PROJECT GENERAL NOTES:

1. ⊕ INDICATES POINT OF CONNECTION OF NEW TO EXISTING MECHANICAL, EQUIPMENT, PIPING OR DUCTWORK.
2. COORDINATE ALL FIRE SPRINKLER HEADS AND AIR DEVICE LOCATIONS WITH REFLECTED CEILING PLANS AND ELECTRICAL DRAWINGS.
3. ALL RIGID ROUND DUCTWORK LOCATED IN UNCONDITIONED SPACES ONLY, UNLESS OTHERWISE NOTED, SHALL RECEIVE 1-½" - Ø.75 LBS/SQ.FT. FIBERGLASS DUCT WRAP. ALL LOW PRESSURE RECTANGULAR DUCT SHALL RECEIVE 1" - 1.5 LBS/SQ.FT. DUCT LINER, ATTACH TO DUCT WITH MECHANICAL FASTENERS AND TRIM AND SEAL JOINTS. LOW PRESSURE ROUND FLEXIBLE DUCT TO BE 1-½" THICK INSULATED AND A MAXIMUM OF 6 FT. LONG. ALL INSULATION TO MEET NFPA 90 PER UL 181-CLASS 1. NO DUCTBOARD ALLOWED.
4. ALL RETURN AIR DUCTWORK SHOWN ON THE PLANS IS TO BE LINED WITH INSULATION PER THE SPECS NOTED ABOVE FOR DUCT LINER.
5. DUCTWORK AND PIPE ROUTING AS SHOWN ON DRAWINGS IS DIAGRAMMATIC AND IS NOT TO BE SCALED. WHERE ALTERNATE ROUTING, OFFSETS AND TRANSITIONS ARE REQUIRED FOR COORDINATION OF WORK, THIS CONTRACTOR SHALL MAKE CHANGES WITHOUT ADDITIONAL COSTS.
6. THIS CONTRACTOR SHALL CLOSELY COORDINATE NEW MECHANICAL WITH NEW AND EXISTING MECHANICAL, ELECTRICAL, ARCHITECTURAL AND BUILDING STRUCTURE.
7. THIS CONTRACTOR SHALL FIELD VERIFY ALL MECHANICAL ITEMS PRIOR TO STARTING NEW WORK. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
8. THIS CONTRACTOR SHALL USE SMACNA DUCT CONSTRUCTION STANDARDS FOR SHEET METAL DUCTS. ALL HIGH PRESSURE DUCTWORK SHALL BE CONSTRUCTED FOR 2" W.C. STATIC PRESSURE, SEAL CLASS "A". ALL OTHER DUCTWORK (UNLESS OTHERWISE NOTED ON FLOOR PLANS) SHALL BE CONSTRUCTED OF 1" W.C. SEAL CLASS "B".
9. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT ADOPTED EDITION OF THE BUILDING CODES, FIRE CODES, MECHANICAL CODES AND PLUMBING CODES.
10. THIS CONTRACTOR SHALL PROVIDE SUBMITTALS ON ITEMS LISTED IN MECHANICAL EQUIPMENT LIST TO THE ENGINEER FOR REVIEW PRIOR TO THE ORDER, PURCHASE OR INSTALLATION.
11. ALL RTU's, WATER FLOW RATES AND DIFFUSERS MUST BE BALANCED TO THE VALUES INDICATED ON THE FLOOR PLANS. PROVIDE BALANCE REPORT TO ENGINEER PRIOR TO PROJECT CLOSEOUT.
12. DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.
13. FIRE SPRINKLER CONTRACTOR SHALL ADD AND/OR RELOCATE SPRINKLER HEADS PER REFLECTED CEILING PLAN AND THE CURRENT ADOPTED EDITION OF NFPA AND BUILDING CODE.
14. ALL DOMESTIC COLD AND DOMESTIC HOT WATER PIPING SHALL BE PEX PIPING INSIDE OF THE APARTMENT UNITS. WATER PIPING MAY BE RAN IN TYPE "L" COPPER CPVC, SCH. 80 PVC OR PEX THROUGHOUT THE BUILDING. ALL WASTE AND VENT PIPING SHALL BE SCH 40 ABS, PVC DUV, OR CAST IRON. ALL ROOF AND OVERFLOW DRAINAGE PIPING TO BE SCH. 40 PVC OR CAST IRON.
15. VENT THE HIGH POINTS OF NEW MECHANICAL PIPING.
16. PROVIDE INSULATION FOR THE FOLLOWING: (UNLESS OTHERWISE NOTED ON FLOOR PLANS)
    a. DOMESTIC HOT / HEATING WATER PIPING:
       1" THICK FOR PIPE SIZES ¾" TO 1½".
       2" THICK FOR PIPE SIZES 2" TO 12".
    b. DOMESTIC COLD WATER PIPING:
       ½" THICK FOR PIPE SIZES ¾" TO 6".
       1" THICK WHERE LOCATED IN EXTERIOR WALLS.
       (PROVIDE CONTINUOUS VAPOR BARRIER.)
    c. HORIZONTAL ROOF AND OVERFLOW DRAINS:
       1" THICK FOR ALL PIPE SIZES
       INSULATION ONLY REQUIRED ON HORIZONTAL PRIMARY DRAINS AND ALL DRAIN BOWLS
    ALL DOMESTIC COLD WATER PIPING AND ALL HORIZONTAL SEWER / STORM PIPING THAT IS INSTALLED IN THE PARKING AREA IS TO BE INSULATED WITH MIN. 2" THICK INSULATION.
17. INSULATE PIPING WITH FIBERGLASS PIPE COVERING WITH ALL SERVICE JACKET AND SELF-CAP SEAL. FITTINGS SHALL BE MITERED PIPING COVERING OF GLASS FIBER MOLDED FITTINGS FOR USE IN A RETURN AIR PLENUM. THERMAL CONDUCTIVITY SHALL BE A MAXIMUM OF Ø.25/INCH THICKNESS AT 75°F.
18. ——— INDICATES EXISTING OR FUTURE. ——— INDICATES NEW MATERIAL. IF THERE ARE ANY DISCREPANCIES AS TO WHAT IS NEW AND WHAT IS EXISTING, CONTRACTOR IS TO CONTACT THE ARCHITECT AND/OR MECHANICAL ENGINEER. ADDITIONAL COSTS WILL NOT BE TOLERATED FOR THE CONTRACTORS FAILURE TO BECOME FAMILIAR WITH EXISTING SHELL AND SITE CONDITIONS.
19. MECHANICAL CONTRACTOR IS TO COORDINATE WITH ELECTRICAL ON SIZE/QUANTITY OF MOTORIZED DAMPERS. I. E. FIRE/SMOKE DAMPERS, FIRE DAMPERS, MOTORIZED DAMPERS, ETC. . .
20. EACH TRADE IS RESPONSIBLE THEIR OWN FIRE CAULKING.
21. DIVISION 15 MUST PROVIDE AND INSTALL ALL ACCESS DOORS FOR FCU's, VALVES, FLOW METERS, ETC. COORDINATE LOCATION WITH GENERAL CONTRACTOR.
22. HOUSEKEEPING PADS FOR ALL EQUIPMENT IS PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
23. ALL TAKE-OFF'S THROUGHOUT THE ENTIRE BUILDING SHALL BE HIGH EFFICIENCY TAKE-OFFS (HET's). NO EXCEPTIONS TAKEN.
24. DIVISIONS 21 - 23 TO SUBMIT TO ENGINEER ALL AS-BUILDS OF BUILDINGS MECHANICAL AND PLUMBING SYSTEMS PRIOR TO JOB COMPLETION AND FINAL PAYMENT.
25. ALL EXPOSED PIPING IS TO BE INSULATED AND WEATHERPROOFED.
26. ALL INVERT ELEVATIONS SHOWN ON PLANS ARE BASED OFF OF FINISHED FLOOR ELEVATIONS TAKEN FROM ARCHITECTURAL AND / OR CIVIL DRAWINGS AND ARE NOT EXACT. CONTRACTOR TO CLOSELY COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS FOR EXACT INVERT ELEVATIONS OF ALL LEVELS.
27. ALL FLOOR DRAINS / FLOOR SINKS THROUGH-OUT THE ENTIRE BUILDING ARE TO HAVE TRAP SEAL PRIMER VALVES PROVIDED / INSTALL BY PLUMBING CONTRACTOR.
28. ALL GAS METER REGUALTORS ARE TO BE VENTED TO THE OUTSIDE OF THE BUILDING BY THE MECHANICAL CONTRACTOR OR PROVIDE / INSTALL VENTLESS REGULATORS IF ALLOWED BY THE LOCAL JURISDICTION. NONE OF THE VENT PIPING OFF THE REGULATORS ARE SHOWN ON THE PLANS FOR CLARITY.
29. ANY FIRE DAMPERS SHOWN ON PLANS SHALL COMPLY WITH THE REQUIREMENTS OF UL 555. ANY SMOKE DAMPERS SHOWN ON PLANS SHALL COMPLY WITH UL 555S. ANY COMBINATION FIRE / SMOKE DAMPERS SHOWN ON PLANS ARE TO COMPLY WITH BOTH UL 555 AND UL 555S. FOR ALL FIRE DAMPERS CONTRACTOR IS TO PROVIDE / INSTALL "NCA MODEL FD" (OR EQUAL,) TO MEET STANDARD UL 555 RATING. FOR ALL SMOKE DAMPERS AND COMBINATION FIRE SMOKE DAMPERS CONTRACTOR IS TO PROVIDE / INSTALL "NCA MODEL FSD-3V-211" (OR EQUAL,) TO MEET STANDARD UL 555 AND UL 555S RATINGS.
30. THE MECHANICAL CONTRACTOR IS TO HAVE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EACH TYPE OF FIRE DAMPER, SMOKE DAMPER, AND COMBO FIRE / SMOKE DAMPERS ON THE JOB SITE AT TIME OF INSPECTIONS.
31. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, AND FILLING OUT GREEN GAS COMPLIANCE STICKERS FOR ALL GAS FIRED APPLIANCES. CONTRACTOR IS TO INSTALL ONE STICKER PER EVERY GAS FIRED APPLIANCE.
32. ALL FIRE PROTECTION PIPING INSTALLED IN PARKING GARAGES IS TO HAVE GLYCOL LOOP INSTALLED TO PREVENT FREEZING.
33. ALL DUCTWORK AND EQUIPMENT MUST COMPLY WITH THE 2015 IECC, M.C. RESPONSIBLE TO RESEARCH REQUIREMENTS SUCH AS DUCT TESTING, SEALING, INSULATION AND RATINGS ETC. TEST AND INSTALL ALL SYSTEMS IN ACCORDANCE WITH 2015 IECC.
34. PROVIDE AND SUBMIT O&M MANUALS TO ENGINEER FOR REVIEW BEFORE SUPPLYING THEM TO THE BUILDING OWNER.
35. ALL DUCTWORK OPENINGS SHALL BE COVERED AND MECHANICAL EQUIPMENT SHALL BE PROTECTED DURING CONSTRUCTION ARE REQUIRED. PROVIDE / INSTALL INTERNALLY INSULATED DUCT LINER A MINIMUM OF 10 FEET FROM HVAC EQUIPMENT IN SUPPLY AND RETURN AIR DUCT WORK. DUCT DESIGN IS IN CONFORMANCE WITH THE CURRENT CEC, ASHRAE 183, AND ASHRAE HANDBOOK OF FUNDAMENTALS. ANY CHANGES TO DESIGN MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, COOLING AND VENTILATION EQUIPMENT. PROTECT DUCT INTERIORS FROM MOISTURE, CONSTRUCTION DEBRIS, DUST AND OTHER FOREIGN MATERIALS. COMPLY WITH SMACNA's "IAQ GUIDELINES FOR OCCUPIED BUILDINGS UNDER CONSTRUCTION," APPENDIX G, "DUCT CLEANLINESS FOR NEW CONSTRUCTION GUIDELINES."

NOTE:

CONTRACTOR TO PROVIDE SEISMIC / STRUCTURAL PACKAGE WITH DESIGN, DETAILS, CALCULATIONS, WRITTEN STRUCTURAL CONFIRMATION AND SPECIAL INSPECTION REPORT CERTIFIED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED WITHIN PROJECT STATE (STAMPED AND SIGN) FOR SUBMITTAL FOR CITY REVIEW AND APPROVAL (PRIOR TO PERMITTING) FOR ALL MECHANICAL AND PLUMBING EQUIPMENT, PIPING AND DUCTWORK SYSTEMS (COMPONENTS) PER CHAPTER 13 OF ASCE 7-05. COMPLIANCE WITH IMC 301.15 AND TABLE 13.5-1 AND 13.6-1 IS ALSO REQUIRED. MEET CURRENT SEISMIC CODE REQUIREMENTS. SEE SECTION 17 OF THE I.B.C. AND SPECIFICATIONS FOR PACKAGE REQUIREMENTS. MECHANICAL ITEMS (INCLUDING ROOFTOP UNITS) WILL REQUIRED SEISMIC RESTRAINT WITH IBC 1613.1. RESTRAINT MUST BE PROVIDED FOR THE FOLLOWING CONDITIONS UNLESS OTHERWISE EXCLUDED BY CHAPTER 13 OF ASCE 7-05:

A. MECHANICAL COMPONENTS OVER 400 lbs. AND SUPPORTED BY A FLOOR, CEILING OR ROOF.
B. MECHANICAL COMPONENTS OVER 20 lbs. AND SUPPORTED BY A CEILING OR WALL.
C. MECHANICAL DISTRIBUTION SYSTEMS WEIGHTING OVER 5 plf, OR HAVE A CROSS-SECTIONAL AREA GREATER THAN 6 s.f. OR ARE SUSPENDED MORE THAN 12" BELOW OR ADJACENT TO A PRIMARY STRUCTURAL ELEMENT (I.E. FLOOR SLAB, OR BEARING CEILING AND/OR WALL).

ABOVE PACKAGE TO PROVIDED TO THE CITY DURING THE PLAN REVIEW PRIOR TO PERMITTING AND IN THE ADDITION TO SUBMITTING A COMPLETE DEFERRED SUBMITTAL FORM.

NOTE:

CONTRACTOR TO PROVIDE AND PERFORM BUILDING AIR LEAKAGE TEST PER IECC SECTION 402.1.2.3. (THE COMPLETE BUILDING SHALL BE TESTED AND THE AIR LEAKAGE RATE OF THE BUILDING ENVELOPE SHALL NOT EXCEED Ø.40 cfm/Sq.Ft. AT A PRESSURE DIFFERENTIAL OF Ø.3 INCHES WATER GAUGE IN ACCORDANCE WITH ASTM E779 OR AN EQUIVALENT METHOD APPROVED BY TGE CODE OFFICIAL.) LOCAL BUILDING INSPECTOR REQUIRES TO WITNESS THIS TEST, COORDINATE WITH INSPECTOR IN SCHEDULING THE TEST AND HIS REQUIREMENTS FOR TESTING. IF BUILDING FAILS, CONTRACTOR SHALL PROVIDE AND PERFORM BUILDING SMOKE TEST TO VERIFY AND SHOW PROBLEM AREAS AND/OR SPOTS FOR GENERAL CONTRACTOR TO ADDRESS. THESE TESTS "SHALL" BE REPEATED AS REQUIRED UNTIL TOTAL BUILDING SURPASSES IECC TESTING REQUIREMENTS.

PIPING LEGEND

GATE VALVE		CHILLED WATER SUPPLY	CWS
OS & Y PATTERN GATE VALVE		CHILLED WATER RETURN	CWR
BALL VALVE		CONDENSER WATER SUPPLY	CS
BUTTERFLY VALVE		CONDENSER WATER RETURN	CR
MOTORIZED BUTTERFLY VALVE		HEATING WATER SUPPLY	HWS
HEAT TRACING		HEATING WATER RETURN	HWR
DEIONIZED WATER	DI	WATER TREATMENT	WT
CHECK VALVE (SWING OR LIFT AS REQ'D)		FIRE DEPT. HORN & LIGHT	
SOLENOID VALVE		HOT GAS	HG
AUTOMATIC CONTROL VALVE (2-WAY)		FLEXIBLE PIPE CONNECTION	
AUTOMATIC CONTROL VALVE (3-WAY)		REDUCED PRESSURE BACKFLOW PREVENTER	RPBP
PRESSURE REDUCING VALVE		DIRECTION OF FLOW	
P & T RELIEF VALVE		ELBOW DOWN	
AIR VENT (AUTOMATIC)		ELBOW UP	
REFRIGERANT LIQUID	RL	PIPE CAP	
REFRIGERANT SUCTION	RS	TEE DOWN	
THERMAL EXPANSION VALVE		UNION	
STRAINER		DOMESTIC COLD WATER	
CIRCUIT SETTER		DOMESTIC HOT WATER	
FLOW METER		HOT WATER CIRC.	
PET COCK OR GAUGE COCK		TEMPERED WATER	T
PRESSURE GAUGE W/GAUGE COCK		SANITARY (PLBG) VENT	
THERMOMETER		SANITARY SEWER ABOVE GRADE	
TEMPERATURE & PRESSURE TEST PLUG	T	SANITARY SEWER BELOW GRADE	
IN-LINE PUMP		DRAIN	D
FLOW SWITCH	F	ROOF DRAIN PIPING	RD
AQUASTAT	A	OVERFLOW DRAIN PIPING	OD
HOSE BIBB OR SILLCOCK		STORM DRAIN PIPING ABOVE GRADE	SD
VACUUM	V	STORM DRAIN PIPING BELOW GRADE	SD
FLOOR DRAIN		FIRE SERVICE	F
FLOOR SINK		NATURAL GAS	NG
HOT GAS BYPASS	HGBP	COMPRESSED AIR	CA
WALL CLEANOUT		VENT THROUGH ROOF	
FLOOR OR GRADE CLEANOUT		STEAM	S
GRADE CLEANOUT W/ CONCRETE PAD		CONDENSATE	C
SNOWMELT PIPING @ 8" O.C.		GREASE WASTE	GW
ROOF DRAIN WITH SNOWMELT PIPING INSTALLED INSIDE PIPE		SUB-SLAB DRAINAGE	SSD
		FRENCH DRAIN OR RUBBLE DRAIN	FD

MECHANICAL LEGEND

RETURN OR EXHAUST DUCT DOWN	
RETURN OR EXHAUST DUCT UP	
SUPPLY AIR DUCT DOWN	
SUPPLY AIR DUCT UP	
SPIN-IN FITTING W/MVD	
FLEXIBLE DUCT	
CEILING SLOT DIFFUSER	
CEILING DIFFUSER	
CEILING EXHAUST GRILLE	
CEILING GRILLE	
ACCESS PANEL	
MANUAL VOLUME DAMPER	
MOTORIZED DAMPER	
CEILING MOUNTED GRILLE WITH OBD (OPPOSED BLADE DAMPER) INSTALLED IN GRILLE BY MANUF.	
WALL MOUNTED GRILLE WITH OBD (OPPOSED BLADE DAMPER) INSTALLED IN GRILLE BY MANUF.	OBD
DUCT TRANSITION WITH MIN. LENGTH INDICATED	24"
FIRE DAMPER	F
COMBINATION FIRE/SMOKE DAMPER	FS
SMOKE DAMPER	S
THERMOSTAT OR TEMP SENSOR	T
POINT OF CONNECTION TO EXISTING	
DETAIL TAG	DETAIL NO. / DRAWING NO.
KEYED NOTE	NOTE NO.
SECTION CUT LINE	SECTION NO. / DRAWING NO.
CONTROL TRANSFORMER	TRX
ROUTE DUCT THROUGH JOISTS	RTJ
DUCT ELBOW W/ TURNING VANES OR RADIUS ELBOW	
DIRECTION OF AIRFLOW BALANCER TO TURN ALL SLOTS IN DIFFUSER FACING DIRECTION NOTED	

NOTE:

NOTED SEISMIC / STRUCTURAL ITEMS NEED TO BE COMPLETELY ADDRESSED DURING THE PLAN REVIEW PHASE (PRIOR TO PERMITTING). IF IT IS TO BE DEFERRED, THEN PROVIDE THE DEFERRED SUBMITTAL FORM, AS NOTED.

CONTRACTOR TO SHALL KEEP ON CONSTRUCTION SITE AS A PART OF THE PERMIT SET FOR BUILDING INSPECTOR'S USE ANY/ALL DEFERRED SUBMITTALS AND LETTER NOTED BELOW.

THE PROPERTY OWNERS AND THE GENERAL CONTRACTOR "MUST SIGN A LETTER" THAT THEY ARE AWARE THAT UNTIL THE DEFERRED SUBMITTAL HAS BEEN APPROVED BY THE CITY/COUNTY BUILDING DEPARTMENT, THAT "THEY WILL BE PROCEEDING AT THEIR OWN RISK. PLEASE INCLUDE SECTIONS 107.3.3 AND 107.3.4.2 OF THE IBC AND INCLUDE THE BUILDING PERMIT NUMBER IN THE LETTER.

NOTE:

"NO EQUIPMENT SHALL BE INSTALLED WITHOUT WRITTEN APPROVAL" CONTRACTOR TO PROVIDE ANY/ALL STRUCTURAL SUPPORT/DESIGN PACKAGE REQUIRED FOR MECHANICAL COMPONENTS PER CHARTER 13 OF ASCE 7-05. COMPLIANCE WITH IMC 301.15 AND TABLES 13.5-1 AND 13.6-1 IS ALSO REQUIRED. DESIGN PACKAGE (STAMPED AND SIGNED) SHALL BE BY A CERTIFIED PROFESSIONAL STRUCTURAL ENGINEER LICENSED WITHIN PROJECT STATE. SUBMIT PACKAGE TO CITY FOR REVIEW AND APPROVAL (PRIOR TO PERMITTING).

NOTE:

FIRE SUPPRESSION, DETECTION AND SITE UTILITY DRAWINGS FOR FIRE PROTECTION, ARE DEFERRED SUBMITTALS AND REQUIRE A SEPARATE BUILDING PERMIT. THESE DRAWINGS ARE NOT APPROVED AS PART OF THIS SUBMITTED PACKAGE (DEFERRED SUBMITTALS REQUIRE A SIGNED AGREEMENT WITH CITY/COUNTRY, REGISTERED DESIGN PROFESSIONAL AND BUILDING OWNER, AND/OR TENANT).
- ANY BUILDING FIRE SPRINKLER SYSTEM WORK (IFC - A - 105.7.1).
- ANY BUILDING FIRE ALARM SYSTEM WORK (IFC - A 105.7.6).

CONTRACTOR TO SHALL KEPT ON CONSTRUCTION SITE AS A PART OF THE PERMIT SET FOR BUILDING INSPECTOR'S USE ANY/ALL DEFERRED SUBMITTALS AND LETTER AS NOTED.

"ALL DEFERRED (IBC 107.3.4.1) SUBMITTAL ITEM(S) NEED TO BE SUBMITTED WITHIN A TIMELY MANNER (30 CALENDAR DAYS OF THE ORIGINAL BUILDING PERMIT ISSUANCE DATE). THE FINAL INSPECTION APPROVAL (IBC 110.3.10) WILL NOT BE ISSUED AND NO BUILDING OR STRUCTURE CAN BE USED OR OCCUPIED (IBC 111.1) UNTIL ALL DEFERRED SUBMITTED ITEMS ARE APPROVED BY THE BUILDING OFFICIAL".

NOTE:

CONTRACTOR TO PROVIDE SEISMIC PACKAGE WITH DESIGN & CALCULATIONS AND SPECIAL INSPECTION REPORT CERTIFIED BY A PROFESSIONAL STRUCTURAL ENGINEER FOR SUBMITTAL FOR CITY REVIEW FOR ALL MECHANICAL AND PLUMBING EQUIPMENT, PIPING AND DUCTWORK SYSTEMS TO MEET CURRENT SEISMIC CODE REQUIREMENTS. SEE SECTION 17 OF THE I.B.C. AND SPECIFICATIONS FOR PACKAGE REQUIREMENTS.

NOTE:

CONTRACTOR TO PROVIDE SPECIAL INSPECTION REPORT TO BUILDING INSPECTOR ON ANY/ALL USED FIRE CAULKING. COORDINATE WITH INSPECTOR FOR PACKAGE REQUIREMENTS, SEE http://www.slcdocs.com/building/if-special-inspection.pfd.

