

UTAH STATE HOSPITAL MS BUILDING STEAM HEATING REPLACEMENT

1300 East Center Street Provo, Utah 84603



VAN BOERUM
& FRANK
ASSOCIATES INC.
CONSULTING ENGINEERS

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State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018

DFCM Project No. 07178420 CONSTRUCTION DRAWINGS

SHEET INDEX

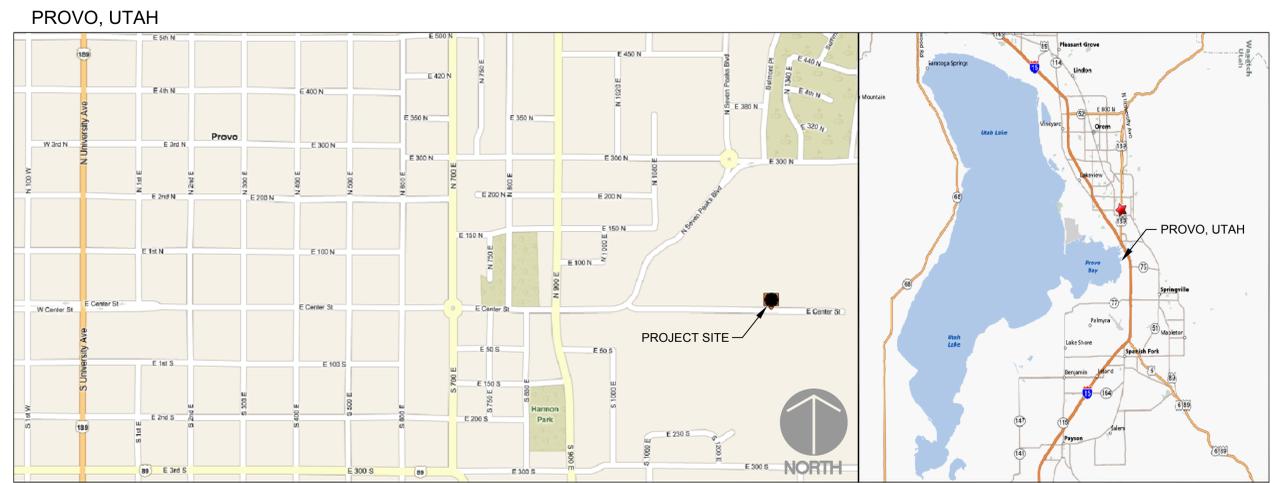
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CONSULTANTS

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Vicinity Map

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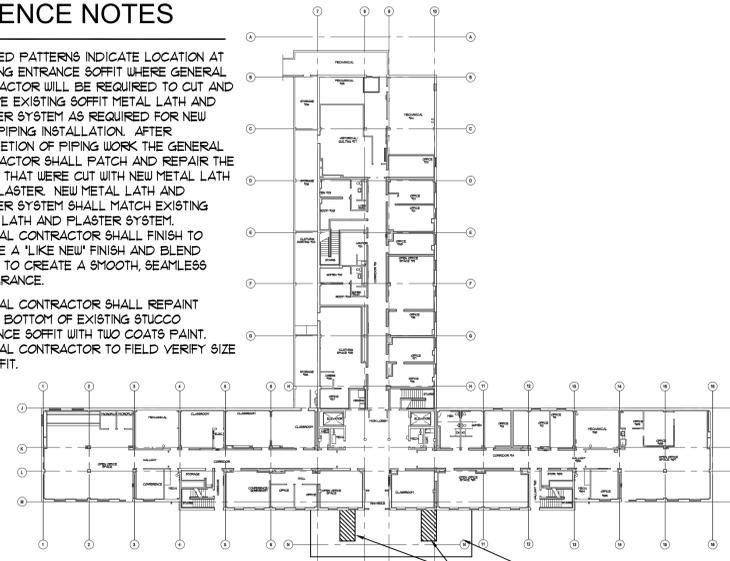
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DRAWN BY: Ejuarez
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SHEET CONTENTS
COVER SHEET

REFERENCE NOTES

- 1 HATCHED PATTERNS INDICATE LOCATION AT BUILDING ENTRANCE SOFFIT WHERE GENERAL CONTRACTOR WILL BE REQUIRED TO CUT AND REMOVE EXISTING SOFFIT METAL LATH AND PLASTER SYSTEM AS REQUIRED FOR NEW HVAC PIPING INSTALLATION. AFTER COMPLETION OF PIPING WORK THE GENERAL CONTRACTOR SHALL PATCH AND REPAIR THE AREAS THAT WERE CUT WITH NEW METAL LATH AND PLASTER. NEW METAL LATH AND PLASTER SYSTEM SHALL MATCH EXISTING METAL LATH AND PLASTER SYSTEM. GENERAL CONTRACTOR SHALL FINISH TO CREATE A 'LIKE NEW' FINISH AND BLEND EDGES TO CREATE A SMOOTH, SEAMLESS APPEARANCE.
- 2 GENERAL CONTRACTOR SHALL REPAINT ENTIRE BOTTOM OF EXISTING STUCCO ENTRANCE SOFFIT WITH TWO COATS PAINT. GENERAL CONTRACTOR TO FIELD VERIFY SIZE OF SOFFIT.

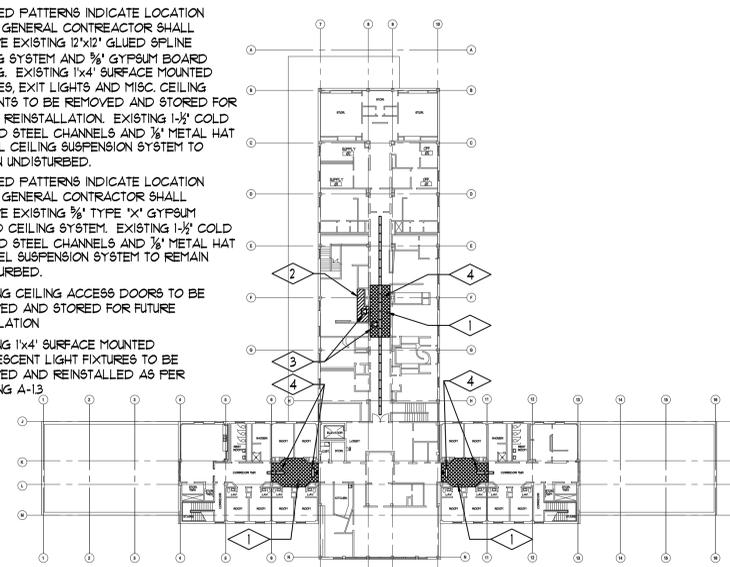


01 FIRST FLOOR PLAN

SCALE N.T.S.

REFERENCE NOTES

- 1 HATCHED PATTERNS INDICATE LOCATION WHERE GENERAL CONTRACTOR SHALL REMOVE EXISTING 12"x12" GLUED SF-LINE CEILING SYSTEM AND 3/8" GYPSUM BOARD CEILING. EXISTING 1'x4' SURFACE MOUNTED FIXTURES, EXIT LIGHTS AND MISC. CEILING ELEMENTS TO BE REMOVED AND STORED FOR FUTURE REINSTALLATION. EXISTING 1-1/2" COLD ROLLED STEEL CHANNELS AND 3/8" METAL HAT CHANNEL CEILING SUSPENSION SYSTEM TO REMAIN UNDISTURBED.
- 2 HATCHED PATTERNS INDICATE LOCATION WHERE GENERAL CONTRACTOR SHALL REMOVE EXISTING 3/8" TYPE 'X' GYPSUM BOARD CEILING SYSTEM. EXISTING 1-1/2" COLD ROLLED STEEL CHANNELS AND 3/8" METAL HAT CHANNEL SUSPENSION SYSTEM TO REMAIN UNDISTURBED.
- 3 EXISTING CEILING ACCESS DOORS TO BE REMOVED AND STORED FOR FUTURE INSTALLATION
- 4 EXISTING 1'x4' SURFACE MOUNTED FLOURESCENT LIGHT FIXTURES TO BE REMOVED AND REINSTALLED AS PER DRAWING A-13

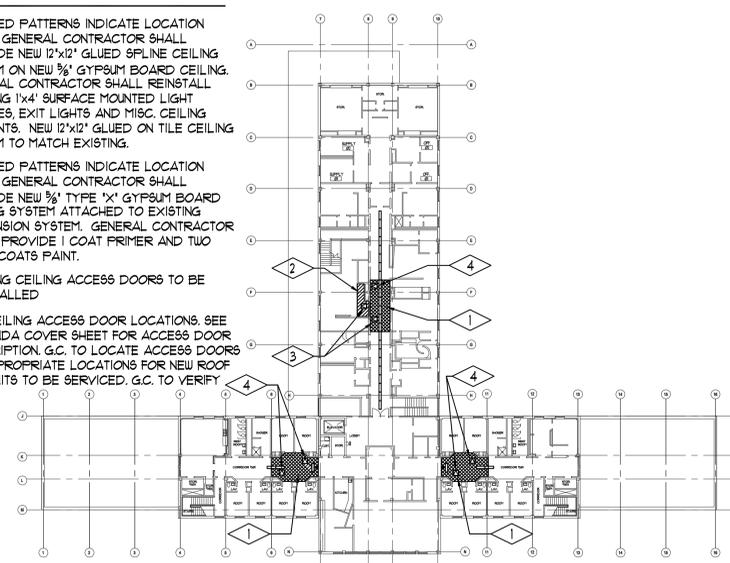


02 THIRD LEVEL DEMOLITION CEILING PLAN

SCALE N.T.S.

REFERENCE NOTES

- 1 HATCHED PATTERNS INDICATE LOCATION WHERE GENERAL CONTRACTOR SHALL PROVIDE NEW 12"x12" GLUED SF-LINE CEILING SYSTEM ON NEW 3/8" GYPSUM BOARD CEILING. GENERAL CONTRACTOR SHALL REINSTALL EXISTING 1'x4' SURFACE MOUNTED LIGHT FIXTURES, EXIT LIGHTS AND MISC. CEILING ELEMENTS. NEW 12"x12" GLUED ON TILE CEILING SYSTEM TO MATCH EXISTING.
- 2 HATCHED PATTERNS INDICATE LOCATION WHERE GENERAL CONTRACTOR SHALL PROVIDE NEW 3/8" TYPE 'X' GYPSUM BOARD CEILING SYSTEM ATTACHED TO EXISTING SUSPENSION SYSTEM. GENERAL CONTRACTOR SHALL PROVIDE 1 COAT PRIMER AND TWO FINISH COATS PAINT.
- 3 EXISTING CEILING ACCESS DOORS TO BE REINSTALLED
- 4 NEW CEILING ACCESS DOOR LOCATIONS. SEE ADDENDA COVER SHEET FOR ACCESS DOOR DESCRIPTION. G.C. TO LOCATE ACCESS DOORS AT APPROPRIATE LOCATIONS FOR NEW ROOF TOP UNITS TO BE SERVICED. G.C. TO VERIFY



03 THIRD LEVEL CEILING PLAN

SCALE N.T.S.



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SHEET CONTENTS FLOOR PLAN AND CEILING PLANS

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A1.1

LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

MECHANICAL

	POSITIVE PRESSURE DUCT - RISE
	POSITIVE PRESSURE DUCT - DROP
	NEGATIVE PRESSURE DUCT - RISE
	NEGATIVE PRESSURE DUCT - DROP
	ROUND DUCT - RISE
	ROUND DUCT - DROP
	UNDER FLOOR DUCT
	TURNING VANES
	FRESH AIR LOUVER
	RELIEF AIR OR EXHAUST AIR LOUVER
	CEILING SUPPLY DIFFUSER
	CEILING RETURN REGISTER
	CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF RETURN CFM IS NOT SHOWN)
	SIDEWALL SUPPLY REGISTER
	SIDEWALL EXHAUST OR RETURN REGISTER
	CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT
	CEILING AIR GRILLE WITH FLEXIBLE DUCT
	CEILING RETURN AIR GRILLE W/ SOUND BOOT
	LINEAR DIFFUSER WITH PLENUM AND FLEXIBLE DUCT CONNECTION. NO. OF SLOTS & SIZE OF SLOT ON TOP, ACTIVE LENGTH AND CFM ON BOTTOM
	FLEXIBLE DUCT CONNECTION
	FLEXIBLE DUCT
	FAN
	FLAT OVAL DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
	RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
	ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
	INCLINED RISE
	INCLINED DROP
	R/W=1. ROUND DUCT SIMILAR TO RECTANGULAR DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE.
	RECTANGULAR TO ROUND DUCT TRANSFORMATION BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL.
	TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
	HIGH EFFICIENCY FITTING
	MANUAL VOLUME DAMPER
	FIRE DAMPER IN DUCT, W/ ACCESS PANEL REQD.
	COMBINATION FIRE/SMOKE DAMPER W/ ACCESS PANEL
	SMOKE DAMPER W/ ACCESS PANEL
	BACK DRAFT DAMPER
	ATC DAMPER
	ACCESS PANEL IN DUCT OR PLENUM
	HEATING OR COOLING COIL IN DUCT
	SINGLE DUCT AIR TERMINAL BOX VARIABLE OR CONSTANT VOLUME, MIN. 1-1/2" TERMINAL INLET SIZE STRAIGHT DUCT AT TERMINAL INLET.
	4-WAY BLOW PATTERN
	3-WAY BLOW PATTERN
	2-WAY BLOW PATTERN
	1-WAY BLOW PATTERN
	DUCT SMOKE DETECTOR
	UNIT HEATER

PLUMBING

	ARROW INDICATES DIRECTION OF FLOW IN PIPE
	CHECK VALVE
	PRESSURE REDUCING, EXTERNAL PRESSURE VALVE
	PRESSURE REDUCING, SELF CONTAINED VALVE
	ATC VALVE - 2 WAY
	ATC VALVE - 3 WAY
	SOLENOID VALVE
	GATE VALVE
	GATE VALVE - NON RISING STEM
	GLOBE VALVE
	TEMPERATURE AND PRESSURE TEST PORT
	PRESSURE SWITCH
	GAS COCK
	CALIBRATED BALANCING VALVE WITH GPM INDICATED
	REDUCED PRESSURE BACKFLOW PREVENTOR W/ DRAIN PAN
	BRANCH - BOTTOM CONNECTION
	BRANCH - TOP CONNECTION
	BRANCH - SIDE CONNECTION
	RISE OR DROP
	RISER - DOWN (ELBOW)
	RISER - DOWN (ELBOW)
	VENT THRU ROOF
	WATER HAMMER ARRESTOR
	INLINE PUMP
	CLEAN-OUT
	RELIEF VALVE
	ANGLE VALVE
	FLOW METER
	UNION
	BALANCING COCK
	SHUT-OFF COCK FOR USE WITH PRESSURE GAUGE
	FLEXIBLE EXPANSION JOINT
	THERMOMETER - TEMP RANGE AS INDICATED
	PRESSURE GAUGE WITH SHUT-OFF COCK
	PRESSURE GAUGE WITH PIGTAIL
	LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE END WITH CAP WHERE DISCHARGE IS NOT PIPED TO DRAIN
	BALL VALVE (PIPE SIZES 2" AND SMALLER)
	BUTTERFLY VALVE (PIPE SIZES 2-1/2" AND LARGER)
	MOTOR OPERATED BUTTERFLY VALVE
	VALVE IN RISE
	AIR VENT-MANUAL
	AIR VENT-AUTO
	FLOW SWITCH
	REDUCER
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER

PLUMBING CONT.

