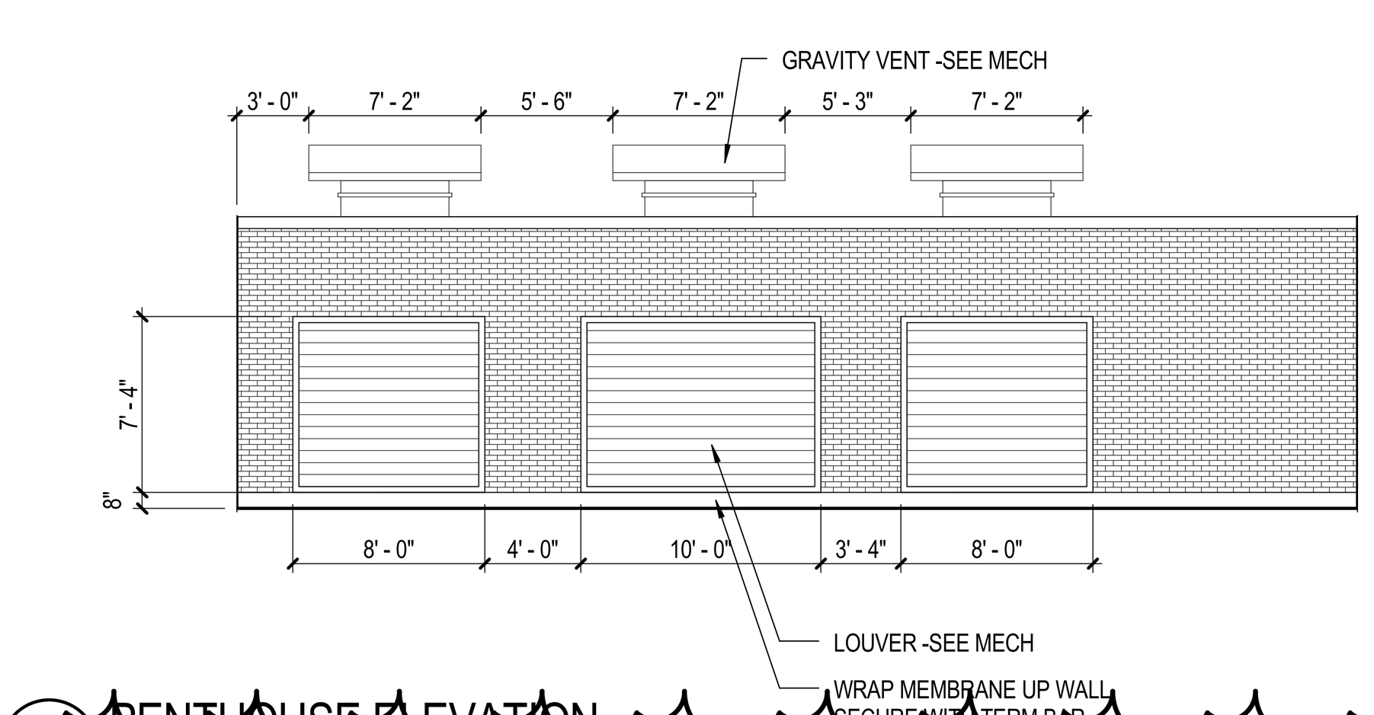

A4.1 PENTHOUSE ELEVATION
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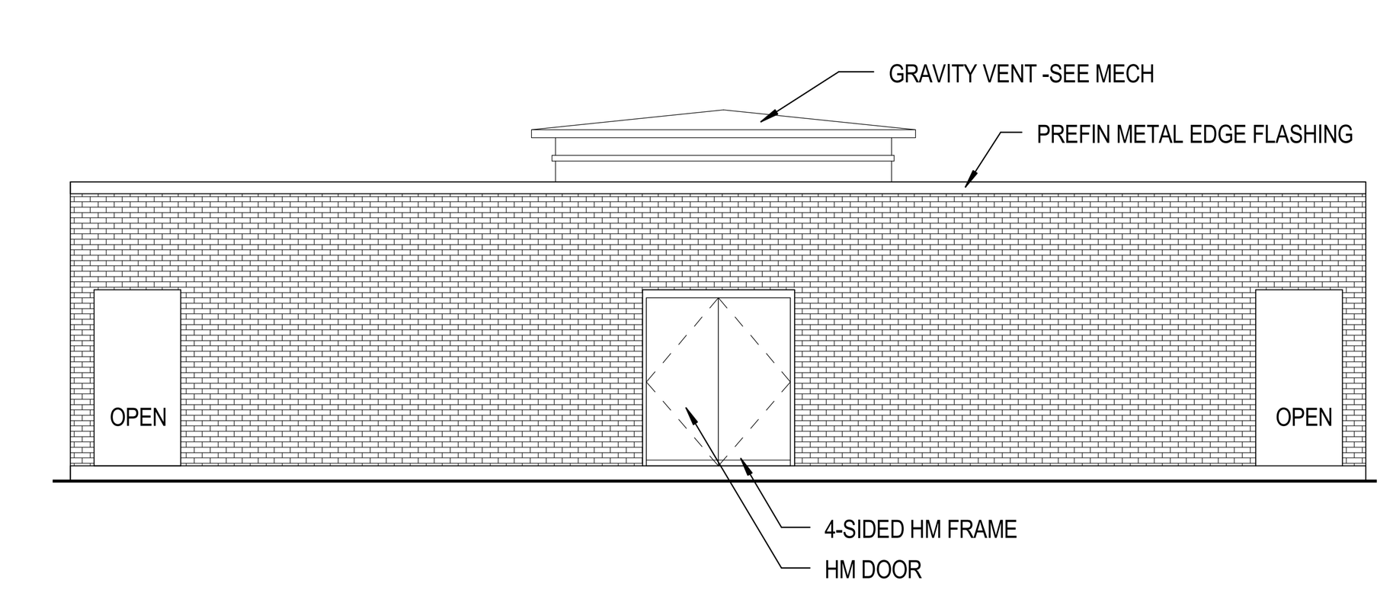

A4.1 PENTHOUSE ELEVATION
SCALE: 1/8" = 1'-0"

ARCHITECT JOHN P. BADAMI STATE OF NEBRASKA
2-26-16

ROOF PLAN AND DETAILS
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

A4.1
10-16202-00
3/18/2016
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ADD-2 3/18/16 Addendum 2

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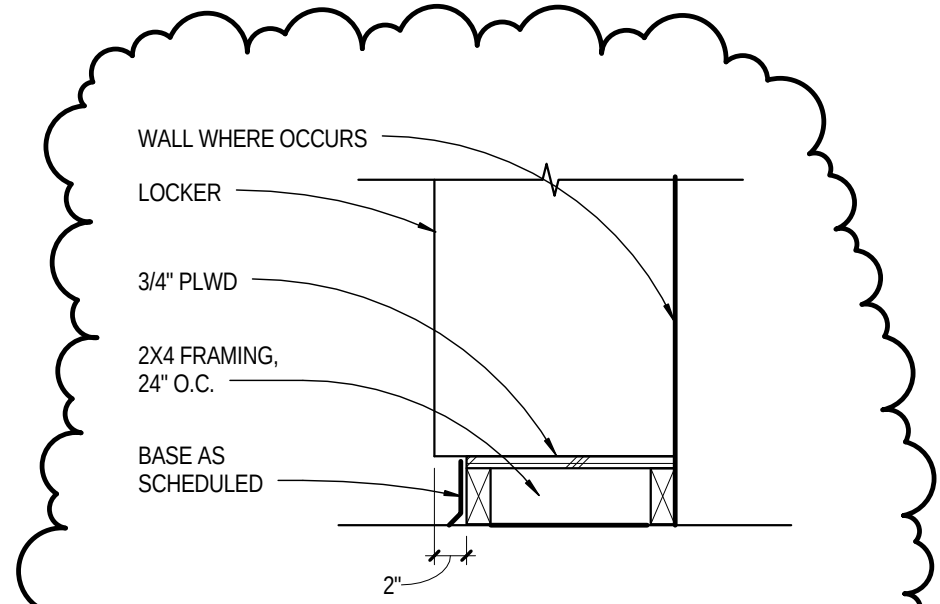

25 / A10.2 LOCKER BASE

SCALE: 1" = 1'-0"

Attachment No. A10.2-1
to A10.2
Dated: 3-18-16

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Architecture Engineering Planning Interiors

A10.2

10-16202-00
2/26/2016

DETAILS
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

GENERAL SHEET NOTES

A. ROUTING INDICATED ON DRAWINGS IS APPROXIMATE AND DOES NOT INCLUDE ALL OFFSETS, FITTINGS, VALVES, ETC. CONTRACTOR TO FIELD VERIFY DUCT SIZE AND SERVICE PRIOR TO FINAL CONNECTION. COORDINATE LOCATION OF HVAC WORK WITH OTHER TRADES BEFORE PROCEEDING WITH WORK. PROVIDE OFFSETS AND CLEARANCES OR RELOCATE HVAC WORK AS REQUIRED TO AVOID CONFLICTS WITH WORK OF ALL OTHER TRADES.

B. ITEMS SHALL NOT BE ROUTED OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.

C. SUPPORT ALL DUCTWORK, EQUIPMENT, ETC. FROM THE BUILDING STRUCTURE. DO NOT SUPPORT ITEMS FROM THE METAL ROOF DECK.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH A FIRE RATED, SMOKE RATED OR COMBINATION FIRE AND SMOKE RATED SEPARATION. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.