NOTE:

THIS CONTRACTOR SHALL USE SMACNA DUCT CONSTRUCTION STANDARDS FOR SHEET METAL DUCTS. ALL HIGH PRESSURE DUCTWORK UPSTREAM OF VAV TERMINAL BOXES SHALL BE CONSTRUCTED FOR 2" W.C. STATIC PRESSURE, SEAL CLASS "A". ALL OTHER DUCTWORK (UNLESS OTHERWISE NOTED ON FLOOR PLANS) SHALL BE CONSTRUCTED OF 1" W.C. SEAL CLASS "B", "MINIMUM 24 GAGE". ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC 402.4 LEAKAGE REQUIREMENTS AND IBC VAPOR RE-TARDER REQUIREMENTS COMPLYING TO I.E.C.C. REQUIREMENTS.

NOTE:

SVWRF MUST INSPECT THE GREASE INTERCEPTOR AND SAMPLING MANHOLE PRIOR TO BACKFILLING TO ASSURE THAT THEY MEET SVERF's REQUIREMENTS. DURING THE CONSTRUCTION, IF THERE ARE ANY CHANGES IN THE PLUMBING FROM THAT WHICH WAS SUBMITTED TO AND APPROVED BY SVWRF, IT WILL BE THE OWNER's RESPONSIBILITY TO HAVE THESE CHANGES RE-SUBMITTED TO AND APPROVED BY SVWRF PRIOR TO INSTALLATION.

NOTE:

CONTRACTOR TO PROVIDE ANY/ALL STRUCTURAL SUPPORT/DESIGN REQUIRED FOR MECHANICAL EQUIPMENT. DESIGN SHALL BE BY A CERTIFIED PROFESSIONAL ENGINEER.

NOTE:

CONTRACTOR TO PROVIDE ANY/ALL SYSTEM COMMISSIONING PLAN AND/OR REPORTS REQUIRED BY I.E.C.C. DEVELOPED BY A CERTIFIED, REGISTERED PROFESSIONAL ENGINEER.

NJRA ARCHITECTS

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4-2-21

Northpointe Medical Park
TI for LabCorp

2400 North 400 East
Tooele, Utah 84000

NJRA Project # 21002.00
April 2, 2021

Mechanical Legend and Notes

M0.1

PLUMBING FIXTURE CONNECTION SCHEDULE

PLAN CODE	DESCRIPTION	CONNECTION SIZE				SPECIFICATIONS
		COLD WATER	HOT WATER	WASTE	VENT	
WC	WATER CLOSET	1½"	N/A	3"	2½"	KOHLER: K-86057-B (HIGHCLIFF ULTRA) WITH KOHLER: K-7531-CP FLUSHOMETER AND KOHLER: K-4650-A-0 SEAT.
LAV	LAVATORY WALL HUNG	½"	½"	1½"	1¼"	TOTO PROMINENCE LT242G#01, ADA FAUCET: TOTO - ECO POWER SENSOR FAUCET WITH RYCHAN SPOUT - TEL105-C12E. PROVIDE TRAP: KOHLER: K-8938, PROVIDE SUPPLIES AND STOPS. PROVIDE W/ TRAP GUARD FOR ADA INSTALLATION AND TOTO TLT10R THERMOSTATIC MIXING VALVE.
SS	SERVICE SINK	¾"	¾"	3"	2½"	FIAT: T5B3000 WITH 830AA, 832AA, 1239BB, MSG AND MSG3636. INSTALL TO MEET MANUFACTURE REQUIREMENTS.
SINK	SINK S.S.	½"	½"	1½"	1¼"	SINK: JUST MODEL SL-17519-B-GR W/ JB-35 DRAIN, FAUCET: CHICAGO FAUCET MODEL 1100-GN2AE3-317VPHCP WITH POWERS HYDRO GUARD 490 MIXING VALVE, PROVIDE W/ STOPS, TRAP AND SUPPLIES.
B-SINK	SINK S.S.	½"	½"	1½"	1¼"	SINK: JUST MODEL SL-2122-A-GR W/ JB-35 DRAIN, FAUCET: CHICAGO FAUCET MODEL 1100-GN2AE3-317VPHCP WITH POWERS HYDRO GUARD 490 MIXING VALVE, PROVIDE W/ STOPS, TRAP AND SUPPLIES.
IMB	ICE MAKER BOX	½"	N/A	N/A	N/A	L&P - MODEL OB-803 FOR NON FIRE-RATED WALLS. L&P - MODEL OBFS-8030 FOR FIRE-RATED WALLS.
FD	FLOOR DRAIN	N/A	N/A	SEE PLANS	N/A	J. R. SMITH 2005 W/ A05NB NICKEL/BRONZE STRAINER. PROVIDE W/ MIFAB M-500 SERIES TRAP PRIMER.
FS	FLOOR SINK	N/A	N/A	SEE PLANS	N/A	J. R. SMITH 3140-12-Y W/ NICKEL/BRONZE TOP/ ½ GRATE. PROVIDE W/ PRO VENT T#563Ø-F-P TRAP GUARD. (# BEING THE SIZE OF DRAIN (PIPE SIZE)).
WCO	WALL CLEAN OUT	N/A	N/A	SEE PLANS	N/A	J. R. SMITH 4530.
FCO	FLOOR CLEAN OUT	N/A	N/A	SEE PLANS	N/A	J. R. SMITH 4101S.
WHA	ARRESTORS WATER HAMMER	AS REQUIRED	AS REQUIRED	N/A	N/A	J. R. SMITH 5020.

* NOTE: FOR ALL ADA COMPLAINT SINKS / LAVS CONTRACTOR NEEDS TO PROVIDE / INSTALL TRAP GUARDS FOR ALL EXPOSED TRAPS AND SUPPLY LINES.

* NOTE: ALL PLUMBING SUPPLY LINE STOPS ARE TO BE INSTALL HORIZONTALLY THROUGH A VERTICAL WALL DIRECTLY BEHIND OR TO THE SIDE OF THE PLUMBING FIXTURE. INSTALLING STOPS VERTICALLY AT THE FLOOR LEVEL OR AT THE BOTTOM OF CABINETS IS NOT ALLOWED.

NOTE: ALL PLUMBING FIXTURES ARE TO HAVE ¼ TURN STOPS INSTALLED (NO EXCEPTIONS TAKEN). ALL PLUMBING FIXTURES THAT HAVE EXPOSED SUPPLY LINES I.E., WATER CLOSETS, WALL HUNG LAVS, ETC., CONTRACTOR IS TO PROVIDE / INSTALL STAINLESS STEEL BRAIDED HOSES. IF THE SUPPLY LINES ARE NOT EXPOSED (HIDDEN BELOW CASEWORK ETC.), THEY CAN BE PLASTIC, RIGID, OR STAINLESS STEEL BRAIDED.

DIFFUSERS & GRILLE SCHEDULE

GRILLE NUMBER — GRILLE CFM

PLAN CODE	TYPE & DUTY	NECK SIZE	CEILING TYPE	N.C. LEVEL MAX	MAX. CFM	MANUFACTURER & MODEL NO.	REMARKS
1	8"Φ SUPPLY	8"Φ	See Plans	28	310	PRICE: 8"/ RCDE	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
2	10"Φ SUPPLY	10"Φ	See Plans	26	435	PRICE: 10"/ RCDE	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
3	12"Φ SUPPLY	12"Φ	See Plans	30	705	PRICE: 12"/ RCDE	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
4	14"Φ SUPPLY	14"Φ	See Plans	30	940	PRICE: 14"/ RCDE	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
5	SQUARE SUPPLY	6"Φ	See Plans	-	118	PRICE: 6" / 12x12 / A5CDA	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
6	SQUARE SUPPLY	8"Φ	See Plans	28	279	PRICE: 8" / 12x12 / A5CDA	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
7	SQUARE SUPPLY	8"Φ	See Plans	26	314	PRICE: 8" / 24x24 / APDC / 3 / B12	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
8	SQUARE SUPPLY	12"Φ	See Plans	24	540	PRICE: 12" / 24x24 / APDC / 3 / B12	* FINISH TO BE COORDINATED WITH ARCHITECT/ OWNER
9	RETURN	10" x 22"	See Plans	10	610	PRICE 22" x 10" / 24" x 12" / PDDR / 3 / B12	PROVIDE W DUCT COLLAR
10	RETURN	22" x 22"	See Plans	10	1220	PRICE 22" x 22" / 24" x 12" / PDDR / 3 / B12	PROVIDE W DUCT COLLAR
11	EXHAUST	6"Φ	See Plans	16	180	PRICE 6"Φ / 12" x 12" / PDDR / 2 / B12	PROVIDE OBD

PUMP SCHEDULE - RP

PLAN CODE	DUTY	GPM	FEET OF HEAD	MOTOR RPM	% GLYCOL	MOTOR			MANUFACTURER & MODEL NO.	REMARKS
						H.P.	EFF. %	VOLTAGE & PHASE		
RP	DOMESTIC HOT WATER RECIRC.	1.5	25	3250	0	1/6	N/A	120 / 1	GRUNDFOS UP15-14BA PM	BRASS FITTED

WATER HEATER SCHEDULE WH-

PLAN CODE	INPUT (MBH)	RECOVERY RATE (GAL/Hr)	TEMP RISE (°F)	DIMENSIONS #	CAP. GAL	VENT SIZE	ELECTRICAL		MANUFACTURER & MODEL NO.	REMARKS
							VOLT & PHASE	AMPS		
WH-1	370	405	100	D X H 28.25" X 64.5"	65	8"Φ	120 / 1	3	BOCK 66W-370SD	PROVIDE AND INSTALL 5 GAL. EXPANSION TANK.

EXHAUST AIR FAN SCHEDULE (EF)

PLAN CODE	TYPE	CAPACTIY CFM @ ELEV.	TSP. @ ELEV. (in. W.G.)	FAN RPM	MOTOR		METHOD OF CONTROL	OPENING (IN.)	DAMPER (GRAVITY OR MOTOR)	OPER. WEIGHT (lbs)	MANUFACTURER & MODEL NO	REMARKS
					H.P.	VOLTAGE & PHASE						
EF-1	ROOF	330	0.5"	1,550	1/4	120 / 1	M.C. PROVIDED/INSTALLED TIME CLOCK	12.5" x 12.5"	GRAVITY	30	GREENHECK G-103-VG/G-X	PROVIDE 14" HIGH FACTORY CURB.

REMOTE CONDENSING UNIT RCU-

PLAN CODE	WEIGHT (LBS.)	COND. FAN CFM	TOTAL COOLING CAPACITY MBH	ENTERING AIR (°F)	VOLT/PH	MAX FUSE SIZE	FAN HP	SEER	MANUFACTURER & MODEL NO	ACCESSORIES
RCU-1	155	1600	48	95/62	208-230/1	45	0.125	13	DAIKIN DX13SA0481A	PROVIDE UNIT WITH LOW-AMBIENT APPLICATIONS ACCESSORIES, UNIT RISERS, SOLENOID VALVE, FILTER DRIER, CRANKCASE HEATERS, SOUND HOODS FOR THE COMPRESSORS, LINE SETS AND POLY PAD.

FURNACE SCHEDULE F-

PLAN CODE	CFM (ALT.)	ESP (ALT.) WC	WINTER		HEATING CAPACITY MBH (INPUT)	SUMMER			TOTAL COOLING CAPACITY MBH	CONTROL	FAN HP	VOLT/PH	CONCENT. VENT DIA.	MANUFACTURER & MODEL NO	ACCESSORIES
			EAT DB	LAT DB		EAT DB	EAT WB	LAT DB							
F-1	2,000	0.5	55	107	100	80	63	55	60	TXV	3/4	120/1	2"/3"	DAIKIN DM96VC1005CNAA - CAPT4860D6	PROVIDE CONCENTRIC TERMINATION KIT, APRILAIR 1510 WITH MERV 13 (513) FILTER, 7 DAY PROGRAMMABLE - AUTO CHANGE OVER THERMOSTAT, LINE SET KIT, FACTORY 4 OZ. GAS TRAIN AND TXV KIT.

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Northpointe Medical Park
TI for LabCorp

2400 North 400 East
Tooele, Utah 84000

NJRA Project # 21002.00
April 2, 2021

Mechanical Schedules

M0.2

PLUMBING NOTES:

1. SEE RISERS DIAGRAMS FOR ALL PIPE SIZING. (TYPICAL).
2. ALL PLUMBING AND PIPING SHALL BE INSTALLED PER CURRENT ADOPTED CODES AND PRE LOCAL CODE AMENDMENTS.
3. DRAWINGS ARE REPRESENTATIVE IN NATURE ONLY. ALL PLUMBING AND MECHANICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL STATE, COUNTY, MUNICIPAL AND FEDERAL LAWS AND/OR ORDINANCES. IF IN ANY INSTANCE THE PLANS AND SPECIFICATIONS ARE IN DIRECT CONFLICT WITH SUCH LAWS AND/OR ORDINANCES, THE LAWS AND/OR ORDINANCES SHALL HAVE JURISDICTION AND THE WORK SHALL BE INSTALLED ACCORDING TO THE LAWS AND/OR ORDINANCES.
4. THE FIRE SUPPRESSION SYSTEM FOR THIS PROJECT WILL BE BY OTHERS. ENGINEERED DRAWINGS WILL BE SUBMITTED BY THE FIRE SUPPRESSION SYSTEM CONTRACTOR LATER AFTER CONTRACTOR HAS BEEN SELECTED.
5. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS INDICATED ON PLANS AND AS SPECIFIED AND AS REQUIRED BY/TO MEET CURRENT CODES.
6. ALL PLUMBING AND PIPING WORK SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED. PROVIDE AND INSTALL OFFSETS AROUND OBSTRUCTIONS AS REQUIRED WITH OUT ANY ADDITIONAL COST TO THE PROJECT.
7. PROVIDE AND INSTALL ACCESSIBLE STOPS AT ALL PLUMBING FIXTURES. (TYPICAL).
8. INSTALL ALL PIPING WITHOUT FORCING AND SPRINGING.
9. ALL PIPING SHALL BE CLEAR OF DOORS AND WINDOWS.
10. SEAL ALL PENETRATIONS AT FLOOR, EXTERIOR WALLS AND ROOF WATER TIGHT.
11. MAINTAIN A MINIMUM OF 3 Ft. 6 Inches OF GROUND COVERAGE OVER ALL UTILITY ENTERING OR LEAVING BUILDING (EDIT DEPTH OF GROUND COVERAGE TO SUIT CURRENT LOCAL FROST LINE DEPTH AND PROJECT REQUIREMENTS).
12. PROVIDE REQUIRED EQUAL MANIFOLD PIPING ON SUPPLY AND DISCHARGE PIPING AT ALL MULTIPLE HEATER APPARITIONS AS PER MANUFACTURES RECOMMENDATIONS. CONTRACTOR TO PROVIDE MEANS TO BALANCE TO AND FROM ALL HEATERS AFTER INSTALLATION. ALL PIPING AT HEATERS SHALL BE INSTALLED TO ALLOW FOR UNIT'S REMOVE AND REPLACEMENT (ALL PIPING SHALL BE BEHIND, OVERHEAD AND TO SIDES (BETWEEN) HEATERS).
13. PROVIDE LINE SIZED ¼ TURN, LEVERED HANDLE GAS COCKS ON GAS PIPING AT ALL GAS FIRED EQUIPMENT.
14. ALL UNDERGROUND DOMESTIC WATER PIPING SHALL BE TYPE 'K' -JIONTLESS COPPER. ALL ABOVE GROUND DOMESTIC WATER PIPING AND FITTINGS SHALL BE EITHER TYPE 'L' COPPER (ASME B16.15) OR PVC D2464 PIPE AND FITTINGS.
15. ALL HOT & COLD WATER AND HOT RETURN WATER PIPING SHALL BE INSULATED WITH 1½' THICKNESS ON ALL PIPING UP TO 2", AND 2' THICK INSULATION ON ALL PIPING OVER 2". ALL COLD WATER PIPING INSULATION SHALL ALSO VAPOR BARRIER.
16. ELEVATIONS AS SHOWN ON DRAWINGS ARE TO THE CENTER LINE OF ALL PRESSURE PIPING AND TO INVERT OF ALL GRAVITY PIPING.
17. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
18. WHERE DOMESTIC COLD AND HOT WATER PIPING DROPS INTO A PIPE CHASE OR INTO A WALL THE SIZE SHOWN FOR THE PIPE DROPS SHALL BE USED TO THE LAST FIXTURE.
19. ALL PIPING SHALL GRADE TO LOW POINTS AT WHICH CONTRACTOR SHALL PROVIDE HOSE END DRAIN VALVES AT BOTTOM OF ALL RISERS AND ALL LOW POINTS IN PIPING SYSTEM.
20. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF SLAB, WITH SPACE FOR PIPING INSULATION AS SPECIFIED.
21. PROVIDE AND INSTALL SHUTOFF VALVES IN ALL DOMESTIC WATER PIPING SYSTEM BRANCHES IN WHICH BRANCH PIPING SERVES TWO OR MORE FIXTURES.
22. ALL VALVES SHALL BE ADJUSTED AND ACCESSIBLE FOR SMOOTH AND EASY OPERATION.
23. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZED OF PIPE BEFORE REDUCING SIZE TO MAKE FINAL CONNECTION TO EQUIPMENT AND CONTROLS.
24. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
25. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
26. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON PLANS.
27. UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES AND IN LONG PIPING RUNS (100 Ft. OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
28. ALL PIPING LOCATED IN WALLS OR ABOVE CEILING HAVING SHUTOFF VALVES, TRAP PRIMERS, ETC. SHALL BE PROVIDED WITH ACCESS DOORS OF ADEQUATE SIZE FOR SERVICE. ACCESS DOORS ARE PROVIDED BY CONTRACTOR AND INSTALLED BY GENERAL CONTRACTOR. RECOMMEND LOCATION OF GUEST ROOM SHUTOFF VALVES TO BE ABOVE ACCESS PANEL IN THE CLOSET.
29. ALL ICE MAKERS, COFFEE MAKERS, DISHWASHERS, HOSE SPRAY RINSE SHALL BE PROTECTED FROM BACK FLOW WITH A ACCESSIBLE DOUBLE CHECK VALVE.
30. ALL WATER SUPPLIED TO CARBONATORS SHALL BE PROTECTED BY AN ACCESSIBLE REDUCED-PRESSURE-ZONE (RPZ) BACK FLOW DEVICE.
31. SHOWERS AND TUBS SHALL BE PRESSURE BALANCING TYPE OR THERMOSTATIC CONTROL TYPE VALVES. CONTRACTOR SHALL ADJUST TEMPERATURE CONTROL STOP FOR EVERY THERMOSTATIC RELIEF VALVE.
32. ALL PUBLIC LAVATORY FAUCETS SHALL HAVE ½ GPM RESTRICTORS.
33. ROUTE ALL UNDER FLOOR AND ABOVE CEILING PIPING AS REQUIRED TO MISS STRUCTURAL MEMBERS AND FOOTINGS AS REQUIRED.
34. INSULATE ALL WATER AND DRAIN PIPING EXPOSED BELOW HANDICAPPED LAVATORIES WITH "SKAL-GARD" OR EQUAL INSULATING DEVICE.
35. WATER CLOSET FLUSH HANDLES SHALL BE PLACED ON OPEN SIDE OF HANDICAP FIXTURES AS REQUIRED TO MEET CODE.
36. ALL PUBLIC WATER CLOSETS SHALL HAVE ELONGATED BOWLS WITH OPEN FRONT SEATS.
37. FOR ALL HANDICAP ASSESSABLE HAND WASHING FACILITIES AND PUBLIC HAND WASHING FACILITIES, CONTRACTOR SHALL PROVIDE TEMPERED WATER (POINT OF USE MIXING VALVE).
38. CONTRACTOR SHALL PROVIDE AND INSTALL AUTOMATIC TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS.
39. PROVIDE IRRIGATION CONNECTION IN MECHANICAL ROOM AS REQUIRED WITH DOUBLE BACK FLOW CHECK VALVES. COORDINATE WITH CIVIL'S PLANS FOR SIZING REQUIREMENTS.
40. CONTRACTOR TO FIELD VERIFY CITY WATER PRESSURES AND PROVIDE AND INSTALL A DOMESTIC WATER BOOSTER PUMPING SYSTEM AS REQUIRED. WATER PRESSURE ON UPPER FLOW SHALL BE A MINIMUM OF 20 PSI.
41. ALL UNDERGROUND AND ABOVE GROUND SANITARY SEWER PIPING AND FITTINGS SHALL BE PVC ASTM D2665 PIPING AND FITTINGS.
42. ALL UNDERGROUND STORM SEWER DRAINAGE PIPING SHALL BE PVC ASTM D21729 PIPING AND FITTINGS. ALL ABOVE GROUND STORM DRAINAGE PIPING SHALL BE PVC ASTM 2665 PIPING AND FITTINGS.
43. SANITARY SEWER LINES 4" AND GREATER SHALL BE SLOPED AT ¼" PER Ft. (⅛" PER Ft. MINIMUM 'ONLY IF NECESSARY'). lines SMALLER THAN 4" SHALL BE SLOPED AT ¼" PER Ft. MINIMUM. CONTRACTOR TO FIELD VERIFY LOCATION AND INVERT ELEVATION OF SANITARY SEWER ENTERING THE SITE PRIOR TO CONSTRUCTION. COORDINATE WITH CIVIL AND SEE CIVIL'S PLANS.
44. PROVIDE CLEAN OUTS IN SANITARY SEWER AND STORM DRAINAGE SYSTEMS AT ENDS OF RUNS, AT CHANGE IN DIRECTIONAL, AT BASE OF STACKS, EVERY 75 Ft. IN HORIZONTAL RUN, ELSEWHERE AS INDICATED AND AS REQUIRED BY CODE.
45. ALL CLEAN OUTS SHALL BE FULL SIZE OF PIPE FOR PIPE SIZES 6" AND SMALLER AND SHALL BE 6" FOR PIPE SIZES LARGER THAN 6".
46. LOCATE ALL VTR's A MINIMUM OF 10 Ft. FROM ALL FRESH AIR INTAKES.
47. ADJUST SEWER INVERTS TO KEEP TOPS OF PIPE IN LINE WHERE PIPE SIZE CHARGES.
48. PROVIDE VENTING FOR ALL PLUMBING FIXTURES. PROVIDE VENTING FOR ALL FIXTURE TRAPS AS REQUIRED TO MEET ANY/ALL CODES.
49. UNLESS OTHERWISE NOTED, DRAINS SHALL BE INSTALLED AT THE LOW POINTS OF ROOFS, AREAWAYS, FLOORS & ETC..
50. CONTRACTOR SHALL PROVIDE AND INSTALL SUMP PIT PER STATE AND LOCAL CODE. VERIFY LOCAL PLUMBING AND ELEVATOR CODES PRIOR TO CONSTRUCTION. WHEN APPROVED BY LOCAL AUTHORITY A PORTABLE PUMP AND A PORTABLE TANK SHALL BE PROVIDE FOR PERIODIC MAINTENANCE.
51. PROVIDE 1" EXTERNAL INSULATION AND PVC JACKET ON ALL RAIN LEADERS.
52. IF PVC DRAINAGE IS USED ABOVE GUEST ROOMS OR ANY PUBLIC AREA, THE PIPES OR AREA MUST BE INSULATED FOR SOUND CONTROL.
53. ALL FILTER STATIONS FOR MACHINES SHALL BE PLACED IN AN ACCESSIBLE LOCATION. COORDINATE WITH OWNER AND GENERAL CONTRACTOR.
54. COLD WATER SHUTOFF VALVE FOR GAS DRYERS SHALL BE PLACED IN AN ACCESSIBLE LOCATION. COORDINATE WITH OWNER AND GENERAL CONTRACTOR.
55. OWNER TO SUPPLY ALL SURFACE FIXTURES, TUBES, SURROUNDS, VALVES, FAUCETS, SINKS, GRANITE TOPS, SINKS IN PREP, ROOM AND LAUNDRY AND TOILETS. CONTRACTOR TO INSTALL ALL FIXTURES. CONTRACTOR TO SUPPLY GREASE TRAP (IF REQUIRED), ALL PIPING, ALL SUPPLIES AND STOPS FOR SINKS, CHROME BRASS DRAINS KITS, BASKET STRAINERS, BRASS P-TRAPS, FLOOR DRAINS, FLOOR SINKS AND ALL MECHANICAL ROOM EQUIPMENT NECESSARY FOR COMPLETE INSULATION PER PLANS AND AS REQUIRED TO MEET CODE.