	PIPE CAP
	DRAIN PAN AND P-TRAP
	FIXTURE FROM LEVEL ABOVE
	FLANGE
	90° ELBOW
	STEAM TRAP, F&T=FLOAT & THERMOSTATIC 45° ELBOW
	B=BUCKET, T=THERMOSTATIC
	LEADER INDICATES DOWNWARD SLOPE
	DEMOLITION

LINETYPES

	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	DOMESTIC HOT WATER RETURN (DHW)
	EXISTING PIPING
	EXISTING PIPING TO BE REMOVED
	HIGH PRESSURE CONDENSATE
	HIGH PRESSURE STEAM
	HEATING HOT WATER RETURN
	HEATING HOT WATER SUPPLY
	LOW PRESSURE CONDENSATE
	LOW PRESSURE STEAM
	PUMPED CONDENSATE

SYMBOLS

	PLUMBING FIXTURES
	POINT OF CONNECTION
	SECTION TAG - TOP FIGURE IS SECTION NO. BOTTOM FIGURE IS SHEET NO.
	DETAIL TAG - TOP FIGURE IS DETAIL NO. BOTTOM FIGURE IS SHEET NO.
	EQUIPMENT IDENTIFICATION
	KEYED NOTE IDENTIFICATION

MECH. GENERAL NOTES

- DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH. DO NOT ROUTE DUCTS AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
- IF CONTRACTOR ENCOUNTERS MATERIAL WHICH MAY CONTAIN ASBESTOS IMMEDIATELY STOP WORK IN THIS AREA AND NOTIFY THE OWNER.
- PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, VAV BOXES, FIRE DAM-PERS, ETC. ARE LOCATED ABOVE INACCESSIBLE CEILINGS.
- STEEL ROOF DECK SHALL NOT BE USED TO SUPPORT LOADS FROM PIPING, DUCTWORK OR EQUIPMENT, UNLESS NOTED OTHERWISE. HANGER LOADS LESS THAN 50 LBS. MAY BE HUNG FROM THE STEEL ROOF DECK IN CASES WHEN HANGING FROM THE STEEL ROOF DECK CANNOT BE AVOIDED. THE ATTACHMENT METHOD MUST DISTRIBUTE THE LOAD ACROSS THE DECK AS APPROVED BY THE STRUCTURAL ENGINEER.
- AFTER REMOVAL OF STEAM AND CONDENSATE PIPING, CAP PIPING IF REQUIRED TO KEEP STEAM PIPING ACTIVE TO SERVE EXISTING EQUIPMENT.



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SHEET CONTENTS
MECHANICAL
SYMBOLS AND
ABBREVIATIONS

M0.0

1

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6

KEYED NOTES



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1. REMOVE EXISTING STEAM AND CONDENSATE MAIN PIPING TO ACCOMMODATE INSTALLATION OF NEW HEATING HOT WATER PIPING.
2. CAP EXISTING STEAM PIPING ABANDON REMAINING PIPING IN PLACE.
3. REMOVE EXISTING STEAM AND CONDENSATE BRANCH PIPING TO ACCOMMODATE NEW HEATING HOT WATER PIPING TO NEW FAN COIL UNITS ABOVE. TYPICAL OF ALL.
4. CAP STEAM MAIN IN TUNNEL BELOW TO INACTIVATE PIPING ABOVE. ABANDON PIPING IN PLACE.
5. EXISTING STEAM COILS IN AIR HANDLERS TO REMAIN.
6. EXISTING STEAM AND CONDENSATE MAINS TO BE ABANDONED IN PLACE.
7. EXISTING STEAM TO WATER HEAT EXCHANGER, PUMP, ETC TO REMAIN. STEAM PIPING FROM BELOW TO REMAIN ACTIVE.
8. EXISTING AIR HANDLER TO REMAIN STEAM PIPING FROM BELOW TO REMAIN ACTIVE.

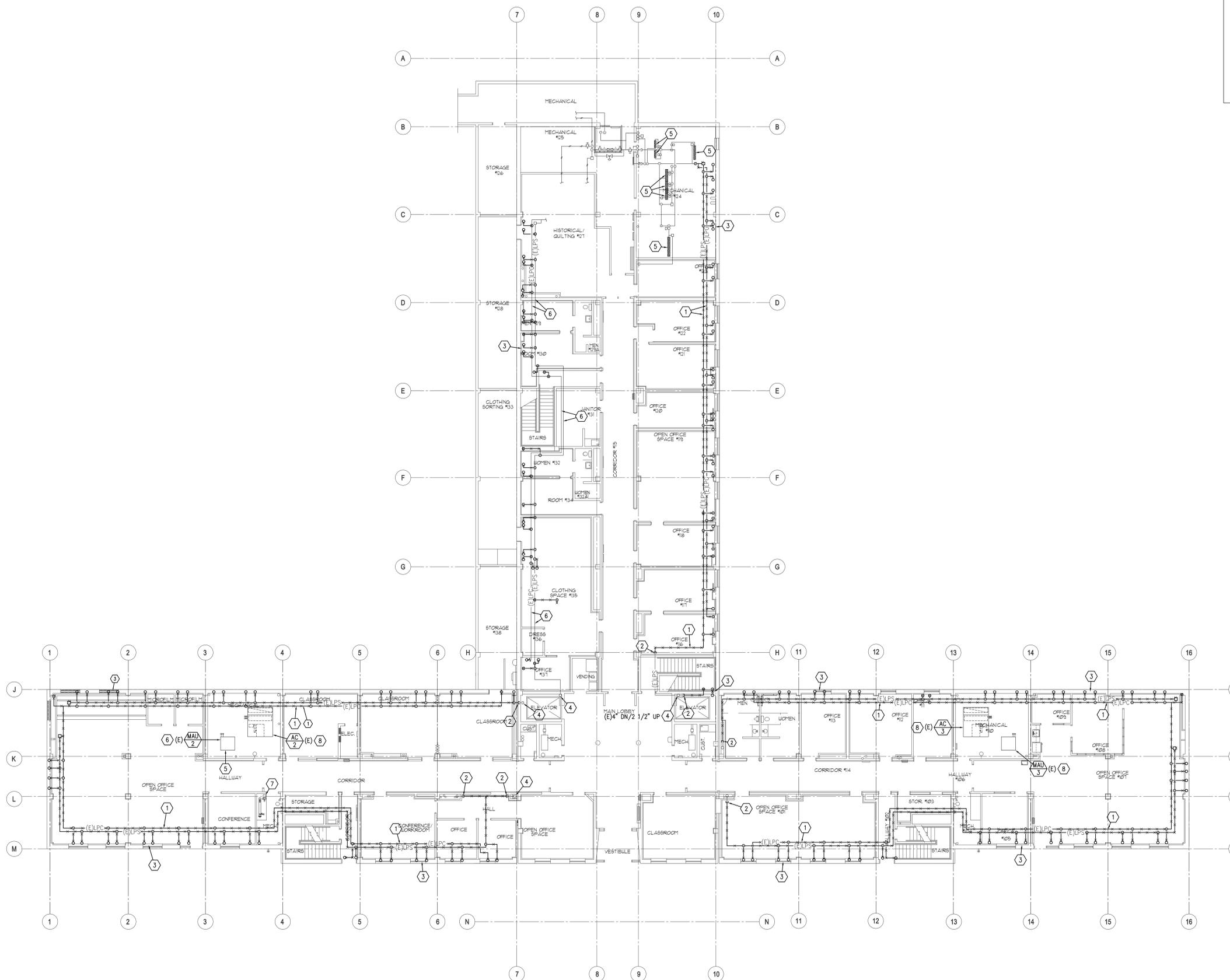
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SHEET CONTENTS
**FIRST FLOOR
 MECHANICAL
 DEMOLITION
 PLAN**

A5 FIRST FLOOR MECHANICAL DEMOLITION PLAN
 MD1.1 SCALE: 3/32"=1'-0"

MD1.1

1

2

3

4

5

6

KEYED NOTES

- 1. REMOVE EXISTING FAN COIL UNIT. SEE SHEET M1.2 FOR NEW FAN COIL UNIT.
- 2. REMOVE EXISTING STEAM CONVECTOR. SEE SHEET M1.2 FOR NEW CONVECTOR.



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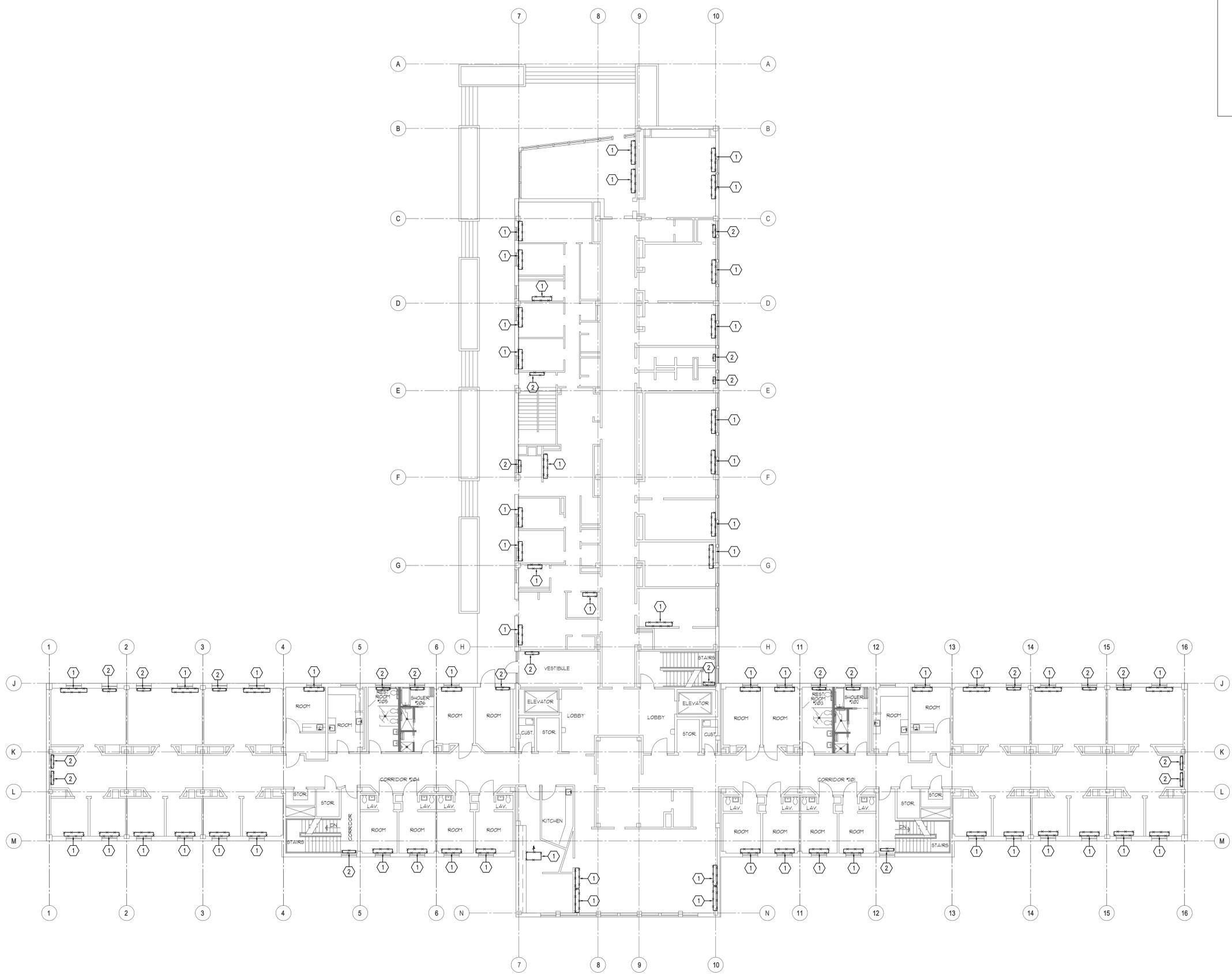
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SHEET CONTENTS
SECOND FLOOR
MECHANICAL
DEMOLITION
PLAN

N
A5 SECOND FLOOR MECHANICAL DEMOLITION PLAN
MD1.2 SCALE: 3/32"=1'-0"
1" 8" 16"
0"

MD1.2

1

2

3

4

5

6

KEYED NOTES

- 1. REMOVE EXISTING ROOFTOP UNIT. SEE SHEET M1.4 FOR NEW ROOFTOP UNIT. EXISTING STRUCTURAL SUPPORT TO REMAIN.
- 2. REMOVE EXISTING STEAM HEATING COILS AND ASSOCIATED STEAM PIPING.
- 3. EXISTING ROOFTOP UNIT TO REMAIN.
- 4. EXISTING FAN COIL UNIT, STEAM CONVECTOR, ETC. TO REMAIN. (ABANDON IN PLACE).