E. PROVIDE MINIMUM 12"X12" ACCESS DOORS (AD) AT ALL FIRE DAMPER (FD), SMOKE DAMPER (SD) &/OR FIRE/SMOKE DAMPER (FSD) LOCATIONS INSTALLED ABOVE INACCESSIBLE CEILINGS.

F. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION. FLEXIBLE DUCTS SHALL BE FACTORY INSULATED. PROVIDE DRAW BANDS AND SEAL END OF INSULATION ON ALL FLEXIBLE CONNECTIONS. MAXIMUM LENGTH OF FLEX DUCTS SHALL BE THREE FEET.

G. PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL EQUIPMENT AND DUCTWORK CONNECTIONS.

H. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 4 FEET ABOVE CEILINGS.

I. ALL DUCT SIZES SHOWN ARE CLEAR AIRWAY DIMENSIONS. INCREASE SHEET METAL SIZE TO ACCOMMODATE DUCT LINER AS REQUIRED.

J. TURNING VANES SHALL BE PROVIDED FOR ALL FITTINGS WHERE TURNS EXCEED 30 DEGREES UNLESS NOTED OTHERWISE. SEAL ALL SHEET METAL CONNECTIONS, SEAMS AND JOINTS.

K. COORDINATE ALL GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH REFLECTED CEILING PLAN, LIGHT FIXTURES, SPRINKLER HEADS, COMMUNICATION/SOUND DEVICES AND FIRE ALARM DEVICES.

L. INSTALL ESCUTCHEON PLATES ON ALL ROUND DUCT WALL PENETRATIONS. FABRICATE ESCUTCHEON PLATES TO TRIM THE OPENING IN THE WALL.

M. INSTALL WALL TRIM ANGLE FOR ALL RECTANGULAR DUCT PENETRATIONS THROUGH WALLS TO CONCEAL OPENING.

N. FOR EXPOSED DUCTWORK THOROUGHLY CLEAN, REMOVE ALL SHIPPING LABELS AND OTHER IDENTIFICATION TAGS. DUCTWORK DESIGNATED TO BE PAINTED SHALL HAVE PHOSPHATIZED FINISH. PROVIDE MILL PHOSPHATIZED FINISH FOR EXPOSED DUCTWORK NOT DESIGNATED TO BE PAINTED. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR DUCTWORK DESIGNATED FOR PAINTING.

O. ALL TRANSVERSE SPIRAL AND ROUND DUCT JOINTS FOR ALL EXPOSED DUCTWORK SHALL BE MADE WITH WARD KEATING CONNECTOR CENTER-BEADED SLIP COUPLING OR APPROVED EQUAL ROUND DUCT CONNECTOR. NO SEALANT SHALL BE APPLIED TO EXPOSED DUCTWORK SURFACE.

P. ALL EXPOSED DUCTWORK IN AREAS WITHOUT CEILINGS TO BE PAINTED, SEE ARCHITECTURAL SPECIFICATIONS.

Q. ALL SUPPLY AIR DEVICES SHALL BE INSTALLED WITH MANUAL BALANCING DAMPERS. DAMPER SHALL BE FITTED WITH QUADRANT CONTROL WITH STANDOFF TO EXTEND THRU INSULATION. DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.

R. VOLUME DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS SHALL HAVE EXTENSION RODS AND CABLE OPERATION WITH ADJUSTABLE CEILING ESCUTCHEON PLATES FOR REMOTE BALANCING. PAINT PLATE TO MATCH CEILING.

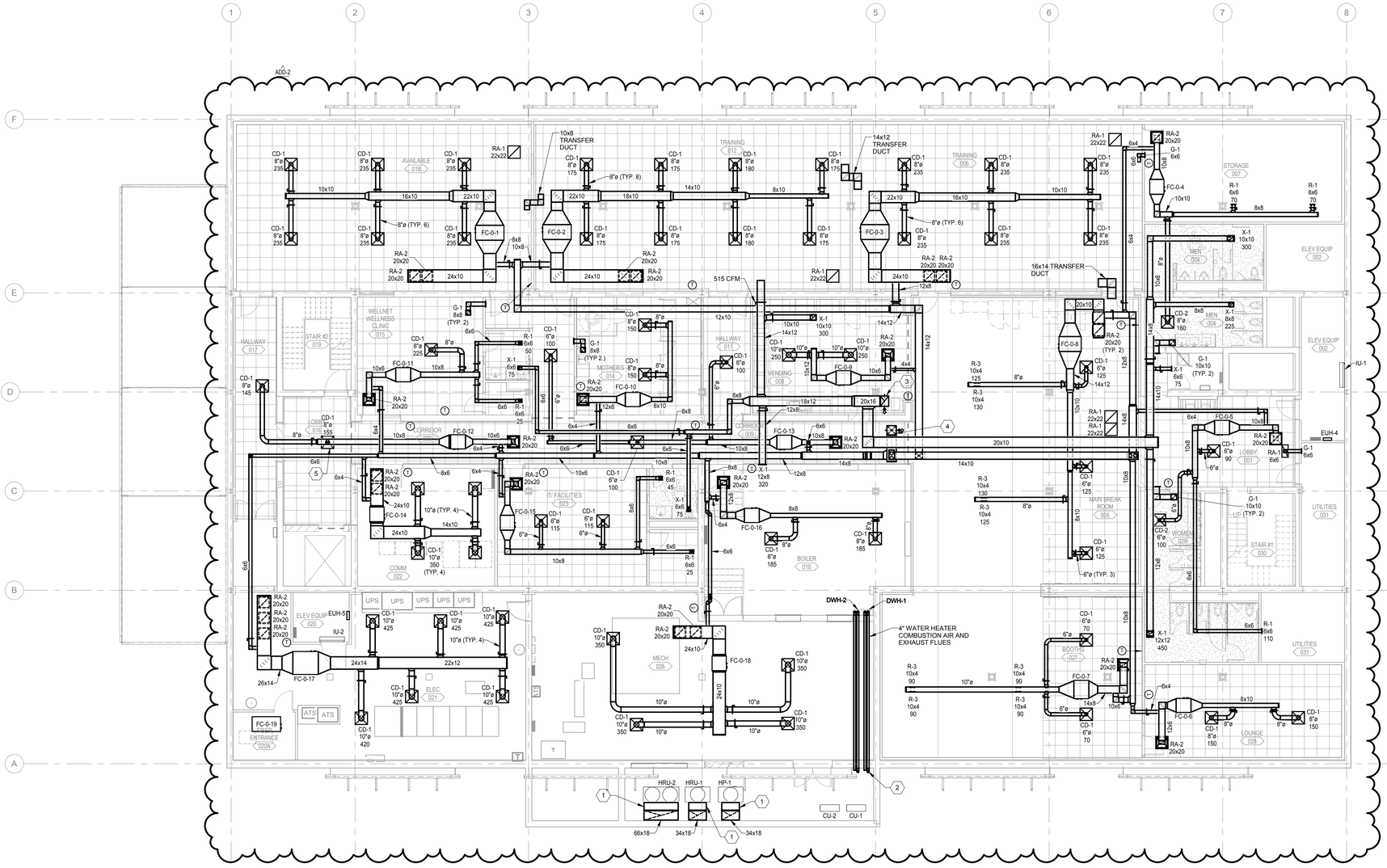
S. LOCATE AND INSTALL EQUIPMENT TO PROVIDE ALL CODE AND MANUFACTURER RECOMMENDED CLEARANCE AND SERVICE ACCESS. UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS, LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW. AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.

T. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.

SHEET KEYNOTES

ADD-2

1. ROUTE EXHAUST DUCT FROM DISCHARGE OF LOW AMBIENT DAMPER/HOOD ASSEMBLY UP TO THE BOTTOM OF THE EXISTING PIT GRATE. PROVIDE A 12"x12" ACCESS DOOR IN THE DISCHARGE DUCT FOR EACH CONTROL DAMPER. PROVIDE A 1/2"x 5/8" BARBED STAINLESS FITTING WITH EPDM RUBBER GASKET IN THE BOTTOM OF THE ELBOW TO DRAIN MOISTURE ACCUMULATION.
2. ROUTE WATER HEATER EXHAUST FLUES UP TO TOP OF PIT GRATE.
3. 16x20 EA UP TO FIRST LEVEL.
4. CONNECT NEW 18"x18" VENTILATION DUCT TO EXISTING 18"ø DUCT AND INSTALL FIRE SMOKE DAMPER AT EXIT FROM SHAFT ENCLOSURE.
5. PROVIDE BALANCING DAMPER IN SUPPLY DIFFUSER DROPS OFF THE BOTTOM OF DUCT, TYPICAL.



