

Addendum #1

Project Name: Firethorn Office Building
Lincoln, NE
Project No.: 23015
Issued: July 17, 2023
Bid Date:
Bid Opening: Sinclair Hille Architects
Location: Lincoln, NE 68508

This Addendum is issued to all known bidders before receipt of proposals. This Addendum is to authorize the use of the following information in preparing proposals for the above named project. The bidder **must** enter the number of this Addendum on the **Proposal Sheet**.

MODIFICATIONS TO THE DRAWINGS

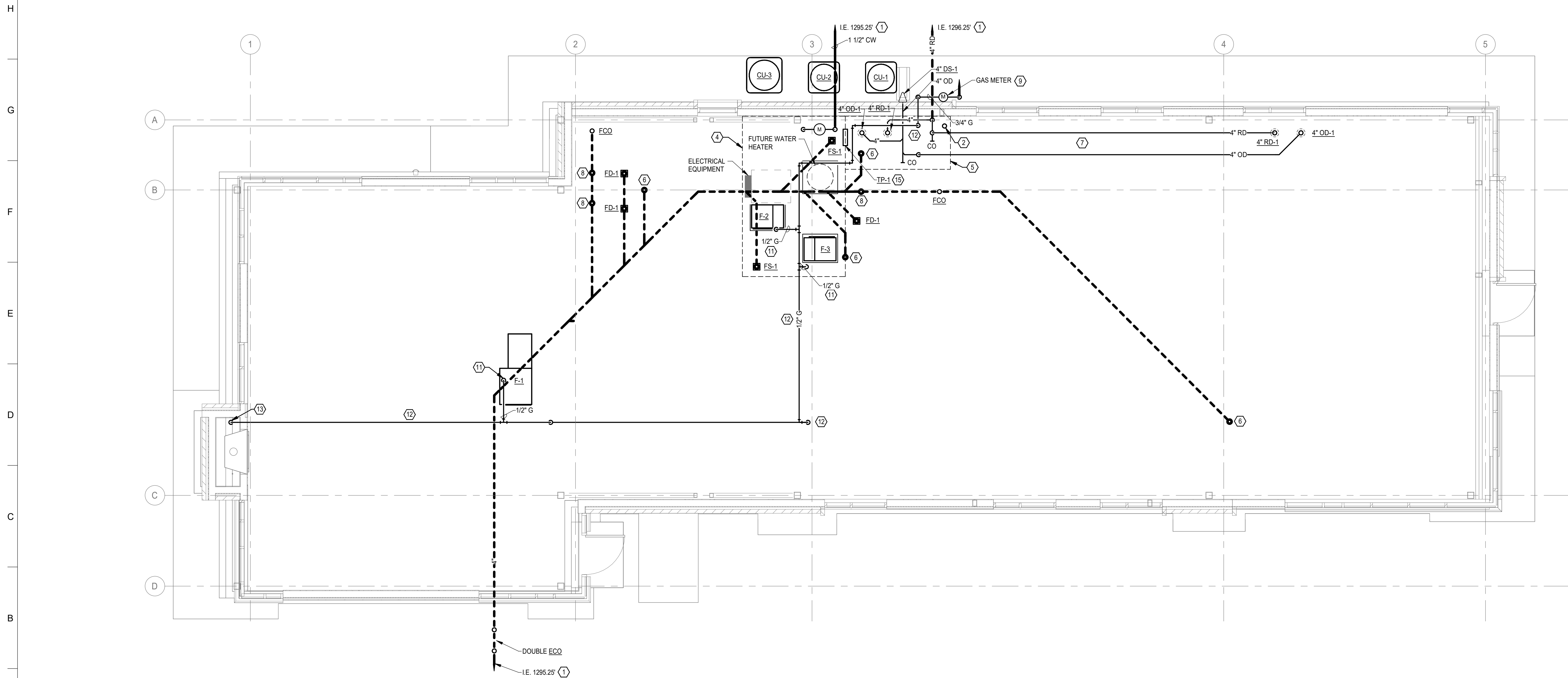
- ADD 1-1.** Sheet M100 – HVAC AND PLUMBING PLANS. Updated size of F-2 furnace unit.
- ADD 1-2.** Sheet M300 – MECHANICAL SCHEDULES AND SPECIFICATIONS. Updated furnace and condensing unit schedules for F-2 / CU-2.
- ADD 1-3.** Sheet E100 – ELECTRICAL FIRST FLOOR PLAN. Revised plan for revised furnace locations as shown.
- ADD 1-4.** Sheet E600 – ELECTRICAL SCHEDULES. Revised mechanical equipment connection schedule & Panel schedule HP1 for revised furnace & condensing unit selections as shown.

ATTACHMENTS

- ADD 1-5.** The following attachments are included as part of this addendum:

<u>Attachment</u>	<u>Description</u>	<u># of Pages</u>
• M100	HVAC AND PLUMBING PLANS	1
• M300	MECHANICAL SCHEDULES AND SPECIFICATIONS	1
• E100	ELECTRICAL FIRST FLOOR PLAN	1
• E600	ELECTRICAL SCHEDULES	1

End of Addendum #1



A1	PLUMBING PLAN
SCALE: 1/4" = 1'-0"	