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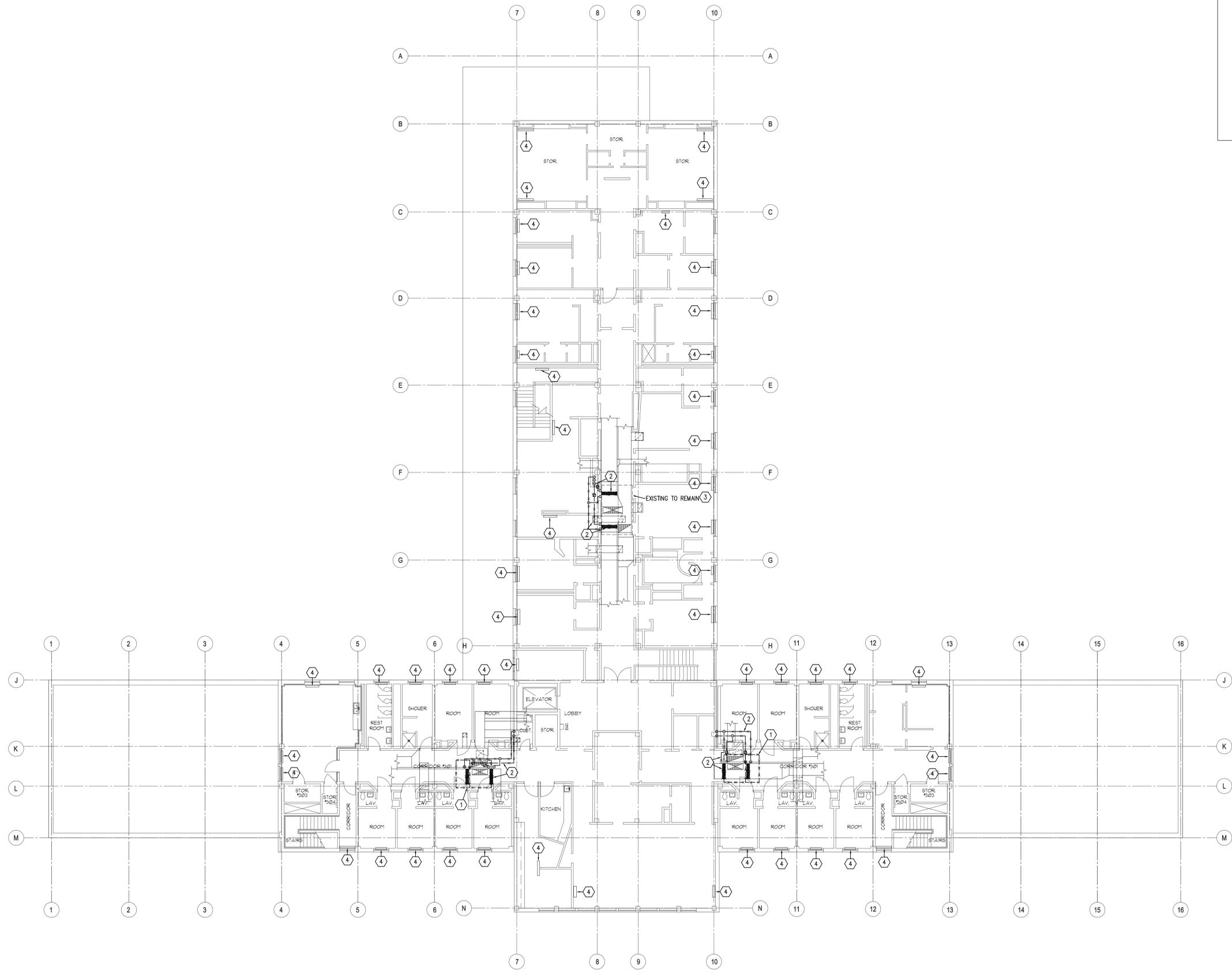
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SHEET CONTENTS
THIRD FLOOR
MECHANICAL
DEMOLITION
PLAN



A5 THIRD FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 3/32"=1'-0"



MD1.3

1

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3

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KEYED NOTES

1. RISE NEW HEATING WATER AND CHILLED WATER BRANCH PIPING AND DRAIN TO NEW FAN COIL UNIT ABOVE.
2. EXISTING PIPING TO REMAIN.
3. CAP EXISTING PIPING TO INACTIVE AND ABANDON PIPING IN PLACE.
4. RISE PIPING UP IN JANITORS CLOSET ABOVE.
5. REPLACE EXISTING CONDENSATE PIPING TO AIR HANDLER ABOVE. REPLACE STEAM TRAPS.
6. REPLACE EXISTING CONDENSATE PIPING TO EXISTING HEAT EXCHANGER ABOVE. REPLACE EXISTING STEAM TRAP.



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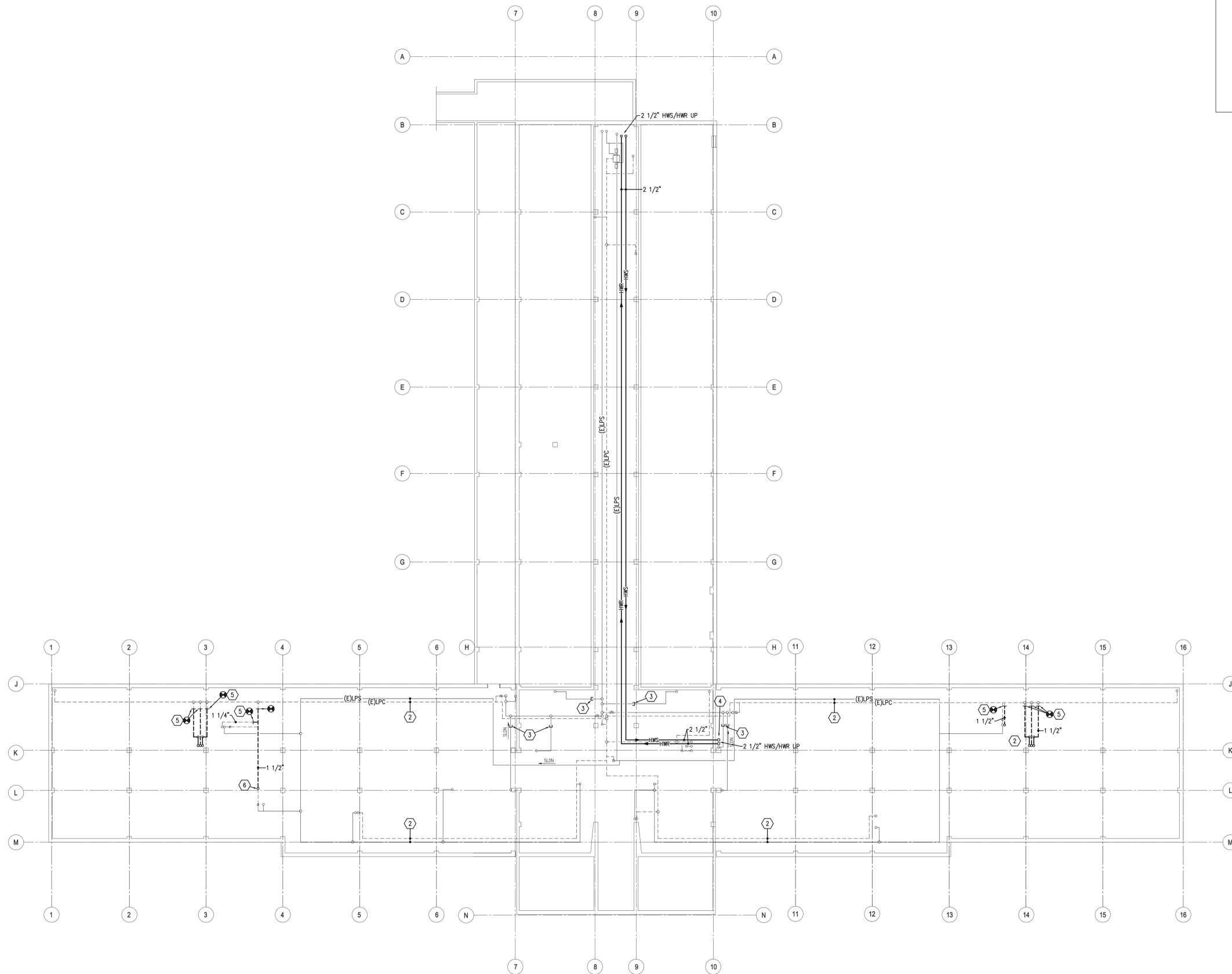
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SHEET CONTENTS
UNDERFLOOR
MECHANICAL
PLAN



A5 UNDERFLOOR MECHANICAL PLAN
M1.0 SCALE: 3/32"=1'-0"



M1.0

1

2

3

4

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6

KEYED NOTES

1. NEW FAN COIL UNIT TO REPLACE EXISTING UNIT. EXTEND AND CONNECT HOT WATER AND CHILLED WATER PIPING FROM MAINS BELOW TO NEW UNIT. SEE DETAILS C4/M5.1 (AS APPLICABLE) AND D4/M5.1 (AS APPLICABLE). TYPICAL OF ALL.
2. NEW HOT WATER CONVECTOR TO REPLACE EXISTING STEAM CONVECTOR. EXTEND AND CONNECT HOT WATER PIPING FROM MAINS BELOW TO NEW CONVECTOR.
3. NEW COOLING ONLY FAN COIL UNIT. EXTEND AND CONNECT NEW CHILLED WATER PIPING FROM MAINS BELOW TO NEW FAN COIL UNIT.
4. ABANDON EXISTING CONVECTOR. CAP EXISTING STEAM AND CONDENSATE PIPING.
5. CONTINUE PIPING UP TO ROOF ABOVE.
6. NEW CEILING TYPE FAN COIL UNIT.
7. EXTEND PIPING FROM FIRST FLOOR CEILING, UP THROUGH SECOND LEVEL, TO THIRD FLOOR. PROVIDE SHEET METAL PARTITION TO COVER PIPING THROUGH 2ND FLOOR. PAINT PARTITION TO MATCH EXISTING.



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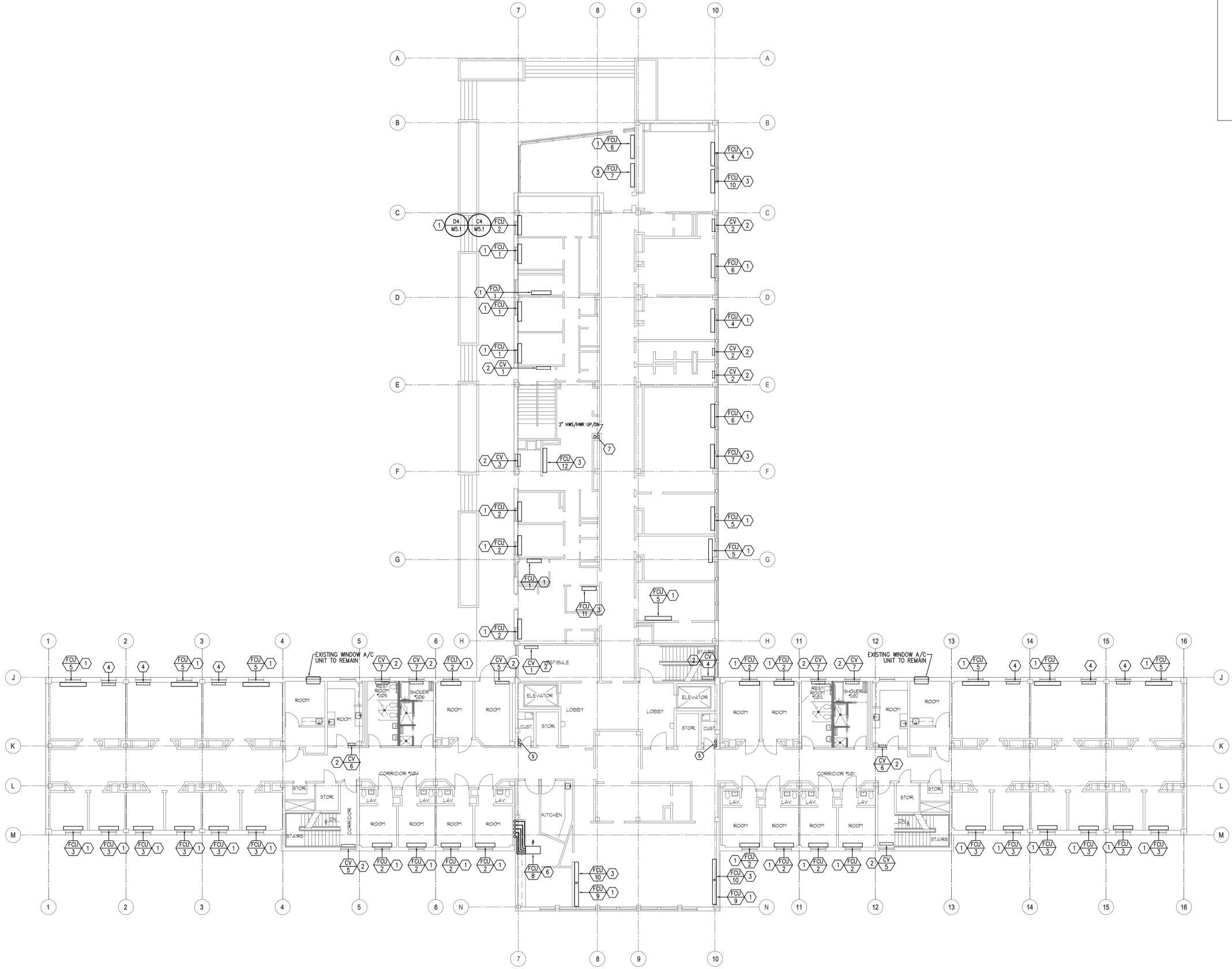
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SECOND FLOOR
MECHANICAL
PLAN

N
A5 SECOND FLOOR MECHANICAL PLAN
M1.2 SCALE: 3/32"=1'-0"
1" 8" 16"
0"

M1.2

1

2

3

4

5

6

KEYED NOTES

- EXISTING ROOFTOP UNIT TO REMAIN.
- NEW ROOFTOP UNIT TO REPLACE EXISTING ROOFTOP UNIT.
- NEW HEATING HOT WATER COIL TO REPLACE EXISTING STEAM COIL.
- RISE NEW HEATING HOT WATER PIPING IN JANITORS CLOSET. LOCATE CONTROL VALVE AND ASSOCIATED COIL PIPING EXPOSED IN JANITOR CLOSET. EXTEND BRANCH PIPING UP THROUGH ROOF TO HEATING COIL IN ROOFTOP UNIT.
- EXISTING FAN COIL UNIT, STEAM CONVECTOR, ETC. TO REMAIN. (ABANDON IN PLACE). TYPICAL OF ALL STEAM EQUIPMENT UNLESS NOTED OTHERWISE.
- PATCH EXISTING DUCTWORK WITH SHEET METAL. DUCTWORK WHERE EXISTING COILS WERE REMOVED.
- TRANSITION AND PATCH EXISTING DUCTWORK TO ACCOMMODATE NEW COILS.
- EXTEND CONDENSATE DRAIN PIPING OUT EXTERIOR WALL.
- RISE PIPING IN CLOSET. EXTEND AND CONNECT PIPING TO NEW REHEAT COILS.