HVAC PLAN, BASEMENT LEVEL

NORTH

SCALE: 1/8" = 1'-0"

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601 P Street
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Lincoln, NE 68508
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FAX 402.474.5160
www.olssonassociates.com

Project # 015-2779
Drawing # 130991

DLR Group
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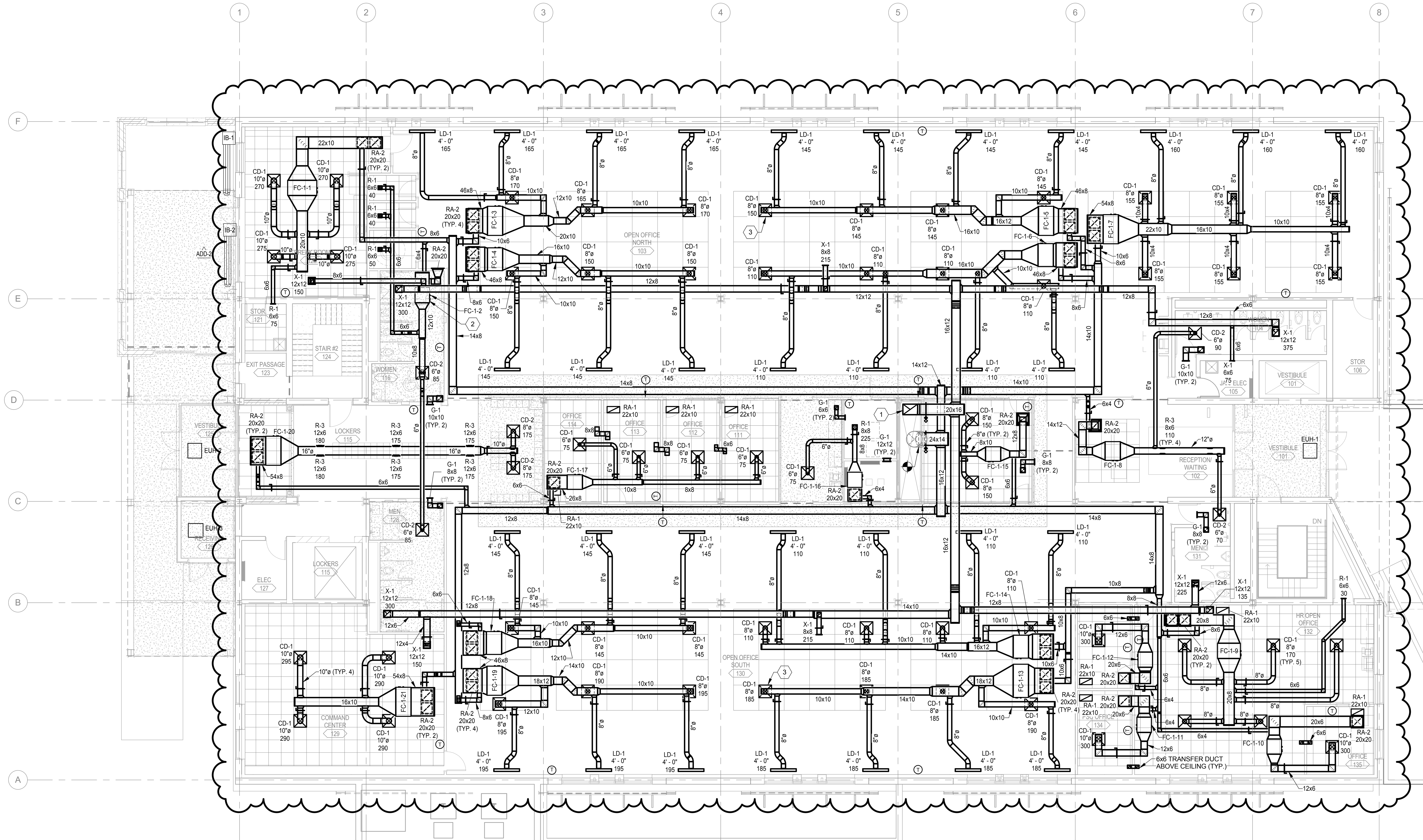
HVAC PLAN, BASEMENT LEVEL
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

M1.0
10-16202-00
02/26/2016
Revisions
Addendum #2 03/18/16

MECHANICAL ENGINEER
TIMOTHY J. RAJEWSKI
E-14490
3/18/2016
NEBRASKA



HVAC PLAN, FIRST LEVEL

SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

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B. ITEMS SHALL NOT BE ROUTED OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.

C. SUPPORT ALL DUCTWORK, EQUIPMENT, ETC. FROM THE BUILDING STRUCTURE. DO NOT SUPPORT ITEMS FROM THE METAL ROOF DECK.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH A FIRE RATED, SMOKE RATED OR COMBINATION FIRE AND SMOKE RATED SEPARATION. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.

E. PROVIDE MINIMUM 12"X12" ACCESS DOORS (AD) AT ALL FIRE DAMPER (FD), SMOKE DAMPER (SD) &/OR FIRE/SMOKE DAMPER (FSD) LOCATIONS INSTALLED ABOVE INACCESSIBLE CEILINGS.

F. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION. FLEXIBLE DUCTS SHALL BE FACTORY INSULATED. PROVIDE DRAW BANDS AND SEAL END OF INSULATION ON ALL FLEXIBLE CONNECTIONS. MAXIMUM LENGTH OF FLEX DUCTS SHALL BE THREE FEET.

G. PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL EQUIPMENT AND DUCTWORK CONNECTIONS.

H. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 4 FEET ABOVE CEILINGS.

I. ALL DUCT SIZES SHOWN ARE CLEAR AIRWAY DIMENSIONS. INCREASE SHEET METAL SIZE TO ACCOMMODATE DUCT LINER AS REQUIRED.

J. TURNING VANES SHALL BE PROVIDED FOR ALL FITTINGS WHERE TURNS EXCEED 30 DEGREES UNLESS NOTED OTHERWISE. SEAL ALL SHEET METAL CONNECTIONS, SEAMS AND JOINTS.

K. COORDINATE ALL GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH REFLECTED CEILING PLAN, LIGHT FIXTURES, SPRINKLER HEADS, COMMUNICATION/SOUND DEVICES AND FIRE ALARM DEVICES.

L. INSTALL ESCUTCHEON PLATES ON ALL ROUND DUCT WALL PENETRATIONS. FABRICATE ESCUTCHEON PLATES TO TRIM THE OPENING IN THE WALL.

M. INSTALL WALL TRIM ANGLE FOR ALL RECTANGULAR DUCT PENETRATIONS THROUGH WALLS TO CONCEAL OPENING.

N. FOR EXPOSED DUCTWORK THOROUGHLY CLEAN, REMOVE ALL SHIPPING LABELS AND OTHER IDENTIFICATION TAGS. DUCTWORK DESIGNATED TO BE PAINTED SHALL HAVE PHOSPHATIZED FINISH. PROVIDE MILL PHOSPHATIZED FINISH FOR EXPOSED DUCTWORK NOT DESIGNATED TO BE PAINTED. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR DUCTWORK DESIGNATED FOR PAINTING.

O. ALL TRANSVERSE SPIRAL AND ROUND DUCT JOINTS FOR ALL EXPOSED DUCTWORK SHALL BE MADE WITH WARD KEATING CONNECTOR CENTER-BEADED SLIP COUPLING OR APPROVED EQUAL ROUND DUCT CONNECTOR. NO SEALANT SHALL BE APPLIED TO EXPOSED DUCTWORK SURFACE.

P. ALL EXPOSED DUCTWORK IN AREAS WITHOUT CEILINGS TO BE PAINTED, SEE ARCHITECTURAL SPECIFICATIONS.

Q. ALL SUPPLY AIR DEVICES SHALL BE INSTALLED WITH MANUAL BALANCING DAMPERS. DAMPER SHALL BE FITTED WITH QUADRANT CONTROL WITH STANDOFF TO EXTEND THRU INSULATION. DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.

R. VOLUME DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS SHALL HAVE EXTENSION RODS AND CABLE OPERATION WITH ADJUSTABLE CEILING ESCUTCHEON PLATES FOR REMOTE BALANCING. PAINT PLATE TO MATCH CEILING.

S. LOCATE AND INSTALL EQUIPMENT TO PROVIDE ALL CODE AND MANUFACTURER RECOMMENDED CLEARANCE AND SERVICE ACCESS. UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS, LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW, AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.

T. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.

ADD-2

SHEET KEYNOTES

1. 28x20 EA UP TO SECOND LEVEL AND 16x20 EA DOWN TO BASEMENT LEVEL.
2. PROVIDE A 24"x24" ACCESS HATCH IN CEILING FOR SERVICE ACCESS TO FAN COIL.
3. PROVIDE BALANCING DAMPER IN SUPPLY DIFFUSER DROPS OFF THE BOTTOM OF DUCT, TYPICAL.