MECHANICAL NOTES:

GENERAL NOTES

1. Follow all applicable Codes and Ordinances. Pay all fees, permits, and attain the same.
2. All equipment, insulation, and controls to meet adopted Energy Code.
3. Visit site and ascertain existing conditions prior to bid opening.
4. The information presented on this drawing is diagrammatic and is not to be scaled. It does not necessarily represent all elbows, duct extensions, offsets, hangers, etc. required for a complete working system.
5. As-built scale drawings shall be submitted to Mechanical Engineer at completion showing all piping, duct, and equipment changes.
6. Shop drawings shall be submitted on all valves, fixtures, insulation, G.R.D.'s and equipment for response prior to ordering. Six (6) copies of each in one submittal within 10 days of signing contract. Clearly note any deviation between submitted items and specified items on the cover sheet of the submittal. Failure to submit may cause specified items to be rejected and replaced at contractors expense.
7. Extra costs or changes allowed only if approved in writing by Engineer with dollar amount prior to ordering. No extensions of completion time allowed.
8. This Contractor is responsible for verifying all field conditions prior to the purchase of any materials and the commencement of any work and is to notify the Architect of any discrepancies for resolution.
9. Provide Owner with 3 sets of typewritten and bound 'Operating Instructions' for all systems and equipment, including manufacturer's maintenance manuals. Include approved equipment submittals, equipment start-up reports, lubrication, filter types and sizes, balance report, starting and stopping procedures, and list service contractor's 24 hour telephone numbers.
10. Conceal all work in finished areas.
11. Cut and patch to match adjacent areas. No structural member shall be cut or notched without structural engineer's written approval.
12. Guarantee all labor and equipment for one year from the date of acceptance by Owner.
13. Provide factory authorized start-ups and written start-up reports on all equipment.
14. Fireproof all penetrations of rated floor/wall/ceiling/roof assemblies. Fireproofing and installation to be UL classified and ICBO approved, suitable for moisture and vibration. Metalcaulk by Rectorseal or equal.

MECHANICAL NOTES

1. Identify all HVAC and refrigeration equipment as to the area served by the equipment. Identification shall be engraved plastic tags permanently affixed to each piece of equipment.
2. Provide UL rated fire or fire/smoke dampers where indicated on plans or schedules. Install per Building Department, UL, and SMACNA requirements. Include labeled access for duct and ceiling/wall structures. Access doors to be UL rated in all Fire rated architectural assemblies. Include transformers for 115v/24v electrical connection.
3. Provide all curbs, supports, and anchors for mechanical work. No chain, tape, or wire may be used for hanging or supporting.
4. Receive, uncrate, assemble, insure, and install in conformance to Manufacturer's recommendations all equipment furnished by this contract and furnished by the Owner.
5. The new mechanical systems consisting of the air distribution system with: ductwork, flexible duct, diffusers, grilles, dampers, control systems, etc. shall be by the mechanical contractor.
6. Air balance shall be by tenant finish contractor in accordance with the contract drawings. Provide NEBB certified report to Owner (3 sets).
7. Ceiling cavity is not a return air plenum.
8. Duct dimensions are clear inside dimensions. Overall outside duct dimensions shall be adjusted to allow for any liner thickness.
9. All sheet metal to be made and installed to SMACNA standards with 45 degree maximum reducing, 30 degree maximum expanding transitions. All exposed rectangular ducts to be point lock galvanized. Hollow blade turning vanes or 1.5 centerline radius for all elbows. HVAC supply and return ducts to have 1/2" thick, 3 lb density, 1" thick 2 pound density and outside air ducts to have 1-1/2" thick and 1-1/2 pound density UL 181 Class One fiberglass ductliner attached with Stic-Klips 15" o.c. each way and 100% coverage of flame proof adhesive. Increase duct to allow for liner. Seal all duct air tight with two coats of duct sealant.
10. Caulk all duct joints air and water tight with permanent commercial caulk per Manufacturer's recommendations.
11. Concealed round ducts shall be low pressure construction, sealed air tight and externally insulated with 1-1/2", 3/4 lb density blanket insulation with foil Scrimcraft facing. Foil tape all joints.
12. Exposed round ducts shall be paint lock spiral one gage heavier than SMACNA Standard. Hard pipe to diffusers (no flex) and seal with clear, paintable, silicone caulk.
13. All flexible ductwork shown shall be insulated semi-rigid flexible duct, Flexmaster 5M or Thermoflex XMK, and shall conform to local codes. No flex duct in exposed areas.
14. All flexible duct takeoffs shall be conical bell mouth spin-in fittings where possible. Make connections with draw bands at each end of flex.
15. All flexible duct to be same size as diffuser connection.
16. Limit flexible ductwork to 6-ft. maximum length.
17. This contractor shall coordinate all ductwork with other trades prior to installation.
18. Weatherproof all mechanical roof penetrations per codes.
19. Provide fire or smoke detectors on supply and return for mechanical systems over 2000 CFM as required by codes or building standards.
20. Provide sleeves and collars for all ductwork and pipes through walls, floors, and ceilings. Seal all external penetrations weather tight with exterior commercial grade caulk. Fireproof all penetrations of fire rated walls, floors and ceilings.
21. Confirm voltage, phase, and capacity with Electrical Contractor prior to ordering equipment. All control and interlock wiring for Mechanical equipment by mechanical contractor. Three phase motors to have magnetic starters with protection on all three leads. Control and heating/cooling equipment to automatically restart after power failure. All wire in conduit as required by code.
22. All recirculated air shall pass through standard Farr 30/30, 30%, throw away filters. Provide one additional set for Owner at project completion.
23. A minimum clearance of 30 inches shall be provided around any equipment (i.e., fans, pumps, boilers, air conditioners, etc.) for service and maintenance.
24. TEMPERATURE CONTROLS - The HVAC System controls are to be fully automatic. All controls are to be electric. Temperature control setup and setback shall be accomplished by means of an electric thermostat (Honeywell model T1300) with the following features being standard:
    Adjustable heating and cooling setpoints.
    1. Night and weekend programmable setback.
    2. Automatic changeover between heating and cooling cycles.
    3. Minimum job eight (8) hour battery backups during power failure.
    4. Optimal system startups to ensure correct temperature at occupancy.
    5. Lockable covers Honeywell #TG986A1000.

    All control systems shall be provided by a manufacturer who has been in the business of manufacturing control components and systems for a minimum of ten (10) years. All control systems shall be installed by a contractor who has been the business of installing control systems for a minimum of ten (10) years.

PLUMBING NOTES

1. The plumbing system with fixtures, water heater, drains, vents, water piping, insulation, gas piping, etc., as noted, shall be by the plumbing contractor in accordance with the contract documents.
2. All plumbing shall be in accordance with the local plumbing codes and/or ordinance, including but not limited to, pipe sizes.
3. Domestic water piping shall be type 'L' hard drawn copper with wrought copper sweat fittings. Use only Canfield 100% water safe solder (95% tin, 4% copper, 1% silver) or approved equal. DO NOT USE LEAD OR ANTIMONY SOLDERS.
4. Interior soil and waste piping above grade - service weight iron soil pipe and no-hub fittings. (PVC schedule 40 plastic pipe and fittings may be used where allowed by the building department.)
5. Interior soil and waste piping below grade - service weight cast iron hub and spigot soil pipe and fittings with neoprene gaskets. (PVC schedule 40 plastic pipe and fittings may be used where allowed by the building department.)
6. Gas piping 2" and smaller shall be threaded schedule 40 steel pipe with malleable iron fittings. Interior gas piping in concealed locations shall be welded. All gas pipe over 2" shall be welded. Paint all exposed gas piping with outdoor enamel.
7. Insulate all piping, valves and fittings for domestic hot and cold water and horizontal storm leaders with 1/2" preformed fiberglass with 'K' factor of 0.23 maximum at 75-deg F mean temperature. Insulate hydronic heating piping with 1" thick performed fiberglass with 'K' factor of 0.23 maximum at 75 deg F mean temperature up through 2" pipe and 1-1/2" thick on all larger sizes. Jacket shall be ASJ with Zeston fittings and with vapor barrier on all cold surface pipes. All insulation materials shall conform to ASTM 84, NFPA 50A and 255, and UL 723 not to exceed ratings of 25 Flame Spread and 50 Smoke Developed. All installed insulation shall meet or exceed ASHRAE Standard 90.1-1989.
8. Mount lavatory at required elevation for handicap usage where required. Insulate all exposed piping per ADA requirements.
9. Weatherproof all plumbing roof penetrations per codes and roofing manufacturer recommendations. Plumbing vent penetrations shall be cast iron and one size larger than required vent size.
10. Provide line size shut-off valve, malleable union, and dirt leg on all gas equipment.
11. Water Hammer Arrester shall be provided and installed as required per UPC code and the local jurisdiction to prevent piping shock or water hammer.
12. All materials and equipment provided and installed under this section shall be new and in clean and bright condition. The Contractor shall take any measure necessary to ensure and maintain the quality of the installation. All piping shall be flushed with clean water prior to being placed into service to ensure that any residual cutting oil, slag, thread tapes flux or dirt has been purged. In addition to flushing, the domestic water piping shall be sterilized to eliminate any contamination in accordance with UPC recommendations.
13. Electric heat trace tape shall be provided as required to provide freeze protection for water pipes within vestibules, crawl spaces or other unheated spaces. All piping, equipment, etc. shall be identified. All piping is to be tested in accordance with accepted codes of practice.
14. All safety relief valves shall be vented to atmosphere or piped to nearest floor drain. Backflow preventers shall be provided with a catch funnel piped to the nearest floor drain.
15. All piping to be hung on adjustable split ring hangers of similar material as the pipe unless otherwise noted. Pipe hanger spacing in feet to be as follows:

PIPE TYPE/SIZE	1/2	3/4	1	1-1/4	1-1/2	2
Copper	6	6	6	6	6	10
Cast Iron						
Steel (Screwed Pipe-IPS)	6	8	8	8	10	10
Plastic	4	4	4	4	4	4

M0.3

Mechanical Notes

NJRA Project #

21002.00

April 2, 2021

Northpointe Medical Park

TI for LabCorp

2400 North 400 East
Tooele, Utah 84000

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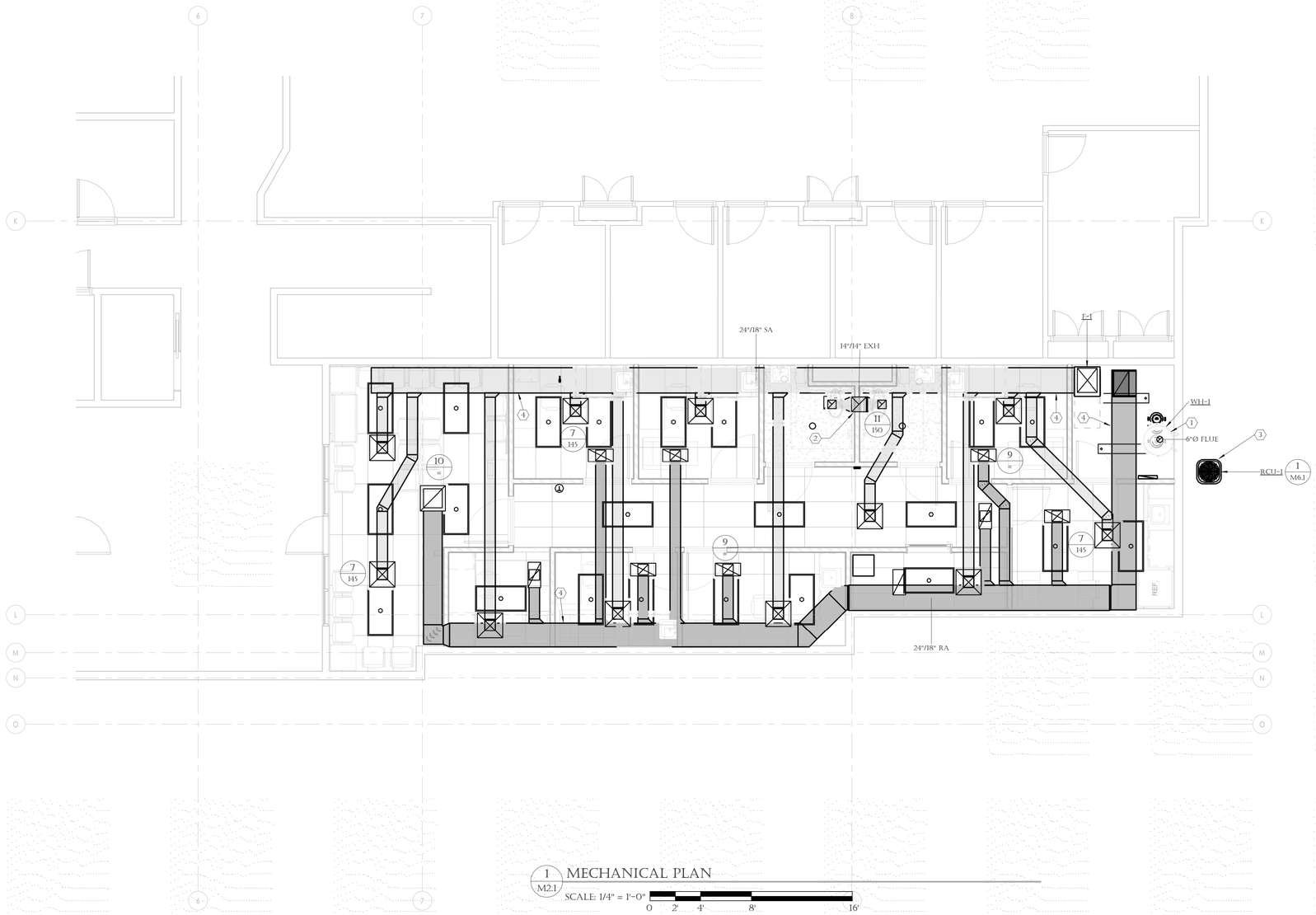

1 M2.1 MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8' 16'

KEYNOTES

1. CONTRACTOR TO PROVIDE/INSTALL REQUIRED FLUE FROM WATER HEATER. (MEETING MANUFACTURES REQUIREMENTS) TO EXTEND UP THROUGH ROOF AND TERMINATE WITH WEATHER CAP.
2. CONTRACTOR TO PROVIDE/INSTALL EXHAUST FAN (EF-1) ON ROOF WITH REQUIRED CURB AND EXTEND EXHAUST DUCTWORK UP THROUGH ROOF TO CONNECT TO FAN AS REQUIRED.
3. CONTRACTOR TO FIELD VERIFY EXISTING SITE CONDITIONS FOR EXISTING CONDENSER FARM. PROVIDE AND INSTALL NEW CONDENSER ON 4" THICK HOUSEKEEPING PAD. COORDINATE WITH BUILDING OWNER IN ROUTING REFRIGERANT PIPING FROM CONDENSER TO FURNACE.
4. CONTRACTOR TO FIELD VERIFY EXISTING BUILDING FOR AS BUILT CONDITIONS. ALL DUCTWORK SHOWN WILL BE REQUIRED TO INSTALLED UP IN THE UNCONDITIONED TRUSSES. ALL DUCTWORK WILL THERE FOR REQUIRE TO INSULATED TO MEET IECC CODE REQUIREMENTS. CONTRACTOR WILL MEET TO MODIFY SIZING, PROVIDE TRANSITIONS/OFFSETS AS REQUIRED TO ROUTE BETWEEN THE TRUSSES AND THROUGH THE WEBBING AS REQUIRED.

GENERAL NOTES

A. ALL FIRE SMOKE DAMPERS ARE TO BE 120V AND ARE TO BE CONTROLLED BY FIRE ALARM CONTRACTOR AND INTERLOCKED WITH FIRE SYSTEM. DAMPERS TO BE UL LISTED TO MEET OR EXCEED THE RATING OF THE WALLS.

B. CONTRACTOR IS TO PROVIDE / INSTALL ALL DUCTWORK UP IN THE BUILDING TRESSES. FIELD VERIFY AND COORDINATE ROUTING AND SIZING WITH EXISTING TRESSES AND WEBBING. MODIFY, TRANSITION AND OFFSET AS REQUIRED.

C. CONTROLS CONTRACTOR TO COORDINATE FINAL LOCATIONS OF ALL T-STATS WITH OWNER / ARCHITECT PRIOR TO ANY INSTALLATION.

D. ALL DUCT ELBOWS ARE TO BE RADIUS ELBOWS WHERE EVER POSSIBLE TO INSTALL. IF SPACE CONSTRAINTS DOWN ALLOW FOR THEM TO BE INSTALLED, RADIUS HEEL ELBOWS ARE TO BE USED. NO EXCEPTIONS TAKEN.

E. ALL DUCT TAKE-OFFS ARE TO BE HIGH EFFICIENCY TAKE-OFFS (HET'S) NO EXCEPTIONS TAKEN.

F. CONTRACTOR TO PROVIDE / INSTALL ACCESS PANELS FOR ALL EQUIPMENT, DAMPERS, ETC. LOCATED ABOVE HARD LID CEILINGS AS REQUIRED.

G. REFER TO DETAILS FOR INSTALLATION REQUIREMENTS. "NOT" ALL DETAILS ARE REFLECTED ON PLANS.

H. PROTECT DUCT INTERIORS FROM MOISTURE, CONSTRUCTION DEBRIS, DUST AND OTHER FOREIGN MATERIALS. COMPLY WITH SMACNA'S "IAQ GUIDELINES FOR OCCUPIED BUILDINGS UNDER CONSTRUCTION", APPENDIX G, "DUCT CLEANLINESS FOR NEW CONSTRUCTION GUIDELINES."

I. CONTRACTOR SHALL DUCTWORK TIGHT TO BOTTOM (WITHIN 12") OR BUILDING STRUCTURE. SUPPORT DUCTS AT EACH CHANGE OF DIRECTION AND IN ACCORDANCE TO SMACANA STANDARDS. SUPPORT ALL RISERS TO BE HELD IN PLACE BY MEANS OF METAL STRAPS OR ANGLES OR CHANNELS TO SECURE THE RISER TO THE STRUCTURE.

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4/2/2021

Northpointe Medical Park
TI for LabCorp

2400 North 400 East
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NJRA Project # 2100.00
April 2, 2021

MECHANICAL FLOOR PLAN

M2.1

4/2/2021 7:18:11 AM

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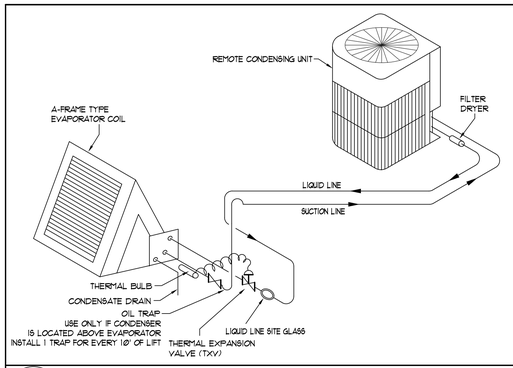
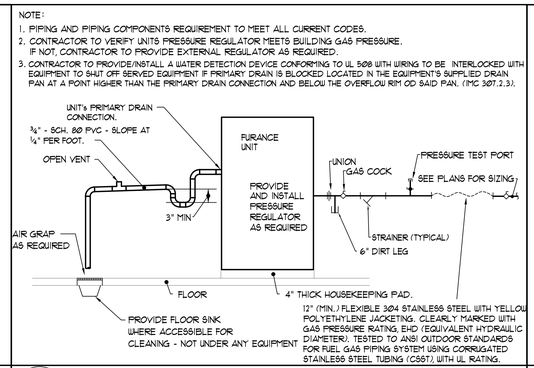
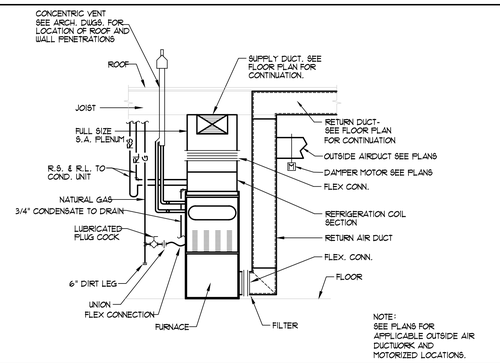


1 M6.1 REFRIGERANT PIPING SCHEMATIC
NOT TO SCALE

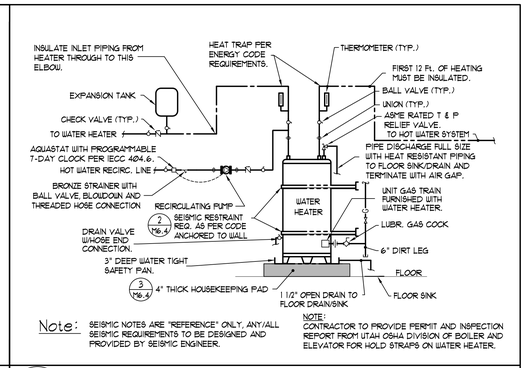
NOTE:
1. PIPING AND PIPING COMPONENTS REQUIREMENT TO MEET ALL CURRENT CODES.
2. CONTRACTOR TO VERIFY UNITS PRESSURE REGULATOR MEETS BUILDING GAS PRESSURE. IF NOT, CONTRACTOR TO PROVIDE EXTERNAL REGULATOR AS REQUIRED.
3. CONTRACTOR TO PROVIDE/INSTALL A WATER DETECTION DEVICE CONFORMING TO UL 508 WITH WIRING TO BE INTERLOCKED WITH EQUIPMENT TO SHUT OFF SERVED EQUIPMENT IF PRIMARY DRAIN IS BLOCKED LOCATED IN THE EQUIPMENT'S SUPPLIED DRAIN PAN AT A POINT HIGHER THAN THE PRIMARY DRAIN CONNECTION AND BELOW THE OVERFLOW RIM OD SAID PAN. (IMC 307.2.3).