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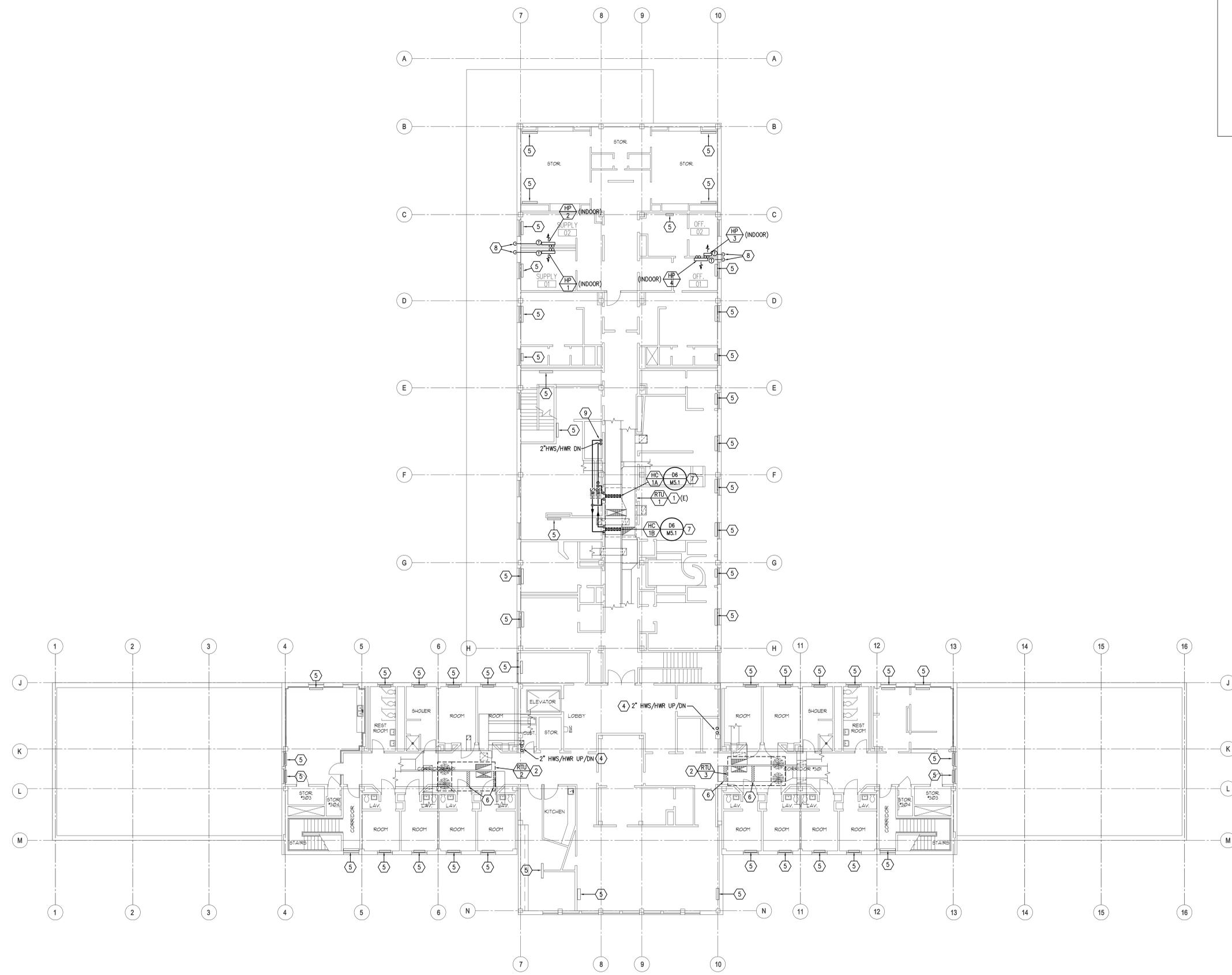
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UTAH STATE HOSPITAL
MS BUILDING STEAM HEATING REPLACEMENT
1300 East Center Street
Provo, Utah

REVISIONS	

VBFA PROJECT #: 07328
CHECKED BY: Sshepherd
DRAWN BY: Ejuarez
CURRENT/BID DATE: 04/11/08

SHEET CONTENTS
THIRD FLOOR
MECHANICAL
PLAN

N
A5 THIRD FLOOR MECHANICAL PLAN
M1.3 SCALE: 3/32"=1'-0"
1" 8" 16"
0"

M1.3

1

2

3

4

5

6

KEYED NOTES

- EXISTING ROOFTOP UNIT TO REMAIN.
- NEW ROOFTOP UNIT TO REPLACE EXISTING ROOFTOP UNIT.
- RISE NEW HEATING HOT WATER PIPING IN JANITORS CLOSET. LOCATE CONTROL VALVE AND ASSOCIATED COIL. PIPING EXPOSED IN JANITOR CLOSET. EXTEND BRANCH PIPING UP THROUGH ROOF TO HEATING COIL IN ROOFTOP UNIT.
- PROVIDE NEW DUCTWORK AND EXTEND, CONNECT AND TRANSITION FROM NEW ROOFTOP UNIT TO EXISTING SUPPLY AND RETURN AIR DUCTWORK. PROVIDE FLEXIBLE DUCT CONNECTOR AT THE SUPPLY AND RETURN DUCT CONNECTIONS OF THE UNITS.
- EXISTING ROOFTOP STRUCTURE TO REMAIN. MOUNT NEW ROOFTOP UNITS TO EXISTING STRUCTURE.
- EXTEND AND CONNECT NEW REFRIGERANT PIPING FROM CONDENSING UNIT, THROUGH EXISTING ROOF TO INDOOR UNIT.



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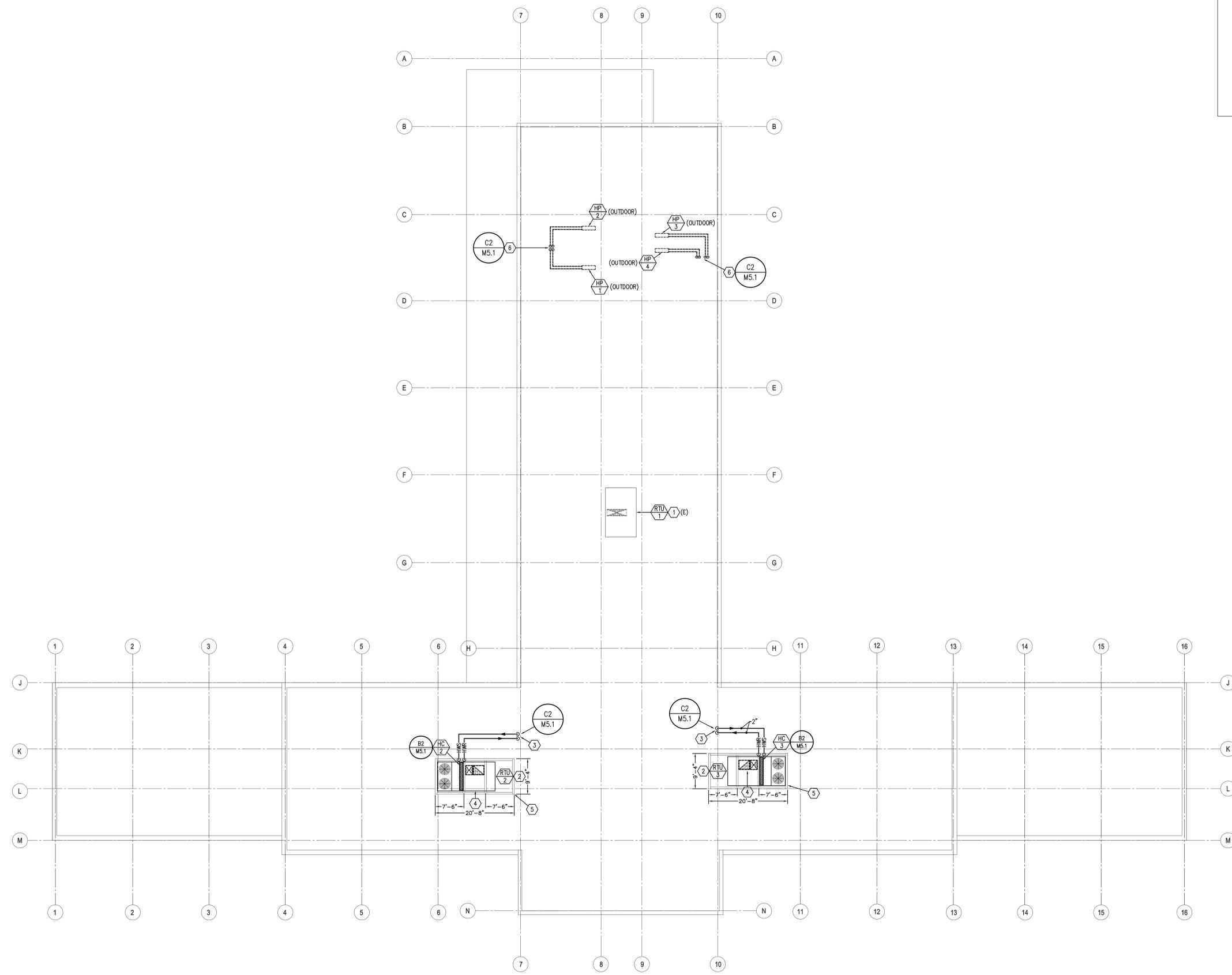
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Provo, Utah

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VBFA PROJECT #: 07328
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SHEET CONTENTS
ROOF
MECHANICAL
PLAN

N
A5 ROOF MECHANICAL PLAN
M1.4 SCALE: 3/32"=1'-0"
1" 8" 16"
0"

M1.4

1

2

3

4

5

6

KEYED NOTES

1. EXTEND AND CONNECT NEW HIGH-PRESSURE STEAM LINE FROM EXISTING MAIN TO NEW HEAT-EXCHANGER.
2. RISE NEW HEATING WATER AND CHILLED WATER PIPING TO NEW FAN COIL UNIT ON 2nd FLOOR (ABOVE).
3. RISE NEW CHILLED WATER PIPING AND DRAIN PIPING TO FAN COIL UNIT ABOVE.
4. DROP PIPING TO UNDER FLOOR LEVEL BELOW. EXTEND AND CONNECT TO EXISTING CONDENSATE BELOW.
5. MOUNT EQUIPMENT ON 4 INCH CONCRETE HOUSEKEEPING PAD.
6. EXISTING STEAM AND COOLING COILS TO REMAIN, TYP. PIPING SERVING COILS TO REMAIN ACTIVE.
7. RISE HEATING WATER PIPING TO CONNECTOR ABOVE.
8. EXISTING STEAM MAIN TO REMAIN ACTIVE TO SERVE EXISTING STEAM COILS IN EXISTING AIR HANDLERS.
9. REPLACE EXISTING STEAM TRAPS AND CONDENSATE BRANCH PIPING ON EACH EXISTING COIL. REPLACE PIPING BACK TO MAIN IN LEVEL BELOW.
10. PROVIDE ISOLATION SHUT-OFF VALVES.
11. CALIBRATED BALANCING VALVE.
12. CORE DRILL HOLES FOR PIPING THRU EXISTING CONCRETE WALL.



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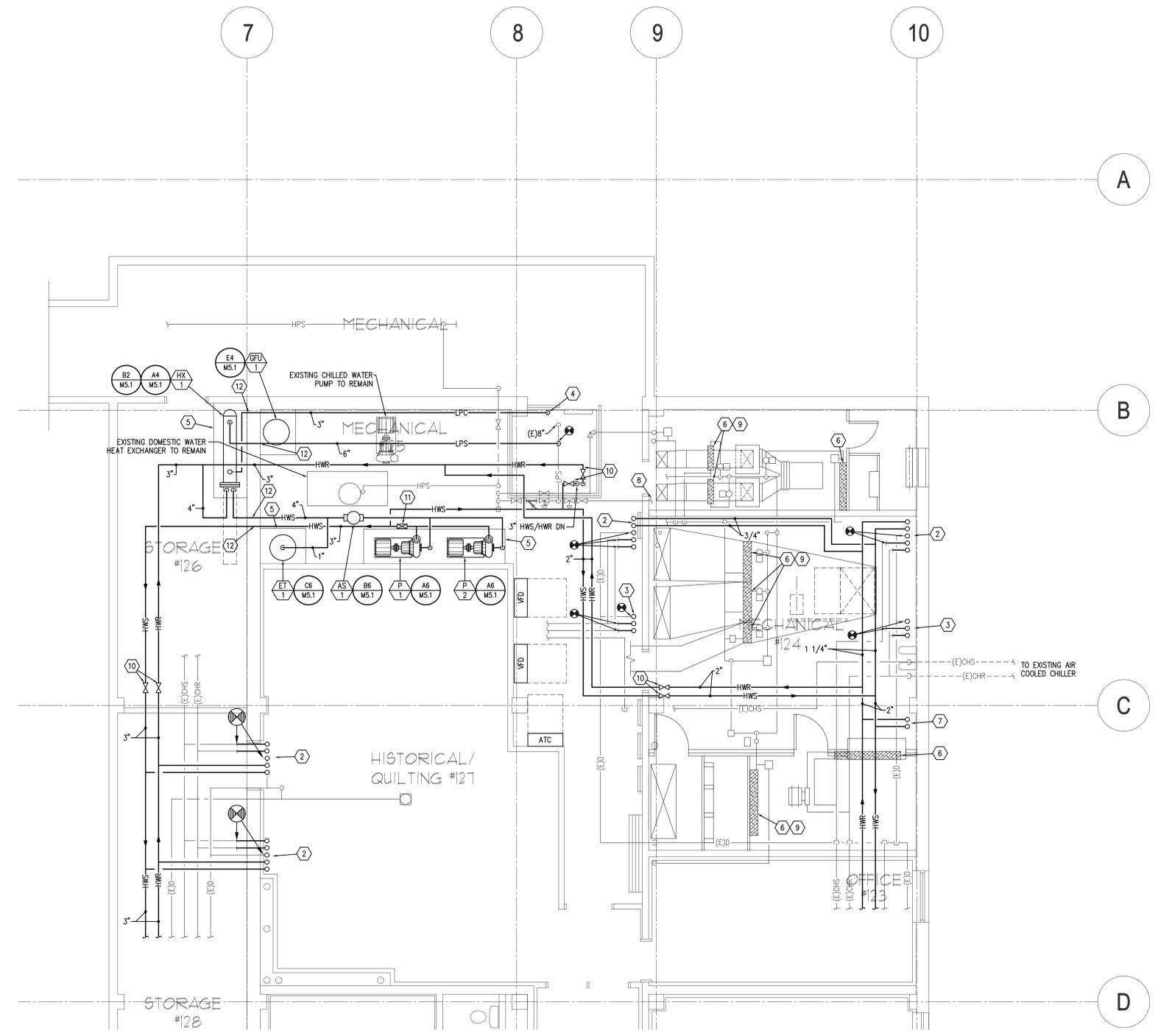
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SHEET CONTENTS
LARGE SCALE
MECHANICAL
ROOM PLAN

N
A5 LARGE SCALE MECHANICAL ROOM PLAN
M4.1 SCALE: 1/4" = 1'-0"
0' 4' 8'

M4.1



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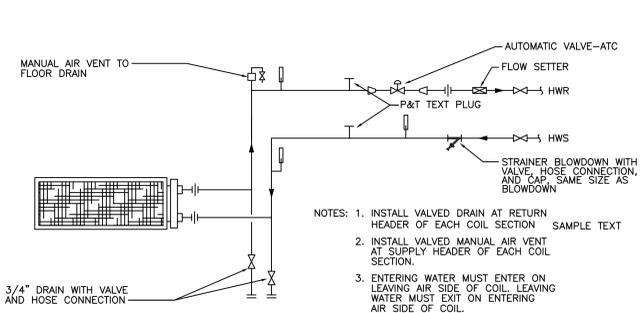
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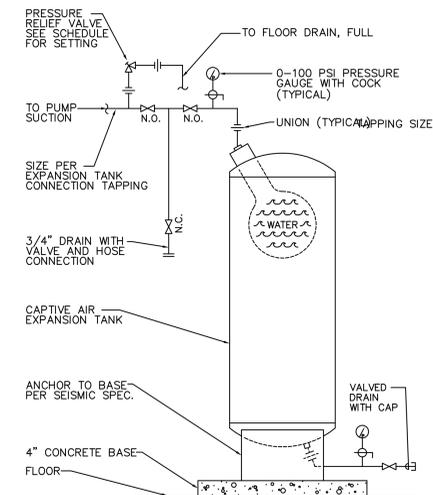
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SHEET CONTENTS MECHANICAL DETAILS