HVAC PLAN, FIRST LEVEL

TELEGRAPH DISTRICT

401 BUILDING RENOVATION

M1.1

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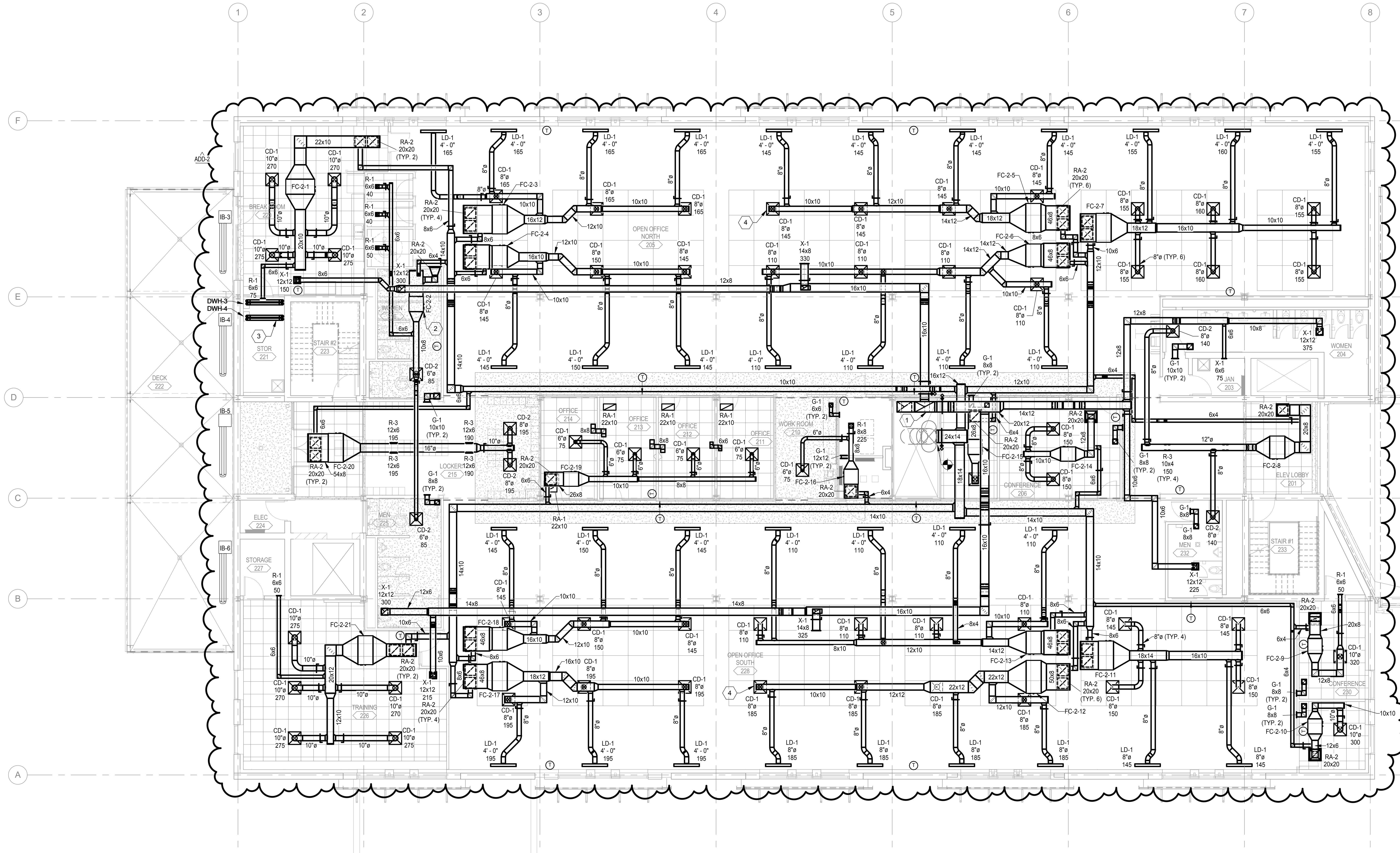

HVAC PLAN, SECOND LEVEL

NORTH SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. ROUTING INDICATED ON DRAWINGS IS APPROXIMATE AND DOES NOT INCLUDE ALL OFFSETS, FITTINGS, VALVES, ETC. CONTRACTOR TO FIELD VERIFY DUCT SIZE AND SERVICE PRIOR TO FINAL CONNECTION. COORDINATE LOCATION OF HVAC WORK WITH OTHER TRADES BEFORE PROCEEDING WITH WORK. PROVIDE OFFSETS AND CLEARANCES OR RELOCATE HVAC WORK AS REQUIRED TO AVOID CONFLICTS WITH WORK OF ALL OTHER TRADES.

B. ITEMS SHALL NOT BE ROUTED OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.

C. SUPPORT ALL DUCTWORK, EQUIPMENT, ETC. FROM THE BUILDING STRUCTURE. DO NOT SUPPORT ITEMS FROM THE METAL ROOF DECK.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH A FIRE RATED, SMOKE RATED OR COMBINATION FIRE AND SMOKE RATED SEPARATION. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.

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F. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION. FLEXIBLE DUCTS SHALL BE FACTORY INSULATED. PROVIDE DRAW BANDS AND SEAL END OF INSULATION ON ALL FLEXIBLE CONNECTIONS. MAXIMUM LENGTH OF FLEX DUCTS SHALL BE THREE FEET.

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SHEET KEYNOTES

ADD-2

1 44x20 EA UP TO PENTHOUSE AND 38x20 EA DOWN TO SECOND LEVEL.

2 PROVIDE A 24"x24" ACCESS HATCH IN CEILING FOR SERVICE ACCESS TO FAN COIL.

3 ROUTE 4" COMBUSTION AIR AND 4" EXHAUST FLUE FROM WATER HEATERS UP TO LEVEL ABOVE.

4 PROVIDE BALANCING DAMPER IN SUPPLY DIFFUSER DROPS OFF THE BOTTOM OF DUCT, TYPICAL.

HVAC PLAN, SECOND LEVEL

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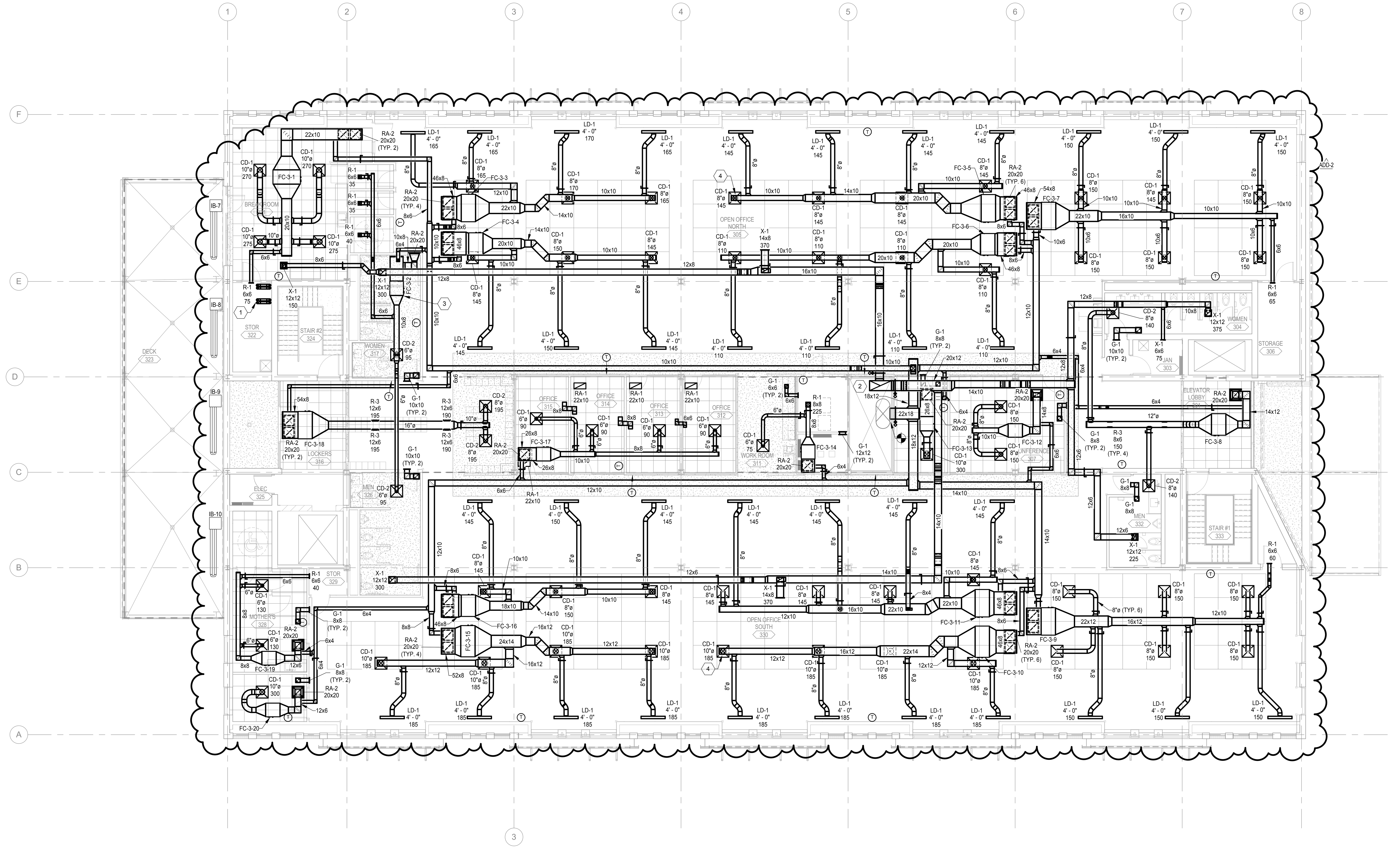

HVAC PLAN, THIRD LEVEL

SCALE: 1/8" = 1'-0"

NORTH

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SHEET KEYNOTES

ADD-2

1. ROUTE 4" FLUE AND COMBUSTION AIR FOR GAS WATER HEATERS UP THROUGH ROOF WITH CONCENTRIC VENT TERMINATION.
2. 44x20 EA UP TO PENTHOUSE AND 38x20 EA DOWN TO SECOND LEVEL.
3. PROVIDE A 24"x24" ACCESS HATCH IN CEILING FOR SERVICE ACCESS TO FAN COIL.
4. PROVIDE BALANCING DAMPER IN SUPPLY DIFFUSER DROPS OFF THE BOTTOM OF DUCT, TYPICAL.