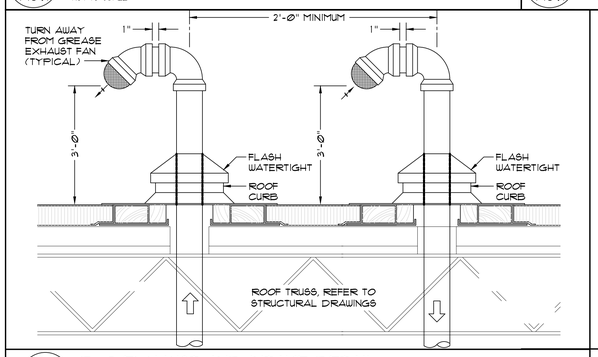
2 M6.1 GAS & CONDENSATE PIPING DETAIL
NOT TO SCALE



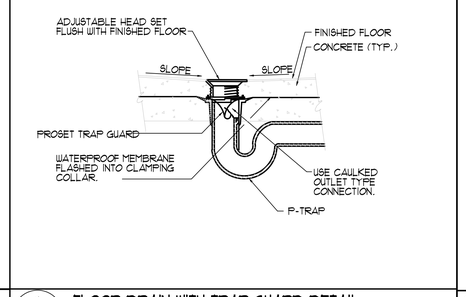
7 M6.1 GAS FIRED FURNACE DETAIL
NOT TO SCALE



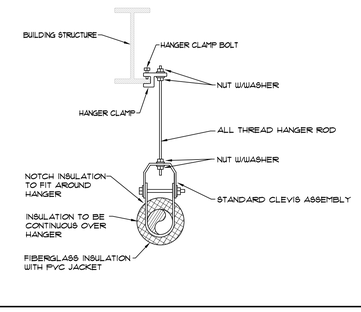
4 M6.1 GAS WATER HEATER PIPING DETAIL
NOT TO SCALE



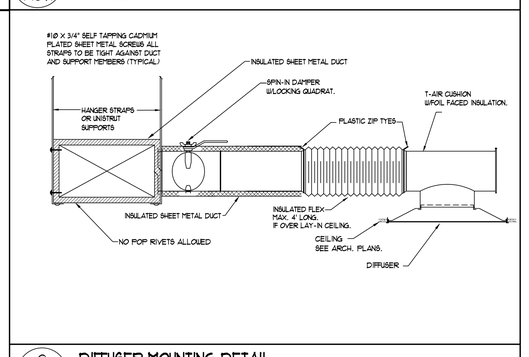
5 M6.1 PVC EXHAUST AND INTAKE DETAIL
NO SCALE



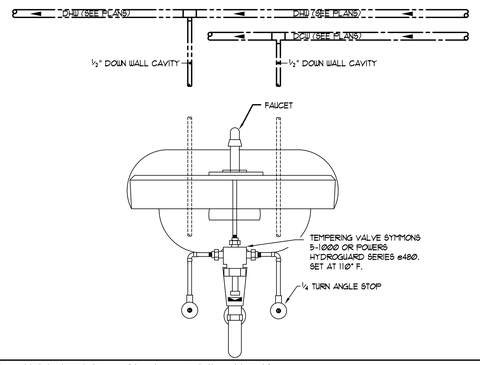
6 M6.1 FLOOR DRAIN WITH TRAP GUARD DETAIL
NOT TO SCALE



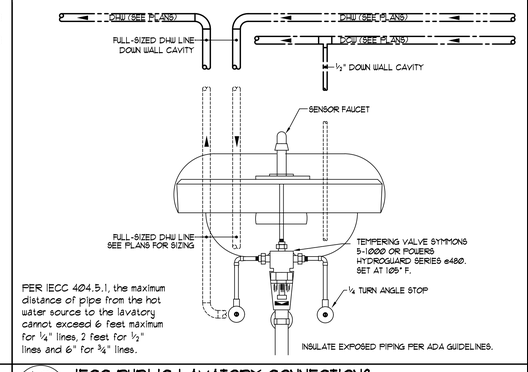
7 M6.1 PIPE HANGER DETAIL
NOT TO SCALE



8 M6.1 DIFFUSER MOUNTING DETAIL
NO SCALE



9 M6.1 TEMPERING VALVE CONNECTIONS
SCALE: NOT TO SCALE



10 M6.1 IECC PUBLIC LAVATORY CONNECTIONS
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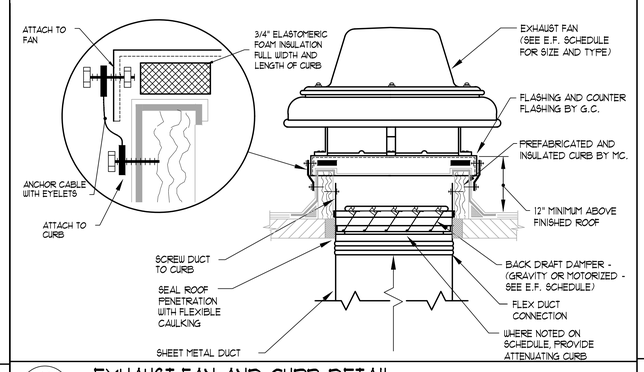

11 M6.1 EXHAUST FAN AND CURB DETAIL
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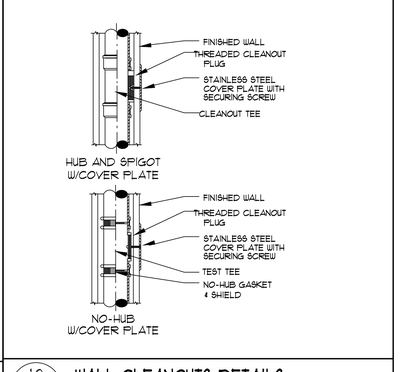

12 M6.1 WALL CLEANOUTS DETAILS
NOT TO SCALE

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4-2-21

Northpointe Medical Park
TI for LabCorp
2400 North 400 East
Tooele, Utah 84000

NJRA Project # 21002.00
April 2, 2021

Mechanical Details

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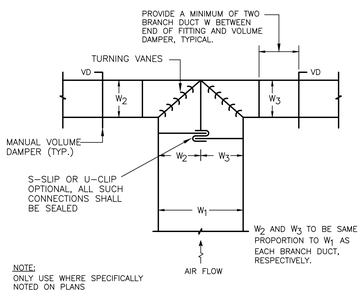
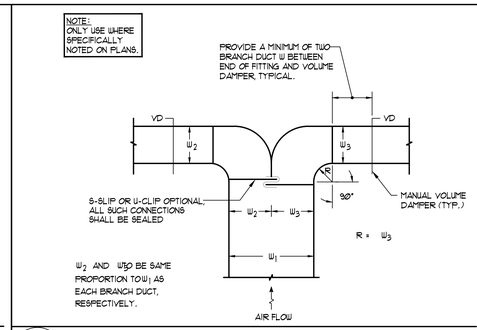


1 M6.2 DUCTWORK CONVERGING/DIVERGING
NO SCALE



2 M6.2 DUCTWORK CONVERGING/DIVERGING DETAIL
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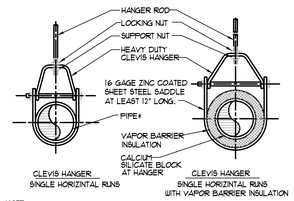
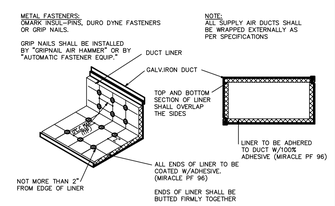
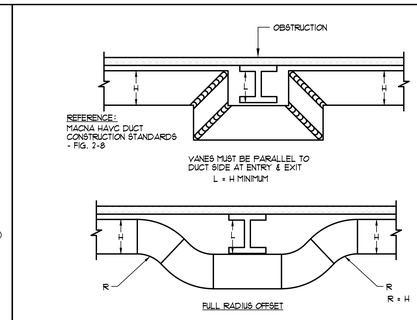


NOTE:
INSTALL 20 MIL THICK PVC ISOLATION TAPE BETWEEN PIPE AND HANGER FOR DISSIMILAR MATERIAL. WRAP TAPE AROUND PIPE (DUCT TAPE OR ELECTRICIAN TAPE IS NOT ACCEPTABLE)

3 M6.2 PIPE HANGERS DETAIL
NO SCALE



4 M6.2 DUCT LINER DETAIL
NOT TO SCALE



5 M6.2 TRANSITIONS AND OFFSETS AT OBSTRUCTIONS
NO SCALE

6 M6.2 VENT THROUGH ROOF DETAIL
NOT TO SCALE

HANGER SIZES FOR RECTANGULAR DUCT

MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	7/8 GAGE STRAP	NONE REQUIRED	10'-0"

NO POP RIVETS ALLOWED

SELF TAPPING CADMIUM PLATED HEX HEAD SHEET METAL SCREW STRAPS TO BE TIGHT AGAINST DUCT.

REFERENCE: LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS

NOTE:
CONTRACTOR TO PROVIDE SEISMIC PACKAGE WITH DESIGN AND CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER FOR SUBMITTAL FOR CITY REVIEW FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND PIPING TO MEET CURRENT SEISMIC CODE REQUIREMENTS. SEE SPECIFICATIONS FOR PACKAGE REQUIREMENTS.

MINIMUM HANGER SIZE FOR ROUND DUCT

DIAMETER	MAXIMUM SPACING	ROD	STRAP
16" DOWN	12'	1/4"	1"x18 Ga.

7 M6.2 DUCT STRAP HANGER DETAIL
NOT TO SCALE

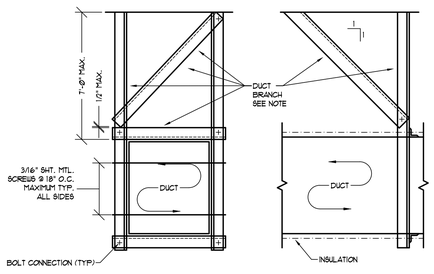
PIPING

NOTE:
IDENDIFICATION MARKERS OR STRIPS TO BE PLACED ON ALL EXPOSED COVERED AND UNCOVERED PIPES AT 50'-0" INTERVALS AND AT ALL VALVES, BRANCHES, CHANGE IN DIRECTION OF FLOW AND ON BOTH SIDES OF WALLS WHERE PIPES PASS THROUGH SAME, ARROWS OF SAME COLOR AS IDENTIFICATION MARKERS SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATION DIRECTION OF FLOW.

OUTSIDE DIAMETER OF PIPE OR COVERING		LENGTH OF COLOR FIELD A		SIZE OF LETTERS B	
INCHES	MM	INCHES	MM	INCHES	MM
3/4" TO 1-1/4"	19 TO 32	8"	200	1/2"	13
1-1/2" TO 2"	38 TO 51	8"	200	3/4"	19
2-1/2" TO 6"	64 TO 150	12"	300	1-1/4"	32
8" TO 10"	200 TO 250	24"	600	2-1/2"	64
OVER 10"	OVER 250	32"	800	3-1/2"	89

SERVICE	BACKGROUND OR COLOR BAND	IDENTIFICATION MARKER
DOMESTIC COLD WATER	GREEN	WHITE ON GREEN
DOMESTIC HOT WATER	YELLOW	BLACK ON YELLOW
DOMESTIC HOT WATER RETURN	YELLOW	BLACK ON YELLOW
FIRE PROTECTION (SPRINKLER)	RED	WHITE ON RED
NATURAL GAS	YELLOW	BLACK ON YELLOW
SANITARY DRAIN	GREEN	WHITE ON GREEN
STORM WATER	GREEN	WHITE ON GREEN

8 M6.2 PIPE IDENTIFICATION DETAIL
NO SCALE



9 M6.2 SEISMIC RESTRAINT OF DUCTS DETAIL
NOT TO SCALE

SCHEDULE "A" BRACING OF RECTANGULAR DUCTS

DUCT SIZE INCHES	VERTICAL ANGLES	DIAGONAL ANGLES	HORIZONTAL ANGLES	LONGITUDINAL ANGLES	BOLT SIZE ##	WT. PER LINEAR FOOT
30" SQ.	2-1/2" X 2-1/2" X 16 GA.	2-1/2" X 2-1/2" X 16 GA.	2" X 2" X 16 GA.	3" X 3" X GA.	1/4"Ø	13
42" SQ.	4" X 4" X 16 GA.	2-1/2" X 2-1/2" X 16 GA.	2-1/2" X 2-1/2" X 16 GA.	D.O.	3/8"Ø	20
54" SQ.	4" X 4" X 16 GA.	2-1/2" X 2-1/2" X 16 GA.	2-1/2" X 2-1/2" X 16 GA.	D.O.	3/8"Ø	27
60" SQ.	4" X 4" X 12 GA.	3" X 3" X 16 GA.	3" X 3" X 16 GA.	D.O.	3/8"Ø	36
84" SQ.	4" X 4" X 1/4"	4" X 4" X 14 GA.	4" X 4" X 14 GA.	D.O.	3/8"Ø	53
96" SQ.	5" X 3" X 1/4"	4" X 4" X 12 GA.	4" X 4" X 12 GA.	D.O.	1/2"Ø	30

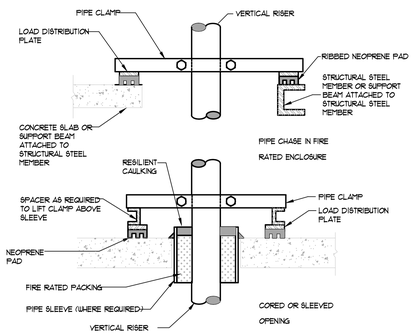
MAXIMUM DIMENSION OF DUCT SHALL GOVERN WHAT BRACING REQUIRED. EX: A 42" X 32" DUCT SHALL BE BRACED AS A 42" SQ. DUCT.

MINIMUM EDGE DISTANCE FOR BOLTS:
1/4"Ø - 1" 5/8"Ø - 1-1/8"
3/8"Ø - 1" 3/4"Ø - 1-1/4"
1/2"Ø - 1" 7/8"Ø - 1-1/2"

DUCT BRACING NOTES:

1. DESIGN RESTRAINTS PER SEISMIC DESIGN CATEGORY "D".
2. REFERENCE SMACNA SEISMIC RESTRAINT MANUAL.
3. FOR DUCTWORK REQUIRING SEISMIC BRACING, INSTALL BRACES AS FOLLOWS:
   a. TRANSVERSE BRACE AT EACH DUCT CHANGE OF DIRECTION, END OF DUCT RUN, AND AT 30'-0" O.C. FOR STRAIGHT RUNS.
   b. LONGITUDINAL BRACE AT 60'-0" O.C.
   c. TRANSVERSE BRACING OF ONE DUCT SECTION MAY ACT AS A LONGITUDAL BRACE FOR A DUCT SECTION CONNECTED PERPENDICULAR TO IT, PROVIDING THE BRACE IS INSTALLED WITHIN FOUR FEET OF THE INTERSECTION AND IS SIZED FOR THE LARGEST DUCT.
   d. WALLS WHICH HAVE DUCTS PASSING THROUGH THEM MAY SUBSTITUTE FOR A TRANSVERSE BRACE.
   e. DO NOT USE JOIST BRIDGING FOR SUPPORT OF ANY LOAD.
   f. IF SUPPORTING LOADS ABOVE 50 LBS. BETWEEN JOIST PANEL POINTS REINFORCE BOTTOM CORD OF JOIST AS PER STRUCTURAL ENGINEERS REQUIREMENTS. REFER TO SUPPORT DETAILS ON STRUCTURAL DRAWINGS.

NOTE:
CONTRACTOR TO PROVIDE SEISMIC PACKAGE WITH DESIGN AND CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER FOR SUBMITTAL FOR CITY REVIEW FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND PIPING TO MEET CURRENT SEISMIC CODE REQUIREMENTS. SEE SPECIFICATIONS FOR PACKAGE REQUIREMENTS.



10 M6.2 WATER PIPING RISER SUPPORT DETAIL
NOT TO SCALE

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NJRA Project # 21002.00
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REGISTERED
323760
PROFESSIONAL ENGINEER
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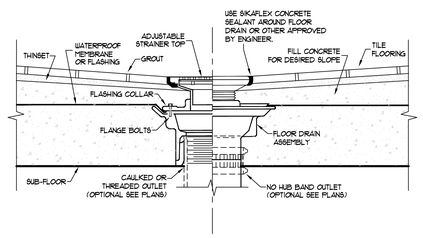
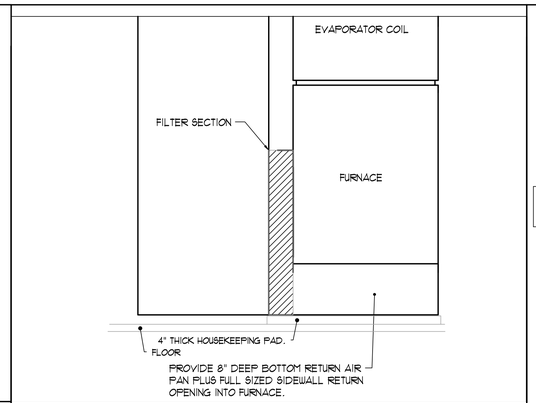
NOTE: THIS IS A TYPICAL FLOOR DRAIN INSTALLATION. FOR DIFFERENT TYPES OF FLOORING THE TOP FINISH (SHOWN AS THINSET AND TILE) MAY DIFFER FROM WHAT'S SHOWN. SEE ARCHITECTURAL PLANS FOR FLOORING TYPES.

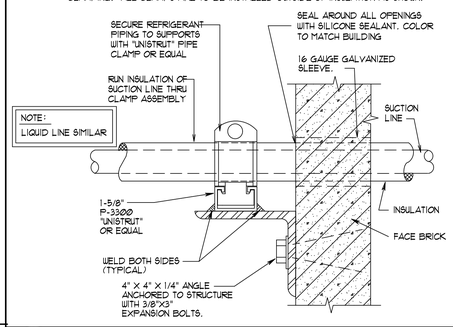


1 M6.3 TYPICAL FLOOR DRAIN / SINK DETAIL
NOT TO SCALE

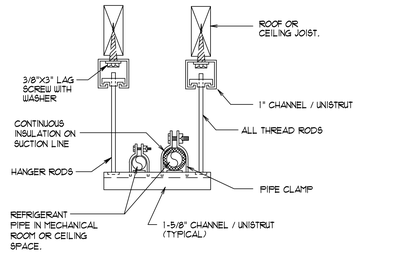


2 M6.3 FURNACE RETURN DUCT DETAIL
NOT TO SCALE

* NOTE: ALL SUCTION LINE PIPING IS TO BE CONTINUOUSLY INSULATED AND FULLY GLUED / SEALED. NO TAPING IS ALLOWED AND INSULATION IS NOT ALLOWED TO BE BROKE FOR CLAMPING. ALL CLAMPS ARE TO BE INSTALLED OUTSIDE OF INSULATION AS SHOWN.

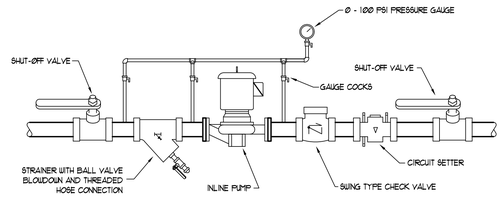


3 M6.3 REFRIGERANT PIPE SUPPORT AT WALL
SCALE: NOT TO SCALE



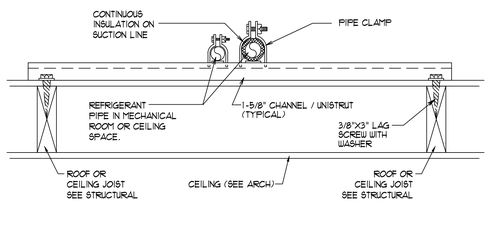
* NOTE: ALL SUCTION LINE PIPING IS TO BE CONTINUOUSLY INSULATED AND FULLY GLUED / SEALED. NO TAPING IS ALLOWED AND INSULATION IS NOT ALLOWED TO BE BROKE FOR CLAMPING. ALL CLAMPS ARE TO BE INSTALLED OUTSIDE OF INSULATION AS SHOWN.

4 M6.3 SUSPENDED REFRIGERANT PIPE SUPPORT AT CEILING
SCALE: NOT TO SCALE

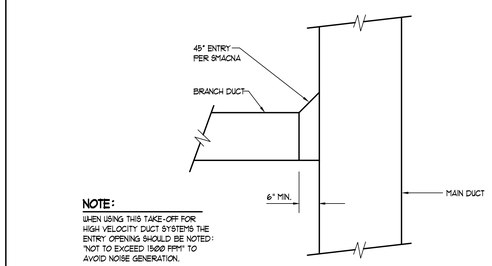


5 M6.3 TYPICAL IN-LINE PUMP PIPING DETAIL
NOT TO SCALE

* NOTE: ALL SUCTION LINE PIPING IS TO BE CONTINUOUSLY INSULATED AND FULLY GLUED / SEALED. NO TAPING IS ALLOWED AND INSULATION IS NOT ALLOWED TO BE BROKE FOR CLAMPING. ALL CLAMPS ARE TO BE INSTALLED OUTSIDE OF INSULATION AS SHOWN.

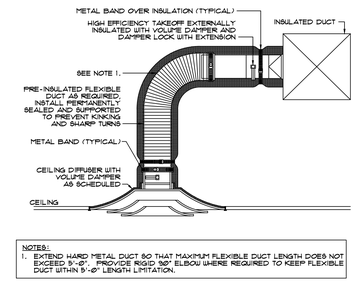


6 M6.3 REFRIGERANT PIPE SUPPORT ABOVE CEILINGS
SCALE: NOT TO SCALE



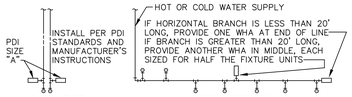
NOTE:
WHEN USING THIS TAKE-OFF FOR HIGH VELOCITY DUCT SYSTEMS THE ENTRY OPENING SHOULD BE NOTED: "NOT TO EXCEED 1500 FPM" TO AVOID NOISE GENERATION.

7 M6.3 TYPICAL DUCT TAKEOFF DETAIL
NOT TO SCALE



NOTES:
1. EXTEND HARD METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.

8 M6.3 FLEX DUCT DETAIL
NOT TO SCALE

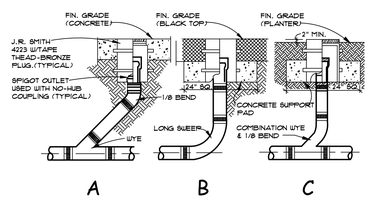


PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1–11
B	3/4"	12–32
C	1"	33–60
D	1–1/4"	61–113
E	1–1/2"	114–154
F	2"	154–330

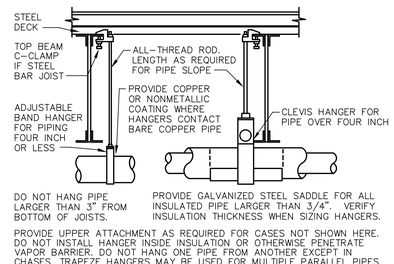
FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	5	--
URINAL	5	--
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE. SIZING CHARTS ARE BASED ON SIOUX CHIEF. USE SPECIFIC MANUFACTURERS SIZING CHARTS.

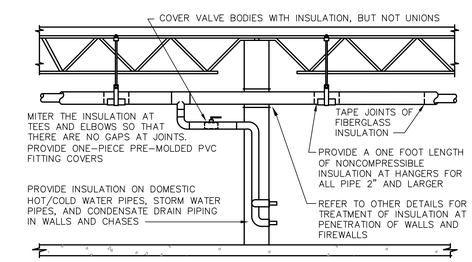
9 M6.3 WATER HAMMER ARRESTERS DETAIL
NOT TO SCALE



10 M6.3 SURFACE/YARD CLEANOUT DETAIL
NOT TO SCALE



PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. HANGER SPACING FOR PIPE SIZE: COPPER: 4"=12' 3"=11' 2-1/2"=10' 2"=9' 1-1/2"=8' 1-1/4"=7' 1"=6' 3/4"=6' 1/2"=5'. CAST IRON: 10' AND ONE NEAR ALL JOINTS. STEEL: 4"=14' 3"=12' 2-1/2"=11' 2"=10' 1-1/2"=9' 1"=7' 3/4"=6' 1/2"=5'. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.



PROVIDE FIBERGLASS INSULATION WITH ALL-SERVICE JACKET WITH VAPOR BARRIER ON ALL COLD/HOT WATER PIPING AND CONDENSATE DRAIN PIPE. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING INSULATION. INSTALL ALL ITEMS PER SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS. MAINTAIN VAPOR BARRIER ON COLD PIPING BY MEANS OF SEALANT AND TAPE. FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES SHALL NOT EXCEED 25/50. SEAL EXPOSED ENDS OF FIBERGLASS INSULATION WITH ADHESIVE MASTIC.

* INSULATE ALL PIPING IN CONDITIONED AND UNCONDITIONS SPACES.