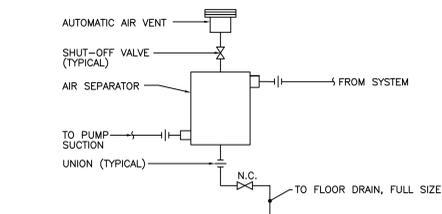
M5.1



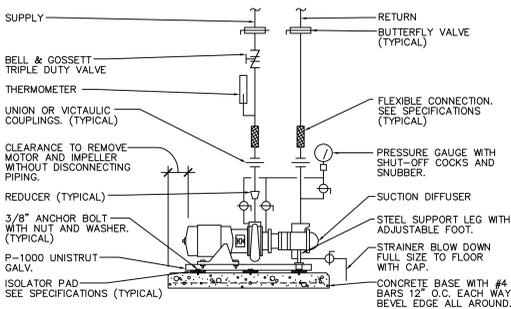
D6 PREHEAT COIL PIPING SCHEMATIC M5.1 NO SCALE



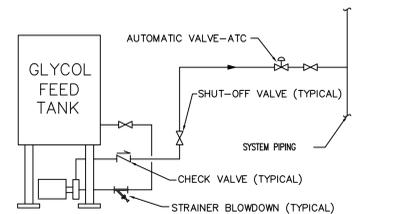
C6 EXPANSION TANK DETAIL M5.1 NO SCALE



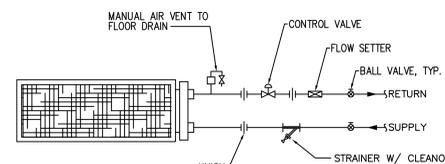
B6 AIR SEPARATOR DETAIL M5.1 NO SCALE



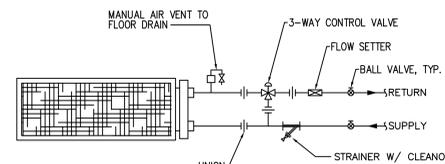
A6 PUMP CONNECTION DETAIL M5.1 NO SCALE



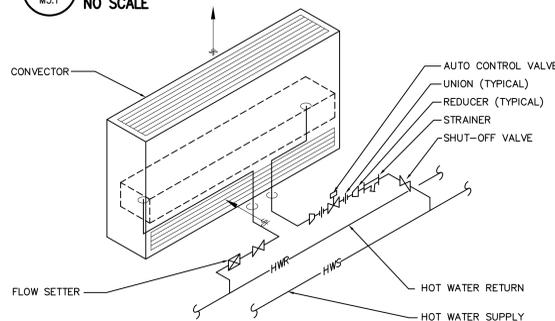
E4 GLYCOL FEED UNIT DETAIL M5.1 NO SCALE



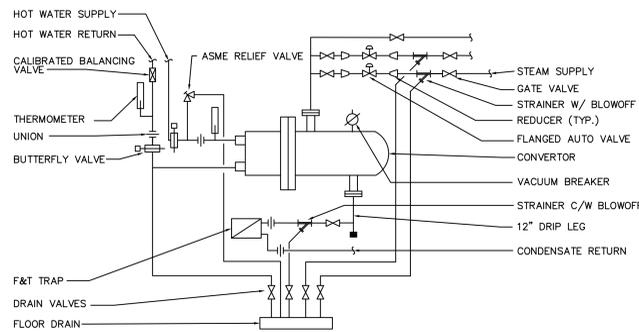
D4 FAN COIL HEATING VALVE PACKAGE DETAIL M5.1 NO SCALE



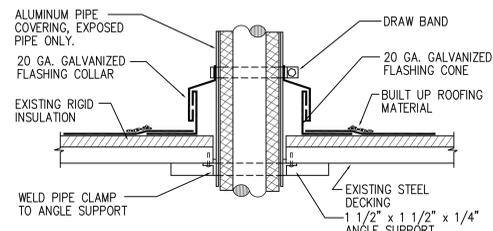
C4 FAN COIL COOLING VALVE PACKAGE DETAIL M5.1 NO SCALE



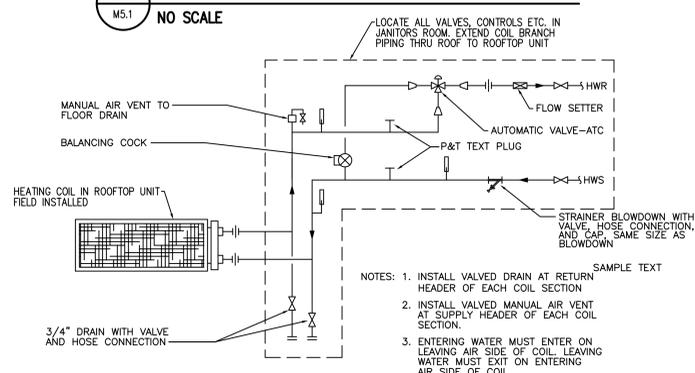
B4 HOT WATER CONVECTOR DETAIL M5.1 NO SCALE



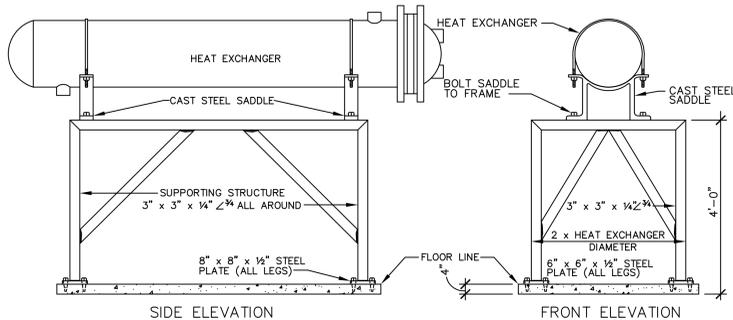
A4 STEAM TO HOT WATER CONVERTER PIPING DETAIL M5.1 NO SCALE



C2 PIPE PENETRATION AT ROOF M5.1 NO SCALE



B2 PREHEAT COIL PIPING SCHEMATIC M5.1 NO SCALE



A2 HEAT EXCHANGER SUPPORT DETAIL M5.1 NO SCALE

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SPLIT SYSTEM HEAT PUMP																	
ID	MANUFACTURER	LOCATION	COOLING CAPACITY (BTUH)	HEAT PUMP CAPACITY (BTUH)	INDOOR UNIT					OUTDOOR UNIT					PIPING		NOTES
					MODEL	MOUNTING TYPE	AIRFLOW (CFM)	MCA (AMPS)	VOLT/PH/Hz	MAX DIMENSIONS (W/D/H)	MODEL	WEIGHT (LB)	MCA (AMPS)	VOLT/PH/Hz	LIQUID (IN)	GAS (IN)	
HP-1	MITSUBISHI	SUPPLY 01	8,800	10,500	MSH09NW	WALL	285	0.5	115/1/60	33/8/11	MUH09NW	80	16	115/1/60	1/4	3/8	1,2,3
HP-2	MITSUBISHI	SUPPLY 02	8,800	10,500	MSH09NW	WALL	285	0.5	115/1/60	33/8/11	MUH09NW	80	16	115/1/60	1/4	3/8	1,2,3
HP-3	MITSUBISHI	OFFICE 02	8,800	10,500	MSH09NW	WALL	285	0.5	115/1/60	33/8/11	MUH09NW	80	16	115/1/60	1/4	3/8	1,2,3
HP-4	MITSUBISHI	OFFICE 01	8,800	10,500	MSH09NW	WALL	285	0.5	115/1/60	33/8/11	MUH09NW	80	16	115/1/60	1/4	3/8	1,2,3

- UNIT WITH CONDENSATE PUMP, PIPE TO NEAREST FLOOR DRAIN
- AIRFLOW BASED ON MEDIUM SPEED
- HEATING CAPACITY BASED ON 70 DEG F EAT; 47 DEG OUTDOOR AMBIENT TEMPERATURE

CONVECTOR SCHEDULE															
ID	MANUFACTURER	MODEL	LOCATION	USAGE	HEATING			FLUID			PHYSICAL				NOTES
					HEATING CAPACITY (BTUH)	ENTERING TEMP. DB (°F)	FLOW RATE (GPM)	ENTERING/LEAVING TEMP. (°F)	WORKING FLUID	HEIGHT (IN)	DEPTH (IN)	LENGTH (IN)	BRANCH PIPING SIZE (IN)		
CV-1	BEACON MORRIS	FSG-A 632	SEE PLANS	HEATING	10200	65	1.5	180/160	40% PG	32	6	60	3/4	1	
CV-2	BEACON MORRIS	FSG-A 624	SEE PLANS	HEATING	3800	65	0.5	180/160	40% PG	24	6	28	3/4	1	
CV-3	BEACON MORRIS	FSG-A 632	SEE PLANS	HEATING	6600	65	1.0	180/160	40% PG	32	6	40	3/4	1	
CV-4	BEACON MORRIS	FSG-A 632	SEE PLANS	HEATING	7600	65	1.0	180/160	40% PG	32	8	40	3/4	1	
CV-5	BEACON MORRIS	FSG-A 632	SEE PLANS	HEATING	8000	65	1.0	180/160	40% PG	32	6	48	3/4	1	
CV-6	BEACON MORRIS	FSG-A 632	SEE PLANS	HEATING	5100	65	1.0	180/160	40% PG	32	6	32	3/4	1	
CV-7	BEACON MORRIS	FWG-A 632	SEE PLANS	HEATING	8300	65	1.0	180/160	40% PG	32	6	48	3/4	2	
CV-8	BEACON MORRIS	FWG-A 632	SEE PLANS	HEATING	8300	65	1.0	180/160	40% PG	32	6	48	3/4	2	
CV-9	BEACON MORRIS	FWG-A 632	SEE PLANS	HEATING	8300	65	1.0	180/160	40% PG	32	6	48	3/4	2	

- FREE STANDING, FRONT STAMPED DISCHARGE GRILLE, FRONT STAMPED INTAKE GRILLE.
- FULLY RECESSED, FRONT STAMPED DISCHARGE GRILLE, FRONT STAMPED INTAKE GRILLE.

STEAM-TO-HYDRONIC HEAT EXCHANGER SCHEDULE														
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	USAGE	LOAD (BTUH)	SOURCE MEDIUM (STEAM)			TRANSFER MEDIUM (HYDRONIC)			PHYSICAL		NOTES
						FLOW RATE (LB/H)	ENTERING PRESSURE (PSIG)	FLOW RATE (GPM)	ENTERING/LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	DIA/LENGTH (IN/IN)	SURFACE AREA (FT²)	
HX-1	BELL & GOSSETT SU10 5-2	MECH RM	NOTE 1	HEATING	2359717	2442	2	246	159.5/180	40% PG	2.2	10/12	71.2	1

- SHELL AND TUBE HEAT EXCHANGER

AIR SEPARATOR SCHEDULE													
ID	MANUFACTURER	MODEL	LOCATION	STRAINER	FLUID			PHYSICAL		NOTES			
					FLOW RATE (GPM)	WORKING FLUID	HEAD LOSS (FT)	DIA/HEIGHT (IN)					
AS-1	BELL & GOSSETT	RL-4	HEATING SYSTEM	NONE	246	40% PG	2.0	12/32					

EXPANSION TANK SCHEDULE													
ID	MANUFACTURER	MODEL	LOCATION	TYPE	FLUID		PHYSICAL					NOTES	
					WORKING FLUID	MIN. TANK ACCEPTANCE (GAL)	TANK SIZE (GAL)	RELIEF VALVE (PSIG)	DIA/HEIGHT (IN)	NPT FITTING (IN)			
ET-1	BELL & GOSSETT	B-400	MECH RM	NOTE 1	40% PG	105	60	24/66	1				

- VERTICAL BLADDER TYPE EXPANSION TANK.

PACKAGED ROOFTOP UNIT SCHEDULE															
ID	MANUFACTURER	MODEL	LOCATION	SUPPLY FAN		HEATING SECTION			COOLING SECTION			ELECTRICAL		NOTES	
				AIRFLOW RATE (CFM)	EXTERNAL STATIC PRESSURE (IN. WATER)	HEATING COIL (SEE SCHEDULE)	GROSS COOLING CAPACITY (BTUH)	SENS COOLING CAPACITY (BTUH)	ENTERING AIR TEMP. DBWB (°F)	LEAVING AIR TEMP. DBWB (°F)	AMBIENT AIR TEMP. DB (°F)	MIN OUTSIDE AIR (CFM)	TOTAL MCA		SUPPLY FAN MOTOR (HP)
(E)RTU-1	EXISTING		ROOF	8000		HC-1A, HC-1B							800		
RTU-2	YORK	ZJ180	ROOF	6000	1.0	HC-1	171,000	158,000	80/62	51.7	95	600	96.5	5	208/3/60
RTU-3	YORK	ZJ180	ROOF	6000	1.0	HC-2	171,000	158,000	80/62	51.7	95	600	96.5	5	208/3/60

- CAPACITIES BASED ON 4200 FEET ELEVATION.
- 100% OUTSIDE AIR ECONOMIZER AND POWER EXHAUST
- FACTORY INSTALLED CONVENIENCE OUTLET (POWERED)
- FACTORY PROVIDED, FIELD INSTALLED HOT WATER HEATING COIL WITHIN THE UNIT. SEE COIL SCHEDULE.
- ROOFTOP UNIT, (E) RTU-1 IS AN EXISTING ROOFTOP UNIT TO REMAIN. HEATING COILS SHALL BE INSTALLED IN DUCTS BELOW ROOF. FOR INFORMATION ONLY.
- PROVIDE AND FACTORY INSTALL A SMOKE DETECTOR TO SHUT DOWN UNIT ON DETECTION OF SMOKE.