PROFESSIONAL MECHANICAL ENGINEER
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2/26/2016
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HVAC PLAN, THIRD LEVEL
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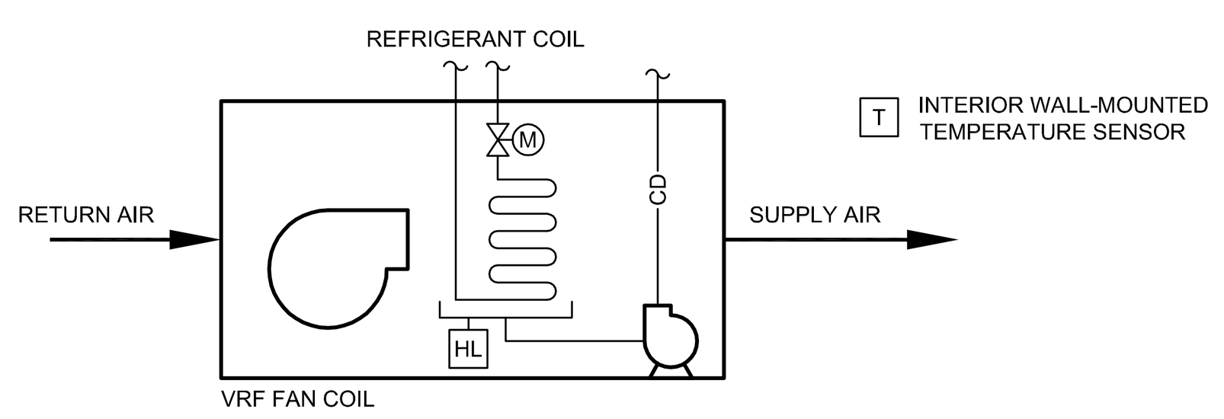


VRF INDOOR FAN COIL SEQUENCE OF OPERATION :

VRF INDOOR FAN COILS UTILIZE REFRIGERANT TO PROVIDE HEATING OR COOLING TO THE SPACE. THE INDOOR UNITS SHALL BE SET TO 'AUTO' MODE DURING OCCUPIED TIMES, AS SCHEDULED IN THE MITSUBISHI CMCN. OCCUPIED AND UNOCCUPIED SCHEDULES SHALL BE EDITABLE AT THE MITSUBISHI CMCN INTERFACE.

A THERMOSTAT MOUNTED ON THE WALL WILL ALLOW THE OPERATOR TO ADJUST THE TEMPERATURE SET POINT BY +/- 2 DEGREES. THE TEMPERATURE SET POINT AND SET POINT SPAN SHALL BE ADJUSTABLE AT THE CITY MULTI CONTROL NETWORK (CMCN) INTERFACE. AN OVERRIDE BUTTON ON THE THERMOSTAT WILL ALLOW THE OPERATOR TO OVERRIDE THE UNOCCUPIED MODE FOR 2 HOURS.

THE MITSUBISHI CMCN SHALL MODULATE THE FAN SPEED AND OPERATING MODE AS REQUIRED TO MEET THE SPACE TEMPERATURE SETPOINT. SEND AN ALARM IF THE SPACE SETPOINT IS NOT MAINTAINED.

THE FAN COIL IS PROVIDED WITH AN INTEGRAL CONDENSATE PUMP. IF THE CONDENSATE HIGH LIMIT SWITCH IS ACTIVATED, COOLING SHALL BE DISABLED FOR THE FAN COIL, AND AN ALARM SHALL BE SENT TO THE MITSUBISHI CMCN.

ADD-2

VRF INDOOR FAN COIL UNIT POINTS (81 QTY.)

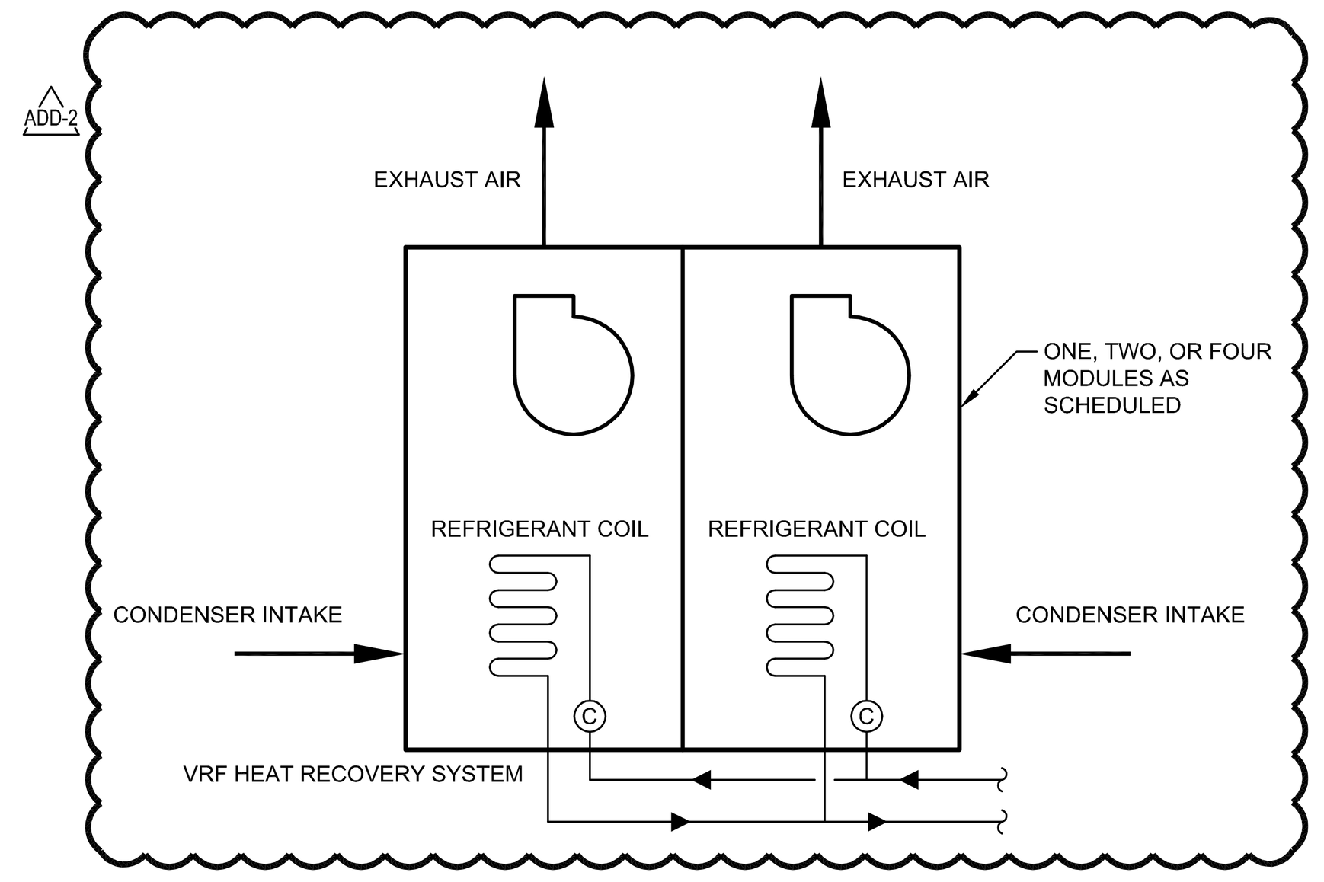
POINT(S)	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
ON/OFF/STATUS	X	X	---	---	X	1,2,3
SPACE TEMPERATURE	---	---	X	---	X	2
SPACE TEMPERATURE SETPOINT	---	---	X	---	---	2
HEATING/COOLING MODE STATE	---	X	---	---	---	1,2
FAN SPEED	---	---	---	X	---	1,2,3
CONDENSATE OVERFLOW	X	---	---	---	X	2,3
GENERAL FAULT	X	---	---	---	X	2,3

REMARKS:
1. COMMAND SENT BY MITSUBISHI CMCN.
2. VALUE VISIBLE AT CMCN OPERATOR INTERFACE.
3. VALUE AVAILABLE FROM ONBOARD UNIT CONTROLLER.

VRF INDOOR FAN COIL UNIT P&ID

NOT TO SCALE

ADD-2



VRF HEAT RECOVERY SYSTEM SEQUENCE OF OPERATION :

VRF HEAT RECOVERY SYSTEMS PROVIDE HEATED OR COOLED REFRIGERANT FOR USE IN THE VRF FAN COILS. SIX SYSTEMS ARE LOCATED IN THE PENTHOUSE, TWO SYSTEMS ARE LOCATED IN THE MECHANICAL PIT.

THE MITSUBISHI CMCN SHALL STAGE ON FAN OPERATION, MODULATE ECM FAN SPEED, STAGE ON COMPRESSORS, MODULATE COMPRESSOR SPEED, AND ADJUST OPERATING MODE AS REQUIRED TO SATISFY THE HEATING OR COOLING REQUIREMENTS FOR THE INDOOR FAN COILS.

