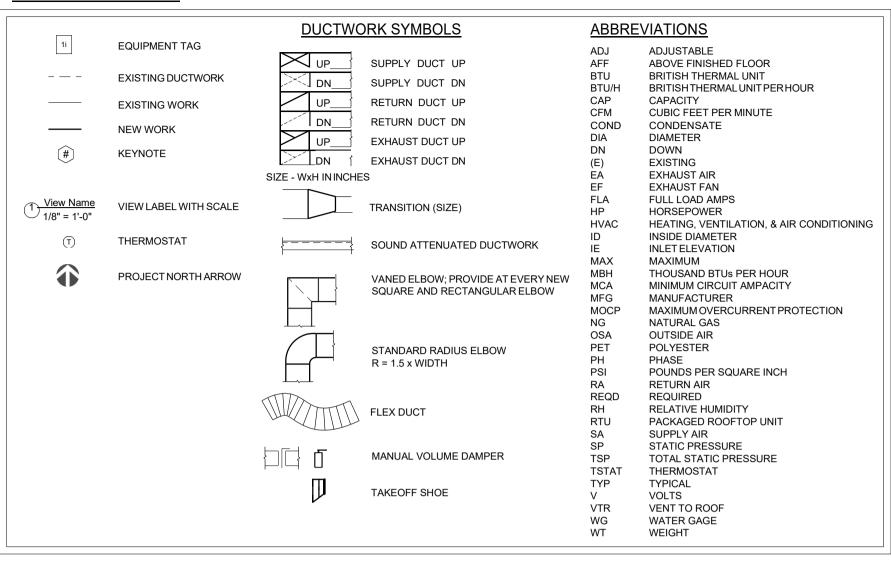
## MECHANICAL LEGEND



## **GENERAL NOTES:**

- 1. DRAWINGS INDICATE GENERAL MECHANICAL PROJECT SCOPE AND ARE SCHEMATIC IN NATURE. THE DRAWINGS DO NOT NECESSARILY INDICATE OR DESCRIBE ALL OF THE WORK CONTENT REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL COMPONENTS REQUIRED TO MEET THE REQUIRED SYSTEM PERFORMANCE AND THE PROPER EXECUTION AND COMPLETION OF WORK.
- 2. ARCHITECTURAL AND OTHER EXISTING BUILDING CONDITIONS SHOWN ON THESE PLANS ARE SUBJECT TO FIELD VERIFICATION. CONTRACTOR IS TO REMEDY, AT NO COST TO THE OWNER, ANY DEFICIENCIES CAUSED BY FAILURE TO PERFORM SUCH VERIFICATIONS. NOTIFY ARCHITECT AS SOON AS POSSIBLE OF ANY CONDITIONS IN CONFLICT WITH THESE PLANS.
- 3. ALL EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND AS REQUIRED BY MECHANICAL CODE, ELECTRICAL CODE, AND AHJ. VERIFY ADEQUATE ACCESS FOR ROUTINE MAINTENANCE.
- 4. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY WIRING, CONTROLS, HARDWARE, FITTINGS, PARTS, AND ACCESSORIES INCLUDING ALL SAFETY DEVICES REQUIRED FOR PROPER OPERATION OF SYSTEM IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS. EQUIPMENT CONTROLS SUCH AS THERMOSTATS, SENSORS, ETC., SHALL BE PROVIDED BY THE UNIT MANUFACTURER AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE STATED.
- THERMOSTATS SHALL BE INSTALLED 48" AFF WHERE SHOWN ON THE FLOOR PLANS. COORDINATE WITH ARCHITECT.
- 6. CONCEAL ALL CONNECTIONS (REFRIGERANT, CONDENSATE DRAIN, ELECTRICAL), AND PIPING/ELECTRICAL IN FINISHED AREAS.
- 7. MAINTAIN WALL/ASSEMBLY RATINGS. PROVIDE FIRE STOP SEALS AS REQUIRED.
- CONDENSATE DRAIN FROM ROOFTOP UNITS SHALL BE PLUMBED TO STORMWATER TRENCH DRAIN PROVIDED PER CIVIL.

# PROJECT DESIGN CONDITIONS (HIGH BAY AREA ONLY):

WINTER DRY BULB TEMPERATURE: 22°F SUMMER DRY BULB TEMPERATURE: 91.3°F SUMMER COINCIDENT WET BULB TEMPERATURE: 67.2°F HIGH BAY HEATING SET POINT TEMPERATURE: 69°F OCCUPIED HOURS, 60°F UNOCCUPIED HOURS HIGH BAY COOLING SET POINT TEMPERATURE: 71°F OCCUPIED HOURS, 85°F UNOCCUPIED HOURS