PLAN NORTH

**SINCLAIR
HILL**
ARCHITECTS

1. COORDINATE MAIN CONNECTION AND INVERT ELEVATION WITH CIVIL PLANS.
2. RADON VENT RISER LOCATION. PROVIDE PASSIVE RADON MITIGATION SYSTEM IN ACCORDANCE WITH NEBRASKA SBC 703.04.
3. INSTALL CONDENSING UNIT TO EXTERIOR WALL. PROVIDE CLEARANCE AROUND AND IN BETWEEN UNITS PER MANUFACTURER'S REQUIREMENTS. COORDINATE INSTALLATION OF CONDENSING UNITS WITH GAS AND ELECTRICAL METER.
4. APPROXIMATE LOCATION OF MECHANICAL ROOM. COORDINATE INSTALLATION OF FURNACES WITH FUTURE TENANT FINISH FLOOR PLANS.
5. APPROXIMATE LOCATION OF JANITOR CLOSET. COORDINATE INSTALLATION OF ROOF, OVERFLOW, AND RADON PIPING WITH STRUCTURE AND FUTURE TENANT FINISH FLOOR PLANS.
6. STUB PIPE 12" ABOVE FLOOR AND CAP FOR CONNECTION TO FUTURE PLUMBING CHASE.
7. ROUTE ROOF AND OVERFLOW DRAIN PIPING IN TRUSS SPACE. COORDINATE ROUTING WITH TRUSS WEBSING.
8. PROVIDE FLOOR FLANGE FOR FUTURE TOILET.
9. COORDINATE NEW NATURAL GAS LOADS AT 2 PSI WITH GAS COMPANY (BLACK HILLS).
10. ROUTE 1/4" CONDENSATE TO NEAREST FLOOR SINK. CONDENSATE PIPE AT MINIMUM 1/4" PER FOOT IN DIRECTION OF FLOW. PROVIDE REFRIGERANT PIPING AND ROUTE TO EXISTING STRUCTURE. COORDINATE REFRIGERANT PIPING PER REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. ROUTE PIPINGS IN CEILING SPACE TO EXISTING MECHANICAL ROOM. LOCATE AT LOWEST POINT INSIDE OF EXTERIOR WALL BEFORE PENETRATING EXTERIOR WALL. COORDINATE WITH STRUCTURE AND PIPING. DO NOT PENETRATE EXTERIOR WALL. CAP WATER METER AND MAINTAIN ALL CONNECTIONS SHOWN IN WATER ENTRANCE DETAIL ON SHEET M200.
11. PROVIDE GAS BALL VALVE, SEDIMENT TRAP/DRIFF LEG, LBS. TO OZ. GAS REGULATOR, AND UNION AT CONNECTION TO EXISTING SEDIMENT TRAP. LBS. TO OZ. REGULATOR. ELEVATION OF PIPING AND SHALL BE MINIMUM 3' LONG.
12. COORDINATE NEW GAS PIPING WITH STRUCTURAL MEMBERS.
13. 1/2" GAS DOWN TO FUTURE FIRE PLACE. PROVIDE GAS BALL VALVE, SEDIMENT TRAP/DRIFF LEG, LBS. TO OZ. GAS REGULATOR, AND UNION AT CONNECTION TO UNION. SEDIMENT TRAP SHALL BE LOCATED AT LOWEST ELEVATION OF PIPING CONNECTION. THE MINIMUM 3' LONG PIPING SHALL BE CAPPED AND CONNECTED TO FIREPLACE IN FUTURE PHASE.
14. EXTEND 12" SECTION OF 18"x18" DUCT FROM LOUVER AND CAP FOR FUTURE TENANT FINISH.
15. RUN 12" PEX LINES FROM TRAP PRIMER (TP-1) TO FS-1 FIXTURES IN FUTURE MECHANICAL ROOM. (2 TOTAL DRAINS). PROVIDE TELESCOPIC CONNECTIONS AT 4'-0" FROM BOTTOM OF UNIT ABOVE FINISHED FLOOR.

Issue:	Shell Building
Date:	6/30/2011
Drawn by:	AJM
Checked by:	BRM
Designer:	JSN
Project Architect:	JKM

Sheet Number

M100

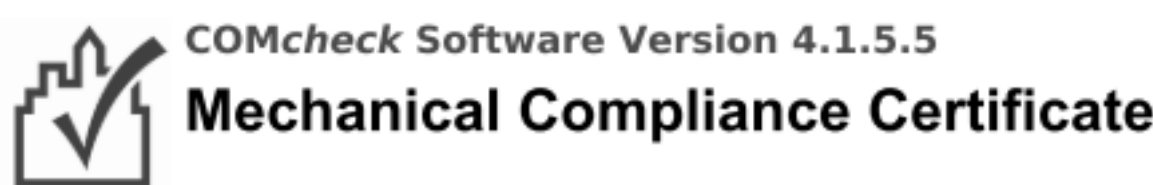
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AsstArchitect 2/23/15: Firethorn Office Building (MECH) - Firethorn, Lincoln, NE 68508