ADD-2

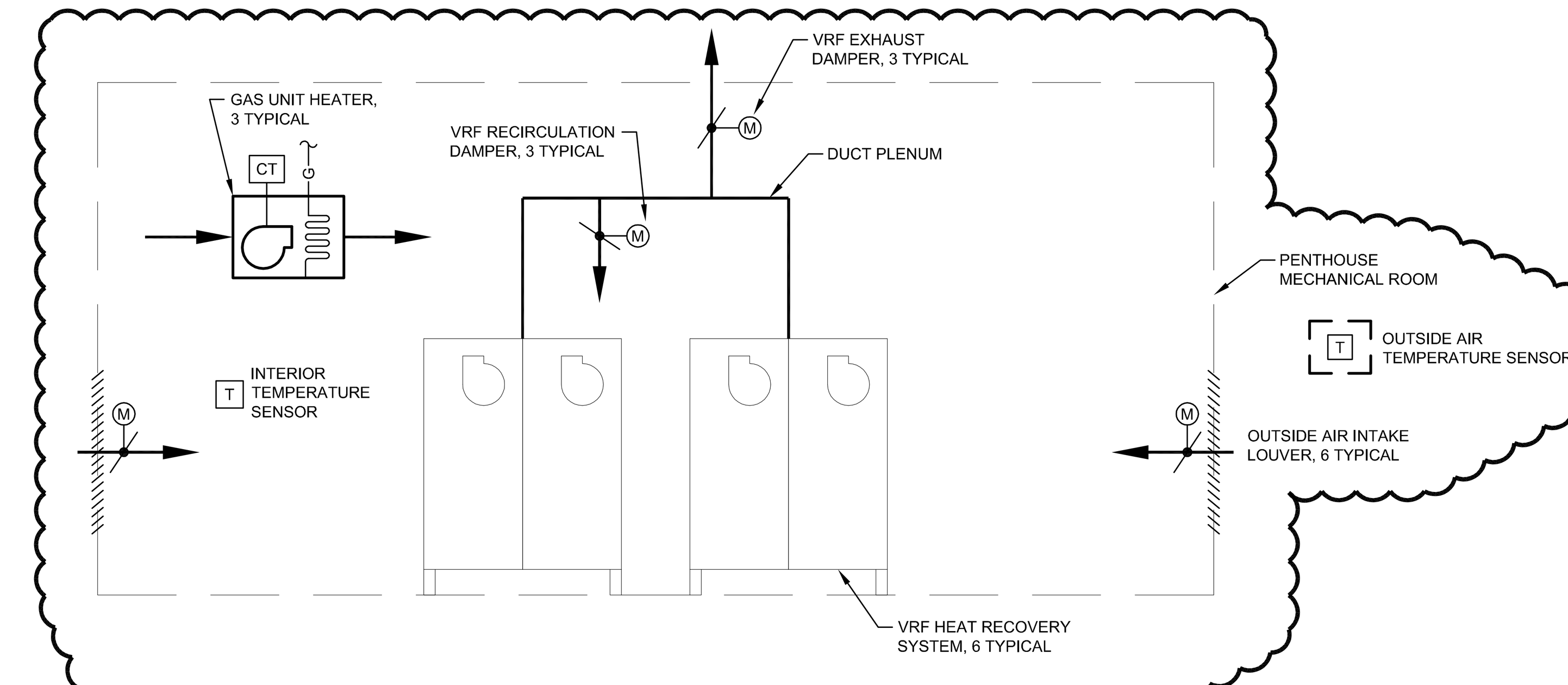
VRF HEAT RECOVERY SYSTEM POINTS (8 QTY.)

POINT(S)	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
ON/OFF/STATUS	X	X	---	---	X	1,2
HEATING/COOLING MODE STATE	---	X	---	---	---	1,2
FAN START/STOP/SPEED (PER MODULE)	X	---	---	X	---	1
COMPRESSOR START/STOP/SPEED (PER MODULE)	X	---	---	X	---	1
GENERAL FAULT	X	---	---	---	X	2,3

REMARKS:
1. COMMAND SENT BY MITSUBISHI CMCN.
2. VALUE VISIBLE AT CMCN OPERATOR INTERFACE.
3. VALUE AVAILABLE FROM ONBOARD UNIT CONTROLLER.

VRF HEAT RECOVERY SYSTEM P&ID

NOT TO SCALE



ADD-2

PENTHOUSE CONTROL SEQUENCE OF OPERATION :

SIX VRF HEAT RECOVERY SYSTEMS ARE LOCATED INDOORS TO PROTECT THEM FROM EXTREME WINTER CONDITIONS. IN THE COOLING SEASON, OUTSIDE AIR IS DRAWN INTO THE VRF HEAT RECOVERY SYSTEMS THROUGH THE WALL LOUVERS AND EXHAUSTED THROUGH GRAVITY VENTILATORS ON THE ROOF. IN THE HEATING SEASON, THE DISCHARGE AIR FROM THE VRF HEAT RECOVERY SYSTEMS IS RECIRCULATED WITHIN THE ROOM.

THE MITSUBISHI CMCN SHALL COMMAND ALL PENTHOUSE CONTROL OPERATIONS.

CONTROL DAMPERS:

WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 45 °F, ALL OUTSIDE AIR INTAKE LOUVER DAMPERS SHALL BE FULLY OPEN, ALL EXHAUST AIR DAMPERS SHALL BE FULLY OPEN, AND ALL RECIRCULATION AIR DAMPERS SHALL BE CLOSED.

WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN 45 °F, ALL OUTSIDE AIR INTAKE LOUVER DAMPERS AND EXHAUST AIR DAMPERS SHALL BEGIN TO MODULATE CLOSED, AND ALL RECIRCULATION AIR DAMPERS SHALL MODULATE OPEN PROPORTIONALLY TO MAINTAIN THE PENTHOUSE INTERIOR AIR TEMPERATURE AT 45 °F. CONTINUE TO MODULATE DAMPERS TO MAINTAIN ROOM TEMPERATURE UNTIL THE OUTSIDE AIR INTAKE LOUVER AND EXHAUST AIR DAMPERS ARE FULLY CLOSED, AND THE RECIRCULATION DAMPERS ARE FULLY OPEN. IF THE ROOM TEMPERATURE BEGINS TO RISE ABOVE 45°F, MODULATE THE OUTSIDE AIR INTAKE LOUVER DAMPERS AND EXHAUST AIR DAMPERS OPEN, AND THE RECIRCULATION AIR DAMPERS CLOSED PROPORTIONALLY TO MAINTAIN THE PENTHOUSE INTERIOR TEMPERATURE AT 45 °F.

IF DAMPER END SWITCHES DO NOT PROVE OPEN WHEN COMMANDED FULLY OPEN WITHIN 5 MINUTES, SEND AN ALARM TO THE MITSUBISHI CMCN.

UNIT HEATERS:

AN INDOOR TEMPERATURE SENSOR SHALL CONTROL THE UNIT HEATERS TO MAINTAIN A 40°F SPACE TEMPERATURE WHEN THE OUTSIDE AIR LOUVER DAMPERS ARE CLOSED. IF THE ROOM TEMPERATURE FALLS OUTSIDE SET LIMITS, SEND AN ALARM TO THE MITSUBISHI CMCN.

PENTHOUSE CONTROL POINTS

POINT(S)	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
OUTSIDE AIR TEMPERATURE	---	---	X	---	---	
OUTSIDE AIR INTAKE AUTOMATIC DAMPERS AND END SWITCH (6 QTY.)	X	---	---	X	X	
EXHAUST AIR AUTOMATIC DAMPERS AND END SWITCH (3 QTY.)	X	---	---	X	X	
RECIRCULATION AIR DAMPERS AND END SWITCH (3 QTY.)	X	---	---	X	X	
SPACE TEMPERATURE	---	---	X	---	X	
UNIT HEATER START/STOP/FAN STATUS (3 QTY.)	X	X	---	---	X	

REMARKS:
1. N/A.

PENTHOUSE CONTROL P&ID

NOT TO SCALE

GENERAL NOTES:

A. ALL CONTROLS SHOWN IN DIAGRAMS AND DESCRIBED IN SEQUENCES ARE TO BE CONTROLLED BY THE MITSUBISHI CITY MULTI CONTROLS NETWORK (CMCN) OR EQUIVALENT UNLESS OTHERWISE NOTED. THE CMCN SHALL ACT AS A STAND-ALONE BUILDING AUTOMATION SYSTEM AND SHALL BE ACCESSIBLE/ADJUSTABLE OVER WEB BROWSER.

B. PROVIDE ALL SENSORS AND DEVICES INDICATED ON THIS PLAN. LOCATIONS MAY NOT BE SHOWN ON OTHER CONSTRUCTION PLANS.

C. ALL CONTROLS TO BE ON EMERGENCY POWER.

D. ALL ROOM SENSORS SHALL BE MOUNTED WITH THE TOP OF SENSOR AT 48".

E. AT THE COMPLETION OF THE PROJECT, AND PRIOR TO TURNING THE MECHANICAL SYSTEM OVER TO THE OWNER, THE CONTRACTOR SHALL VERIFY COMPLETE OPERATION OF THE MECHANICAL SYSTEM AND ALL ASSOCIATED COMPONENTS.