11 M6.3 PIPE INSULATION DETAILS
NOT TO SCALE

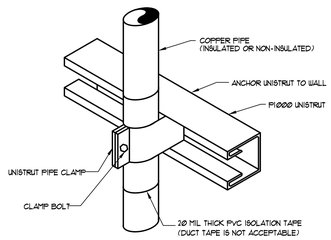
Northpointe Medical Park
TI for LabCorp

2400 North 400 East
Tooele, Utah 84000

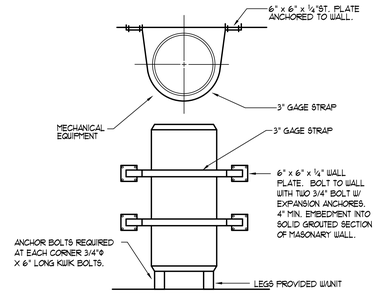
NJRA Project # 21002.00
April 2, 2021

Mechanical Details

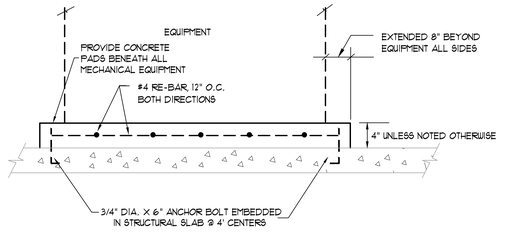
M6.3



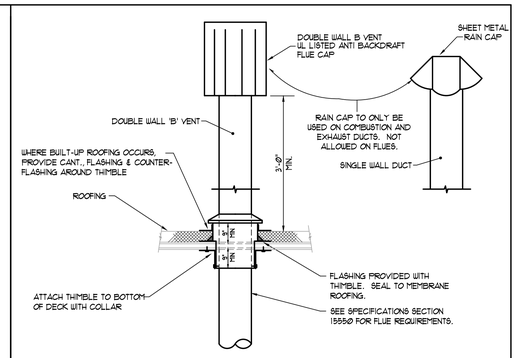
1 M6.4 **PIPE SUPPORT DETAIL**
NOT TO SCALE



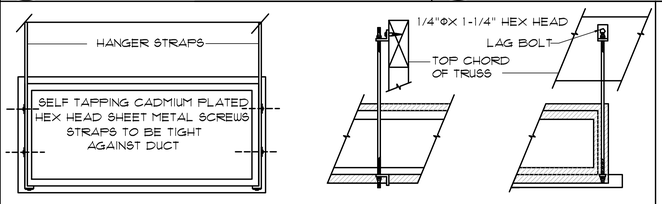
2 M6.4 **FLOOR MOUNTED EQUIPMENT ANCHOR & STRAT DETAIL**
NOT TO SCALE



3 M6.4 **HOUSEKEEPING PAD DETAIL**
NOT TO SCALE



4 M6.4 **VENT / FLUE ROOF PENETRATION DETAIL**
NOT TO SCALE

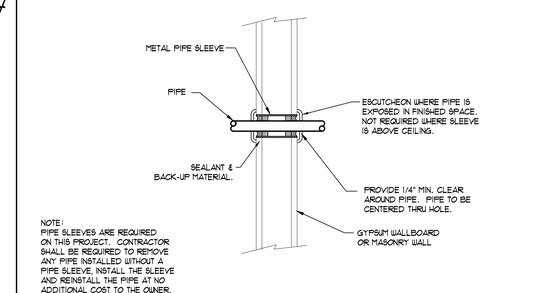


HANGER SIZE FOR RECTANGULAR DUCT			
MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	1"X8" GAGE STRAP	NONE REQUIRED	10'-Ø"
36"	1/4" ROUND ROD	1-1/2" X 1-1/2"X1/8"	8'-Ø"
48"	1/4" ROUND ROD	2"X2"X1/8"	8'-Ø"
60"	5/16" ROUND ROD	2"X2"X1/8"	8'-Ø"
84"	3/8" ROUND ROD	2"X2"X1/8"	8'-Ø"

NO POP RIVETS ALLOWED

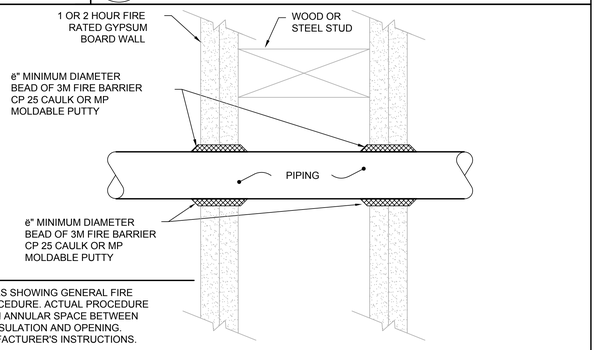
NOTES:
ALL SUPPLY AIR DUCT SHALL BE WRAPPED EXTERNALLY AS PER SPECIFICATIONS

5 M6.4 **DUCT STRAP HANGER DETAIL**
NOT TO SCALE



NOTE:
PIPE SLEEVES ARE REQUIRED ON THIS PROJECT. CONTRACTOR SHALL BE REQUIRED TO REMOVE ANY PIPE INSTALLED WITHOUT A PIPE SLEEVE. INSTALL THE SLEEVE AND REINSTALL THE PIPE AT NO ADDITIONAL COST TO THE OWNER.

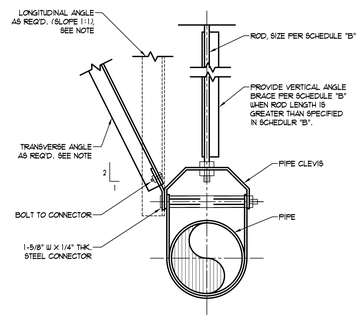
6 M6.4 **PIPING THRU WALL**
NO SCALE



NOTE !!!

TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.

7 M6.4 **FIRESTOP THRU GYPBOARD WALL**
NOT TO SCALE

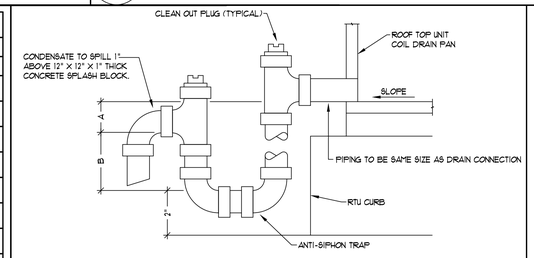


PIPING BRACING NOTES:

1. DESIGN SUPPORT SYSTEM FOR SEISMIC ZONE 4.
2. REFERENCE SMACNA SEISMIC RESTRAINT MANUAL.
3. SEISMIC BRACING IS REQUIRED FOR ALL PIPING 2-1/2" AND LARGER.
4. DO NOT USE BRANCH SECTIONS TO BRACE PIPING MAINS.
5. PROVIDE FLEXIBLE COUPLINGS AT PENETRATIONS THROUGH BUILDING SEISMIC AND EXPANSION JOINTS AND WHERE PIPING IS RIGIDLY CONNECTED TO EQUIPMENT.
6. FOR EQUIPMENT REQUIRING SEISMIC BRACING, INSTALL BRACES AS FOLLOWS:
   a. DO NOT USE JOIST BRIDGING FOR SUPPORT OF ANY LOAD.
   b. IF SUPPORTING LOADS ABOVE 50 LBS. BETWEEN JOIST PANEL POINTS REINFORCE BOTTOM CORD OF JOIST AS PER STRUCTURAL ENGINEERS REQUIREMENTS. REFER TO SUPPORT DETAILS ON STRUCTURAL DRAWINGS.

8 M6.4 **TRANSVERSE SWAY BRACING DETAIL**
NOT TO SCALE

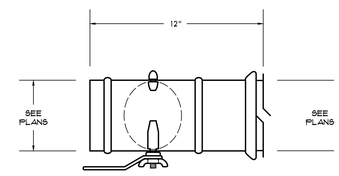
SCHEDULE "B" TRANSVERSE BRACING FOR PIPE						
PIPE SIZE INCHES	BOLTS TO ANGLES	LONGITUDAL, TRANSVERSE & VERTICAL ANGLES	ROD DIAMETER INCHES	MAXIMUM ROD LENGTH	MAXIMUM INTERVAL OF BRACES IN FEET	
					40-S STEEL OR CAST IRON	COPPER TUBE
1	3/8"	1-1/2" X 1-1/2" X 3/16"	3/8"	19"	24.2	12.1
1-1/4	3/8"	1-1/2" X 1-1/2" X 3/16"	3/8"	19"	24.2	12.1
1-1/2	3/8"	1-1/2" X 1-1/2" X 3/16"	3/8"	19"	27.5	13.2
2	3/8"	1-1/2" X 1-1/2" X 3/16"	1/2"	25"	31.9	15.4
2-1/2	3/8"	2" X 2" X 5/16"	1/2"	25"	35.2	16.5
3	3/8"	2" X 2" X 5/16"	1/2"	25"	37.4	18.7
3-1/2	3/8"	2" X 2" X 5/16"	1/2"	25"	39.6	19.8
4	3/8"	2" X 2" X 5/16"	5/8"	31"	42.9	20.9
5	1/2"	2" X 2" X 5/16"	5/8"	31"	45.1	22.0
6	1/2"	2" X 2" X 5/16"	3/4"	37"	49.5	24.2
8	1/2"	2-1/2" X 2-1/2" X 1/4"	7/8"	43"	53.9	28.6
10	1/2"	3" X 3" 1/4"	7/8"	43"	59.4	30.8



NOTE: 1. FOR BLOW THRU:
A. 1" MINIMUM
B. FAN DISCHARGE S.P. + 1

NOTE: 2. FOR DRAW THRU:
A. 4" MINIMUM
B. FAN SUCTION S.P. + 1

9 M6.4 **CONDENSATE DRAIN TRAP DETAIL**
NO SCALE



10 M6.4 **MANUAL VOLUME DAMOER DETAIL**
NOT TO SCALE

NJRA ARCHITECTS
NJRA Architects, Inc.
5272 S. College Drive, Suite104
Murray, Utah 84123
801.364.9259
www.njraarchitects.com

PATRICK T. CARLAND
REGISTERED
NO. 323760
PROFESSIONAL ENGINEER
State of Utah
4-2-21

Northpointe Medical Park
TI for LabCorp
2400 North 400 East
Tooele, Utah 84020

NJRA Project # 21002.00
April 2, 2021

Mechanical Details

M6.4

COMcheck Software Version 4.1.1.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	LabCorp TI
Location:	Tooele, Utah
Climate Zone:	5b
Project Type:	New Construction

Construction Site:
2400 North 400 East
Tooele, UT 84000

Owner/Agent:

Designer/Contractor:
NJRA Architects, Inc.
5272 S. College Drive
Suite 104
Murray, UT 84123
801-364-9259

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Mechanical Systems List

Quantity **System Type & Description**

1 HVAC System 1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 120 kBtu/h
Proposed Efficiency = 94.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 48 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity Residential
Proposed Efficiency = 13.00 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 800 CFM, 0.5 motor nameplate hp, 0.9 fan efficiency grade

1 Water Heater 1:
Gas Storage Water Heater, Capacity: 65 gallons, Input Rating: 65 kBtu/h w/ Circulation Pump
No minimum efficiency requirement applies

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in *COMcheck* Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Kenneth Gibbs - Sr. Project Manager
Name - Title

Signa

Digitally signed by Kenneth Gibbs
DN: CN=S, E=kagibbs@pve-ut.com, O="PVE, Inc.", CN=Kenneth Gibbs
Date: 2021.02.16 07:11:51-07'00'

Kenneth Gibbs

2/16/21
Date

COMcheck Software Version 4.1.1.0

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C103.2 [PR3][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.12.2 C403.12.3 [FO9][1]	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature and outdoor temperature. future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][1]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.5, C404.5.1, C404.5.2 [PL6][1]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1, C404.6.2 [PL3][1]	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.3 [PL7][1]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.6.3 [PL7][1]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.7 [PL8][1]	Demand recirculation water systems have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.7 [PL8][1]	Demand recirculation water systems have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][1]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.11.3 [ME61][2]	HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.4 [ME142][2]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.5 [ME143][2]	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.12.1 [ME71][2]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.2 [ME59][1]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.1 [ME59][1]	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.2 [ME115][1]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.6 [ME141][1]	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.4 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.5 [ME116][1]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.11.1 C403.11.2 [ME60][2]	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.4 [ME63][2]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3.3 [ME35][1]	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.2.1 [ME111][2]	Gas-fired water-heating equipment installed in new buildings: where a singular piece of water-heating equipment >= 1,000 kBtu/h serves the entire building, thermal efficiency >= 90 Et. Where multiple pieces of water-heating equipment serve the building with combined rating >= 1,000 kBtu/h, the combined input-capacity-weighted-average thermal efficiency >= 90 Et. Exclude input rating of equipment in individual dwelling units and equipment <= 100 kBtu/h.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5, C403.5.1, C403.5.2 [ME123][1]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8][1]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2.1, C403.2.4.2.2 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.3 [FI11][3]	Heat traps installed on supply and discharge piping of non-circulating systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.4 [FI25][2]	All piping insulated in accordance with section details and Table C403.11.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1 [FI12][3]	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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4-2-21

Northpointe Medical Park
TI for LabCorp

2400 North 400 East
Tooele, Utah 84000

N.JRA Project # 21002.00
April 2, 2021

Mechanical Compliance

M7.1

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.1 [FI31][1]	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.2 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI7][1]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.4 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

LabCorp TI
HVAC Load Analysis

for

NJRA Architects, Inc.
5272 S. College Drive, Ste. 104
Murray, Utah

Elite Software
CHVAC COMMERCIAL HVAC LOADS

Prepared By:

Kenneth Gibbs
PVE Inc.
1040 North 2200 West, Ste. 100
Salt Lake City, Utah 84116
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Friday, February 12, 2021

Building Summary Loads
Building peaks in August at 4pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	1,386	2,787	5.42	0	962	962	2.01
Wall	628	2,051	3.99	0	655	655	1.37
Glass	155	5,831	11.33	0	11,902	11,902	24.81
Floor Slab	67	3,291	6.39	0	0	0	0.00
Skin Loads		13,959	27.13	0	13,520	13,520	28.18
Lighting	1,109	0	0.00	0	4,351	4,351	9.07
Equipment	1,247	0	0.00	0	4,895	4,895	10.20
People	27	0	0.00	0	7,763	7,763	16.18
Partition	957	526	1.02	0	1,101	1,101	2.29
Cool. Pret.	0	0	0.00	0	0	0	0.00
Heat. Pret.	0	0	0.00	0	0	0	0.00
Cool. Vent.	405	0	0.00	0	12,976	12,976	27.05
Heat. Vent.	405	35,596	69.17	0	0	0	0.00
Cool. Infil.	10	0	0.00	0	383	383	0.80
Heat. Infil.	10	1,005	1.95	0	0	0	0.00
Draw-Thru Fan	0	0	0.00	0	0	0	0.00
Blow-Thru Fan	0	0	0.00	0	0	0	0.00
Reserve Cap.	0	0	0.00	0	0	0	0.00
Reheat Cap.	0	0	0.00	0	0	0	0.00
Supply Duct	0	375	0.73	0	1,685	1,685	3.51
Return Duct	0	0	0.00	0	1,303	1,303	2.72
Misc. Supply	0	0	0.00	0	0	0	0.00
Misc. Return	0	0	0.00	0	0	0	0.00
Building Totals		51,461	100.00	0	47,975	47,975	100.00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	35,596	69.17	0	12,976	12,976	27.05
Infiltration	1,005	1.95	0	383	383	0.80
Pretreated Air	0	0.00	0	0	0	0.00
Zone Loads	14,486	28.15	0	31,628	31,628	65.93
Plenum Loads	0	0.00	0	0	0	0.00
Fan & Duct Loads	375	0.73	0	2,988	2,988	6.23
Building Totals	51,461	100.00	0	47,975	47,975	100.00

Check Figures

Total Building Supply Air (based on a 20° TD):	1,788	CFM
Total Building Vent. Air (22.65% of Supply):	405	CFM
Total Conditioned Air Space:	1,386	Sq.ft
Supply Air Per Unit Area:	1.2901	CFM/Sq.ft
Area Per Cooling Capacity:	346.7	Sq.ft/Ton
Cooling Capacity Per Area:	0.0029	Tons/Sq.ft

Building Summary Loads (cont'd)

Check Figures

Heating Capacity Per Area:	37.13	Btuh/Sq.ft
Total Heating Required With Outside Air:	51,461	Btuh
Total Cooling Required With Outside Air:	4.00	Tons

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TI for LabCorp

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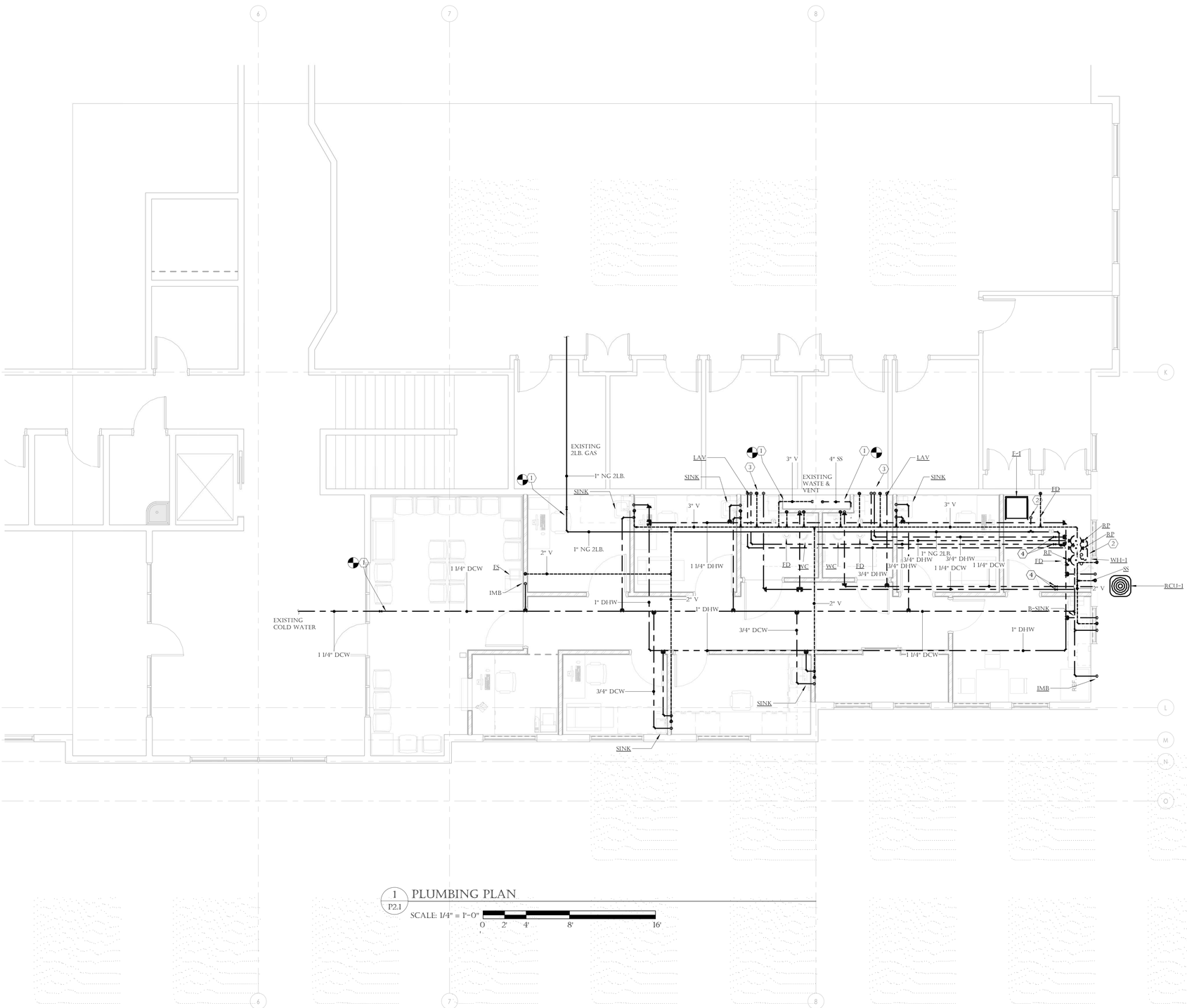
NJRA Project # 21002.00
April 2, 2021

Mechanical
Compliance

M7.2



1 P2.1 PLUMBING PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8' 16'

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4/2/2021

KEYNOTES

1. CONTRACTOR TO FIELD VERIFY EXISTING BUILDING FOR BUILDING UTILITIES LOCATIONS. PROVIDE/INSTALL REQUIRED PIPING, TRANSITIONS AND OFFSETS REQUIRED TO CONNECT TO EXISTING PIPING TO EXTEND AND INSTALL UTILITY PIPING AS SHOWN. (TYPICAL).
2. CONTRACTOR TO PROVIDE/INSTALL 2 LB. TO 4 OZ. REGULATOR AND PROVIDE/INSTALL FINAL CONNECTION TO APPLIANCE MEETING MANUFACTURES REQUIREMENTS.
3. CONTRACTOR TO PROVIDE/INSTALL HOT WATER AT LAVATORY MEETING REQUIREMENTS OF DETAIL 10/M6.1. (TYPICAL).
4. CONTRACTOR TO PROVIDE/INSTALL ELECTRONIC SOLENID VALVE IN PIPING SERVING RESTROOM FOR TESTING SHUTODOWN. (TYPICAL).

GENERAL NOTES

A. COORDINATE AND PROVIDE/INSTALL OFFSETS AND/OR TRANSITIONS IN PIPING AS REQUIRED WITHOUT ANY ADDITIONAL COSTS.

B. ALL VALVES SHALL BE 1/4 TURN BALL TYPE AND SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS. IF PROVIDE AND INSTALL REQUIRED ACCESS PANELS.

C. PROVIDE/INSTALL ANY/ALL ACCESS PANELS TO ACCESS MECHANICAL EQUIPMENT ANY/OR PIPING VALVING.

D. CONTRACTOR TO COORDINATE ALL INSTALLATIONS WITH ALL OTHER TRADES AND ARCHS PLANS AND BUILDING STRUCTURAL. CONTRACTOR IS RESPONSIBLE OFFSETS, TRANSITIONS, REROUTING AND RESIZING AS REQUIRED.

E. ALL PIPING SHALL BE TIGHT TO BOTTOM OF STRUCTURE.

F. ALL FIRE PROTECTION PIPING SHALL BE SIZED AND PROVIDED/INSTALLED BY FIRE PROTECTION CONTRACTOR.

G. CONTRACTOR TO PROVIDE SPECIAL INSPECTION REPORTS TO BUILDING INSPECTOR ON ANY/ALL USED FIRE CAULKING. COORDINATE WITH INSPECTOR FOR PACKING REQUIREMENTS.

H. REFER TO ALL DETAIL SHEETS FOR INSTALLATION DETAILS. "NOT" ALL DETAILS ARE CALLED OUT ON PLANS.

I. CONTRACTOR IS RESPONSIBLE FOR ANY/ALL COORDINATION AND FIELD ADJUSTMENTS REQUIRED.

Northpointe Medical Park
TI for LabCorp

2400 North 400 East
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April 2, 2021

PLUMBING FLOOR PLAN

P2.1

4/2/2021 7:17:06 AM

ELECTRICAL SYMBOLS

NOTE: SYMBOLS SHOWN IN THIS SCHEDULE ARE TYPICAL. NOT ALL ARE USED IN THIS PROJECT. MOUNTING HEIGHTS ARE TO THE CENTER OF THE DEVICE AND ARE TYPICAL.

DASHED SYMBOLS INDICATE EXISTING FIXTURE, EQUIPMENT, ETC.