PLUMBING FIXTURE SCHEDULE									
MARK	TYPE	MANUFACTURER	MODEL	DESCRIPTION	ACCESSORIES	CONNECTIONS			
						WASTE	VENT	CW	HW
TP-1	TRAP PRIMER	JAY R SMITH	270FM	GALVANNEALED STEEL FLUSH MOUNT ENCLOSURE, FLOOR DRAIN TRAP PRIMING DEVICE WITH SOLENOID VALVE, VACUUM BREAKER, TIMER, AND MANIFOLD WITH COMPRESSION DISCHARGE PORTS, 1/2" COPPER INLET CONNECTION, 4 OUTLETS, 120V POWER.	-	-	-	1/2"	-
FD-1	ROUND FLOOR DRAIN	JAY R SMITH	2005	DURCO CAST IRON BODY WITH REVERSIBLE FLASHING COLLAR, WEEP HOLES, 2" NICKEL BRONZE ADJUSTABLE STRAINER.	PROVIDE A GASKETED TRAP SEALER IN NECK OF FLOOR DRAIN BY SURE-SEAL OR EQUAL.	2"	2"	-	-
FS-1	SQUARE FLOOR SINK	JAY R SMITH	3100	8x6x6 DEEP CAST IRON BODY WITH WEERS HOLES, ACID RESISTANT COATED INTERIOR, SQUARE NICKEL BRONZE 3/4 GRADE, ALUMINUM DOME BOTTOM STRAINER.	PROVIDE WITH A GASKETED TRAP SEALER IN NECK OF FLOOR SINK BY SURE-SEAL OR EQUAL, PROVIDE WITH JAY R SMITH 270 SERIES TRAP PRIMER CONNECTION ADAPTOR AND INSTALL BETWEEN FLOOR SINK AND P-TRAP.	2"	2"	-	-
DS-1	DOWNSPOUT NOZZLE	JAY R SMITH	1770	NICKEL-BRONZE BODY WITH WALL FLANGE.	PROVIDE WITH BIRD SCREEN.	-	-	-	-
OD-1	OVERFLOW DRAIN	JAY R SMITH	1080	DUCO CAST IRON BODY, FLASHING CLAMP AND GRAVEL STOP WITH CAST IRON DOME, BOTTOM OUTLET, UNDERDECK CLAMP, SUMP RECEIVER, AND ADJUSTABLE EXTENSION SLEEVE FOR ROOF INSULATION.	PROVIDE OVERFLOW DRAIN WITH 2" HIGH EXTERNAL DAM.	-	-	-	-
RD-1	ROOF DRAIN	JAY R SMITH	1010	DUCO CAST IRON BODY, FLASHING CLAMP AND GRAVEL STOP WITH CAST IRON DOME, BOTTOM OUTLET, UNDERDECK CLAMP, SUMP RECEIVER, AND ADJUSTABLE EXTENSION SLEEVE FOR ROOF INSULATION.	-	-	-	-	-
ECO	EXTERIOR CLEANOUT	JAY R SMITH	4220	DUCO CAST IRON BODY WITH GAS AND WATERTIGHT TAPERED THREAD BRONZE PLUG AND ROUND SCORAIATED SECURED EXTRA HEAVY DUTY TOP, ADJUSTABLE TO FINISH FLOOR.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4", 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	-	-	-	-
FOO	FLOOR CLEANOUT	JAY R SMITH	4020	DUCO CAST IRON BODY WITH GAS AND WATERTIGHT TAPERED THREAD BRONZE PLUG AND ROUND POLISHED BRONZE SCREWED SECURED TOP, ADJUSTABLE TO FINISH FLOOR.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4", 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	-	-	-	-
REMARKS: 1. VERIFY ALL CONNECTIONS AND MOUNTING HEIGHTS WITH 2018 UPC AND CITY OF LINCOLN AMENDMENTS, MANUFACTURERS, AND PLANS. 2. SIZES LISTED INDICATED MINIMUM SIZE ONLY. SEE PLUMBING RISERS AND FLOOR PLANS FOR LARGER SIZES.									

GAS FIRED FURNACES												
MARK	LOCATION	CFM	OA CFM	ESP (IN WC)	FUEL	MBH IN/OUT	MOTOR DATA			LENNOX MODEL NO.		REMARKS
							HP	VOLTS	PH	EVAPORATOR COIL	FURNACE	
F-2	FUTURE MECHANICAL ROOM	1,265	-	0.5	NATURAL GAS	88/84	0.75	120	1	CX35-48B-6F	ML26UHX90XV4BC	1-1/8
REMARKS:												
1. HIGH EFFICIENCY UNIT, NATURAL GAS FIRED, MINIMUM 96% AFUE, WITH 2-STAGE HEATING AND COOLING.												
2. INSTALL ON 4" THICK CONCRETE EQUIPMENT PAD.												
3. DIRECT VENT AND INTAKE CONNECTION THROUGH WALL. PROVIDE CONCENTRIC VENT KIT.												
4. VARIABLE SPEED DIRECT DRIVE BLOWER.												
5. PROVIDE WITH 24-VOLT 7-DAY PROGRAMMABLE THERMOSTAT LOOSE WITH AUTOMATIC HEAT/COOL CHANGER AND 5" DEADBAND.												
6. ELECTRICAL DISCONNECT PROVIDED BY ELECTRICAL CONTRACTOR.												
7. PROVIDE WITH 1" MERV-8 FILTER. PROVIDE AN EXTRA SET OF FILTERS PRIOR TO OWNER TURNOVER.												
8. PROVIDE WITH PH NEUTRALIZING KIT.												
9. PROVIDE UNIT WITH RETURN AIR BASE. CONTRACTOR SHALL FIELD FABRICATE FILTER RACK/RETURN AIR PLENUM ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.												
10. VERTICAL UPFLOW CONFIGURATION.												
11. HORIZONTAL CONFIGURATION. PROVIDE WITH HORIZONTAL SUSPENSION KIT, DRAIN PAN, AND CONDENSATE OVERFLOW SWITCH. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. DRAIN PAN SHALL COVER ENTIRE AREA BELOW FURNACE AND COOLING COIL.												