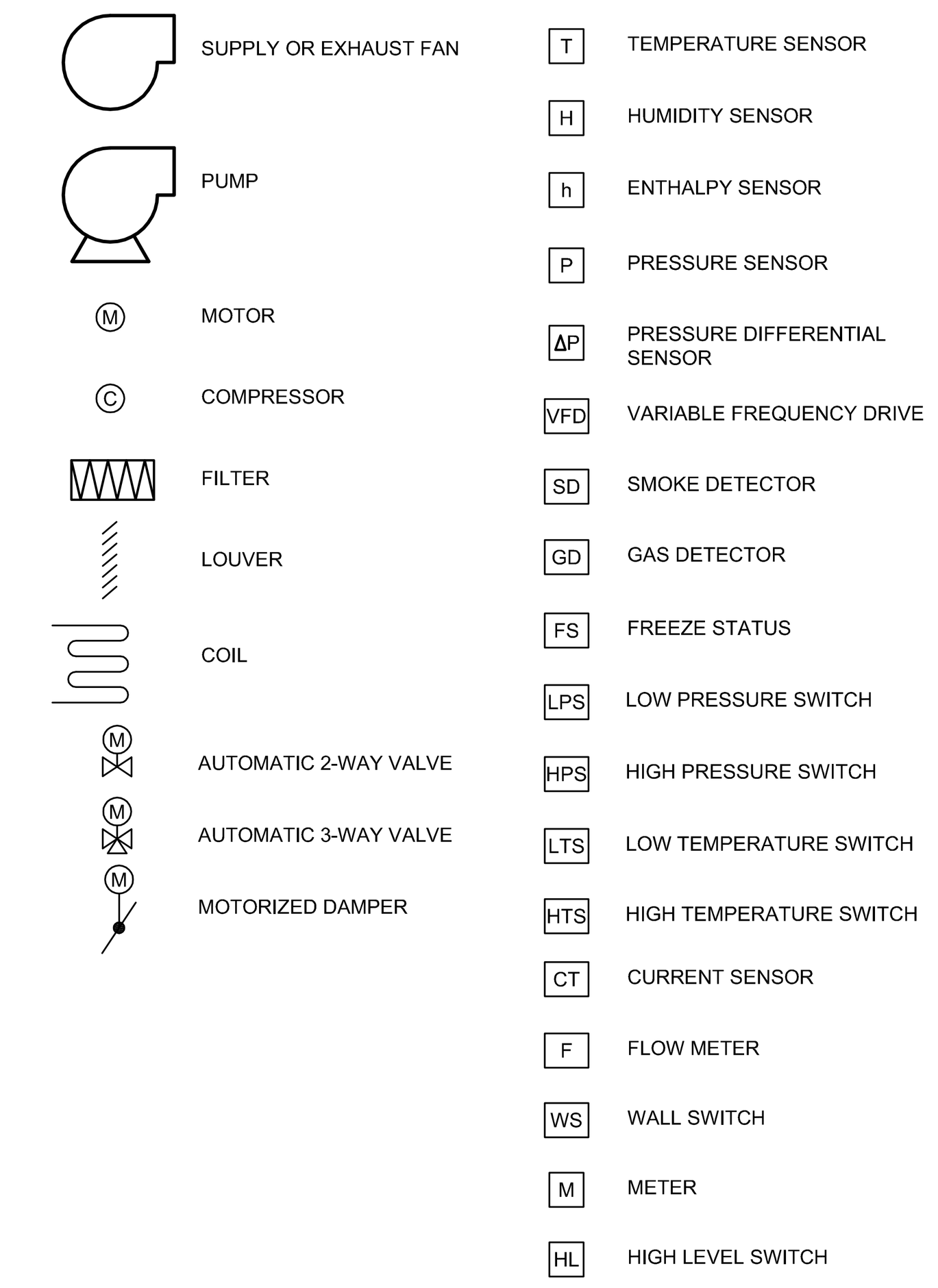
ADD-2

F. COORDINATE LINE VOLTAGE CIRCUIT REQUIREMENTS FOR LOW-VOLTAGE EQUIPMENT (BRANCH CIRCUIT CONTROLLERS, CONTROL PANELS, ETC.) WITH ELECTRICAL CONTRACTOR PRIOR TO BID. ANY ADDITIONAL CIRCUITS REQUIRED AFTER BID DAY WILL FALL UNDER THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AT NO ADDITIONAL COST TO THE OWNER.

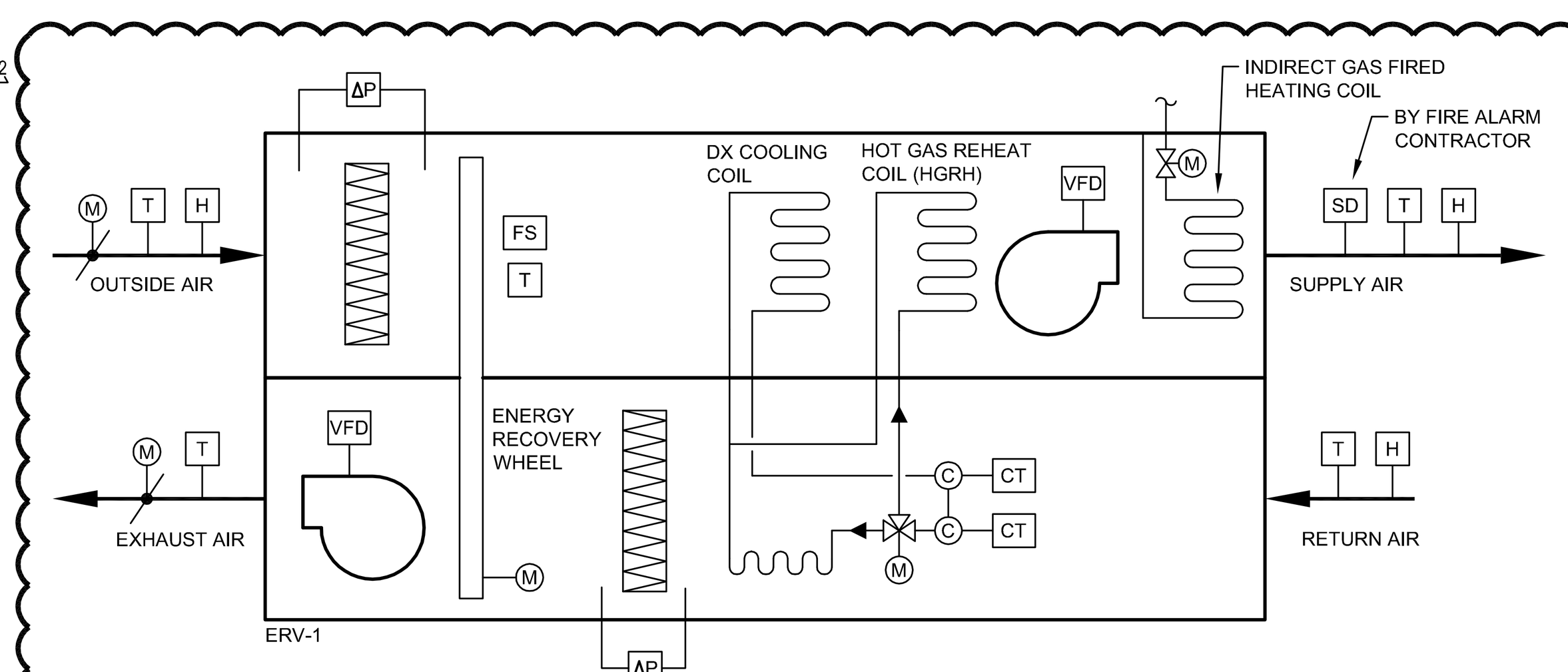
G. THE FOLLOWING SYSTEMS SHALL NOT BE CONTROLLED BY THE BUILDING MANAGEMENT SYSTEM:
- DOMESTIC WATER HEATERS.
- DOMESTIC HOT WATER RECIRCULATION PUMPS.
- ELEVATOR SUMP PUMPS (SP-1, SP-2).
- ELEVATOR DUCTLESS SPLIT SYSTEMS (IU-1,2, CU-1,2).
- INFRARED BURNERS.
- ELECTRIC UNIT HEATERS

HVAC P&ID SYMBOL LEGEND

NOTE: SOME SYMBOLS IN THE LEGEND MAY NOT BE UTILIZED.



ADD-2



PACKAGED ENERGY RECOVERY VENTILATOR (ERV-1):

THE ENERGY RECOVERY VENTILATOR (ERV) DELIVERS CONDITIONED OUTSIDE AIR TO THE RETURN DECK OF VRF FAN COILS IN OCCUPIED MODE. IT CONSISTS OF AN ENERGY RECOVERY WHEEL, COMPRESSORS WITH DX COOLING COIL, REHEAT COIL, GAS HEATING COIL, EXHAUST FAN, AND SUPPLY FAN.

TEMPERATURE AND HUMIDITY VALUES SHALL BE MONITORED BY THE ONBOARD UNIT CONTROLLER PER THE SCHEMATIC ABOVE. START/STOP COMMANDS AND GENERAL FAULTS SHALL COMMUNICATE WITH THE MITSUBISHI CMCN.

ANALOG DIFFERENTIAL PRESSURE TRANSMITTERS SHALL MONITOR THE ERV MEDIA AND PROVIDE "DIRTY" OR "PLUGGED MEDIA" ALARM WHEN DIFFERENTIAL PRESSURE THRESHOLD IS EXCEEDED. DIFFERENTIAL PRESSURE TO BE MONITORED ON BOTH THE BUILDING EXHAUST AND THE OUTSIDE AIR.

OUTSIDE AIR TEMPERATURE AND OUTSIDE AIR RELATIVE HUMIDITY SHALL BE MONITORED BY THE UNIT CONTROLLER. THE OUTSIDE AIR INTAKE AND EXHAUST DAMPER SHALL BE EQUIPPED WITH SPRING RETURN (FAIL CLOSED) DAMPER MOTOR WITH END SWITCHES.