# **RTU OPERATIONAL NOTES:**

- 1. RTU-1 AND RTU-2 SHALL OPERATE INDEPENDENTLY. INDIVIDUALLY THERMOSTATICALLY CONTROLLED.
- 2. MINIMUM REQUIRED OUTSIDE AIR SHALL BE PROVIDED DURING OCCUPIED HOURS. EACH RTU SUPPLY FAN SHALL SUPPLY 1/2 OF TOTAL REQUIRED OUTSIDE AIR VOLUME.
- 3. MINIMUM REQUIRED EXHAUST SHALL BE PROVIDED DURING OCCUPIED HOURS. CONTROLS SHALL INCLUDE A MEANS FOR PROGRAMMING OCCUPIED AND UNOCCUPIED FUNCTIONS. EACH RTU POWERED EXHAUST FAN SHALL EXHAUST 1/2 OF TOTAL REQUIRED EXHAUST AIRVOLUME.
- 4. EACH RTU SHALL OPERATE UNDER UNIT MANUFACTURER'S SUPPLIED CONTROLLER AND SOFTWARE TO MAINTAIN TEMPERED SUPPLY AIR SETPOINT WHILE MAINTAINING A MAXIMUM RETURN AIR RELATIVE HUMIDITY OF 60% (ADJ). THE PROGRAM SHALL BE FROM THE MANUFACTURERS' STANDARD LIBRARY OF CONTROL SEQUENCES THAT IS THOROUGHLY TESTED AND PROVEN.
- 5. DURING ECONOMIZER HEATING AND COOLING, POWER EXHAUST IS TO MATCH OSA CFM TO MAINTAIN ROOM SP.

									RTU S	CHEDUL	E										
				SUPPLY	/ AIR		EXHAUST	AIR		COC	LING			HEATING	}			ELEC.	TRICAL		
	Manufacturer	Model		Outdoor				Fan	Total	Sensible	Cooling	Cooling		Total							
Tag	(Design Basis)	(Design Basis)	CFM	Air CFM	ESP	Fan HP	CFM	HP	Capacity	Capacity	EAT	LAT	Gas Input	Capacity	EAT	LAT	MOCP	MCA	VOLT/PH/HZ	Weight	Notes
RTU-1	Aaon, Inc.	RN-050-3-XXX	15984 CFM	15984 CFM	2.70 in-wg	20	15984 CFM	10	513490 Btu	436760 Btu	76 °F	50 °F	540000 Btu	432000 Btu	53 °F	78 °F	150 A	133 A	460 V/3/60 Hz	6890 lb	1 THRU 10
RTU-2	Aaon, Inc.	RN-050-3-XXX	15984 CFM	15984 CFM	2.70 in-wg	20	15984 CFM	10	513490 Btu	436760 Btu	76 °F	50 °F	540000 Btu	432000 Btu	53 °F	78 °F	150 A	133 A	460 V/3/60 Hz	6890 lb	1 THRU 10

## NOTES:

- 1. ECONOMIZER WITH POWER EXHAUST.
- 2. REHEAT DEHUMIDIFICATION, REHEAT RH: 47%
  3. VARIABLE SPEED COMPRESSOR AND VARIABLE SPEED FAI
- VARIABLE SPEED COMPRESSOR AND VARIABLE SPEED FANS
   INSULATED HORIZONTAL DISCHARGE CURB
- INSULATED HORIZONTAL D
   CLOGGED FILTER SWITCH
- 6. DISCONNECT
- 7. STAINLESS STEEL DRAIN PAN
- B. PHASE AND BROWN OUT PROTECTION
- DRAIN CONDENSATE TO TRENCH. SEE CIVIL.
   PROVIDE RETURN DUCT SMOKE DETECTORS

			FAN SC	HEDULE					
Mark	Type.	Manufacturer (Design Basis)	Model (Design Basis)	Air Volume (CFM)	Motor HP	MOCP	Voltage/Ph/Hz	Unit Weight (LBS)	Notes
BEF-1	BATHROOM EXHAUST FAN	Greenheck	SP-A70	80 CFM	0.01	15 A	120/1/60		1
F-1	AIR CURTAIN	Berner International Corp.	IDC20-1168AH-F	22700 CFM	15	100 A	208/3/60	1025	2

## NOTE:

- PROVIDE OCCUPANCY SENSOR
- 2. FRONT AIR INTAKE

EXH	AUST REG	QUIREMENTS (	PER OMSC 40	3.4)
Space Name	Area (Az)	Space Type	Exhaust Rate	Total Exhaust
HIGH BAY AREA	20571 SF	Metals Manufacturing	0.50 CFM/SF	10285 CFM

		OUTDOOR AIF	R CALCULATIO	NS (PER	OMSC 403.3)		
Name	Space Type	Outdoor Air Method	Outdoor Air per Area (Ra)	Area (Az)	Outdoor Air per Person (Rp)	Number of People (Pz)	Outdoor Airflow (Vbz)
	' /'		0.18 CFM/SF	20571 SF	10 CFM	103	4731 CFM

	AIF	R TERMINAL SCHEDU	JLE	
Mark	Manufacturer (Design Basis)	Model (Design Basis)	Size	Notes/Comments
EH-1	BROAN	646	6"ø	
RG-1	GREENHECK	ESJ-602	60"x156"	1
SG-1	ANEMOSTAT	ECO 20	24"x10"	

# NOTES

COORDINATE FINISH WITH ARCHITECT.