CONDENSING UNITS														
MARK	SERVES	TONS	COIL E.A.T		NET COOLING (MBH)		REFRIG TYPE	AMBIENT TEMP (F)	ELECTRICAL DATA			EER/SEER	LENNOX MODEL	REMARKS
			TOTAL	DRMBH (F)	TOTAL	SENS			VOLTS	PH	MCMPQHP			
CU-2	F-2	3.0	78.8x82.2	34.7	28.8	R-410A	95	240	1	2035	13.0117.0	ML18XC2-036-230	1-8	
REMARKS:														
1. REFRIGERANT PIPING SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE PRE-INSULATED LINE SETS AS REQUIRED BY MANUFACTURER.														
2. ELECTRICAL DISCONNECT PROVIDED BY ELECTRICAL CONTRACTOR.														
3. TWO STAGE SCROLL COMPRESSOR. PROVIDE WITH 5 YEAR COMPRESSOR WARRANTY.														
4. CRANKCASE HEATER AND MOUNT GUARDS.														
5. HIGH AND LOW PRESSURE SWITCHES ON REFRIGERANT SYSTEM.														
6. FILTER DRYER ON COMPRESSOR REFRIGERANT SYSTEM.														
7. INTERNALLY VIBRATION ISOLATED COMPRESSOR.														
8. PROVIDE WITH DIVERSITECH ACB-42 WALL MOUNTING BRACKETS OR EQUIVALENT AND MOUNT TO EXTERIOR WALL AT MINIMUM OF 14" ABOVE FINISHED GRADE. PROVIDE RUBBER VIBRATION ISOLATION BETWEEN UNIT AND WALL BRACKET.														

LOUVERS												
MARK	SERVES	APPLICATION	CFM	TOTAL LOUVER FREE AREA (SQ FT)	FREE AREA VELOCITY (FPM)	MAX PD (IN WC)	SIZE (INCHES)			MANUFACTURER	MODEL	REMARKS
							W	H	D			
L-1	F-1, F-2, F-3	INTAKE	360	0.9	418	0.05	18	18	6	GREENHECK	ESD-635	1,2
REMARKS:												
1. ALUMINUM CONSTRUCTION, DRAINABLE BLADE, INTERIOR ALUMINUM BIRDSCREEN.												
2. COORDINATE COLOR AND FINISH WITH ARCHITECT PRIOR TO ORDERING.												



Project Information

Energy Code: 2018 IECC
Project Title: Firethorn Office Building
Location: Lincoln, Nebraska
Climate Zone: 5a
Project Type: New Construction

Construction Site: 2810 S 87th Street
Lincoln, NE 68520
Owner/Agent: NE
Designer/Contractor: John Meyers
Olsson
601 P St.
Suite 200
Lincoln, NE 68508
402.970.2348
jmeyers@olsson.com

Additional Efficiency Package(s)

Credits: 1.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

- | | |
|---|--|
| 1 | F-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 44 kBtu/h
Proposed Efficiency = 96.00% Et, Required Efficiency: 80.00% Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 35 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity Residential
Proposed Efficiency = 17.00 SEER, Required Efficiency: 13.00 SEER
Fan System: F-1 Conference Rooms - Compliance (Motor nameplate HP method) : Passes

Fans:
Supply Supply, Constant Volume, 1210 CFM, 0.5 motor nameplate hp, 0.0 fan efficiency grade |
| 1 | F-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 44 kBtu/h
Proposed Efficiency = 96.00% Et, Required Efficiency: 80.00% Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 35 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity Residential
Proposed Efficiency = 17.00 SEER, Required Efficiency: 13.00 SEER
Fan System: F-2 Offices - Compliance (Motor nameplate HP method) : Passes

Fans:
Supply Supply, Constant Volume, 1210 CFM, 0.5 motor nameplate hp, 0.0 fan efficiency grade |
| 1 | F-3 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 88 kBtu/h
Proposed Efficiency = 96.00% Et, Required Efficiency: 80.00% Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 47 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity Residential
Proposed Efficiency = 16.00 SEER, Required Efficiency: 13.00 SEER
Fan System: F-3 Offices - Compliance (Motor nameplate HP method) : Passes

Fans:
Supply Supply, Constant Volume, 1645 CFM, 0.8 motor nameplate hp, 0.0 fan efficiency grade |

Project Title: Firethorn Office Building
Data filename: \\oa\ad\oaconsulting\com\frts-ns1\projects-direct\2023\02501-03000\023-0279040- Design\Calcs\MECH\Mechanical\COMcheck\23-06_23_MECH_Firethorn Office Building.cck
Report date: 06/29/23
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DIVISION 2223 - MECHANICAL SPECIFICATIONS

SECTION 220000230000 - GENERAL PROVISIONS

THE DRAWINGS, GENERAL NOTES, GENERAL CONDITIONS, AND DIVISION 1 GENERAL REQUIREMENTS SHALL BE CONSIDERED AS PART OF THIS SPECIFICATION.

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, INSTALLED IN FULL COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. INSTALLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE OF THE INDUSTRY AND ALL APPLICABLE ITEMS SHALL CARRY A U.L. LABEL.

THE WORD "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE, INCLUDING ALL ITEMS NECESSARY FOR A FULLY-FUNCTIONAL SYSTEM.

FAMILIARIZE ONESELF WITH ALL REQUIREMENTS AS TO PERMITS, LICENSES, FEES, CODES, AND ORDINANCES AND ARRANGE TO COMPLY WITH THEM. ALL PERMITS, LICENSES, FEES AND INSPECTIONS REQUIRED FOR THE WORK UNDER THIS CONTRACT SHALL BE OBTAINED AND PAID FOR UNLESS OTHERWISE SPECIFIED.

ALL WORK SHALL BE IN COMPLIANCE WITH APPLICABLE NFPA, NEC, ANSI, UL, SMACNA AND ASHRAE CODES AND STANDARDS UNLESS SUPERCEDED BY STATE AND LOCAL REGULATION. CONFORM TO DOCUMENTS WHEN CODES ARE EXCEEDED.

EXAMINE SITE BEFORE BIDDING. ADVISE ENGINEER PRIOR TO BID IF SITE CONDITIONS DICTATE MODIFICATION TO THE BASE DESIGN.

COORDINATE ALL WORK WITH OTHER TRADES AND VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. CUT AND PATCH ONLY AS REQUIRED. COORDINATE ALL CHANGES TO BUILDING STRUCTURE WITH ARCHITECT/ENGINEER AND THEIR REQUIREMENTS PRIOR TO EXECUTION.

SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO GENERAL CONTRACTOR OR CONSTRUCTION MANAGER FOR FORWARDING TO ARCHITECT/ENGINEER FOR APPROVAL. SUBMITTALS SHALL BE IN ACCORDANCE WITH GENERAL CONDITIONS AND SHALL BEAR A STAMP OF THE MECHANICAL CONTRACTOR SHOWING THAT HE REVIEWED AND APPROVED THEM. LACK OF SUCH CONTRACTOR'S APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY THE ARCHITECT/ENGINEER.

SUBSTITUTION OF EQUIPMENT MAY BE PERMITTED WITH PRIOR APPROVAL OF ENGINEER. THE ENGINEER SHALL BE THE SOLE AND FINAL JUDGE AS TO THE SUITABILITY OF ITEMS SUBSTITUTED FOR THOSE SPECIFIED. THE ENTIRE COST OF ALL CHANGES DUE TO SUBSTITUTION SHALL BE BORNE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

EXCAVATING AND BACK FILLING PIPE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM SUPPORT ON UNDISTURBED SOIL FOR PIPING. SHEETING, SHORING AND BRACING SHALL BE PROVIDED WHERE NECESSARY IN DEEP TRENCHES OR IN UNSTABLE SOILS. AFTER INSTALLATION HAS BEEN TESTED AND APPROVED, TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED PER STATE AND LOCAL CODES, FREE FROM CLODS AND STONES.

MECHANICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN THEIR WORK AS THE JOB PROGRESSES, AND UPON COMPLETION, SHALL TURN OVER TO THE ARCHITECT/ENGINEER A "RECORD" SET OF PRINTS SHOWING THESE CHANGES.

THE CONTRACTOR SHALL GUARANTEE THAT ALL MECHANICAL SYSTEMS SHALL BE FREE FROM DEFECTS IN WORKMANSHIP, MATERIALS AND PERFORMANCE TO SPECIFIED CAPACITIES AND THAT IF SUCH DEFECTS SHALL APPEAR DURING A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE, THEY WILL REMEDY SUCH DEFECTS TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AT NO EXTRA COST TO THE OWNER, WITHIN A REASONABLE TIME.

- CONTRACTOR ADDRESS AND PHONE NUMBER.
- MANUFACTURER AND LOCAL REPRESENTATIVE ADDRESSES AND PHONE NUMBERS.
- ONE COPY OF EACH APPROVED SHOP DRAWINGS, INCLUDING ENGINEER APPROVAL SHEET.
- MANUFACTURERS' MANUAL AND PARTS LIST.
- FILTER AND V-BELT LIST.
- TEST AND BALANCE REPORT.
- STATE OR CITY TESTS, APPROVAL, OR ACCEPTANCE OF SYSTEMS (THIS SHALL INCLUDE WATER STERILIZATION AND EQUIPMENT INSTALLATION START-UPS).

SECTION 220500230500 - COMMON WORK RESULTS

PIPE SLEEVES AND FIRE STOPPING:
THIS CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, SETTING, AND PROPER LOCATION OF ALL SLEEVES REQUIRED FOR PLUMBING WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT OF EXPANSION AND CONTRACTION, AND TO ACCOMMODATE PIPE INSULATION.

HOLES FOR PIPING THROUGH CONCRETE FLOORS AND WALLS SHALL BE SCHEDULE 40 STEEL PIPE, SECURED TO WALL. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED OPENINGS.

PIPES SHALL NOT BE INSTALLED THROUGH FOOTINGS, BEAMS, OR COLUMNS EXCEPT AS APPROVED BY STRUCTURAL ENGINEER.

FIRESTOPPING IS DEFINED HEREIN AS THE PROCESS OF FURNISHING AND INSTALLING MATERIAL, OR COMBINATION OF MATERIALS, IN VARIOUS CONSTRUCTION ASSEMBLIES TO MAINTAIN AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND GASES AND TO RETAIN THE INTEGRITY OF TIME-RATED CONSTRUCTION. INSTALL FIRESTOP FOR ALL PIPING AND DUCT PENETRATIONS THROUGH FLOOR SLAB, THROUGH FIRE-RATED PARTITIONS, OR FIRE WALLS.

FLASHING:
VENTS THRU ROOF SHALL BE FLASHED PER ROOF MANUFACTURERS' RECOMMENDATIONS.

SECTION 220529230529 - HANGERS AND SUPPORT

ALL FERROUS PIPING SHALL BE HUNG WITH ADJUSTABLE SWIVEL RING AND HANGERS. ALL COPPER PIPING SHALL BE HUNG WITH ADJUSTABLE SWIVEL RING, COPPER PLATED HANGERS FOR NOMINAL TUBING AS REQUIRED.

INSTALL HANGERS FOR PVC PIPING, WITH MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS, TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT, SUPPORT VERTICAL RUNS OF PVC PIPING TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT.

PROVIDE HANGER RODS OF THE PROPER LENGTH AND SIZE FOR ALL HANGERS.

UTILIZE WALL BRACKETS, BEAMS, OR OTHER CONSTRUCTION TO SUPPORT HANGER RODS WITH APPROPRIATE BEAM CLAMPS OR OTHER STRUCTURAL ATTACHMENTS. SHOT-IN ANCHORS WILL NOT BE ACCEPTED.

CONTRACTOR SHALL FURNISH AND INSTALL MISCELLANEOUS STEEL MEMBERS FOR SUPPORT OF PIPING WHERE REQUIRED. STANDARD CONNECTIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SHALL BE UTILIZED. WELDING TO BUILDING STEEL IS NOT ALLOWED.