COIL SCHEDULE																		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	USAGE	AIR			FLUID					PHYSICAL			NOTES			
				AIRFLOW RATE (CFM)	LOAD (BTUH)	SENSIBLE LOAD (BTUH)	ENTERING TEMP. DBWB (°F)	LEAVING TEMP. DBWB (°F)	AIR PRESSURE DROP (IN. WATER)	FLOW RATE (GPM)	ENTERING/LEAVING TEMP. (°F)	WORKING FLUID	WATER PRESS DROP (FT)	NO. COILS		EACH COIL FIN WIDTH/HEIGHT (IN)	TOTAL MINIMUM FACE AREA (FT²)	MINIMUM NO. ROWS/INCH
HC-1A	5WC-6-24X48X2-6 AL	RTU-1	HEATING	4,300	176,149	176,149	60	103.7	0.12	18	180/158.8	40% PG	6.17	1	48/24	8.00	2/6	2
HC-1B	5WC-6-24X48X2-6 AL	RTU-1	HEATING	4,300	176,149	176,149	60	103.7	0.12	18	180/158.8	40% PG	6.17	1	48/24	8.00	2/6	2
HC-2	5WC-4-36X60X2-6 AL	RTU-2	HEATING	6,000	289,423	289,423	60	114.5	0.05	32	180/160.4	40% PG	5.97	1	69/36	17.25	2/6	1
HC-3	5WC-4-36X60X2-6 AL	RTU-3	HEATING	6,000	289,423	289,423	60	114.5	0.05	32	180/160.4	40% PG	5.97	1	69/36	17.25	2/6	1

- COIL FIELD INSTALLED IN ROOFTOP UNIT.
- FIELD INSTALLED DUCT MOUNTED COIL.

FAN COIL SCHEDULE															
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FAN		COIL 1		COIL 2		ELECTRICAL			PHYSICAL		NOTES
				MINIMUM AIRFLOW RATE (CFM)	EXTERNAL STATIC PRESSURE (IN. WATER)	MEDIUM	MEDIUM	TOTAL FLA	TOTAL MCA	TOTAL MOP	VOLT/PH/Hz	LENGTH/WIDTH/HEIGHT (IN)			
FC-1	WILLIAMS LVS-002	SEE PLANS	NOTE 2	200	0.0	HW	CW	0.8	1.00	1.80	120/160	40/11.25/30	40/11.25/30	1, 2, 3, 4, 5, 7	
FC-2	WILLIAMS LVS-004	SEE PLANS	NOTE 2	300	0.0	HW	CW	1.0	1.25	2.25	120/160	40/11.25/30	40/11.25/30	1, 2, 3, 4, 5, 7	
FC-3	WILLIAMS LVS-006	SEE PLANS	NOTE 2	400	0.0	HW	CW	1.3	1.63	2.93	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 7	
FC-4	WILLIAMS LVS-008	SEE PLANS	NOTE 2	600	0.0	HW	CW	2.3	2.88	5.18	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 7	
FC-5	WILLIAMS LVS-010	SEE PLANS	NOTE 2	700	0.0	HW	CW	2.5	3.13	5.63	120/160	63/12/34	63/12/34	1, 2, 3, 4, 5, 7	
FC-6	WILLIAMS LVS-012	SEE PLANS	NOTE 2	900	0.0	HW	CW	3.0	3.75	6.75	120/160	63/12/34	63/12/34	1, 2, 3, 4, 5, 7	
FC-7	WILLIAMS LVS-012	SEE PLANS	NOTE 2	900	0.0	NONE	CW	3.0	3.75	6.75	120/160	63/12/34	63/12/34	1, 2, 3, 4, 5, 7	
FC-8	WILLIAMS LH-006	SEE PLANS	NOTE 6	600	0.0	HW	CW	2.3	2.88	5.18	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 6, 7	
FC-9	WILLIAMS LVS-008	SEE PLANS	NOTE 2	600	0.0	HW	CW	2.3	2.88	5.18	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 7	
FC-10	WILLIAMS LVS-008	SEE PLANS	NOTE 2	600	0.0	NONE	CW	2.3	2.88	5.18	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 7	
FC-11	WILLIAMS LVS-002	SEE PLANS	NOTE 2	200	0.0	NONE	CW	0.8	1.00	1.80	120/160	40/11.25/30	40/11.25/30	1, 2, 3, 4, 5, 7	
FC-12	WILLIAMS LVS-006	SEE PLANS	NOTE 2	400	0.0	NONE	CW	1.3	1.63	2.93	120/160	57/11.25/30	57/11.25/30	1, 2, 3, 4, 5, 7	

- CAPACITIES RATED AT 4500 FEET ELEVATION
- VERTICAL FLOOR EXPOSED SLOPED FAN COIL UNIT, TOP STAMPED SUPPLY, FRONT STAMPED RETURN. UNIT SHALL CONSIST OF CABINET, FAN, FILTER, HEATING AND COOLING COILS, AND HEATING AND COOLING VALVE PACKAGES.
- INTEGRAL COOLING AND HEATING VALVE PACKAGE CONSISTING OF MODULATING CONTROL VALVE, STRAINER, SUPPLY AND RETURN ISOLATION VALVES (BALL VALVES), WATER FLOW BALANCING VALVE AND COIL CONNECTION UNIONS.
- CABINET SHALL BE SIZED FOR INTEGRAL VALVE PACKAGES. PROVIDE MINIMUM CABINET SIZES INDICATED.
- AIRFLOW BASED ON MEDIUM SPEED
- HORIZONTAL CEILING CABINET, EXPOSED CEILING MOUNT, STAMPED RETURN AIR GRILLE, SUPPLY GRILLE, HINGED BOTTOM ACCESS PANEL WITH FILTER.

FAN COIL, COIL SCHEDULE														
ID	COIL #	USE TYPE	AIR			HYDRONIC					PHYSICAL			NOTES
			AIRFLOW RATE (CFM)	LOAD (BTUH)	SENSIBLE LOAD (BTUH)	ENTERING TEMP. DBWB (°F)	LEAVING TEMP. DBWB (°F)	FLOW RATE (GPM)	ENTERING/LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	MIN NUMBER ROWS	BRANCH PIPING SIZE (IN)	
FC-1	1	HEATING	200	11737	11737	65	120.5	1.2	180/160	40% PG	0.8	1	3/4	1
	2	COOLING	200	3560	3560	70/60	53/53	0.7	45/55	WATER	0.5	4	3/4	
FC-2	1	HEATING	300	16322	16322	65	122.2	1.6	180/160	40% PG	1.6	1	3/4	1
	2	COOLING	300	4571	4571	70/60	53.9/53.7	0.9	45/55	WATER	0.4	4	3/4	
FC-3	1	HEATING	400	24667	24667	65	124.2	2.5	180/160	40% PG	3.5	1	3/4	1
	2	COOLING	400	9136	7742	70/60	51.3/51.3	1.8	45/55	WATER	2.9	4	3/4	
FC-4	1	HEATING	600	33936	33936	65	124.3	3.4	180/160	40% PG	6.3	1	3/4	1
	2	COOLING	600	13020	10845	70/60	50.9/50.9	2.8	45/55	WATER	5.5	4	3/4	
FC-5	1	HEATING	700	38626	38626	65	119.9	3.8	180/160	40% PG	1.4	1	3/4	1
	2	COOLING	700	12623	11892	70/60	52.9/52.9	2.5	45/55	WATER	1.2	4	3/4	
FC-6	1	HEATING	900	48470	48470	65	122.5/2.2	4.8	180/160	40% PG	2.3	1	1	1
	2	COOLING	900	17369	15517	70/60	52.2/52.2	3.5	45/55	WATER	2.2	4	3/4	
FC-7	NA	HEATING	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
	2	COOLING	900	17458	15598	70/60	52.2/52.2	3.5	45/55	WATER	2.2	4	3/4	
FC-8	1	HEATING	600	18000	18000	65	110	2	180/160	40% PG	2.3	1	1	1
	2	COOLING	600	11800	11300	70/60	52.2/52.2	2.4	45/55	WATER	1.9	4	3/4	
FC-9	1	HEATING	600	33936	33936	65	124.3	3.4	180/160	40% PG	6.3	1	3/4	1
	2	COOLING	600	13020	10845	70/60	50.9/50.9	2.8	45/55	WATER	5.5	4	3/4	
FC-10	NA	HEATING	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
	2	COOLING	600	13104	10919	70/60	50.9/50.9	2.8	45/55	WATER	5.6	4	3/4	
FC-11	NA	HEATING	NA	NA	NA									



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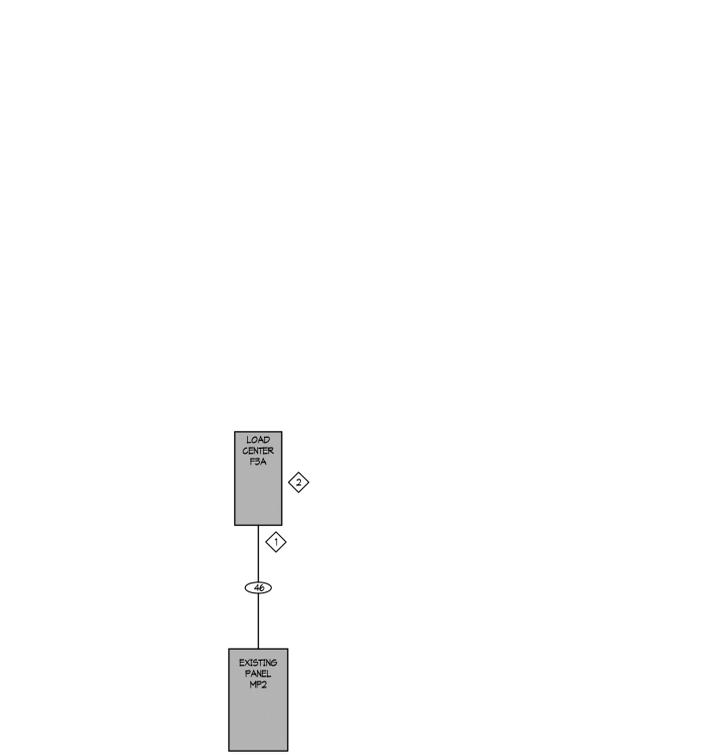
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GENERAL NOTES
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E0.0

PANEL		VOLTAGE		MOUNTING		FEED		MAINS		DISB.		SPECIAL EQUIPMENT	
FSA		208Y/120		SURFACE		TOP		125 AMP		14.25" H		X GROUND BUS X SUB-FEED BRKR X NEMA 3R X SURGE PROTECTOR	
TYPE		PHASE 3 WIRES 4		FLUSH		TOP		LUGS		3.25" D			
LOCATION		AIC 10000 AMPS		X SURFACE		X BOTTOM		BREAKER		18" H			
CIR NO	CIRCUIT DESCRIPTION	CODE	OUTLET SIZE	BRKR SIZE	WIRE SIZE	CIRCUIT LOAD	COMBINED PHASES	CIRCUIT LOAD	WIRE SIZE	BRKR SIZE	OUTLET SIZE	CIRCUIT DESCRIPTION	CIR NO
1	HP-12,3,4 INDR		1 1/2	15	12	2640	A B C	1920	12	20	1 1/2	HP-3 OUTDOOR	2
3	HP-1 OUTDOOR		1 1/2	20	12	3840		1920	12	20	1 1/2	HP-4 OUTDOOR	4
5	HP-2 OUTDOOR		1 1/2	20	12	1920		1920	12	20	1 1/2	ROOF	6
7	SFAC											SFAC	8
9	SFAC											SFAC	10
11	SFAC											SFAC	12
NOTE:													

PANEL		VOLTAGE		MOUNTING		FEED		MAINS		DISB.		SPECIAL EQUIPMENT	
MP2		208Y/120		SURFACE		TOP		800 AMP		14.25" H		X GROUND BUS X SUB-FEED BRKR X NEMA 3R X SURGE PROTECTOR	
TYPE		PHASE 3 WIRES 4		FLUSH		TOP		LUGS		3.25" D			
LOCATION		AIC 10000 AMPS		X SURFACE		X BOTTOM		BREAKER		18" H			
CIR NO	CIRCUIT DESCRIPTION	CODE	OUTLET SIZE	BRKR SIZE	WIRE SIZE	CIRCUIT LOAD	COMBINED PHASES	CIRCUIT LOAD	WIRE SIZE	BRKR SIZE	OUTLET SIZE	CIRCUIT DESCRIPTION	CIR NO
1							A B C	11760	11760	110	3	PUMP P-1	4
3								11760	11760	110	3	PUMP P-2	10
5								11760	11760	110	3	PUMP P-2	12
7								11760	11760	110	3	PUMP P-2	14
9								11760	11760	110	3	PUMP P-2	16
11								11760	11760	110	3	PUMP P-2	18
13								11760	11760	110	3	PUMP P-2	20
15								11760	11760	110	3	PUMP P-2	22
17								11760	11760	110	3	PUMP P-2	24
19								11760	11760	110	3	PUMP P-2	26
21								11760	11760	110	3	PUMP P-2	28
23								11760	11760	110	3	PUMP P-2	30
25								11760	11760	110	3	PUMP P-2	32
27								11760	11760	110	3	PUMP P-2	34
29								11760	11760	110	3	PUMP P-2	36
31								11760	11760	110	3	PUMP P-2	38
33								11760	11760	110	3	PUMP P-2	40
35								11760	11760	110	3	PUMP P-2	42
37								11760	11760	110	3	PUMP P-2	44
39								11760	11760	110	3	PUMP P-2	46
41								11760	11760	110	3	PUMP P-2	48
NOTE:													
(A) EC SHALL MATCH THE AIC RATING OF EXISTING BREAKERS ON NEW BREAKERS													



POWER RISER DIAGRAM
SCALE: NONE

SYMBOL	DEVICE/FIXTURE DESCRIPTION	CATALOG NUMBER	MOUNTING	COMMENTS
⊕	DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE	HUBBELL 95621	18"	(6)
⊕	DUPLEX CONVENIENCE OUTLET - GFI	HUBBELL GF9552-1A	18"	(6)
⊕	JUNCTION BOX	4" x 4" SEE SPEC.	CEILING	(12)
■	PANEL BOARD	SEE PANEL SCHEDULE	6'-6" TO TOP	
■	FUSED DISCONNECT SWITCH	SQUARE D, GENERAL DUTY	5' - 0"	(8) (13)

WIRING IN CAD IN CEILING OR WALL		WIRING IN CAD IN GROUND OR FLOOR	
○	CONDUIT TURNED UP	●	CONDUIT TURNED DOWN
CIRCUIT HOME RUN TO PANEL. 3 CONDUCTORS INCLUDING THE EQUIPMENT GROUND CONDUCTOR.			
CIRCUIT HOME RUN TO PANEL. NUMBER OF ARROW HEADS INDICATE NUMBER OF CIRCUITS. SLASH MARKS INDICATE NUMBER OF CONDUCTORS. EX. TWO CIRCUITS FOUR CONDUCTORS COMMON NEUTRAL AND THREE CIRCUITS WITH 1 CONDUCTORS (SEPARATE NEUTRAL PER CIRCUIT). BOTH EX. INCLUDE AN EQUIP. GROUND.			