EDA Award Number: No. 07-01-07446





NOT FOR CONSTRUCTION WHEN UNSIGNED

e + design



EXPIRES: 12/31/2019
PROJECT TEAM:

CIVIL ENGINEER: AKS ENGINEERING & FORESTRY 12965 SW Herman Road, Suite 100 Tualatin, OR 97062

STRUCTURAL ENGINEER: PETERSON STRUCTURAL ENGINEERS 9400 SW Barnes Road, Suite 100 Portland, OR 97225 P. 503.292.1635

MEP ENGINEER: FLUENT ENGINEERING INC 2110 State Street Salem, Oregon 97301 P. 503-447-5030

P: 503.563.6151

OWNER: OMIC R&D / OREGON TECH. Procurement and Contract Servic 27500 SW Parkway Avenue Wilsonville, OR 97070

OWNER'S REPRESENTATIVE:
CRAIG CAMPBELL, Executive Direct
OMIC R&D
33701 Charles T. Parker Way
Scappoose, Oregon 97056

OREGON MANUFACTURING INNOVATION CENTER R & D

SCALE: AS SHOWN
DRAWN BY: JJW
CHECKED BY: MJC
CAD FILE: MECHANICAL
DATE: NOV. 22, 2019

REVISIONS

DATE DESCRIPTION

LEGEND AND

SCHEDULES
SHEET NO:

M0.00

STRUCTURAL ENGINEER: PETERSON STRUCTURAL ENGINEERS 9400 SW Barnes Road, Suite 100 Portland, OR 97225 P. 503.292.1635

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OWNER'S REPRESENTATIVE: CRAIG CAMPBELL, Executive Director OMIC R&D 33701 Charles T. Parker Way Scappoose, Oregon 97056 503-983-0573

OREGON MANUFACTURING INNOVATION CENTER R & D

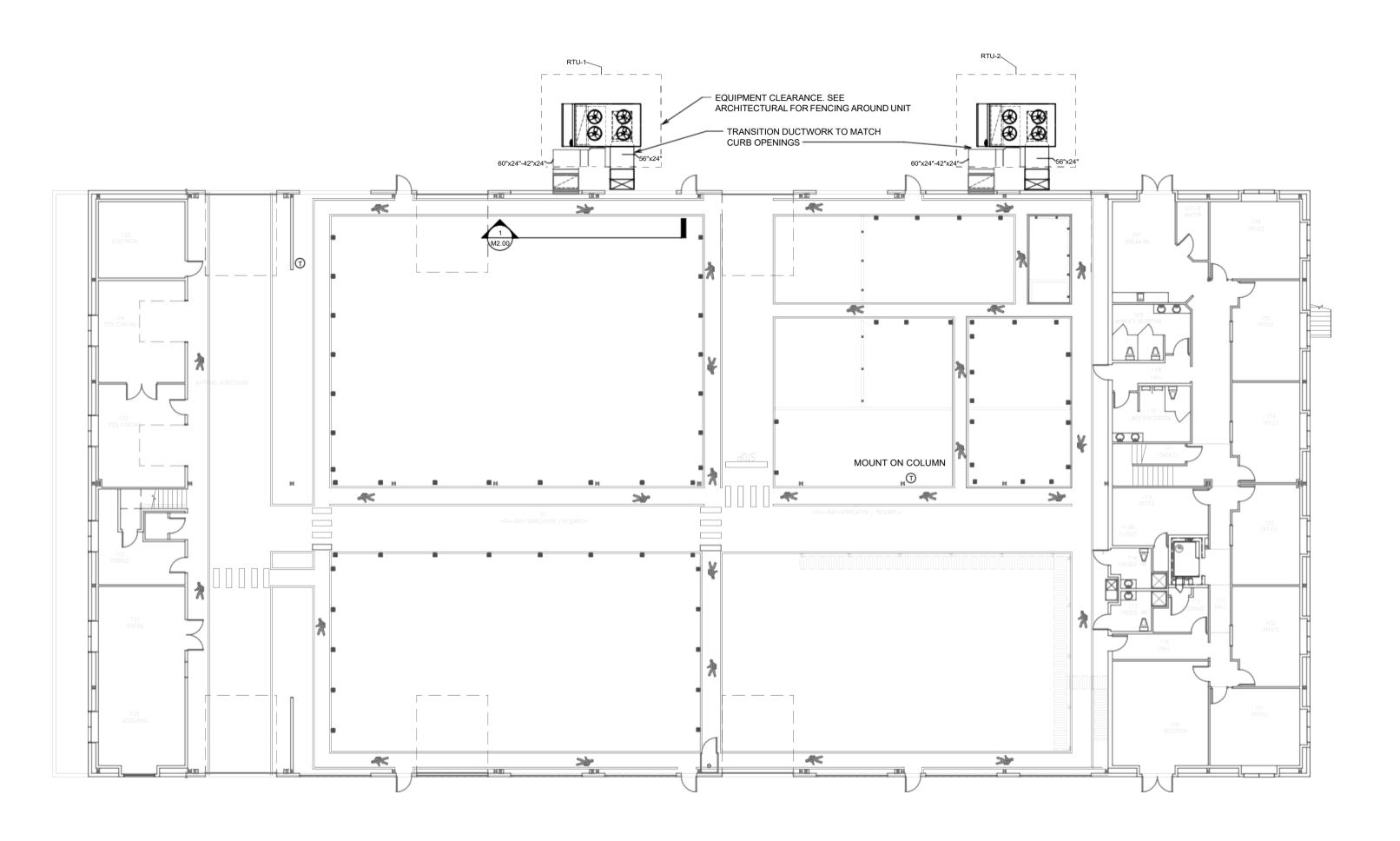
DRAWN BY: CHECKED BY: CAD FILE: DATE:

NOV. 22, 2019

MECHANICAL

1ST FLOOR \_\_MECHANICAL\_

M1.00



1ST FLOOR MECHANICAL



NOT FOR CONSTRUCTION WHEN UNSIGNED

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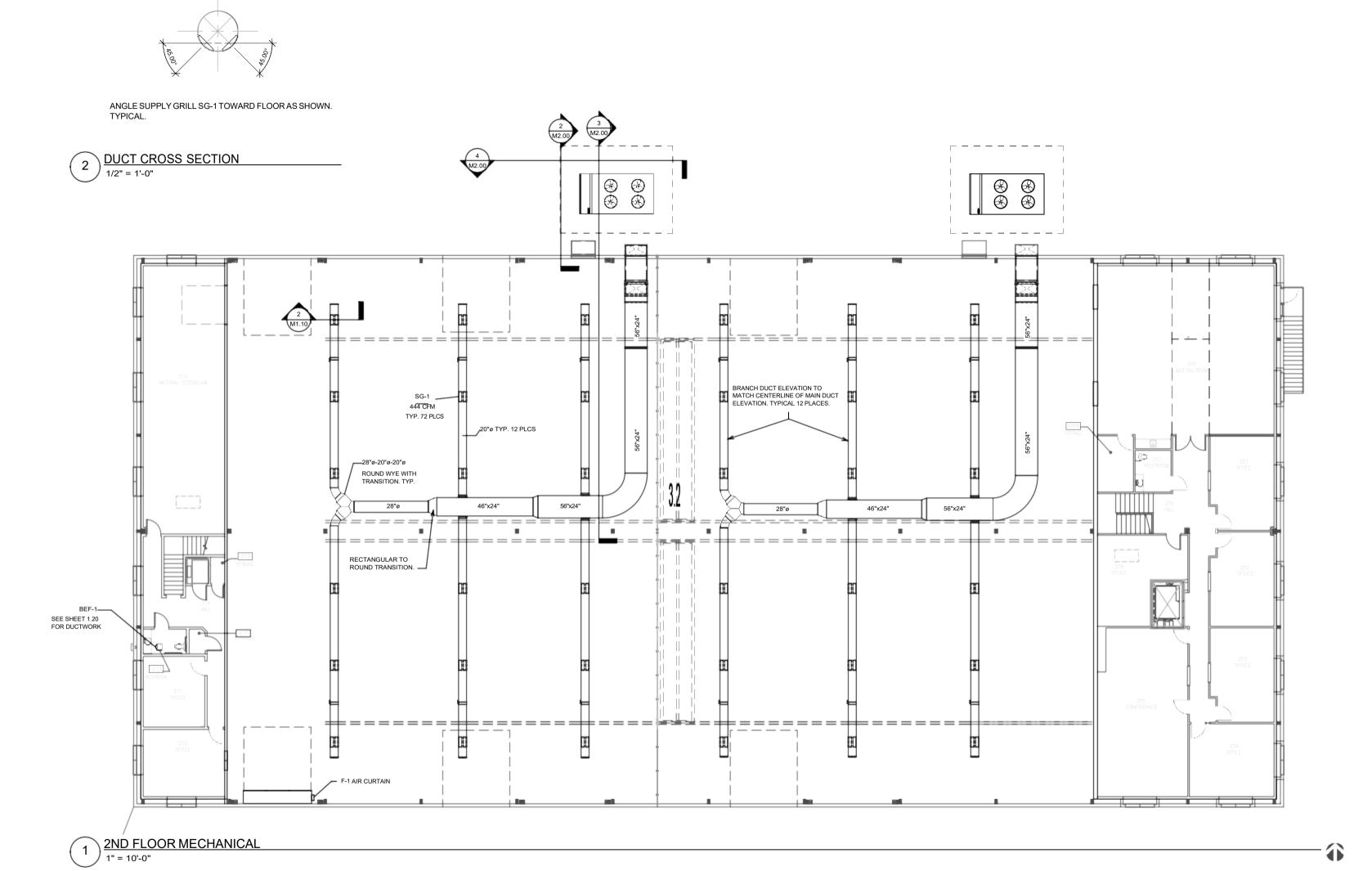
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MECHANICAL NOV. 22, 2019

2ND FLOOR \_\_MECHANICAL

SHEET NO: FLUENT ENGINEERING M1.10 STEWARDSHIP THROUGH DESIGN™ 2110 STATE STREET SALEM, OREGON 97301 503-447-5030 FLUENTENGINEERING.COM