HANGERS FOR STEEL AND COPPER LINES SHALL BE SPACED NOT OVER 10'-0" ON CENTERS AND CLOSER WHERE REQUIRED TO ACCOMMODATE CONCENTRATED LOADS AND TO LIMIT DEFLECTION TO 1/4". HANGERS SHALL BE INSTALLED AT ALL CHANGES IN DIRECTION OF PIPING.

FIXTURES, FIXTURE SUPPORTS, FIXTURE TRIMMINGS, ETC., SHALL BE SECURED WITH 1/2" BRASS THROUGH BOLTS. EXPANSION BOLTS OR TOGGLE BOLTS IN ACCORDANCE WITH WALL MATERIAL AND AS REQUIRED TO SECURELY ANCHOR FIXTURE TO WALL. EXPOSED HEADS AND CAP NUTS SHALL BE CHROMIUM PLATED.

HANGERS FOR PIPE SHALL BE SIZED TO ACCOMMODATE INSULATION AND SHALL BE INSTALLED WITH SHEET METAL SHIELDS.

PROVIDE SUPPLEMENTAL STEEL BRACING TO PREVENT PIPE SWAY (HORIZONTAL MOVEMENT). INSTALL IN SUCH A MANNER TO ALLOW PIPE EXPANSION AND CONTRACTION (LATERAL MOVEMENT).

SECTION 220549230549 - VIBRATION ISOLATORS

CONTRACTOR SHALL PROVIDE ISOLATION SYSTEMS SO THAT OBJECTIONABLE NOISES OR VIBRATIONS WILL NOT BE TRANSMITTED THROUGH FOUNDATIONS, FLOORS, WALLS, COLUMNS, PIPING AND DUCTS, ETC. ALL ISOLATION SYSTEMS PROPOSED SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.

EVERY ROTATING AND RECIPROCATING ITEM OF EQUIPMENT, THEIR COMPONENTS, AND MATERIALS USED FOR CONVEYANCE, SHALL BE PROVIDED WITH THE PROPER ISOLATION EQUIPMENT. FACTORY PACKAGED EQUIPMENT SHALL BE FURNISHED COMPLETE WITH INTEGRAL ISOLATORS.

SECTION 220700230700 - PIPE INSULATION

AS MANUFACTURED BY OWENS-CORNING, JOHNS-MANVILLE, OR ARMSTRONG. ALL INSULATION SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255, A U.L. 723. NOT EXCEEDING A FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50. INSULATION SHALL BE CONTINUOUS THROUGH WALLS, INCLUDING WHERE INSTALLED INSIDE OF WALL CAVITIES.

INSERTS SHALL BE INSTALLED AT ALL HANGERS OR SUPPORTS FOR PIPING 1-1/2" AND LARGER. INSERTS SHALL CONSIST OF RIGID PIPE INSULATION OF EQUAL THICKNESS TO THE ADJOINING INSULATION, CORROSION RESISTANT RIGID SHIELD OR SADDLE, AND SHALL BE PROVIDED WITH VAPOR BARRIER WHERE REQUIRED. ELIGEN, INSULCOLASTIC, OR EQUAL.

PRE-FORMED, FIBERGLASS PIPE INSULATION WITH SELF-SERVICE JACKET, INCLUDING SELF-SEALING LAPS, AND VAPOR BARRIER SHALL BE PROVIDED FOR THE FOLLOWING SYSTEMS:
• DOMESTIC COLD WATER PIPING: 1" THICK.
• ROOF DRAIN PIPING: 1" THICK.

ALL VALVES AND FITTINGS SHALL BE INSULATED WITH ZESTON PRE-MOLDED PVC COVERS WITH GLASS FIBER INSERT TO SAME THICKNESS AS PIPE INSULATION. TAPE JUNCTION OF COVERS AND PIPE INSULATION. SEAL THROAT OF COVERS WITH MASTIC FOR ALL COLD WATER LINES IN BUILDING.

SECTION 221000231000 - PIPING MATERIALS

ALL PIPE AND FITTINGS SHALL BE SMOOTH INSIDE, STRAIGHT, FREE FROM WELD OR SOLDER FLAWS, BUSTERS, OR OTHER DEFECTS. EACH LENGTH OF PIPE AND EACH FITTING SHALL HAVE CAST, STAMPED, OR INDUBLY MARKED ON IT, THE MAKER'S MARK OR NAME AND THE WEIGHT AND QUALITY OF THE PRODUCT WHERE SUCH MARKING IS REQUIRED BY THE APPROVED STANDARD THAT APPLIES. ALL SIZES SHOWN ON PLANS ARE I.D. REFERENCES TO ANSI AND OTHER STANDARDS SHALL BE LATEST EDITIONS.

PIPING:
ALL SANITARY WASTE, ROOF DRAIN, AND CONDENSATE DRAIN PIPES IN BUILDING ABOVE GROUND AND VENTS ABOVE GROUND SHALL BE PVC PLASTIC PIPE OR CAST IRON PIPE (BELL & SPIGOT OR HUBLESS WITH 304 STAINLESS STEEL COUPLING).

UNDERGROUND DRAINAGE AND VENT PIPING INSIDE THE BUILDING SHALL BE SCHEDULE 40 SOLID WALL PVC PLASTIC PIPE OR SERVICE WEIGHT HUB AND SPIGOT CAST IRON SOIL PIPE, THOROUGHLY COATED WITH COAL TAR VARNISH INSIDE AND OUTSIDE, CONFORMING TO ASTM A74 AND C3188 AND BEARING THE MARK OF THE CAST IRON SOIL PIPE INSTITUTE.
HORIZONTAL, SOIL, WASTE, AND DRAIN PIPE SHALL BE SLOPED AT 1/4" PER FOOT EXCEPT WHEN THE PIPE IS LARGER THAN 3" WHICH MAY BE INSTALLED WITH A SLOPE OF NOT LESS THAN 1/8" PER FOOT UNLESS OTHERWISE NOTED.