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
	ELECTRICAL WIRING	
	CROSS LINES INDICATE NUMBER OF CONDUCTORS GROUNDING CONDUCTORS NOT INCLUDED.	N/A
	BRANCH CIRCUIT CONCEALED IN CEILING OR WALL	N/A
	BRANCH CIRCUIT CONCEALED IN GROUND OR FLOOR	N/A
A-1,3	BRANCH CIRCUIT HOMERUNS TO PANEL w/PANEL & CIRCUIT NUMBER DESIGNATIONS.	N/A
	CONDUIT RISER UP	N/A
	CONDUIT RISER DOWN	N/A
	CONDUIT STUB (CAP CONDUIT)	AS NOTED
C	CABLE TRAY	AS NOTED
B	BUS DUCT	AS NOTED
	ELECTRICAL POWER	
J	JUNCTION BOX	AS NOTED
	DUPLEX RECEPTACLE	+16"
	QUAD RECEPTACLE	+16"
	SPLIT WIRED DUPLEX RECEPTACLE	+16"
WP	DUPLEX RECEPTACLE WEATHERPROOF AND GFCI	+16"
	DUPLEX RECEPTACLE OUTLET WITH GROUND FAULT CIRCUIT INTERRUPTION PROTECTION	+16"
EWC	RECEPTACLE ELECTRIC WATER COOLER (EWC) WITH GROUND FAULT CIRCUIT INTERRUPTION PROTECTION	+16"
	EQUIPMENT RECEPTACLE	+16"
	SPECIAL PURPOSE RECEPTACLE	+16"
	DUPLEX RECEPTACLE FLOOR	FLOOR
	QUAD RECEPTACLE FLOOR	FLOOR
	FIRE RATED POKE THROUGH	FLOOR
	POWER/TELEPHONE POLE	FLOOR
	MULTI-OUTLET WIREWAY	+46"
	ELECTRICAL CONNECTIONS	
	NON-FUSED DISCONNECT SWITCH	TOP AT 6'-0"
	FUSED DISCONNECT SWITCH	TOP AT 6'-0"
	MOTOR STARTER/DISCONNECT SWITCH COMBINATION NON-FUSED	TOP AT 6'-0"
	MOTOR STARTER/DISCONNECT SWITCH COMBINATION FUSED	TOP AT 6'-0"
	MOTOR STARTER ONLY	TOP AT 6'-0"
VFD	VARIABLE FREQUENCY DRIVE	+78"
	MOTOR CONNECTION	AS NOTED
	ELECTRICAL DISTRIBUTION	
T	TELEPHONE COMPANY PEDESTAL	AS NOTED
GS	POWER COMPANY GROUND SLEEVE	AS NOTED
	POWER COMPANY SITE TRANSFORMER	AS NOTED
	HIGH VOLTAGE (277/480 VOLT) PANELBOARD	TOP AT 6'-0"
	LOW VOLTAGE (120/208 VOLT) PANELBOARD	TOP AT 6'-0"
	DRY TYPE TRANSFORMER	AS NOTED
	DISTRIBUTION SWITCHBOARD	AS NOTED
	TELEPHONE AND/OR DATA TERMINAL BOARD	AS NOTED
	ELECTRICAL DEVICES	
	PUSHBUTTON	+46"
	STOP/START STATION	+46"
EPO	"EMERGENCY POWER OFF" MUSHROOM TYPE BUTTON	+46"
T	LINE VOLTAGE THERMOSTAT	+46"
N	NURSE CALL BED/BATH STATION	+46"
N	NURSE CALL LIGHT	+84"
NURS	NURSE CALL STATION PANEL	TOP AT 6'-0"

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
	LIGHTING CONTROL	
$	SINGLE POLE SWITCH	+46"
$3	3-WAY SWITCH	+46"
$4	4-WAY SWITCH	+46"
$P	SWITCH WITH PILOT LIGHT	+46"
SD	DIMMER SWITCH	+46"
$K	KEYED SWITCH	+46"
$TM	DIGITAL TIMER SWITCH	+46"
$T	MANUAL STARTER WITH THERMAL OVERLOAD	AS NOTED
$LV	LOW VOLTAGE SWITCH	+46"
$a	CONTROLLING SWITCH (LETTER INDICATES CONTROL CIRCUIT)	+46"
	SINGLE POLE SWITCH/OCCUPANCY SENSOR COMBINATION. MANUAL ON/AUTO OFF (WALL MOUNTED) DUAL TECHNOLOGY'	+46"
	OCCUPANCY SENSOR DUAL TECHNOLOGY	CEILING
TS	TIME SWITCH	+60"
LC	LIGHTING CONTACTOR	+60"
P	PHOTOCELL	AS NOTED
	LIGHTING	
	LINEAR FIXTURE (TYPICAL)	CEILING
EM	LINEAR EMERGENCY FIXTURE (TYPICAL)	CEILING
	SURFACE MOUNTED FIXTURE	CEILING
	RECESSED FIXTURE	CEILING
	WALL MOUNTED FIXTURE	AS NOTED
	WALL MOUNTED EMERGENCY EGRESS FIXTURE	AS NOTED
	LINEAR STRIP	CEILING
	TRACK LIGHTING	CEILING
	EMERGENCY LIGHTING UNIT	+84"
FXX	FIXTURE TYPE SYMBOL (ATTACHED TO FIXTURE SYMBOL)	N/A
	POST TOP AREA LIGHT POLE & FIXTURE	AS NOTED
	AREA LIGHT POLE AND FIXTURE (HEAD QTY AS SHOWN ON PLAN)	AS NOTED
	BOLLARD FIXTURE	GROUND
	FLOOD OR SPOT FIXTURE	AS NOTED
	WALL MOUNTED EXIT LIGHT (SINGLE FACE)	+84"
	WALL MOUNTED EXIT LIGHT (DOUBLE FACE)	+84"
	CEILING MOUNTED EXIT LIGHT (SINGLE FACE)	CEILING
	CEILING MOUNTED EXIT LIGHT (DOUBLE FACE)	CEILING
	TELECOMMUNICATIONS	
	TELEPHONE OUTLET	+16"
	COMPUTER DATA OUTLET	+16"
	VOICE / DATA OUTLET	+16"
	TELEPHONE OUTLET FLOOR	FLOOR
	COMPUTER DATA OUTLET FLOOR	FLOOR
	NETWORK AND VOICE OUTLET FLOOR	FLOOR
	REFERENCE SYMBOLS	
XX X	FEEDER TAG (ONE LINE DIAGRAM)	N/A
	REVISION TAG INDICATOR	N/A
	DETAIL INDICATOR: TOP DETAIL IDENTIFICATION BOTTOM INDICATES SHEET WHERE DETAIL IS LOCATED.	N/A
X-XX	MECHANICAL EQUIPMENT SYMBOL	N/A
X	KEYED NOTE REFERENCE	N/A

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
	AUDIO / VIDEO	
TV	TELEVISION OUTLET	AS NOTED
V	VOLUME CONTROL	+46"
S	SPEAKER	CEILING
M	MICROPHONE JACK	+16"
A	AUXILIARY JACK	+16"
IC	INTERCOM STATION	+46"
	BELL	+84"
	CHIME	+84"
	FIRE ALARM	
F	FIRE ALARM MANUAL PULL STATION	SEE DETAIL
	FIRE ALARM HORN/STROBE	SEE DETAIL
	FIRE ALARM HORN/STROBE WITH GUARD	SEE DETAIL
WP	FIRE ALARM HORN/STROBE WATERPROOF	SEE DETAIL
	FIRE ALARM STROBE	SEE DETAIL
	SMOKE DETECTOR	CEILING
B	SMOKE DETECTOR BATTERY-BACKED	CEILING
D	DUCT SMOKE DETECTOR	IN DUCT
E	SMOKE DETECTOR (ELEVATOR RECALL)	CEILING
	HEAT DETECTOR - C02	CEILING
	GAS DETECTOR	+16"
	DOOR HOLDER	AS NOTED
	PRESSURE SWITCH	AS NOTED
	FIRE ALARM FLOW SWITCH	AS NOTED
	FIRE ALARM TAMPER SWITCH	AS NOTED
	FIRE ALARM FIREFIGHTER PHONE	+46"
CM	CONTROL MODULE	AS NOTED
MM	MONITOR MODULE	AS NOTED
FSD	FIRE/SMOKE DAMPER	AS NOTED
R	FIRE ALARM RELAY	AS NOTED
GAA	FIRE ALARM GENERATOR ANNUNCIATOR	TOP AT 6'-0"
FST	FIRE ALARM TRANSMISSION (MONITORING) DEVICE	AS NOTED
FACP	FIRE ALARM CONTROL PANEL	TOP AT 6'-0"
FAA	FIRE ALARM REMOTE ANNUNCIATOR PANEL	TOP AT 6'-0"
	SECURITY	
D 1	SECURITY SYSTEM DOOR CONTACT	DOOR JAMB
D 2	SECURITY SYSTEM OVERHEAD DOOR CONTACT	AS NOTED
KP	SECURITY SYSTEM KEYPAD ARM/DISARM	+46"
ES	SECURITY SYSTEM DOOR ELECTRIC STRIKE	AS NOTED
ML	SECURITY SYSTEM MAGNETIC DOOR LOCK	AS NOTED
REX	REQUEST TO EXIT MOTION DETECTOR	AS NOTED
M	SECURITY SYSTEM AREA MOTION SENSOR	AS NOTED
G	SECURITY SYSTEM GLASS BREAK SENSOR	AS NOTED
CR	SECURITY SYSTEM CARD READER	+46"
AK	SECURITY SYSTEM DOOR ACCESS KEYPAD	+46"
	SECURITY SYSTEM CCTV CAMERA	AS NOTED
DVR	DIGITAL VIDEO RECORDER	AS NOTED
MON	SECURITY SYSTEM CCTV MONITOR	AS NOTED
SERT	SECURITY SYSTEM PANEL	TOP AT 6'-0"
PS	POWER SUPPLY LOW VOLTAGE	AS NOTED

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFP	ARC FAULT PROTECTOR
AIC	AMP INTERRUPTING CURRENT (SYMMETRICAL)
AL	ALUMINUM
BG	BELOW GRADE
C	CONDUIT
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CKT	CIRCUIT
CO	CONDUIT ONLY
CU	COPPER
C/W	COMPLETE WITH
(D)	DEMOLISH/DELETE
E	EMERGENCY
(EX)	EXISTING
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
(F)	FUTURE
FA	FIRE ALARM
FLA	FULL LOAD AMPS
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTOR
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
IG	ISOLATED GROUND
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MLO	MAIN LUGS ONLY
(N)	NEW
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
PNL	PANEL
(R)	RELOCATE
(RM)	REMOVE AND RETURN TO OWNER
TR	TAMPER RESISTANT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WP	WEATHER PROOF
XMR	TRANSFORMER

* THIS IS A TYPICAL ABBREVIATION LIST. NOT ALL ABBREVIATIONS ARE USED ON THIS PROJECT.

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND OTHER DRAWINGS PRIOR TO BID.
2. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS IN A NEAT AND ORDERLY MANNER WITH TYPE AND MODEL NUMBERS INDICATED. SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO: LIGHTING FIXTURES, LAMPS, WIRING DEVICES, OCCUPANCY SENSORS, CONTACTORS, TIME CLOCKS, PHOTOCELLS, RELAYS, SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, SAFETY SWITCHES, MOTOR STARTERS, OVERCURRENT PROTECTION DEVICES, TRANSFORMERS, CONDUCTORS OVER 600 VOLTS AND ALL SPECIAL SYSTEMS SUCH AS FIRE ALARM, LIGHTING CONTROLS, SECURITY SYSTEMS, SOUND SYSTEMS ETC.
3. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. MANUFACTURES CATALOG NUMBERS ARE LISTED AS A BASIS OF DESIGN. ELECTRICAL CONTRACTOR SHALL SUBMIT PRODUCT INFORMATION THAT DEVIATES FROM ORIGINAL DESIGN AND SPECIFICATION.
4. CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY BUILDING PERMITS AND INSPECTION FEES.
5. ALL IMPACT FEES ASSOCIATED WITH CITY, UTILITY OR SERVICE COMPANIES FOR BUT NOT LIMITED TO POWER, TELEPHONE, FIBER OPTIC & INTERNET SHALL BE THE RESPONSIBILITY OF THE OWNER.
6. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL TEMPORARY POWER FOR PROJECT CONSTRUCTION AS REQUIRED. ALL ENERGY COSTS ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
7. DO NOT SCALE DRAWINGS VERIFY DIMENSIONS IN FIELD PRIOR TO MAKING ANY ROUGH-INS.
8. ELECTRICAL CONTRACTOR SHALL REVIEW ALL ARCHITECTS ELEVATIONS, SECTIONS AND FLOOR PLANS PRIOR TO ROUGH IN OF ELECTRICAL DEVICE JUNCTION BOXES.
9. CONSULT ARCHITECTS REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF LIGHTING FIXTURES, SPEAKERS, SMOKE DETECTORS ETC.
10. ELECTRICAL CONTRACTOR SHALL MEET WITH THE CEILING AND MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, CEILING TYPES AND ROUGH-IN REQUIREMENTS OF ALL LIGHTING FIXTURES PRIOR TO DUCT, PIPING AND CEILING INSTALLATIONS.
11. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
12. ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-INS. CONSULT CONTRACT DOCUMENT DRAWINGS AND SHOP DRAWINGS TO VERIFY AND MAINTAIN REQUIRED CLEARANCES.
13. ELECTRICAL ROOM DRAWINGS ARE FOR REFERENCE ONLY OF EQUIPMENT QUANTITIES. ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ELECTRICAL ROOM SHOWING DIMENSIONS AND CLEARANCES OF ALL EQUIPMENT AND ELECTRICAL GEAR PROVIDED. COORDINATE LAYOUT WITH ONE-LINE DRAWINGS.
14. CONTRACTOR SHALL VERIFY ACTUAL ELECTRICAL LOADS FROM NAMEPLATE RATINGS OF EACH PIECE OF EQUIPMENT REQUIRING POWER. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE PROJECT ENGINEER.
15. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
16. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
17. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE AS PER MANUFACTURERS WRITTEN INSTRUCTIONS AND APPROVED WIRING DIAGRAMS AND DETAILS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
18. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A 200LB RATED PULL CORD INSTALLED AND SHALL BE IDENTIFIED AT EACH JUNCTION, PULL AND TERMINATION POINT, USING PERMANENT MARKER IN THE BOX. ID SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
19. ALL PENETRATIONS OF FIRE RATED FLOORS, CEILING AND WALLS SHALL BE SEALED WITH UL LISTED AND RATED FIRE STOP MATERIAL TO MAINTAIN FIRE RATING OF ASSEMBLY.
20. ELECTRICAL BOXES SHALL NOT BE LOCATED IN MASONRY OR CONCRETE COLUMNS, BOND BEAMS OR GROUTED CELLS OF MASONRY WALLS ADJACENT TO OPENINGS WITHOUT COORDINATION WITH THE MASONRY CONTRACTOR.
21. WIRE FOR GENERAL USE SHALL BE COPPER 75° C RATED. WIRING FOR HID FIXTURES WITHIN 3" OF FLUORESCENT BALLAST SHALL BE COPPER, MINIMUM 90° C RATED. CONDUCTOR SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30° C AMBIENT TEMPERATURE ENVIRONMENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS.
22. CONDUCTORS HAVE BEEN SIZED FOR VOLTAGE DROP AS PER PLANS AND DIRECT ROUTING. ANY DEVIATION IN CONDUIT ROUTING MAY INCREASE THE WIRE AND CONDUIT SIZE. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO INSURE PROPER OPERATING VOLTAGE ON ALL CIRCUITS BOTH INTERIOR AND EXTERIOR. THE VOLTAGE DROP SHALL NOT EXCEED 3% FOR BRANCH CIRCUITS AND 2% FOR FEEDERS FOR A TOTAL OF 5% COMBINED TOGETHER OF BRANCH AND FEEDER CIRCUITS TO THE FARTHEST OUTLET.
23. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL UTILITY METERING EQUIPMENT TO COMPLY WITH THE STANDARDS OF THE LOCAL OR PROJECT SPECIFIC POWER COMPANY.
24. VERIFY EXACT LOCATIONS OF ALL NEW AND EXISTING UNDERGROUND SITE UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING. A UTILITY LOCATING COMPANY SUCH AS "BLUE STAKE" OR EQUAL SHALL BE USED TO VERIFY AND MARK UTILITIES BEFORE TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL EXCAVATION, SUPPORTS, SERVICE FEEDERS, (CONDUIT AND/OR WIRE), PULL BOXES, TRANSFORMER PADS, SAW CUTTING AND PATCHING, CONCRETE PAVING ETC, REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION. PATCHING SHALL MATCH EXISTING SURROUNDING SURFACES. CONTRACTOR SHALL OBTAIN AND VERIFY UTILITY COMPANY DRAWINGS AND REQUIREMENTS FOR ALL SITE UTILITIES. ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE ELECTRICAL RELATED UTILITIES WITH THE CIVIL, MECHANICAL, AND SITE EXCAVATION CONTRACTORS.
25. PULLBOXES, CABINETS, ETC. MOUNTED ON THE EXTERIOR OF THE BUILDING SHALL BE WEATHERPROOF TYPE WITH HINGED GASKETED LOCKABLE COVERS SECURED WITH TAMPERPROOF SCREWS.
26. SPLICES IN EXTERIOR PULLBOXES AND MANHOLES SHALL BE MADE WATERPROOF USING "SCOTCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS ENTERING BOXES WITH "DUCTSEAL" OR EQUAL.
27. ELECTRICAL CONTRACTOR SHALL TEST AND VERIFY ALL SYSTEMS WITH PROJECT ENGINEER DURING FINAL INSPECTION TO INSURE PROPER OPERATION. IF TESTS RESULT IN DEFECT THE CONTRACTOR SHALL MAKE ANY CORRECTIONS NECESSARY AT NO ADDITIONAL COSTS TO THE OWNER.
28. PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
29. THE CONTRACTOR SHALL GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP, WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION. DEFECTS SHALL BE PROMPTLY CORRECTED.

DRAWING INDEX

ELECTRICAL SPECIFICATIONS

SECTION 16000 - GENERAL PROVISIONS

WORK CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED FOR THE COMPLETE INSTALLATION OF ELECTRICAL WORK SHOWN IN THE CONTRACT DOCUMENTS AND SPECIFIED IN DIVISION 16.

INCLUDE ALL PARTS AND LABOR, WHICH ARE INCIDENTAL AND NECESSARY FOR A COMPLETE AND OPERABLE INSTALLATION EVEN THOUGH NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS. SUCH ITEMS INCLUDE NUTS, BOLTS, ANCHORS, BRACKETS, SLEEVES, OFFSETS IN CONDUIT, FITTINGS, RELAYS, ETC.

REQUEST INSPECTIONS AS REQUIRED BY REGULATING AGENCIES AND/OR REGULATIONS. PAY ALL CHARGES FOR INSPECTIONS BY REGULATING AGENCIES OF INSTALLATIONS OF PLANS AND SPECIFICATIONS.

INCLUDE STATE AND LOCAL SALES TAXES IN THE BID. KEEP ACCURATE RECORDS OF THESE TAXES AND FURNISH SUCH RECORDS TO THE OWNER UPON REQUEST.

MEET OR EXCEED ALL CURRENT APPLICABLE CODES, ORDINANCES AND REGULATIONS FOR ALL INSTALLATIONS. PROMPTLY NOTIFY THE ENGINEER, IN WRITING, IF THE CONTRACT DOCUMENTS APPEAR TO CONFLICT WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR ASSUMES ALL RESPONSIBILITY AND COSTS FOR CORRECTING NON-COMPLYING WORK INSTALLED WITHOUT NOTIFYING THE ENGINEER.

HIGHER QUALITY OF WORKMANSHIP AND MATERIALS INDICATED IN THE CONTRACT DOCUMENTS TAKES PRECEDENCE OVER THAT ALLOWED IN REFERENCED CODES AND STANDARDS.

THE TERMS DEFINED BELOW APPLY TO ALL WORK INCLUDED IN DIVISION 16.

a. THE WORK - AS DEFINED IN THE 1997 AIA DOCUMENT A201: "THE TERM "WORK" MEANS THE CONSTRUCTION AND SERVICES REQUIRED BY THE CONTRACT DOCUMENTS WHETHER COMPLETED OR PARTIALLY COMPLETED, AND INCLUDES ALL OTHER LABOR, MATERIALS, EQUIPMENT AND SERVICES PROVIDED OR TO BE PROVIDED BY THE CONTRACTOR TO FULFILL THE CONTRACTORS OBLIGATIONS. THE WORK MAY CONSTITUTE THE WHOLE OR A PART OF THE PROJECT".

b. FURNISH - TO OBTAIN IN NEW CONDITION READY FOR INSTALLATION INTO THE WORK.

c. INSTALL - TO STORE, SET IN PLACE, CONNECT AND PLACE INTO OPERATION INTO THE WORK.

d. PROVIDE - TO FURNISH AND INSTALL.

e. CONNECT - TO BRING SERVICE TO THE EQUIPMENT AND MAKE FINAL ATTACHMENT INCLUDING NECESSARY SWITCHES, OUTLETS, BOXES, TERMINATIONS, ETC.

f. CONDUIT - INCLUDES IN ADDITION TO CONDUIT, ALL FITTINGS, PULL BOXES, HANGERS AND OTHER SUPPORTS AND ACCESSORIES RELATED TO SUCH CONDUIT.

g. CONCEALED - HIDDEN FROM SIGHT IN CHASES, FURRED SPACES, SHAFTS, HUNG CEILINGS, EMBEDDED IN CONSTRUCTION, IN CRAWL SPACES OR BURIED.

h. EXPOSED - NOT INSTALLED UNDERGROUND NOR CONCEALED AS DEFINED ABOVE.

THE DRAWINGS AND SPECIFICATIONS CONSTITUTE THE CONTRACT DOCUMENTS. ANY ITEM NOTED IN THE SPECIFICATION OR SHOWN ON THE DRAWINGS IS INCLUDED IN THE CONTRACT DOCUMENTS.

ALL ELECTRICAL DETAILS AND DRAWINGS ARE DIAGRAMMATIC, UNLESS SPECIFICALLY NOTED. FIELD VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY CONFLICTS OR DISCREPANCIES, IN WRITING, PRIOR TO INSTALLATION.

INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY PRECAUTIONS REQUIRED WITH THIS WORK IN ACCORDANCE WITH THE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND OTHER GOVERNING AGENCIES.

DO NOT REMOVE OR DISTURB ANY ASBESTOS CONTAINING MATERIALS FROM THE PROJECT. IMMEDIATELY STOP WORK AND NOTIFY THE TENANT IF ASBESTOS CONTAINING MATERIALS ARE SUSPECTED.

BEFORE SUBMITTING A PROPOSAL ON THE WORK CONTEMPLATED, EXAMINE THE SITE OF THE PROPOSED WORK AND BECOME THOROUGHLY FAMILIAR WITH EXISTING CONDITIONS AND LIMITATIONS. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF MISUNDERSTANDING AS TO THE AMOUNT OF WORK INVOLVED NOR BIDDERS LACK OF KNOWLEDGE OF EXISTING CONDITIONS WHICH COULD HAVE BEEN DISCOVERED OR REASONABLY ANTICIPATED PRIOR TO BIDDING.

CONDUITS, PIPES, DUCTS, LIGHTS, DEVICES, SPEAKERS, ETC., SHOWN ON THE DRAWINGS AS EXISTING HAVE BEEN BASED ON THE EXISTING PLANS AND MAY NOT BE INSTALLED AS ORIGINALLY SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE AND MAKE EXACT DETERMINATION OF THE EXISTENCE, LOCATION AND CONDITION OF SUCH FACILITIES PRIOR TO SUBMITTING A BID.

CONSULT THE DRAWINGS AND SPECIFICATIONS OF MECHANICAL AND OTHER TRADES FOR CORRELATING INFORMATION AND LAY OUT WORK SO THAT IT WILL COORDINATE WITH OTHER TRADES. VERIFY DIMENSIONS AND CONDITIONS (I.E., FINISHED CEILING HEIGHTS, FOOTING AND FOUNDATION ELEVATIONS, BEAM DEPTHS, ETC). WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. NOTIFY THE ARCHITECT/ENGINEER OF ANY CONFLICTS THAT CANNOT BE RESOLVED, IN THE FIELD, BY AFFECTED TRADES. REPLACEMENT OF WORK DUE TO LACK OF COORDINATION AND FAILURE TO VERIFY EXISTING CONDITIONS WILL BE COMPLETED AT NO COST TO THE OWNER.

INSTALL ALL CONDUIT, CABLE TRAY, BUSDUCT, EQUIPMENT, ETC. ALLOWING PROPER CODE AND MAINTENANCE CLEARANCES AND TO AVOID BLOCKING PASSAGEWAYS AND ACCESS PANELS.

WHERE WORK MUST BE REPLACED DUE TO FAILURE OF THE CONTRACTOR TO VERIFY THE CONDITIONS EXISTING ON THE JOB, SUCH REPLACEMENT MUST BE ACCOMPLISHED AT NO COST TO THE OWNER. THIS APPLIES TO SHOP FABRICATED WORK AS WELL AS TO WORK FABRICATED IN PLACE.

THROUGHOUT THE COURSE OF THE WORK, MINOR CHANGES AND ADJUSTMENTS TO THE INSTALLATION MAY BE REQUESTED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE OWNER, WHERE SUCH ADJUSTMENTS ARE NECESSARY TO THE PROPER INSTALLATION AND OPERATION WITHIN THE INTENT OF THE CONTRACT DOCUMENTS. THIS DOES NOT INCLUDE WORK ALREADY COMPLETED.

OBTAIN EXACT LOCATION OF CONNECTION TO EQUIPMENT, FURNISHED BY OTHERS, FROM THE PERSON FURNISHING THE EQUIPMENT. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN EITHER ONE IS AS BINDING AS IF CALLED FOR IN BOTH.

INCLUDE THE BETTER QUALITY, GREATER QUANTITY OR HIGHER COST FOR AN ITEM OR ARRANGEMENT WHERE A DISAGREEMENT EXISTS IN THE DRAWINGS AND SPECIFICATIONS.

GUARANTEE AND MAINTAIN THE STABILITY OF WORK AND MATERIALS AND KEEP SAME IN PERFECT REPAIR AND CONDITION FOR THE PERIOD OF ONE (1) YEAR AFTER THE FINAL COMPLETION OF THE WORK AS EVIDENCED BY ISSUANCE OF THE FINAL CERTIFICATE BY THE OWNER.

DEFECTS OF ANY KIND DUE TO FAULTY WORK OR MATERIALS APPEARING DURING THE ABOVE MENTIONED PERIOD MUST BE IMMEDIATELY MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE ENTIRE SATISFACTION OF THE OWNER. INCLUDE DAMAGE TO THE FINISH OR THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS.