NOT FOR CONSTRUCTION WHEN UNSIGNED

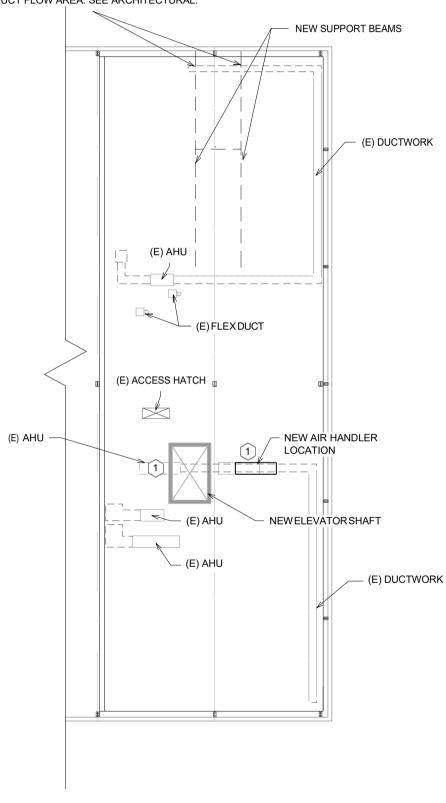


- 1. PROVIDE SHALLOW PAN CONDENSATE REMOVAL PUMP TO EXISTING ATTIC LOCATED AHU'S, LIBERTY LCU-SP20S OR APPROVED. CONNECT IN FIELD TO (E) DRAIN PAN PIPING. PUMP NOT TO BE INSTALLED ON THE AHU THAT IS BEING RELOCATED ON THE EAST END.
  RELOCATED AHU IS TO BE INSTALLED SUCH THAT DRAIN PIPING IS SLOPED TO MEET CODE REQUIRED MINIMUM SLOPE.
- 2. (E) AIR ATTIC MOUNTED AIR HANDLERS TO REMAIN

# **KEYNOTE LEGEND**

RELOCATE (E) AIR HANDLER AND ASSOCIATED DUCTING, CONDENSATE DRAIN, POWER, PIPES AND CONTROLS. SLOPE CONDENSATE PIPING 1/8" PER FOOT. MAINTAIN (E) DUCT SIZES.

TRIM, REROUTE, AND RESEAL (E) DUCTWORK AND EXTEND (E) FLEX DUCT TO FIT AROUND NEW SUPPORT BEAM. MAINTAIN DUCT FLOW AREA. SEE ARCHITECTURAL.



(E)ACCESSHATCH (E) DUCTWORK EH-1 80 CFM

ATTIC MECHANICAL

1" =10'-0"



NOT FOR CONSTRUCTION WHEN UNSIGNED

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OREGON MANUFACTURING INNOVATION CENTER R & D

SCALE: DRAWN BY: CHECKED BY: CAD FILE: DATE:

MECHANICAL NOV. 22, 2019

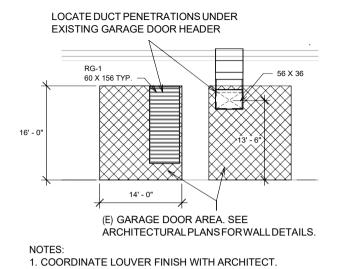
AS SHOWN

REVISIONS

ATTIC \_\_MECHANICAL SHEET NO:

M1.20

LOCATION APPROXIMATE. COORDINATE DUCT RISER IN FIELD TO AVOID (E) CABLETRAY.



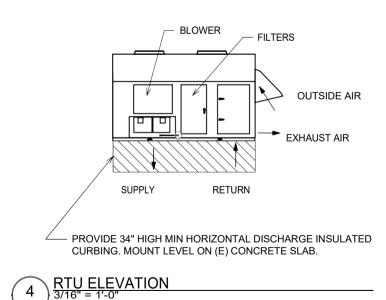
EXT. DUCT PENETRATION

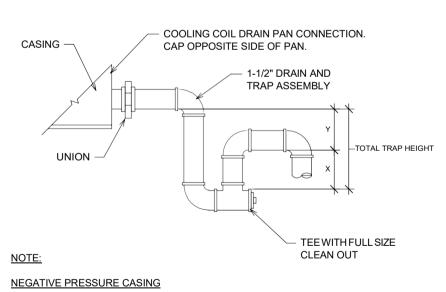
PROVIDE FLASHING AND SEAL PER ARCHITURAL DRAWINGS. LINE FOR SOUND SIZE TO MATCH CONNECTING DUCT SIZES 1ST\_FLOOR 0' - 0"

**BRIDGE** LINE TRANSITION FOR SOUND CRANE-TOP 20' - 8" PROVIDE FLASHING AND SEAL PER ARCHITURAL DRAWINGS-COORDINATE DUCTWORK TO AVOID INTERFERENCE WITH BRIDGE CRANE. ANGLE DUCTWORK TO MATCH ROOF LINE. SIZE TO MATCH CONNECTING DUCT SIZES 1ST FLOOR 0' - 0"