ALL ABOVE GROUND DOMESTIC COLD AND DOMESTIC HOT WATER PIPING INSIDE BUILDING 2" AND SMALLER SHALL BE TYPE 1" HARD TEMPER COPPER TUBING CONFORMING TO ASTM B88 WITH SOLDERED JOINTS.

ALL DOMESTIC WATER PIPING BURIED WITHIN 5'-0" OF BUILDING SHALL BE EITHER TYPE "K" SOFT COPPER TUBING CONFORMING TO ASTM B88. INSTALL UNDERGROUND COPPER TUBE IN PE ENCASEMENT ACCORDING TO ASTM A 674 OR AWWA C105.

ALL ABOVEGROUND GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON THREADED FITTINGS, CONFORMING WITH ANSI STANDARD B NO. 3, 150LB. CLASS, OR WITH WROUGHT-STEEL FITTINGS AND WELDED JOINTS. PAINT ALL EXTERIOR GAS PIPING, VALVES, SUPPORTS, ETC., WITH ALKYL ANTI-CORROSIVE METAL PRIMER AND EXTERIOR ALKYL ENAMEL FLAT GRAY TOPCOAT.

FITTINGS:
FITTINGS FOR CAST IRON SOIL PIPE, BELL AND SPIGOT, SHALL BE CAST IRON CONFORMING TO ANSI B16-12 AND C3-188, STANDARD WEIGHT, COATED INSIDE AND OUT WITH HEAVY COAL TAR VARNISH. JOINTS SHALL BE MADE WITH VULCANIZED RUBBER OR NEOPRENE CONFORMING TO ASTM C-564.

PVC FITTINGS FOR PVC PIPING.

FITTINGS FOR CAST IRON SOIL PIPE (HUBLESS) SHALL BE MADE WITH 304 STAINLESS STEEL COUPLINGS. GASKETS TO CONFORM TO CISPI 301.

FITTINGS FOR RIGID COPPER TUBING SHALL BE WROUGHT COPPER SOLDER FITTINGS CONFORMING TO ANSI B16-22 AND STM B-75.

FITTINGS FOR GAS PIPING SHALL BE MALLEABLE IRON CONFORMING TO ASME B16.3 OR ASTM A234 FORGED STEEL, WELDING TYPE PER NFPA 88.

JOINTS:
SCREWED PIPE JOINTS SHALL HAVE FULL CLEAN CUT THREADS CONFORMING TO ANSI B2.1, WITH ENDS OF PIPE REAMED, FILED AND ALL BURRS REMOVED. JOINTS SHALL BE MADE WITH GRAPHITE BASE PIPE JOINT COMPOUND OR APPROVED EQUAL COMPOUND. FITTINGS AND PIPE SHALL BE FREE FROM OIL AND GREASE.

SOLDERED COPPER PIPE JOINTS SHALL USE 95% TIN AND 5% ANTIMONY SOLDER USING A NON-CORROSIVE FLUX.

PVC PIPE JOINTS SHALL BE SOLVENT WELD WITH SOLVENT CEMENT CONFORMING TO ASTM D2855 AND D2564.

INSTALL INSULATING TYPE DIELECTRIC UNIONS FOR CONNECTING DISSIMILAR PIPE.

VALVES:
VALVES SHALL BE OF ONE MANUFACTURER THROUGHOUT INSTALLATION. VALVES SHALL BE RATED 200 PSI FOR COLD WATER SERVICE. SOLDER JOINT VALVES SHALL BE RATED 150 PSI FOR WATER SERVICE AT 200°F. UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL VALVES SHALL BE FULL-PORT BALL VALVES. WHERE VALVES AND PIPING SHALL BE INSULATED, EXTENDED STEMS SHALL BE PROVIDED ON VALVES.

SOLDER JOINT VALVES FOR COPPER TUBING:
• BALL VALVES - BRONZE/BRASS BALL, SCREWED TFE SEAT.

TESTING AND FLUSHING:
ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED, AT 1-1/2 TIMES OPERATING PRESSURE (MIN. 125 PSI), LEAKS REPAIRED AND SYSTEM RETESTED UNTIL PROVED RIGHT BEFORE BACKFILLING, OR CONCEALING OF INSULATED PIPE. WASTE PIPE SHALL BE TESTED AT A MINIMUM OF 10' OF WATER. GAS PIPING SHALL BE TESTED WITH 80 PSI OF AIR AND A WARM SOAPY WATER SOLUTION. NOTIFY ARCHITECT/ENGINEER A MINIMUM OF 48 HOURS BEFORE PERFORMING TESTS.

ALL POTABLE WATER SYSTEM PIPING AND COMPONENTS SHALL BE FLUSHED AND STERILIZED AFTER CLEANING. STERILIZE AND CHLORINATE IN ACCORDANCE WITH STATE AND LOCAL HEALTH DEPARTMENT STANDARDS, SUBMIT SAMPLES TO BE TESTED AND PROVIDE REPORT TO ARCHITECT/ENGINEER.

SECTION 224000 - PLUMBING FIXTURES

PLUMBING FIXTURES SHALL BE FURNISHED AND INSTALLED IN A WORKMANLIKE MANNER WITH PROPER CONNECTIONS TO SUPPLY AND DRAINAGE PIPING. ALL FIXTURES SHALL BE FREE OF DEFECTS AND PLUMBS AND SHALL OPERATE PERFECTLY WHEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' DIRECTIONS.