UNOCCUPIED MODE:

THE UNIT SHALL CYCLE ON FOR 15 MINUTES (ADJUSTABLE) EACH HOUR DURING THE UNOCCUPIED MODE. WHEN THE ERV IS NOT IN OPERATION, THE OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE CLOSED AND THE SUPPLY AND EXHAUST FANS SHALL BE OFF. UNOCCUPIED MODE STATUS SHALL BE SENT VIA THE MITSUBISHI CMCN, AND THE SCHEDULE ADJUSTABLE AT THE CMCN INTERFACE.

OCCUPIED MODE:

A. OPEN THE ERV OUTSIDE AIR AND EXHAUST DAMPERS AND CONFIRM VIA DAMPER END SWITCHES. START THE OUTSIDE AIR AND EXHAUST FANS. IF END SWITCHES DO NOT PROVE OPEN WITHIN 5 MINUTES, SEND AN ALARM TO THE MITSUBISHI CMCN.

B. IF THE OUTSIDE AIR TEMPERATURE IS BELOW 55°F, OR ABOVE 75°F, START THE WHEEL MOTOR.

C. IF THE WHEEL DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F, OR EITHER SUPPLY OR EXHAUST FAN FAIL, TURN OFF THE ERV AND SEND AN ALARM TO THE MITSUBISHI CMCN. IF THE SUPPLY AIR TEMPERATURE IS NOT WITHIN SETPOINTS SEND AN ALARM TO THE MITSUBISHI CMCN.

D. THE PACKAGED UNIT CONTROLLER SHALL ENABLE HEATING, COOLING, OR REHEATING AS REQUIRED TO MEET THE DISCHARGE AIR TEMPERATURE REQUIREMENT.

F. IF RETURN AIR RELATIVE HUMIDITY IS GREATER THAN 50%, OPERATE THE UNIT IN FULL COOLING MODE TO DEHUMIDIFY THE AIR AND MODULATE THE HOT GAS REHEAT TO RETURN THE LEAVING AIR TEMPERATURE UP TO SETPOINT.

G. PROVIDE A USER ADJUSTABLE TEMPERATURE RESET SCHEDULE TO RESET THE VENTILATION SUPPLY AIR TEMPERATURE BASED ON OUTSIDE AIR TEMPERATURE. THE DISCHARGE AIR TEMPERATURE SHALL BE 70°F WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN 40°F, 65°F WHEN THE OUTSIDE AIR TEMPERATURE IS BETWEEN 40°F AND 65°F, AND 60°F WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F.

PACKAGED ENERGY RECOVERY UNIT (ERV-1) POINTS

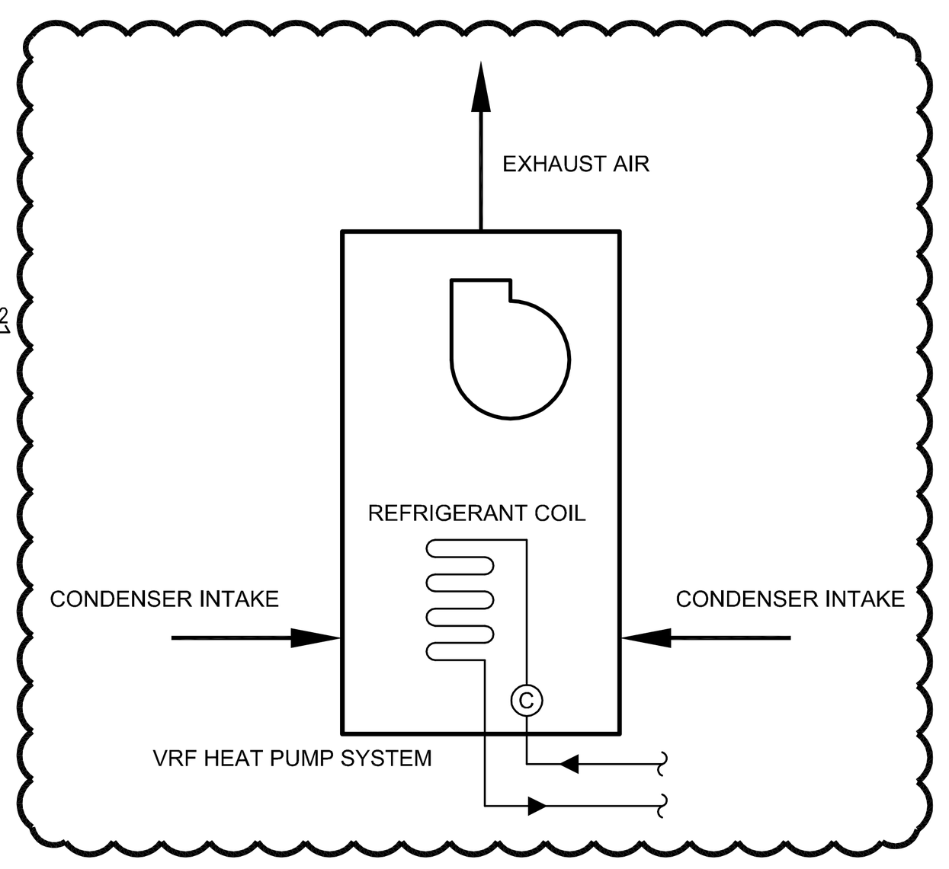
POINT(S)	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
OCCUPIED/UNOCCUPIED STATUS	---	X	---	---	---	1
OUTSIDE AIR TEMPERATURE	---	---	X	---	---	3
OUTSIDE AIR HUMIDITY	---	---	X	---	---	3
OUTSIDE AIR DAMPER AND END SWITCH	X	X	---	---	X	3
OUTSIDE AIR FILTER HIGH DIFFERENTIAL PRESSURE	X	---	---	---	X	3
FREEZE STATUS	X	---	---	---	X	3
WHEEL DISCHARGE AIR TEMPERATURE	---	---	X	---	X	3
SUPPLY FAN START/STOP, STATUS	X	X	---	---	X	3
MODULATING GAS BURNER	---	---	---	X	---	3
SMOKE DETECTOR	X	---	---	---	X	3
SUPPLY AIR TEMPERATURE	---	---	X	---	X	3
SUPPLY AIR HUMIDITY	---	---	X	---	X	3
DUCT STATIC PRESSURE	---	---	X	---	---	3
RETURN AIR TEMPERATURE	---	---	X	---	---	3
RETURN AIR HUMIDITY	---	---	X	---	---	3
COMPRESSOR #1 START/STOP, STATUS, SPEED	X	X	---	X	X	3
COMPRESSOR #2 START/STOP, STATUS	X	X	---	---	X	3
MODULATING HOT GAS REHEAT	---	---	---	X	---	3
RETURN AIR FILTER HIGH DIFFERENTIAL PRESSURE	X	---	---	---	X	3
WHEEL MOTOR START/STOP	---	X	---	---	---	3
EXHAUST FAN START/STOP, STATUS	X	X	---	X	X	3
EXHAUST AIR TEMPERATURE	---	---	X	---	X	3
EXHAUST AIR DAMPER AND END SWITCH	X	X	---	---	X	3
GENERAL FAULT	X	---	---	---	X	2

REMARKS:
1. OUTPUTS SHALL BE SENT FROM MITSUBISHI CMCN.
2. INPUTS SHALL BE AVAILABLE TO MITSUBISHI CMCN.
3. PART OF PACKAGED UNIT CONTROLS. NOT COMMUNICATED TO THE MITSUBISHI CMCN.

PACKAGED ENERGY RECOVERY UNIT (ERV-1) P&ID

NOT TO SCALE

ADD-2



VRF HEAT PUMP SYSTEM SEQUENCE OF OPERATION :

VRF HEAT PUMP SYSTEMS PROVIDE COOLED REFRIGERANT FOR USE IN ELECTRICAL ROOM VRF FAN COILS. THE OUTDOOR UNIT IS LOCATED IN THE MECHANICAL PIT.

THE MITSUBISHI CMCN SHALL STAGE ON FAN OPERATION, MODULATE ECM FAN SPEED, AND OPERATING MODE AS REQUIRED TO SATISFY THE COOLING REQUIREMENTS FOR THE INDOOR FAN COILS.

ADD-2

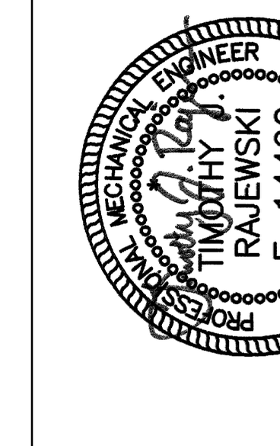
VRF HEAT PUMP SYSTEM POINTS (1 QTY.)

POINT(S)	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
ON/OFF/STATUS	X	X	---	---	X	1,2
FAN START/STOP/SPEED	---	X	---	X	---	1
COMPRESSOR START/STOP/SPEED	---	X	---	X	---	1
GENERAL FAULT	---	---	---	---	X	2,3

REMARKS:
1. COMMAND SENT BY MITSUBISHI CMCN.
2. VALUE VISIBLE AT CMCN OPERATOR INTERFACE.
3. VALUE AVAILABLE FROM ONBOARD UNIT CONTROLLER.

VRF HEAT PUMP SYSTEM P&ID

NOT TO SCALE



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MECHANICAL P&ID'S
TELEGRAPH DISTRICT
401 BUILDING RENOVATION

M7.1

DLR Group
Architecture Engineering Planning Interiors

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