RETURN DUCT ELEVATION TYP. OF 2 PLCS

SUPPLY DUCT SECTION TYP. OF 2 PLCS



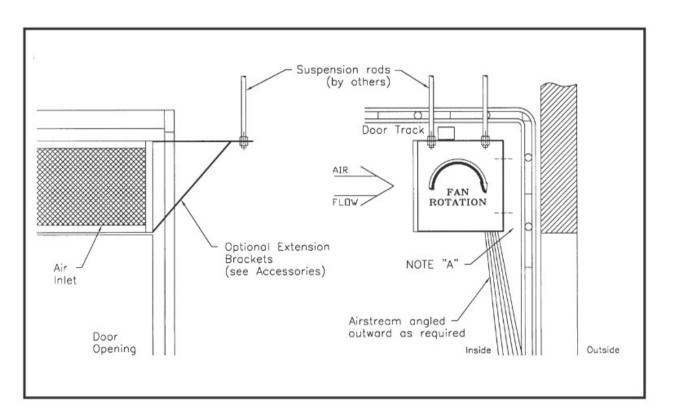


DRAIN PANAT NEGATIVE STATIC PRESSURE.

X=1/2(Y) MINIMUM 2" REQUIRED.

"Y" MUST BE 1" PLUS CASING STATIC PRESSURE. MINIMUM 3" HEIGHT REQUIRED.





WITH DOOR IN THE FULL OPEN POSITION, VERIFY THAT NOTHING IS OBSTRUCTING THE AIRFLOW AT THE DISCHARGE NOZZLE.





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OREGON MANUFACTURING INNOVATION CENTER R & D

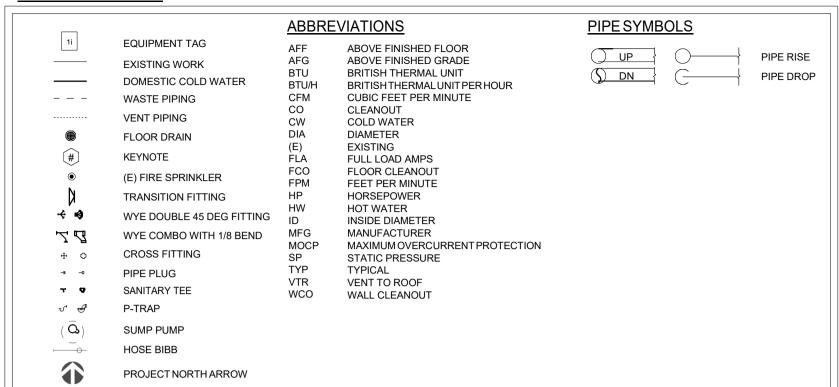
DRAWN BY: CHECKED BY: CAD FILE: DATE: MECHANICAL

**MECHANICAL** \_\_\_\_DETAILS

SHEET NO:

M2.00

## PLUMBING LEGEND



APPENDIX C	
	PIPE SIZE CALCULATION METHOD: LONGEST LENGTH

		TABLE C	402.4(3)			Inlet Pressure		2.0 psi	
	SC	CHEDULE 40 N	METALLIC PIP	E		Pressure Dro		1.0 psi	
						Specific Gravity		0.60	
				PIPE S	IZE (inch)				
Nominal	1/2	3/4	1	11/4	11/2	2	21/2	3	4
Actual ID	0.622	0.824	1.049	1.380	1.610	2.067	2.469	3.068	4.026
Length (ft)				Capacity in	Cubic Feet	of Gas Per Hour			
10	1,510	3,040	5,560	11,400	17,100	32,900	52,500	92,800	189,000
20	1,070	2,150	3,930	8,070	12,100	23,300	37,100	65,600	134,000
30	869	1,760	3,210	6,590	9,880	19,000	30,300	53,600	109,000
40	753	1,520	2,780	5,710	8,550	16,500	26,300	46,400	94,700
50	673	1,360	2,490	5,110	7,650	14,700	23,500	41,500	84,700
60	615	1,240	2,270	4,660	6,980	13,500	21,400	37,900	77,300
70	569	1,150	2,100	4,320	6,470	12,500	19,900	35,100	71,600
80	532	1,080	1,970	4,040	6,050	11,700	18,600	32,800	67,000
90	502	1,010	1,850	3,810	5,700	11,000	17,500	30,900	63,100
100	462	934	1,710	3,510	5,260	10,100	16,100	28,500	58,200
125	414	836	1,530	3,140	4,700	9,060	14,400	25,500	52,100
150	372	751	1,370	2,820	4,220	8,130	13,000	22,900	46,700
175	344	695	1,270	2,601	3,910	7,530	12,000	21,200	43,300
200	318	642	1,170	2,410	3,610	6,960	11,100	19,600	40,000
250	279	583	1,040	2,140	3,210	6,180	9,850	17,400	35,500
300	253	528	945	1,940	2,910	5,600	8,920	15,800	32,200
350	232	486	869	1,790	2,670	5,150	8,210	14,500	29,600
400	216	452	809	1,660	2,490	4,790	7,640	13,500	27,500
450	203	424	759	1,560	2,330	4,500	7,170	12,700	25,800
500	192	401	717	1,470	2,210	4,250	6,770	12,000	24,400
550	182	381	681	1,400	2,090	4,030	6,430	11,400	23,200
600	174	363	650	1,330	2,000	3,850	6,130	10,800	22,100
650	166	348	622	1,280	1,910	3,680	5,870	10,400	21,200
700	160	334	598	1,230	1,840	3,540	5,640	9,970	20,300
750	154	322	576	1,180	1,770	3,410	5,440	9,610	19,600
800	149	311	556	1,140	1,710	3,290	5,250	9,280	18,900
850	144	301	538	1,100	1,650	3,190	5,080	8,980	18,300
900	139	292	522	1,070	1,600	3,090	4,930	8,710	17,800
950	135	283	507	1,040	1,560	3,000	4,780	8,460	17,200
1,000	132	275	493	1,010	1,520	2,920	4,650	8,220	16,800
1,100	125	262	468	960	1,440	2,770	4,420	7,810	15,900
1,200	119	250	446	917	1,370	2,640	4,220	7,450	15,200
1,300	114	239	427	878	1,320	2,530	4,040	7,140	14,600
1,400	110	230	411	843	1,260	2,430	3,880	6,860	14,000
1,500	106	221	396	812	1,220	2,340	3,740	6,600	13,500
1,600	102	214	382	784	1,180	2,260	3,610	6,380	13,000
1,700	99	207	370	759	1,140	2,190	3,490	6,170	12,600
1,800	96	200	358	736	1,100	2,120	3,390	5,980	12,200
1,900	93	195	348	715	1,070	2,060	3,290	5,810	11,900
2,000	91	189	339	695	1,040	2,010	3,200	5,650	11,500

for SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1-inch water column = 0.2488 kPa, 1 British thermal unit per hour = 0.2931 W, 1 cubic foot per hour = 0.0283 m³/h, 1 degree = 0.01745 rad.

Note: All table entries have been rounded to three significant digits.

129.26 2010 OREGON MECHANICAL SPECIALTY CODE

# GAS PIPE SIZING

# $\left(\begin{array}{c}1\end{array}\right)\frac{\mathsf{G}(\mathsf{C})}{\mathsf{N}.\mathsf{T}.\mathsf{S}.}$

## **GENERAL NOTES:**

- 1. DRAWINGS INDICATE GENERAL PLUMBING PROJECT SCOPE AND ARE SCHEMATIC IN NATURE. THE DRAWINGS DO NOT NECESSARILY INDICATE OR DESCRIBE ALL OF THE WORK CONTENT REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL COMPONENTS REQUIRED TO MEET THE REQUIRED SYSTEM PERFORMANCE AND THE PROPER EXECUTION AND COMPLETION OF WORK.
- 2. ARCHITECTURAL AND OTHER EXISTING BUILDING CONDITIONS SHOWN ON THESE PLANS ARE SUBJECT TO FIELD VERIFICATION. CONTRATOR IS TO REMEDY, AT NO COST TO THE OWNER, ANY DEFICIENCIES CAUSED BY FAILURE TO PERFORM SUCH VERIFICATIONS. NOTIFY ARCHITECT AS SOON AS POSSIBLE OF ANY CONDITIONS IN CONFLICT WITH THESE PLANS.
- DOMESTIC WATER IS TO BE DISCONNECTED FROM EXISTING WELL AND RECONNECTED TO NEW MUNICIPAL WATER SUPPLY. EXISTING 1" IRRIGATION WATER FROM WELL PUMP IS TO REMAIN INTACT AND FULLY FUNCTIONAL. EXISTING 2" DOMESTIC WATER LINE FROM WELL IS TO BE DISCONNECTED AND CAPPED IN THE SAME VALVE BOX HOUSING THE NEW MUNICIPAL DOMESTIC WATER CONNECTION.
- 4. COORDINATE INSTALLATION OF PIPING BELOW AND ABOVE GRADE WITH STRUCTURAL COMPONENTS AND OTHER SYSTEMS.
- 5. COORDINATE FIXTURES, EQUIPMENT, CONNECTION LOCATIONS, AND DRAIN LOCATIONS WITH ARCHITECTURAL DRAWINGS.
- 6. ROOF PENETRATIONS PER ARCHITECTURAL DRAWINGS AND ROOF MANUFACTURER/INSTALLER. ROOF PENETRATIONS AND FLASHINGS MUST NOT VIOLATE ROOFING WARRANTY
- 7. LOCATE ALL VALVES FOR SERVICE ACCESSIBILITY.
- 8. PROVIDE CLEANOUTS FOR SANITARY WASTE AND SUMP EFFLUENT WHERE SHOWN AND AS OTHERWISE REQUIRED BY LOCAL AND STATE CODES.
- 9. EXISTING DRY-TYPE FIRE SPRINKLER SYSTEM TO BE REPLACED WITH WET-TYPE SYSTEM.
- 10. PROVIDE VACUUM BREAKERS ON HOSE BIBBS SHOWN IF NOT EXISTING.