REPLACE ALL RECEPTACLES, SWITCHES, COVERPLATES, ETC. DAMAGED BY ANY CONTRACTOR DURING THE COURSE OF CONSTRUCTION.

MATERIALS FURNISHED FOR THE TEMPORARY LIGHT AND POWER SYSTEM REMAIN CONTRACTORS PROPERTY. REMOVE WHEN THERE IS NO LONGER ANY NEED FOR TEMPORARY LIGHT AND POWER.

COORDINATE/SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE ANY DISRUPTIONS. CONFINE ALL INTERRUPTIONS TO THE SMALLEST POSSIBLE AREA. PROVIDE TEMPORARY CONNECTIONS IF REQUIRED TO PROVIDE CONTINUITY OF SERVICE.

INSPECT ALL AREAS AFFECTED BY THE INTERRUPTIONS AND RETURN ALL AUTOMATICALLY CONTROLLED EQUIPMENT, ELECTRICALLY OPERATED EQUIPMENT TO THE SAME OPERATING CONDITION PRIOR TO THE INTERRUPTION.

DO NOT DISTURB NORMAL USE OF THE FACILITY, EXCEPT WITHIN THE IMMEDIATE CONSTRUCTION AREA. KEEP WALKS, DRIVEWAYS, ENTRANCES, ETC. FREE AND CLEAR OF EQUIPMENT, MATERIAL AND DEBRIS.

STORE ALL EQUIPMENT AND MATERIAL IN A PLACE AND MANNER THAT MINIMIZES CONGESTION AND IS APPROVED BY THE OWNER.

PROVIDE NEW MATERIAL AND EQUIPMENT, UNLESS NOTED OTHERWISE. PROTECT EQUIPMENT AND MATERIAL FROM DAMAGE, DIRT AND THE WEATHER.

PROVIDE THE HIGHEST QUALITY WORKMANSHIP AND PERFORM ALL WORK ONLY BY SKILLED MECHANICS. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS AND CURRENT NECA STANDARDS.

THE OWNER RESERVES THE RIGHT TO REJECT MATERIAL OR WORKMANSHIP NOT IN ACCORDANCE WITH THE SPECIFICATIONS, BEFORE OR AFTER INSTALLATION.

PERFORM ALL CUTTING AND PATCHING NECESSARY TO WORK, UNLESS SPECIFICALLY DELEGATED TO THE GENERAL CONTRACTOR. OBTAIN SPECIAL PERMISSION FROM THE LANDLORD BEFORE CUTTING STRUCTURAL MEMBERS OR FINISHED MATERIAL. PERFORM ALL PATCHING IN SUCH A MANNER AS TO LEAVE NO VISIBLE TRACE AND RETURN THE AREA AFFECTED TO THE CONDITION OF UNDISTURBED WORK. PERFORM ALL PATCHING BY WORKERS EXPERIENCED, SKILLED, AND LICENSED FOR THE PARTICULAR TYPE OF WORK INVOLVED. INFERIOR WORK WILL NOT BE ACCEPTED.

PATCH ALL HOLES LEFT AS A RESULT OF DEMOLITION OF ELECTRICAL EQUIPMENT AND DEVICES.

PREVENT THE SPREAD OF DUST, DEBRIS, AND OTHER MATERIAL INTO ADJACENT AREAS.

REFINISH ALL ELECTRICAL EQUIPMENT DAMAGED DURING SHIPPING AND/OR INSTALLATION TO ITS ORIGINAL CONDITION. REMOVE ALL RUST; PRIME, AND PAINT PER MANUFACTURERS RECOMMENDATIONS FOR FINISH EQUAL TO ORIGINAL.

AFTER TESTS HAVE BEEN MADE AND ACCEPTED, CLEAN LIGHT FIXTURES, PANELS AND OTHER EQUIPMENT INSTALLED BY THE CONTRACTOR, LEAVING THE ENTIRE WORK AREA IN A CLEAN AND COMPLETE WORKING ORDER.

OPERATE EQUIPMENT AND SYSTEMS IN ALL THEIR OPERATING MODES, TO VERIFY PROPER OPERATION, PRIOR TO FINAL INSPECTION AND OWNER INSTRUCTIONS. NOTIFY THE ENGINEER, IN WRITING, THAT ALL SYSTEMS HAVE BEEN TESTED AND ARE FUNCTIONING AND OPERATING PROPERLY.

CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ELECTRICAL EQUIPMENT OR MATERIALS UNTIL FINAL ACCEPTANCE OF THE ENTIRE PROJECT BY THE OWNER.

PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS, INCLUDING TELEPHONE AND DATA SYSTEMS, IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. NOTIFY AND OBTAIN PERMISSION FROM OWNER/ENGINEER AT LEAST 24 HOURS BEFORE PARTIALLY OR DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA.

EXISTING TELEPHONE, DATA, CCTV & SECURITY SYSTEM MAINTAIN EXISTING SYSTEMS IN SERVICE.

DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER AND THIS SECTION, AND AS INDICATED ON THE DRAWINGS. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

PROVIDE SUPPORTS FOR ALL EXISTING ELECTRICAL EQUIPMENT THAT WAS SUPPORTED PREVIOUSLY BY DEMOLISHED WALLS, FLOORS, CEILING OR OTHER STRUCTURES. PROVIDE NEW SUPPORTS FROM STRUCTURAL MEMBERS NOT SLATED FOR DEMOLITION, PRIOR TO ANY DEMOLITION.

OWNER RESERVES THE RIGHT OF FIRST REFUSAL TO OBTAIN MATERIAL SHOWN TO BE REMOVED UNDER THIS CONTRACT. ITEMS NOT RETAINED BY THE OWNER BECOME THE PROPERTY OF THE CONTRACTOR AND MUST BE REMOVED FROM THE PREMISES.

EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, OR AS SPECIFIED. RELOCATE AND REROUTE CONDUIT AND WIRING AS REQUIRED FOR CONDUIT CONCEALED IN WALLS OR STRUCTURE BEING ALTERED AS PART OF THE REMODELING. MAINTAIN CONTINUITY TO ALL DEVICES IN AND DOWNSTREAM OF REMODELED WORK.

REROUTE EXISTING RACEWAY AND WIRING, WHICH IS EXPOSED DUE TO REMOVAL OF EXISTING CONSTRUCTION. CONCEAL NEW RACEWAY AND WIRING AND MAINTAIN OPERATION.

SECTION 16050 - BASIC MATERIALS AND METHODS

ENCASE ALL CONDUCTORS IN A CONTINUOUS RACEWAY SYSTEM. PROVIDE PULL AND JUNCTION BOXES AS REQUIRED BY THE NEC. SIZE ALL RACEWAY PER THE NEC WITH OVERSIZED CONDUITS AS INDICATED.

PROVIDE JUNCTION BOXES OR GUTTER AT BRANCH PANEL AND ROUTE EMT CONDUIT INTO PANELBOARD.

PROVIDE EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.

RUN ALL EXPOSED CONDUIT IN A NEAT, WORKMANLIKE MANNER PARALLEL TO THE BUILDING LINES, TIGHT TO THE WALL AND CEILING SURFACES, AND FIRMLY SUPPORT WITH CONDUIT CLAMPS OR HANGERS. PROVIDE TWO (2) HOLE MOUNTING STRAPS, MINIMUM THREE (3) FEET ON CENTER, FOR ALL SURFACE CONDUIT MOUNTED ON WALLS LESS THAN SIX (6) FEET ABOVE FINISHED FLOOR. PLACE CONDUITS AT LEAST 8" AWAY FROM ALL HOT PIPING AND SURFACES INCLUDING DOMESTIC HOT WATER LINES.

PROVIDE GALVANIZED CODE GAUGE STEEL JUNCTION AND PULL BOXES WITH SCREW ON COVERS OF TYPE, SHAPE AND SIZE REQUIRED TO SUIT EACH INSTALLATION. PROVIDE GASKETING IN DAMP AND DUSTY LOCATIONS.

PROVIDE 4" BOXES THROUGHOUT. PROVIDE 3-1/2" DEEP BOXES WHERE INSTALLED IN MASONRY, 2-1/2" MINIMUM ELSEWHERE. VAPOR TIGHT GANG MUD OR TILE RING FOR SINGLE DEVICES.

COORDINATE THE LOCATION OF ALL OUTLETS WITH MECHANICAL DRAWINGS BEFORE INSTALLATION.

PROVIDE WIRE AND CABLE WITH INSULATION VOLTAGE RATING EQUAL TO OR GREATER THAN THE APPLIED SYSTEM VOLTAGE. PROVIDE SOLID OR STRANDED COPPER CONDUCTORS WITH TYPE THWN, THHN, OR XHHW INSULATION FOR NO. 12 AWG AND NO. 10 AWG CONDUCTORS. PROVIDE MINIMUM NO. 12 AWG CONDUCTOR SIZE, UNLESS NOTED OTHERWISE. USE THE MINIMUM CONDUCTOR SIZE WHEN NO SIZE IS INDICATED. ALL CONDUCTORS TO BE COLOR-CODED.

SECTION 16501 - BUILDING LIGHTING

PROVIDE LIGHTING FIXTURES AS SCHEDULED C/W HOUSING LAMPS, LAMP HOLDERS, REFLECTORS, BALLASTS & WIRING.

FLUORESCENT LAMP BALLAST FOR T8 & T5 LAMPS SHALL BE ELECTRONIC CBM CERTIFIED W/ THD LESS THAN 20% RAPID START.

SUPPORT ALL RECESSED LIGHTING FIXTURES W/ 4 # 12GA. WIRES INDEPENDENT FROM CEILING SUPPORT SYSTEM.

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TODD A. HAIGHT
4/5/2024

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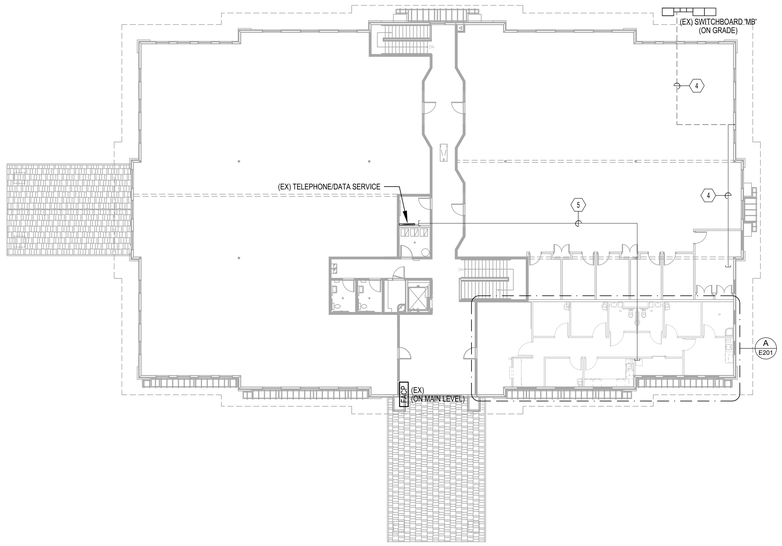
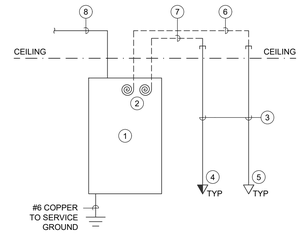
ELECTRICAL SYMBOLS AND NOTES

E001



B E201 OVERALL LEVEL 2 POWER PLAN

SCALE: 1/16" = 1'-0"



C E201 TELEPHONE/DATA RISER DIAGRAM

RISER KEYED NOTES (#):

1. NEW 48"Wx96"Hx3/4"D PLYWOOD BOARD WITH THREE COATS FIRE-RETARDANT PAINT IN STORAGE FOR SERVER EQUIPMENT MOUNTING. SEE POWER PLANS FOR LOCATION.
2. UNFINISHED CABLES WITH EXTRA 10' COILED FOR FUTURE CONNECTIONS. ELECTRICAL CONTRACTOR TO LABEL EACH CABLE WITH ASSOCIATED ROOM NUMBER.
3. (1) 1" CONDUIT TO ACCESSIBLE CEILING SPACE.
4. (1) RJ-45 & (1) RJ-11 KEYSTONE JACKS.
5. (2) RJ-45 KEYSTONE JACKS.
6. (2) CAT-6A CABLE.
7. (1) CAT-6A CABLE & (1) CAT-3 CABLE.
8. (1) 1" CONDUIT WITH PULL-STRING TO EXISTING BUILDING TELEPHONE/DATA SERVICE.

GENERAL NOTES:

A. ALL WIRING IN PATIENT CARE AREAS SHALL MEET THE REQUIREMENTS OF NEC 517.13(A), MEDICAL GRADE MC OR EQUAL.

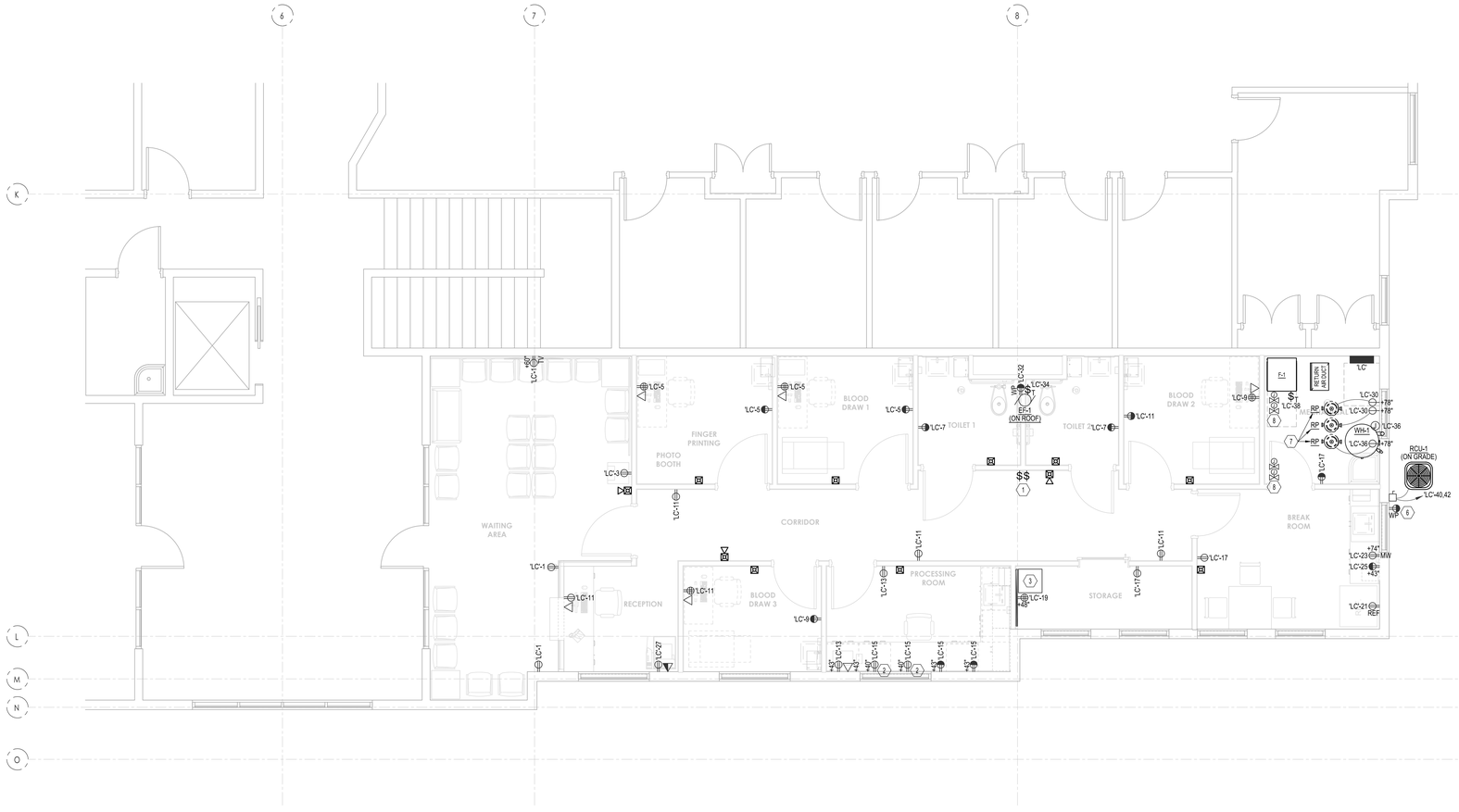
B. ALL RECEPTACLES IN OFFICES, CORRIDORS, WAITING ROOMS, AND THE LIKE ARE TO BE TAMPER RESISTANT AS REQUIRED PER NEC 406.12.

C. ALL RECEPTACLES IN PATIENT CARE AREAS SHALL BE HOSPITAL GRADE TAMPER PROOF RECEPTACLES. THE RECEPTACLES SHALL BE MARKED AS SUCH.

D. PROVIDE NEW FIRE ALARM ADDRESSABLE DEVICES CIRCUIT FOR TENANT IMPROVEMENT FROM BUILDING FIRE ALARM CONTROL PANEL. COORDINATE ALL REQUIREMENTS OF EXISTING SYSTEM WITH MANUFACTURER. DEVICES SHOWN FOR PRELIMINARY BIDDING PURPOSES ONLY. VERIFY FINAL DESIGN WITH NICET-III CERTIFIED SYSTEM DESIGNER.

KEYED NOTES (#):

1. POWER FOR TOILETS 1 & 2 WATER SHUTOFF SOLENOIDS. COORDINATE REQUIREMENTS AND LOCATIONS WITH PLUMBING CONTRACTOR. EACH SWITCH SHALL CONTROL BOTH HOT AND COLD WATER FOR A SINGLE RESTROOM.
2. THIS RECEPTACLE SHALL NOT BE PROTECTED BY A GFCI DEVICE DUE TO EQUIPMENT SENSITIVITIES. MUST BE LOCATED AT LEAST 72" FROM THE EDGE OF THE SINK. MOUNT HORIZONTALLY.
3. I.T. SERVER LOCATION (BY OTHERS). SEE TELEPHONE/ DATA RISER DIAGRAM.
4. EXISTING (1)2" CONDUIT WITH PULL-STRING IN CEILING BACK TO SWITCHBOARD 'MB' FOR ELECTRICAL SERVICE. EXTEND TO PANELBOARD 'LC' AS NEEDED.
5. EXISTING (1)1" CONDUIT WITH PULL-STRING FROM EXISTING BUILDING TELEPHONE SERVICE TO SERVER LOCATION. LOCATE IN FIELD AND EXTEND AS NEEDED.
6. ELECTRICAL CONTRACTOR TO VERIFY THAT A MAINTENANCE RECEPTACLE EXISTS WITHIN 25' OF RCU-1. IF ONE DOES NOT EXIST, THE ELECTRICAL CONTRACTOR SHALL ADD ONE, CONNECTED TO CORE & SHELL POWER. COORDINATE WITH BUILDING MANAGER.
7. OFFSET FOR CLARITY. COORDINATE EXACT LOCATION.
8. ELECTRONIC SOLENOID VALVES FOR TOILET 1 & 2 WATER SHUTOFF. OFFSET FOR CLARITY, COORDINATE EXACT LOCATION WITH PLUMBING CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE WIRING TO SWITCHES IN CORRIDOR (SEE KEYED NOTE #1).



A E201 POWER PLAN

SCALE: 1/4" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER No. 9816146 TODD A. HANSEN 12-31-2024 STATE OF UTAH

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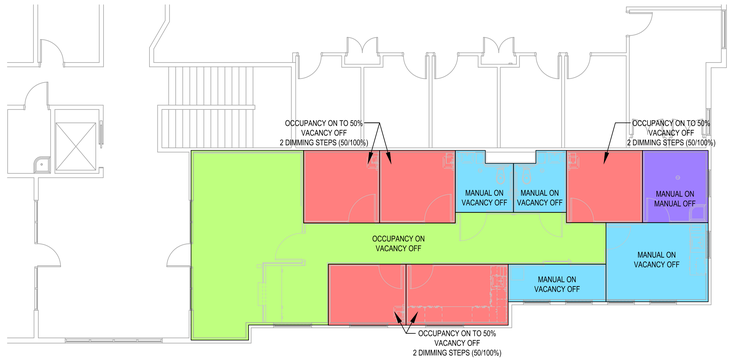
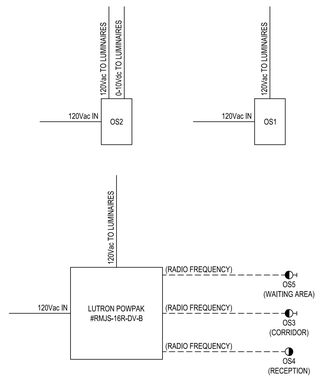
POWER PLAN

E201



B E301 LIGHTING CONTROLS SCHEME PLAN



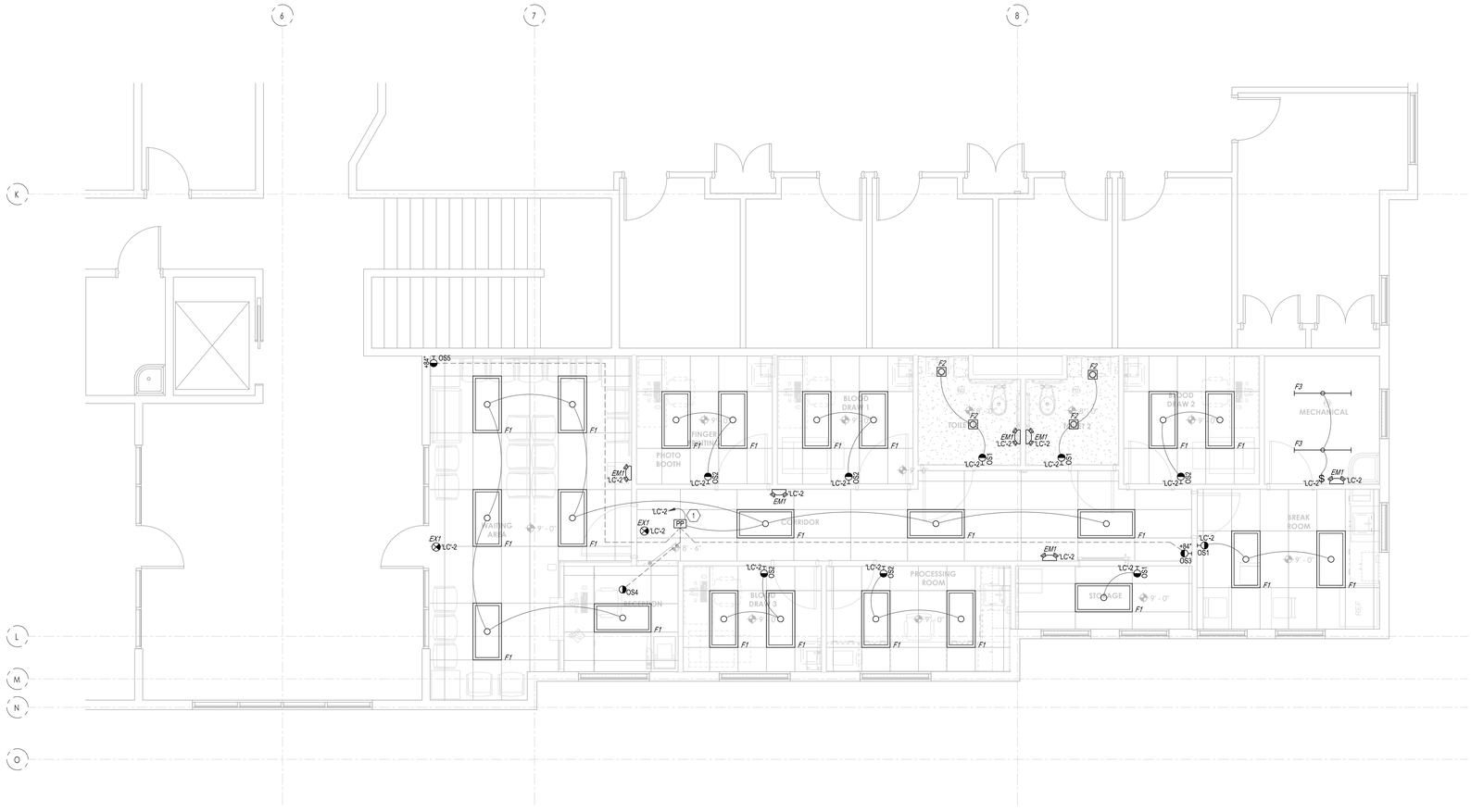
C E301 LUTRON LIGHTING CONTROL WIRING DIAGRAMS

GENERAL NOTES:

A. ALL WIRING IN PATIENT CARE AREAS SHALL MEET THE REQUIREMENTS OF NEC 517.13(A), MEDICAL GRADE MC OR EQUAL.

KEYED NOTES (#):

1. LUTRON VIVE POWPAK RELAY MODULE. DASHED LINES INDICATE WIRELESS CONNECTIONS. SEE WIRING DIAGRAM.



A E301 LIGHTING PLAN
SCALE: 1/4" = 1'-0"

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LIGHTING PLAN

E301

Short Circuit Current and AIC Rating

Project: Labcorp TI

Voltage: 208 | Phase: 3

MB

Available Short Current from Power Company Transformer: 64,033

Impedance	2.17	Wire Constant	24296
Wire Size	400		
Length of Wire Run	20	Short Circuit Amps	59,668
Number of Conductors Per Phase	6	AIC Rating	65,000
Conduit Type	PVC		

LC

Available Short Current from MB: 59,668

Impedance	--	Wire Constant	13923
Wire Size	3A		
Length of Wire Run	115	Short Circuit Amps	11,691
Number of Conductors Per Phase	1	AIC Rating	22,000
Conduit Type	PVC		

SCHEDULE: PANEL 'LC'

VOLTAGE: 208 / 120 — PHASE: 3 — BUS AMPS: 225 — USE: E = Equipment Load, M = Motor Load, L = Lighting Load, K = Kitchen Equipment, R = Receptacle Load

MOUNTING: SURFACE — WIRE: 4 — MAIN OVERCURRENT DEVICE: LUGS

ENCLOSURE: NEMA 1 — POLE SPACES: 42 — MAIN OVERCURRENT AMPS: N/A

LOCATION: MECHANICAL — MINIMUM EQUIPMENT RATING (AIC): 22,000 AMPS

REMARKS: — AVAIL. SHORT-CIRCUIT CURRENT (Isc): 11,691 AMPS (SYS-RMS).