MECHANICAL EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECTRICAL					REMARKS
		V/PH	MCA	MOCP	LMHP	DISCONNECT SIZE/POLE	
HP-1	INDOOR UNIT	115/1	0.5	15			(8)
HP-2	INDOOR UNIT	115/1	0.5	15			(8)
HP-3	INDOOR UNIT	115/1	0.5	15			(8)
HP-4	INDOOR UNIT	115/1	0.5	15			(8)
HP-1	OUTDOOR UNIT	115/1	16.0	20	30A/3P	20	(112)
HP-2	OUTDOOR UNIT	115/1	16.0	20	30A/3P	20	(112)
HP-3	OUTDOOR UNIT	115/1	16.0	20	30A/3P	20	(112)
HP-4	OUTDOOR UNIT	115/1	16.0	20	30A/3P	20	(112)
RTU-2	ROOFTOP UNIT	208/3	46.5				(415)
RTU-3	ROOFTOP UNIT	208/3	46.5				(415)
FC-1	FAN COIL UNIT	120/1	1.00				(6)
FC-2	FAN COIL UNIT	120/1	1.25				(6)
FC-3	FAN COIL UNIT	120/1	1.63				(6)
FC-4	FAN COIL UNIT	120/1	2.88				(6)
FC-5	FAN COIL UNIT	120/1	3.15				(6)
FC-6	FAN COIL UNIT	120/1	3.75				(6)
FC-7	FAN COIL UNIT	120/1	3.75				(6)
FC-8	FAN COIL UNIT	120/1	1.63				(6)
FC-9	FAN COIL UNIT	120/1	2.88				(6)
FC-10	FAN COIL UNIT	120/1	2.88				(6)
FC-11	FAN COIL UNIT	120/1	1.00				(6)
FC-12	FAN COIL UNIT	120/1	1.63				(6)
GFU	INJECTION PUMP	120/1	1.2	15			(8)
P-1		208/3	49.0	110	15		(7)
P-2		208/3	49.0	110	15		(7)

V/PH/N = VOLTAGE / PHASE / HERTZ
MCA = MINIMUM CIRCUIT AMPACITY
MOCP = MAXIMUM OVER CURRENT PROTECTION LISTED BY THE MANUFACTURER
LMHP = LARGEST MOTOR HORSE POWER

NOTES:
(1) PROVIDE MAXIMUM SIZED FUSES AS LISTED BY THE MANUFACTURER.
(2) PROVIDE NEMASR DISCONNECT ON THE UNIT IF ALLOWED BY THE MG OTHERWISE PROVIDE A UNISTRUT RACK TO SUPPORT THE DISCONNECT SEPARATELY FROM THE UNIT.
(3) UNIT IS GROUND AND PLUG CONNECTED. PROVIDE RECEPTACLE ON THE WALL CENTERED NEXT TO THE UNIT. CONFIRM INSTALLATION LOCATION AND HEIGHT WITH MG.
(4) DISCONNECT IS EXISTING TO BE REUSED IF CONDITION IS ACCEPTABLE.
(5) FEEDER TO DISCONNECT FROM PANEL TO BE REUSED. CONFIRM IT IS SIZED PROPERLY FOR THE UNIT.
(6) EC SHALL DISCONNECT EXISTING UNIT AND CONNECT POWER TO NEW UNIT.
(7) PUMP CONTROLLED BY VFD. EC SHALL MAKE CONNECTION TO VFD AND TO PUMP.
(8) GROUND AND PLUG CONNECTED. PROVIDE CONNECTION AS REQUIRED BY THE UNIT.

SERVICE LOAD CALCULATIONS				
DESCRIPTION	LOAD	DEMAND	NEW LOAD	AMPS
CONTINUOUS	1800	1.25	2250	
NON-CONTINUOUS	8400	1	8400	
RECEPTACLES	180	1	180	
LARGEST MOTOR	35504	1.25	44380	
MOTORS	36168	1	36168	
NEW LOAD			41128 + 258.0	

KEY NOTES

- EC SHALL INSTALL THE FEEDER CONDUIT SURFACE MOUNTED TO THE HALLWAY WALLS. REQUIRED TO INSTALL IT BETWEEN PANELBOARD MP2 AND LOAD CENTER FSA.
- EC SHALL INSTALL THE LOAD CENTER FSA ON THE WALL. CONFIRM THE LOCATION FOR THE LOAD CENTER WITH THE OWNER PRIOR TO ROUGH-IN.

CONDUIT/CONDUCTOR SCHEDULE					
MARK	AMPS	CONDUIT CABLE	CONDUCTOR SIZE	INSUL.	REMARKS
③	65	1"	3	6	(1) (2)
③	100	1 1/4"	3	3	(1) (2)
③	65	1"	4	6	(1) (2)

GENERAL NOTES

- THE ELECTRICAL SYSTEMS DEFINED BY THESE PLANS AND SPECIFICATIONS ARE TO BE CONSTRUCTED AS COMPLETE AND OPERABLE SYSTEMS AND SHALL BE BID WITH THIS INTENT. THE CONTRACTOR SHALL VISIT THE SITE, READ ALL THE RELEVANT DOCUMENTS AND BECOME FAMILIAR WITH THE TYPE OF CONSTRUCTION AND WORK TO BE ACCOMPLISHED. SHOULD ANY ERROR, OMISSION OR CONFLICT EXIST IN EITHER THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE SUBMITTING HIS BID PRICE SO A CHANGE CAN BE ISSUED IN A PRE-BID ADDENDUM. OTHERWISE, THE CONTRACTOR AND/OR EQUIPMENT SUPPLIER SHALL SUPPLY THE PROPER MATERIALS AND LABOR TO INSTALL COMPLETE AND OPERABLE SYSTEMS AT THEIR OWN EXPENSE. WHEN EACH ELECTRICAL SYSTEM IS COMPLETE, THE CONTRACTOR SHALL TEST AND CONFIRM IT'S PROPER OPERATION. ANY INCOMPLETE SYSTEM SHALL BE MADE COMPLETE AND OPERABLE.
- THE ARCHITECTURAL AND MECHANICAL PLANS ARE CONSIDERED A PART OF THE ELECTRICAL DOCUMENTS SO FAR AS THEY APPLY. THE ELECTRICAL CONTRACTOR SHALL REFER TO AND COORDINATE WITH THEM. NO EXTRA COST SHALL BE ALLOWED FOR FAILURE TO COORDINATE THE CONTRACT DOCUMENTS WITH OTHER TRADES AND/OR EQUIPMENT DIMENSIONS ARE GREATER THAN SPECIFIED AND/OR DIMENSIONED ON THE PLANS.
- NO ADDITIONS TO THE CONTRACTOR BID WILL BE ALLOWED FOR CHANGES MADE NECESSARY BY INTERFERENCE WITH OTHER WORK.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS AND LABOR FOR THE CONNECTIONS OF ALL EQUIPMENT SHOWN ON THE PLANS - ARCHITECTURAL, MECHANICAL, ETC.
- THIS PROJECT IS TO BE INSTALLED IN STRICT ACCORDANCE WITH LOCAL AND STATE CODES AND THE NEC. IF AT ANY TIME DURING CONSTRUCTION OR AFTER, SOMETHING IS FOUND TO BE INSTALLED IN VIOLATION OF THE CODES LISTED ABOVE, IT SHALL BE CORRECTED AT THE CONTRACTORS EXPENSE.
- THE EC SHALL INSTALL A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT RUN. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. THE EC SHALL GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.
- THE CONTRACTOR SHALL NOTIFY THE MANUFACTURER THAT THE LAYOUT AND DIMENSIONS ARE CRITICAL FOR ALL PANELS, SWITCH GEAR, ETC. AND NO PIECE OF EQUIPMENT SHALL EXCEED THE PHYSICAL SIZE INDICATED ON THE PLANS.
- ELECTRICAL CONTRACTOR SHALL CONFIRM MINIMUM CODE (NEC) WORKING CLEARANCE BEFORE INSTALLING ANY ELECTRICAL PANELS OR CABINETS AND SHALL MOVE THE PANELS AT HIS EXPENSE IF REJECTED BY AN INSPECTOR. IF CLEARANCE IS NOT POSSIBLE, THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY IN WRITING.
- THE CONTRACTOR SHALL ALLOW THE MOVEMENT, BEFORE ROUGH-IN, OF ANY ELECTRICAL PANEL, DEVICE, LUMINAIRE, ETC. A DISTANCE OF 10 FEET WITHOUT REQUIRING ADDITIONAL COST TO THE PROJECT.
- THE ELECTRICAL CONTRACTOR SHALL SECURE ALL CONDUIT TO THE STRUCTURE AS IT IS SET IN PLACE USING INDUSTRY STANDARD METHODS AND PRACTICES.
- TO ASSURE ALL DEVICES ARE RIGIDLY SET, THE ELECTRICAL CONTRACTOR SHALL SECURE ALL DEVICE BOXES WITH BRACKETS, HANGERS, ETC. DESIGNED FOR THE APPLICATION. ANY DEVICE BOXES NOT SECURED WILL BE MADE SECURE AT THE CONTRACTORS EXPENSE.
- DO NOT INSTALL CONDUIT IN BOND BEAMS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT WITH PULL CORD FROM ALL HEATING/COOLING EQUIPMENT TO THE THERMOSTAT FOR THE AUTOMATIC TEMPERATURE SYSTEM CONTROL. CONFIRM AND COORDINATE WITH THE MECHANICAL CONTRACTOR.
- DURING CONSTRUCTION THE ELECTRICAL CONTRACTOR SHALL REMOVE, RELOCATE, AND/OR RELOCATE ANY EXISTING ELECTRICAL EQUIPMENT THAT CONFLICTS WITH THE REWORK OR ADDITION. ALL SYSTEMS SHALL BE OPERABLE AT THE COMPLETION OF THE PROJECT. EQUIPMENT THAT IS NOT REUSED BECOMES THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.
- THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ELECTRICAL CONTINUITY TO REMAINING EQUIPMENT WHEN ANY EXISTING ELECTRICAL EQUIPMENT IS REMOVED.
- ALL COSTS FROM THE USE OF THE EXISTING PANELS SHALL BE INCLUDED IN THE CONTRACTORS BASE BID, I.E. CHANGE IN BREAKER SIZES, ADDITIONAL BREAKERS, ETC.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT SUPPLIER ON THE EXACT LOCATIONS OF ALL EQUIPMENT AND REQUIRED ELECTRICAL CONNECTIONS PRIOR TO ROUGH-IN. THE EC SHALL MAKE THE FINAL CONNECTION TO ALL EQUIPMENT.
- AFTER THE FACILITY IS COMPLETE AND BEEN IN FULL OPERATION FOR TWO WEEKS THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE UTILITY DEMAND, THE SYSTEM VOLTAGE (PHASE TO PHASE AND PHASE TO GROUND) AND AN AMMETER READING (EACH PHASE) ON THE MAIN FEEDERS. THESE READINGS SHALL BE OBTAINED DURING NORMAL OPERATING HOURS FOR THE FACILITY AND SHALL BE RECORDED AND A COPY SENT TO THE ENGINEER.

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SHEET CONTENTS
GENERAL NOTES
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KEY NOTES	
◇	EXISTING PANEL MP-2. PROVIDE BREAKERS IN PANEL AS REQUIRED BY THE CIRCUITS SHOWN AND THE PANEL SCHEDULE ON SHEET E2.0. FIELD CONFIRM EXISTING CONDITIONS. INSTALL THE BREAKERS IN THE SPACES AVAILABLE AND REVISE THE PANEL SCHEDULE TO MATCH E2.0.
◇	AUTOMATION CONTROL PANEL PROVIDED BY M.C. EG SHALL PROVIDE POWER TO THE PANEL. CONFIRM ALL REQUIREMENTS WITH THE M.C.
◇	PROVIDE A VFC (50 D. ALTYVAR 21 S-FLEX SFD21.62Y OR EQUAL)

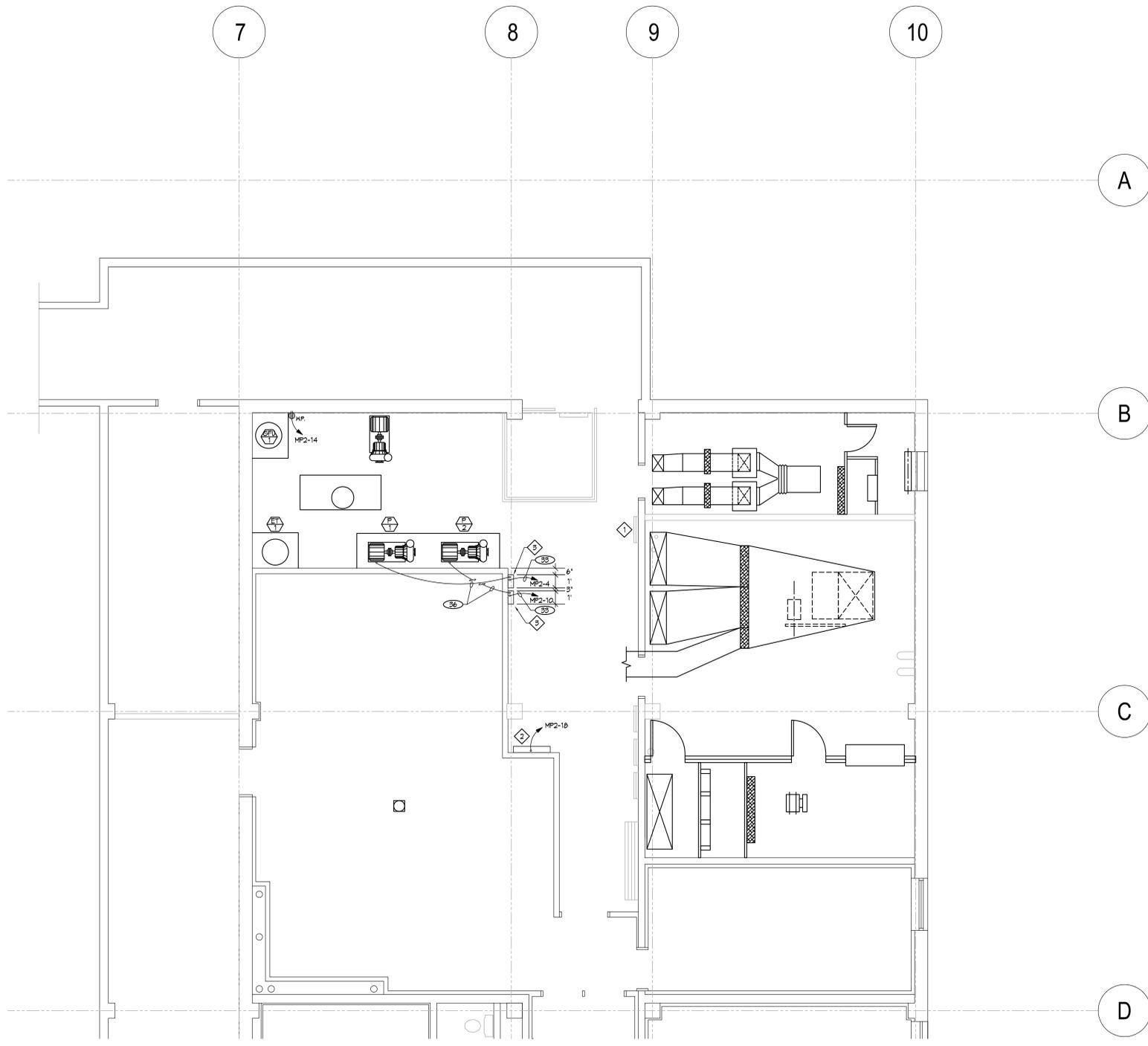


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LARGE SCALE MECHANICAL ROOM PLAN
SCALE: 1/4" = 1'-0"



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SHEET CONTENTS
LARGE SCALE
MECHANICAL
ROOM PLAN

KEY NOTES

- 1. EG SHALL DISCONNECT POWER FROM EXISTING FAN COIL UNITS AND CONNECT POWER TO THE NEW FAN COIL UNITS AFTER THEY ARE INSTALLED BY THE MC. TYPICAL ALL FAN COIL UNITS ON THIS FLOOR. FIELD TO CONFIRM EXISTING CONDITIONS AND CONFIRM ELECTRICAL REQUIREMENTS WITH THE MC.
- 2. EG SHALL CONNECT TO NEAREST PANEL WITH AVAILABLE CAPACITY FOR 1200W AND THREE 20A BREAKERS.