TRAPS:
EACH FIXTURE AND EACH PIECE OF EQUIPMENT REQUIRING CONNECTION TO THE SANITARY DRAINAGE SYSTEM SHALL BE EQUIPPED WITH WATER-SEALED TRAP. EACH TRAP SHALL BE PLACED AS NEAR THE FIXTURE AS POSSIBLE.

VENT LINES:
MINIMUM SIZES OF FIXTURE VENTS SHALL BE INSTALLED AS SHOWN IN RISER DIAGRAM ON THE DRAWINGS. VENTS MUST BE CONNECTED INTO STACK VENTS ABOVE HIGHEST FIXTURE.

SECTION 312113 - RADON MITIGATION

A RADON MITIGATION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NEBRASKA STATUTE 76-3504. THE RADON SYSTEM SHALL BE INSTALLED BY A COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM OF THREE YEARS EXPERIENCE. SHOP DRAWINGS THAT INCLUDE DIMENSIONS, LAYOUT OF THE COLLECTION AND REMOVAL PIPING, ROOF FLASHING DETAILS, AND LOCATION(S) OF ELECTRICAL JUNCTION BOX(ES) SHALL BE PROVIDED FOR REVIEW BY THE ENGINEER PRIOR TO INSTALLATION OF THE RADON SYSTEM.

THE RADON SYSTEM TESTING SHALL COMPLY WITH ASTM E96/E96M, DESICCANT METHOD.

As noted on 02/20/15, Firethorn Office Building/NE, Firethorn, Lincoln, NE 68508

7/2/2023 10:23 AM
Sheet: 600

PANEL HP1				PHASE BUS RATING 400 A				LOCATION MECHANICAL 106			
VOLTAGE 120/240V				AIC RATING 100kA				MOUNTING SURFACE			
MCB OR MLO 400A MCB				AVAILABLE SHORT CKT.... 7.5kA				NO. OF POLES 3A			
FED FROM											
NOTE	LOAD DESCRIPTION	AMP	P	CKT. NO.	A	B	CKT. NO.	P	AMP	LOAD DESCRIPTION	NOTE
	REC. EXTERIOR RECEPTACLES	20 A	1	1	540	38	2	1	20 A	LTG. EXTERIOR BLD LTG.	
	LTG. EXTERIOR RECEPTACLES	20 A	1	1	540	38	2	1	20 A	LTG. EXTERIOR BLD LTG.	
--	HVAC, CU-1	35 A	2	5	2400	2400	6	2	35 A	HVAC, CU-2	--
--	--	--	--	7	--	--	8	--	--	--	--
	HVAC, CU-3	45 A	2	9	3120	1176	10	1	20 A	HVAC, F-1	
--	--	--	--	11	--	--	12	1	20 A	HVAC, F-2	--
	HVAC, F-3	20 A	1	13	1656	1500	14	1	20 A	MTR. TP-1	
	SPACE	--	--	17	--	--	18	1	--	SPACE	
	SPACE	--	1	19	--	--	20	1	--	SPACE	
	SPACE	--	1	21	--	--	22	1	--	SPACE	
	SPACE	--	1	23	--	--	24	1	--	SPACE	
	SPACE	--	1	25	--	--	26	1	--	SPACE	
	SPACE	--	1	27	--	--	28	1	--	SPACE	
	SPACE	--	1	29	--	--	30	1	--	SPACE	
	SPACE	--	1	31	--	--	32	1	--	SPACE	
	SPACE	--	1	33	--	--	34	1	--	SPACE	
	SPACE	--	1	35	--	--	36	1	--	SPACE	
	SPACE	--	1	37	--	--	38	1	--	SPACE	
	SPACE	--	1	39	--	--	40	1	--	SPACE	
	SPACE	--	1	41	--	--	42	1	--	SPACE	
	SPACE	--	1	43	--	--	44	1	--	SPACE	
	SPACE	--	1	45	--	--	46	1	--	SPACE	
	SPACE	--	1	47	--	--	48	1	--	SPACE	
	SPACE	--	1	49	--	--	50	1	--	SPACE	
	SPACE	--	1	51	--	--	52	1	--	SPACE	
	SPACE	--	1	53	--	--	54	1	--	SPACE	
	SPACE	--	1	55	--	--	56	1	--	SPACE	
	SPACE	--	1	57	--	--	58	1	--	SPACE	
	SPACE	--	1	59	--	--	60	1	--	SPACE	
	SPACE	--	1	61	--	--	62	1	--	SPACE	
	SPACE	--	1	63	--	--	64	1	--	SPACE	
	SPACE	--	1	65	--	--	66	1	--	SPACE	
	SPACE	--	1	67	--	--	68	1	--	SPACE	
	SPACE	--	1	69	--	--	70	1	--	SPACE	
	SPACE	--	1	71	--	--	72	1	--	SPACE	
	SPACE	--	1	73	--	--	74	1	--	SPACE	
	SPACE	--	1	75	--	--	76	1	--	SPACE	
	SPACE	--	1	77	--	--	78	1	--	SPACE	
	SPACE	--	1	79	--	--	80	1	--	SPACE	
	SPACE	--	1	81	--	0	82	2	30 A	SPD	
	SPACE	--	1	83	--	0	84	--	--	--	--
				KVA	12.83	KVA	11.268				
				AMPS	107	AMPS	94				
LOAD CLASSIFICATIONS		CONNECTE D (VA)	DEMAND FACTOR	DEMAND (VA)							
HVAC		11100 VA	100.00%	11100 VA							
Lighting		38 VA	125.00%	48 VA							
Motor		6240 VA	125.00%	7800 VA							
Other		6088 VA	100.00%	6088 VA							
Receptacle		540 VA	100.00%	540 VA							
Spare		90 VA	100.00%	90 VA							