BREAKER No.	BREAKER AMPS	BREAKER POLE	BREAKER TYPE	CIRCUIT NAME	FEEDER WIRE	FEEDER GRD	CKT. LOAD USE	CKT. LOAD WATTS	LOAD/PHASE (VA) ØA	ØB	ØC	CKT. LOAD WATTS	CKT. LOAD USE	FEEDER GRD	FEEDER WIRE	CIRCUIT NAME	BREAKER TYPE	BREAKER POLE	BREAKER AMPS	BREAKER No.
1	20	1		RCPT - WAITING AREA	#12	#12	R	540	1,386			846	L	#12	#12	LIGHTING		1	20	2
3	20	1		WAITING AREA WATER COOLER	#12	#12	E	600		600						SPARE		1	20	4
5	20	1		RCPT - F.P., B.D. 1	#12	#12	R	1,080			1,080					SPARE		1	20	6
7	20	1		RCPT - TOILETS 1 & 2	#12	#12	R	360	360							SPARE		1	20	8
9	20	1		RCPT - B.D. 3 & 4	#12	#12	R	1,080		1,080						SPARE		1	20	10
11	20	1		RCPT - RECEPTION, CORRIDOR	#12	#12	R	720			720					SPARE		1	20	12
13	20	1		RCPT - PROCESSING	#12	#12	R	360	360							SPARE		1	20	14
15	20	1		RCPT - PROCESSING	#12	#12	R	720		720						SPARE		1	20	16
17	20	1		RCPT - STOR., BREAK, MECH.	#12	#12	R	540			540					SPARE		1	20	18
19	20	1		SERVER	#12	#12	E	1,200	1,200							SPARE		1	20	20
21	20	1	GFCI	BREAK ROOM FRIDGE	#12	#12	E	1,500		1,500						SPARE		1	20	22
23	20	1	GFCI	BREAK ROOM MICROWAVE	#12	#12	E	1,500			1,500					SPARE		1	20	24
25	20	1		BREAK ROOM COUNTER	#12	#12	R	180	180							SPARE		1	20	26
27	20	1		RECEPTION COPIER	#12	#12	E	1,920		1,920						SPARE		1	20	28
29	#N/A	1			#N/A	#N/A					1,056	1,056	M	#12	#12	(2) RP		1	20	30
31	#N/A	1			#N/A	#N/A			180			180	R	#12	#12	RCPT - ROOF MAINTENANCE		1	20	32
33	#N/A	1			#N/A	#N/A				696		696	M	#12	#12	EF-1		1	20	34
35	#N/A	1			#N/A	#N/A					888	888	E	#12	#12	WH-1 & RP		1	20	36
37	#N/A	1			#N/A	#N/A			1,656			1,656	M	#12	#12	F-1		1	25	38
39	#N/A	1			#N/A	#N/A				2,184		2,184	E	#10	#6	RCU-1		2	30	40
41	#N/A	1			#N/A	#N/A					2,184	2,184	E	--	#6	-------		--	--	42

	ØA	ØB	ØC	DEMAND
LIGHTING LOAD (VA)	846	0	0	846
LIGHTING CONTINUOUS LOAD PER NEC 210.20 (VA)				212
RECEPTACLE LOAD PER NEC 220.14 (VA)	1,620	1,800	2,340	5,760
EQUIPMENT LOAD (VA)	2,856	6,900	5,628	15,384
25% LARGEST MOTOR (VA)				414
KITCHEN EQUIPMENT LOAD (VA)	0	0	0	0
0 UNITS @ 100% (PER NEC TABLE 220.56)				
TOTAL LOAD (VA)	5,322	8,700	7,968	22,616
TOTAL LOAD (AMPS):	44	73	66	63

GENERAL NOTES:
1. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND CONDUCTORS SHALL BE THWN.
2. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE ARTICLE 110. LABEL SHALL READ AS FOLLOWS: "DANGER: POTENTIAL ARC FLASH HAZARD"
3. PANELBOARDS IN OTHER THAN DWELLING UNITS SHALL BE LEGIBLY FIELD MARKED WITH THE CALCULATED AVAILABLE FAULT CURRENT PER NEC 110.24(A).

CONDUIT & WIRE SCHEDULE

SYMBOL SIZE	SYMBOL QTY	CONDUIT	WIRE SIZE & TYPE	GROUND	AMPS	REMARKS
12	2	3/4"	#12 THHN CU	#12 THHN CU	25	
	3	3/4"				
	4	3/4"				
10	2	3/4"	#10 THHN CU	#10 THHN CU	30	
	3	3/4"				
	4	3/4"				
8	2	3/4"	#8 THHN CU	#10 THHN CU	40	
	3	3/4"				
	4	3/4"				
6	2	3/4"	#6 THHN CU	#8 THHN CU	55	
	3	3/4"				
	4	3/4"				
4	2	3/4"	#4 THHN CU	#8 THHN CU	70	
	3	1"				
	4	1-1/4"				
3	2	1"	#3 THHN CU	#8 THHN CU	100	
	3	1"				
	4	1-1/4"				
2	2	1-1/4"	#2 THHN CU	#6 THHN CU	115	
	3	1-1/4"				
	4	1-1/4"				
1	2	1-1/2"	#1 THHN CU	#6 THHN CU	130	
	3	1-1/2"				
	4	1-1/2"				
1A	2	1-1/2"	#1/0 THHN CU	#6 THHN CU	150	
	3	1-1/2"				
	4	1-1/2"				
2A	2	1-1/2"	#2/0 THHN CU	#6 THHN CU	175	
	3	1-1/2"				
	4	2"				
3A	2	1-1/2"	#3/0 THHN CU	#4 THHN CU	200	
	3	2"				
	4	2"				
4A	2	2"	#4/0 THHN CU	#2 THHN CU	230	
	3	2"				
	4	2-1/2"				
25	2	2"	#250 KCMIL THHN CU	#2 THHN CU	255	
	3	2"				
	4	2-1/2"				
30	2	2"	#300 KCMIL THHN CU	#2 THHN CU	285	
	3	3"				
	4	3"				
35	2	2"	#350 KCMIL THHN CU	#2 THHN CU	310	
	3	3"				
	4	3"				
40	2	2-1/2"	#400 KCMIL THHN CU	#1/0 THHN CU	335	
	3	3"				
	4	3"				
50	2	3"	#500 KCMIL THHN CU	#1/0 THHN CU	380	
	3	4"				
	4	4"				
60	2	3"	#600 KCMIL THHN CU	#1/0 THHN CU	420	
	3	4"				
	4	4"				
75	2	3"	#750 KCMIL THHN CU	#2/0 THHN CU	475	
	3	4"				
	4	4"				

EXAMPLE:

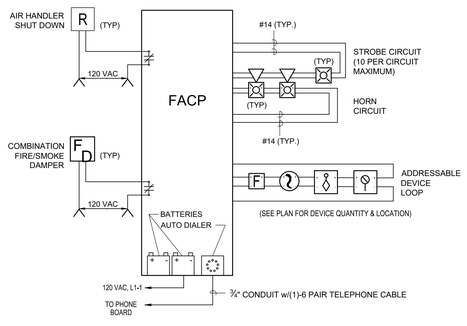
3A-4 = (4)-#3/0 AWG THHN/THWN CU + (1)-#6 THHN/THWN CU GND, 2" CONDUIT

50-4 2 SETS #2/0 GND = (4)-#500kCMIL THHN/THWN CU + (1)-#2/0 AWG THHN/THWN CU GND, 4" CONDUIT, 2 SETS PARALLEL FEEDERS

NOTES:
1. PARALLEL RUNS REQUIRE A LARGER GROUND WIRE PER CONDUIT - SEE NATIONAL ELECTRICAL CODE.
2. WHERE THHN CONDUCTORS SHALL BE RUN UNDERGROUND, PROVIDE THWN INSULATION IN LIEU OF THHN INSULATION ON ALL UNDERGROUND CONDUCTORS.

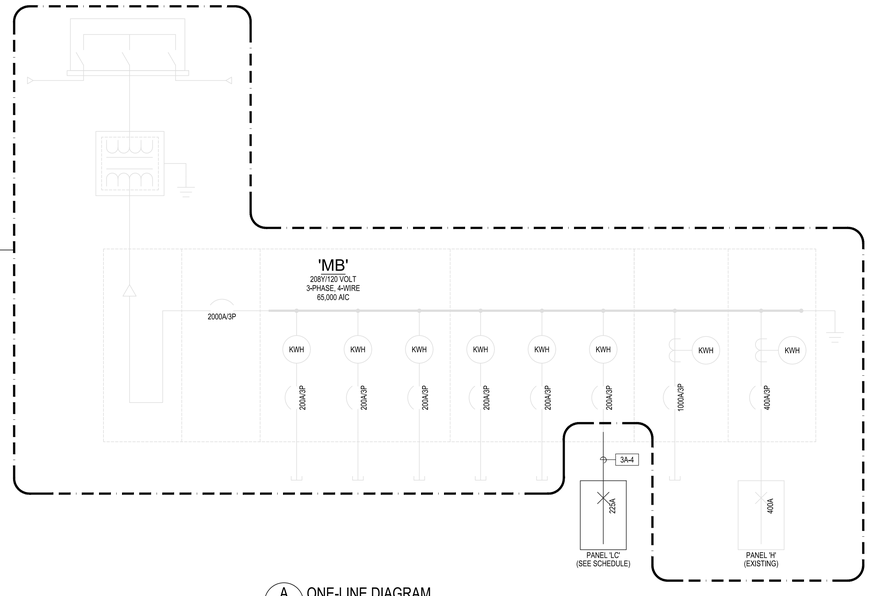
FIRE ALARM GENERAL NOTES:

1. COORDINATE FIRE ALARM DEVICES WITH LIGHTING FIXTURES, SPEAKERS, GRILLS, ETC.
2. DO NOT INSTALL SMOKE DETECTORS WITHIN 3'-0" OF ANY MECHANICAL GRILL.
3. VERIFY ANY POTENTIAL ADDITIONAL REQUIREMENTS WITH THE AUTHORITY HAVING JURISDICTION
4. DUCT SMOKE DETECTORS SHOWN FOR REFERENCE. COORDINATE DUCT SMOKE DETECTOR LOCATIONS WITH MECHANICAL PLANS.
5. BATTERY CAPACITY TO BE ADEQUATE TO OPERATE 15 MINUTES AFTER 60 HOURS PLUS 25% SPARE CAPACITY.
6. RUN SPARE LOOPS IN SAME CONDUIT.
7. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS & PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.



B E401 FIRE ALARM RISER DIAGRAM

EXISTING TO REMAIN. VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING ANY WORK. BRING DISCREPANCIES TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



A E401 ONE-LINE DIAGRAM

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ONE-LINE DIAGRAM

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LUMINAIRE SCHEDULE

LUMINAIRE NUMBER	LUMINAIRE MANUFACTURER	LUMINAIRE CATALOG #	DESCRIPTION	LAMPS TYPE	LAMPS CCT	LUMINAIRE VOLTS	LUMINAIRE WATTS	LUMINAIRE MOUNTING	REMARKS
F1	INDUSTRIAL LIGHTING PRODUCTS	PAN24-30WLED-U-40	2x4 FLAT PANEL 0-10V DIMMING	4000 LUMEN LED	4000K	120	32	RECESSED GRID	
F2	LITON	CH410-UE-D10 / CRAL17-CW-T40	4" DOWNLIGHT	1000 LUMEN LED	4000K	120	16	RECESSED HARD-LID	
F3	INDUSTRIAL LIGHTING PRODUCTS	VS4-25WLED-U-40-FRAL	4' STRIP	3330 LUMEN LED	4000K	120	25	SURFACE CEILING	
EM1	DUAL LITE	LZ2-03L	EMERGENCY BUGEYE	LED	4100K	120	4	SURFACE WALL +7'8" AFF	
EX1	DUAL LITE	SESGWE	UNIVERSAL EXIT SIGN	GREEN LED	N/A	120	2	SURFACE UNIVERSAL	

ALTERNATE FIXTURES FROM THE FOLLOWING MANUFACTURERS SHALL BE ACCEPTABLE:
HUBBELL LIGHTING, COOPER LIGHTING SOLUTIONS, ACUITY BRANDS

SCHEDULE: LIGHTING SWITCHES

TAG	DESCRIPTION	FUNCTION	LOCATION	REMARKS
LV1	LOW-VOLTAGE SWITCH FOR LIGHTING CONTROL PANEL 'LCP'	ON / OFF		
LV2	LOW-VOLTAGE SWITCH FOR LIGHTING CONTROL PANEL 'LCP'	ON / OFF / RAISE / LOWER		
OS1	OCCUPANCY / VACANCY WALL SWITCH SENSOR (LUTRON #MS-OPS5M-WH)	MANUAL ON / 20-MINUTE VACANCY OFF	TOILET 1/2 STORAGE BREAK ROOM	
OS2	OCCUPANCY / VACANCY DIMMABLE WALL SWITCH SENSOR (LUTRON #MS-Z101-WH)	OCCUPANCY ON AT 50% / 20-MINUTE VACANCY OFF BUTTON PRESS TO 100%	FINGER PRINTING BLOOD DRAW 1/2/3 PROCESSING ROOM	
OS3	WIRELESS OCCUPANCY / VACANCY CORRIDOR WALL SENSOR (LUTRON #LRF2-OHLB-P-WH)	OCCUPANCY ON / 20-MINUTE VACANCY OFF	CORRIDOR	WALL SENSOR COVERAGE MUST BE > 40' COMPATIBLE WITH LUTRON POWPAK, SEE E301.
OS4	WIRELESS OCCUPANCY / VACANCY CEILING SENSOR (LUTRON #LRF2-OKLB-P-WH)	OCCUPANCY ON / 20-MINUTE VACANCY OFF	RECEPTION	COMPATIBLE WITH LUTRON POWPAK, SEE E301.
OS5	WIRELESS OCCUPANCY / VACANCY CORNER-MOUNT WALL SENSOR (LUTRON #LRF2-OCRZB-P-WH)	OCCUPANCY ON / 20-MINUTE VACANCY OFF	WAITING AREA	COMPATIBLE WITH LUTRON POWPAK, SEE E301.

GENERAL NOTE:
ELECTRICAL CONTRACTOR SHALL CONFIRM DEVICE COMPATIBILITY WITH LUMINAIRES, LIGHTING CONTROL PANEL(S), ROOM CONTROLLER(S), AND OTHER EQUIPMENT. ANY DESIGN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER IMMEDIATELY.

EQUIPMENT SCHEDULE

UNIT #	EQUIPMENT DESCRIPTION	ELECTRICAL LOAD	LOAD UNITS	VOLTS	PHASE	FULL LOAD AMPS (FLA)	REFERENCE NOTES DISCONNECTING MEANS	DISCONNECT RATING (AMPS)	STARTER SIZE	ENCLOSURE TYPE	OCPD FUSE SIZE (AMPS)	BREAKER SIZE (AMPS)	REMARKS
RP	DOMESTIC HOT WATER RECIRC. PUMP	1/6	HP	120	1	4.4	13	-	-	-	-	20	
WH-1	GAS-FIRED WATER HEATER	3.0	FLA	120	1	3.0	12	-	-	-	-	20	
EF-1	EXHAUST AIR FAN	1/4	HP	120	1	5.8	5A	-	1 HP	-	-	20	
RCU-1	REMOTE CONDENSING UNIT (4.0 TON)	26.2	MCA	208	1	21.0	1A	60	-	1R	-	45	
F-1	FURNACE	3/4	HP	120	1	13.8	5A	-	1 HP	-	-	25	

REFERENCE NOTES:

1. NON-FUSED DISCONNECT SWITCH
2. FUSED DISCONNECT SWITCH
3. BREAKER IN ENCLOSURE
4. FUSED DISCONNECT SWITCH WITH SHUNT TRIP
5. MANUAL STARTER WITH THERMAL OVERLOAD
6. MANUAL STARTER
7. MAGNETIC STARTER/NON-FUSED DISCONNECT COMBINATION
8. MAGNETIC STARTER/FUSED DISCONNECT COMBINATION
9. MAGNETIC STARTER/MOTOR CIRCUIT PROTECTOR COMBINATION
10. VARIABLE SPEED DRIVE
11. REDUCED VOLTAGE STARTER
12. DIRECT CONNECTION
13. RECEPTACLE/SPECIAL PURPOSE OUTLET ETC.
14. TWO-SPEED STARTER. COORDINATE WITH MOTOR TYPE
15. MAXIMUM CIRCUIT AMPS (MCA)
16. FULL LOAD CURRENT
17. PROVIDE WITH NEMA 1 ENCLOSURE
18. PROVIDE WITH NEMA 3R ENCLOSURE

A. FURNISHED, INSTALLED AND FINAL CONNECTION BY THE ELECTRICAL CONTRACTOR.
B. FURNISHED AND INSTALLED UNDER ANOTHER DIVISION, FINAL CONNECTION BY THE ELECTRICAL CONTRACTOR.
C. FURNISHED UNDER ANOTHER DIVISION, INSTALLED AND FINAL CONNECTION BY THE ELECTRICAL CONTRACTOR.
D. FURNISHED, INSTALLED AND FINAL CONNECTION UNDER ANOTHER DIVISION.

GENERAL NOTES:

1. VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS (i.e. VOLTAGE, PHASE, FLA, ETC.) WITH MECHANICAL DRAWINGS/SUBMITTALS PRIOR TO STARTING ROUGH IN.
2. ALL FUSES SHALL BE DUAL ELEMENT, TIME DELAY. FINAL BREAKER/FUSE & DISCONNECT SIZE SHALL BE DETERMINED BY MANUFACTURER'S RECOMMENDATION FOR ACTUAL EQUIPMENT INSTALLED.
3. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.

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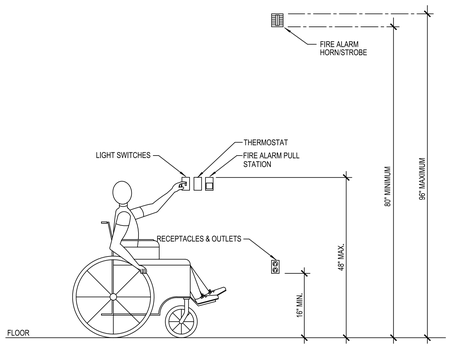
ELECTRICAL SCHEDULES

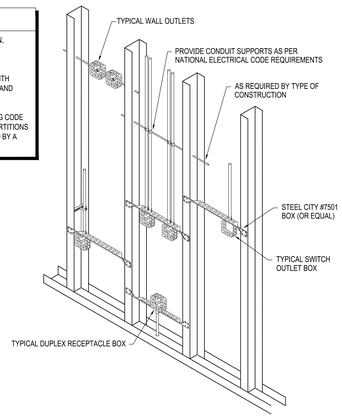
E501



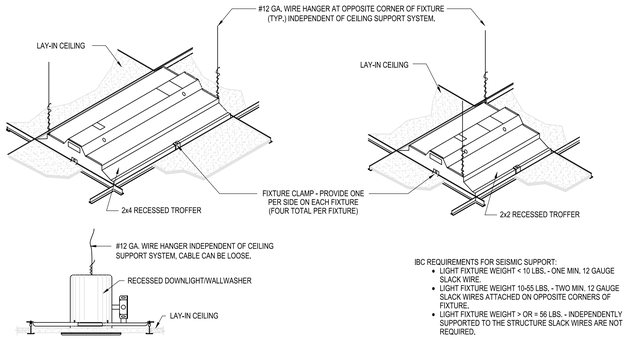
A E601 MOUNTING HEIGHTS DETAIL

NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE.



B E601 TYPICAL ROUGH-IN REQUIREMENTS DETAIL



IBC REQUIREMENTS FOR SEISMIC SUPPORT:

- LIGHT FIXTURE WEIGHT < 10 LBS. - ONE MIN. 12 GAUGE SLACK WIRE.
- LIGHT FIXTURE WEIGHT 10-55 LBS. - TWO MIN. 12 GAUGE SLACK WIRES ATTACHED ON OPPOSITE CORNERS OF FIXTURE.
- LIGHT FIXTURE WEIGHT > OR = 56 LBS. - INDEPENDENTLY SUPPORTED TO THE STRUCTURE SLACK WIRES ARE NOT REQUIRED.

C E601 LAY-IN GRID FIXTURE SEISMIC MOUNTING DETAILS

D E602 CONDENSING UNIT CONDUIT DETAIL

E E601 TYPICAL TRAPEZE CONDUIT RACK

NOTE:

TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.

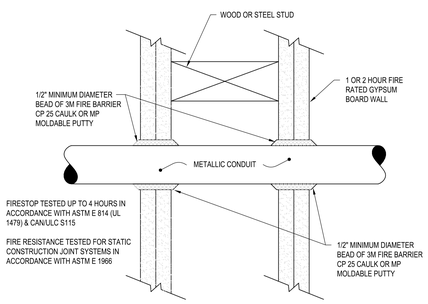
FIRESTOP TESTED UP TO 4 HOURS IN ACCORDANCE WITH ASTM E 814 (UL 1479) & CAN/ULC S115

FIRE RESISTANCE TESTED FOR STATIC CONSTRUCTION JOINT SYSTEMS IN ACCORDANCE WITH ASTM E 1966

F E601 FIRESTOP THRU CONCRETE FLOOR

NOTE:

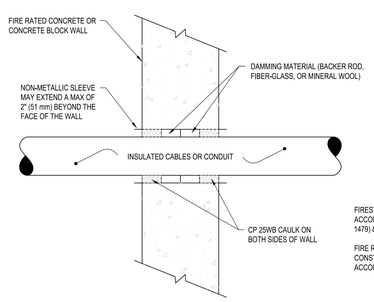
TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.



G E601 FIRE STOP THRU GYPSUM BOARD WALL

NOTE:

TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.



FIRESTOP TESTED UP TO 4 HOURS IN ACCORDANCE WITH ASTM E 814 (UL 1479) & CAN/ULC S115

FIRE RESISTANCE TESTED FOR STATIC CONSTRUCTION JOINT SYSTEMS IN ACCORDANCE WITH ASTM E 1966

H E601 FIRESTOP THRU CONCRETE/MASONRY WALL

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ELECTRICAL DETAILS

E601