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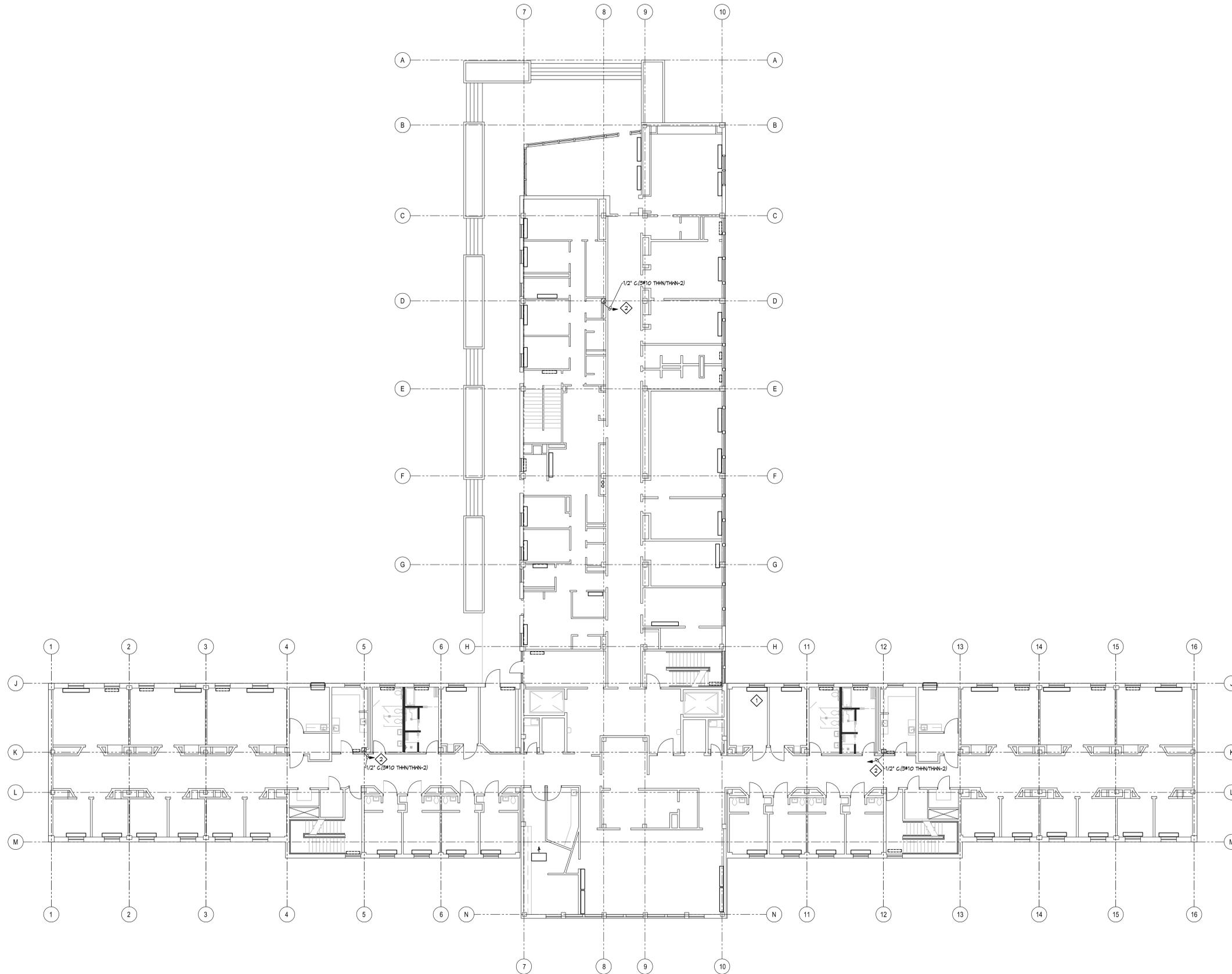
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SECOND FLOOR ELECTRICAL PLAN
SCALE: 3/32" = 1'-0"



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SHEET CONTENTS
SECOND FLOOR
ELECTRICAL
PLAN

E1.2

KEY NOTES	
1	PANEL F3A. SEE PANEL SCHEDULE AND RISER DIAGRAM ON SHEET E0.0.
2	EG SHALL DISCONNECT POWER FROM EXISTING FAN COIL UNITS AND CONNECT POWER TO THE NEW FAN COIL UNITS AFTER THEY ARE INSTALLED BY THE MC TYPICAL. ALL FAN COIL UNITS ON THIS FLOOR. FIELD CONFIRM EXISTING CONDITIONS AND CONFIRM ELECTRICAL REQUIREMENTS WITH THE MC.

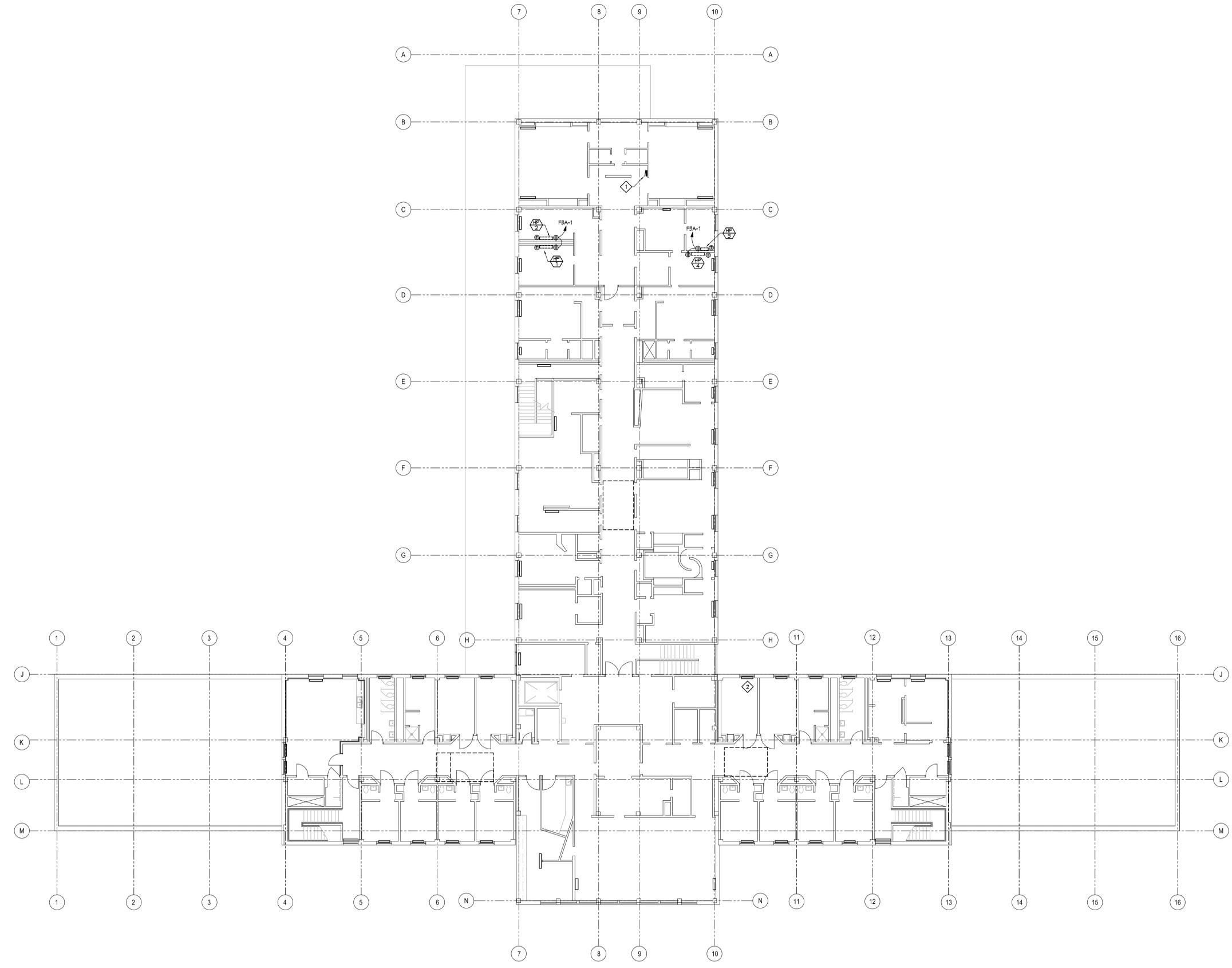


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THIRD FLOOR ELECTRICAL PLAN
SCALE: 3/32" = 1'-0"



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SHEET CONTENTS
THIRD FLOOR
ELECTRICAL
PLAN

E1.3

KEY NOTES

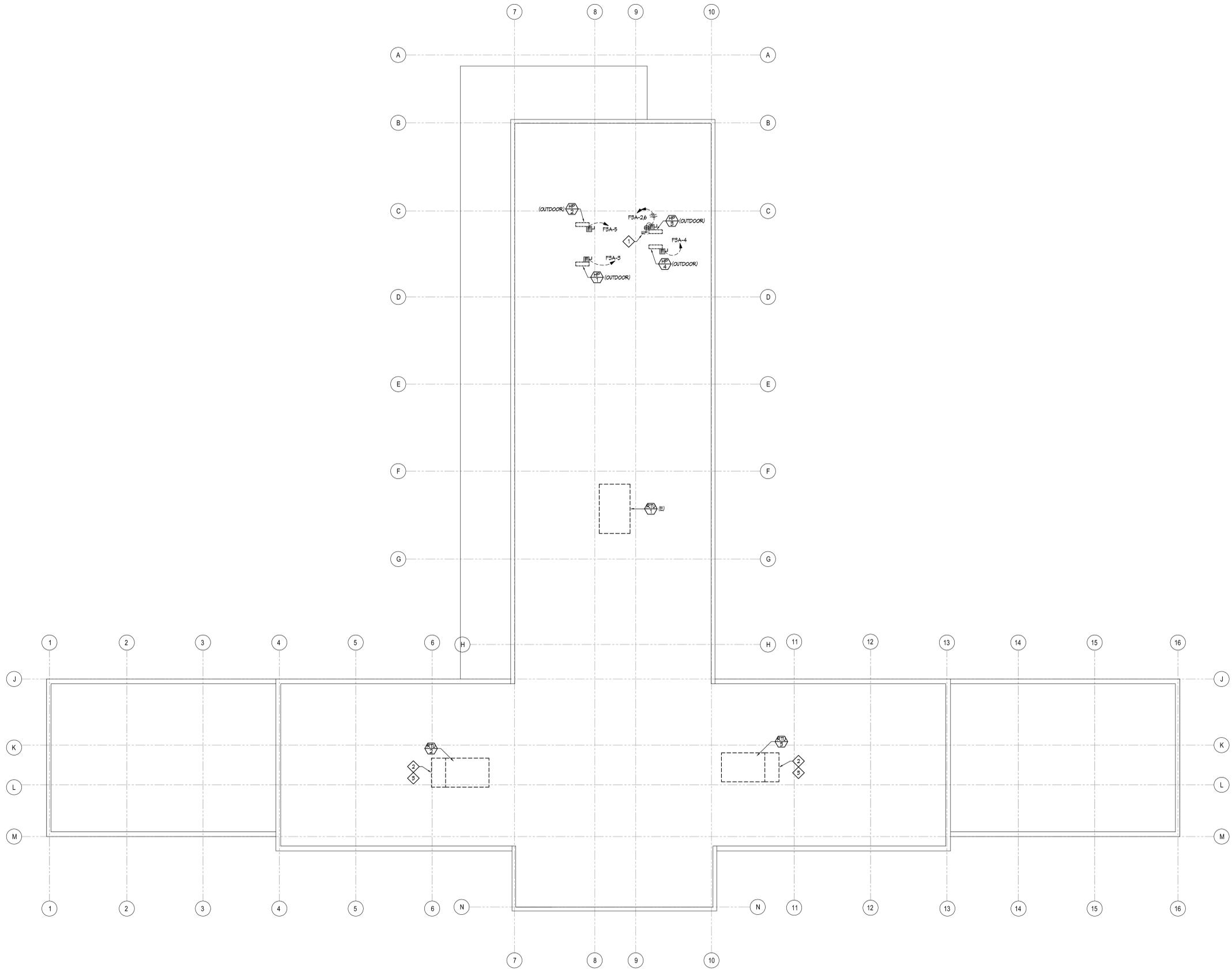
- 1 PROVIDE RECEPTACLE IN WEATHERPROOF ENCLOSURE WITH GPHILE IN USEA COVER, INSTALLED ON THE BOTTOM OF THE DISCONNECT OR ON THE RACK, IF PROVIDED.
- 2 THIS MECHANICAL UNIT WILL BE REPLACED BY THE M.C. DISCONNECT THE POWER TO IT AND RECONNECT POWER TO THE NEW UNIT ONCE IT IS INSTALLED BY THE M.C. PROVIDE A NEW FEEDER FROM THE DISCONNECT TO THE NEW UNIT SIZED FOR THE NEW UNIT. CONFIRM REQUIREMENTS WITH THE M.C. AND THE MECHANICAL DRAWINGS.
- 3 FIELD CONFIRM CONDITION OF THE EXISTING DISCONNECT FEEDING UNIT AND REPLACE THE DISCONNECT IF IT WILL NOT LAST FOR ANOTHER FIVE YEARS. IF THE DISCONNECT IS REPLACED GIVE IT TO THE FACILITY MAINTENANCE PERSONNEL.

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ROOF MECHANICAL PLAN
SCALE: 3/32" = 1'-0"



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**ROOF
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