		PUI	MP SCHEDU	JLE				
Mark	Type.	Manufacturer	Model	Pump HP	MOCP	MCA	Volt/Ph/Hz	NOTES
SP-1	ELEVATOR SUMP PUMP	Liberty Pumps, Inc.	ELV280	0.50 hp	20 A	10 A	115/1/60	1

#### NOTES:

1. CONNECT TO PLUG-IN RECEPTICAL. SEE ELECTRICAL.

				P	LUMBING FIXT	TURE S	SCHE	DULE						
							CONNE	CTION				TOTAL W	ATER SU	PPLY FIXTURE UNITS
ITEM TAG	QTY	EQUIP. CATEGORY	MANUFACTURER	MODEL#	VALVE/FAUCET	W	V	CW	HW	WSFU/UNIT	DFU/UNIT	WSFU	DFU	REMARKS
WC-1	1	NEW WATER CLOSET	KOHLER	K-3658	-	3"	1-1/2"	1/2"	-	2.5	3	2.5	3	
L-1	1	NEW LAVATORY	KOHLER	K-2211-G	MOEN 6610	1-1/4"	1-1/2"	1/2"	1/2"	1	1	1	1	1
	1	(E) REFRIGERATOR COOLER	N/A	N/A	N/A	N/A	N/A	1/2"	_	0.5	-	0.5	-	
	1	(E) UTILITY SINK	N/A	N/A	N/A	N/A	N/A	1/2"	1/2"	1.5	2	1.5	2	
	2	(E) BAR SINK	N/A	N/A	N/A	N/A	N/A	1/2"	1/2"	1	1	2	2	
	0	(E) SHOWER	N/A	N/A	N/A	N/A	N/A	1/2"	1/2"	2	2	0	0	
	7	(E) LAVATORY	N/A	N/A	N/A	N/A	N/A	1/2"	1/2"	1	1	7	7	
	1	(E) HOSE BIBB	N/A	N/A	N/A	N/A	N/A	1/2"	-	2.5	-	2.5	-	
	10	(E) ADDITIONAL HOSE BIBBS	N/A	N/A	N/A	N/A	N/A	1/2"	-	1	-	10	-	
	2	(E) URINAL	N/A	N/A	N/A	N/A	N/A	3/4"	-	3	2	6	4	
	6	(E) WATER CLOSET	N/A	N/A	N/A	N/A	N/A	1/2"	-	2.5	3	15	18	
	1	(E) DISHWASHER	N/A	N/A	N/A	N/A	N/A	-	1/2"	1.5	2	1.5	2	
NOTE:			EXISTING FIXTURES	ARE NOT LAB	ELED IN DRAWINGS					тот	ALS	49.5	39	

## REMARKS

1. PROVIDE HOT WATER FROM POINT-OF-USE ELECTRIC WATER HEATER. BOSCH 2.5 GALLON TRONIC 3000T OR APPROVED. 120V, 1 PH, 1440W, SEE ELECTRICAL FOR CONNECTION. SET TEMP TO "IDEAL" SETTING. PIPE T&P RELIEF VALVE TO SINK DRAIN. INSTALL PER MFG INSTRUCTIONS.

		NO OF	BTU/HR	TOTAL
	No. 20 To Section 1	NO. OF	100000000000000000000000000000000000000	SERVICE SERVICES
FIXTURE	DESCRIPTION	FIXT.	INPUT	BTU/HR
MECHANIC	AL EQUIPMENT	1		
RTU-1	West End	1	540,000	540,000
RTU-2	East End	1	540,000	540,000
3				
	TOTAL DEMAND (BTU	J)		1,080,000
	TOTAL DEMAND (CF)	H)	1,000	1,080
-				
SIZING BAS	SED ON 2 PSI SUPPLY	PRESSURE	WITH 1 PSI F	RESSURE
	SED ON 2 PSI SUPPLY FT DEVELOPED LENG		WITH 1 PSI F	RESSURE
		<u>T</u> H	WITH 1 PSI F	RESSURE
DROP. 100	FT DEVELOPED LENG	TH CFH	WITH 1 PSI F	RESSURE
DROP. 100 1-1/2" 1-1/4" 1"	FT DEVELOPED LENG 5,260	TH ) CFH ) CFH	WITH 1 PSI F	RESSURE
DROP. 100 1-1/2" 1-1/4"	FT DEVELOPED LENG 5,260 3,510	TH ) CFH ) CFH ) CFH	WITH 1 PSI F	RESSURE

GAS CALCULATIONS

PLUMBING SHEET INDEX

P0.00 LEGEND AND SCHEDULES
P1.00 1ST FLOOR PLUMBING
P1.10 2ND FLOOR PLUMBING
P1.20 PLUMBING - DETAIL VIEWS
P2.00 PLUMBING DETAILS



STEWARDSHIP THROUGH DESIGN 2110 STATE STREET SALEM, DREGON 97301 503-447-5030 FLUENTENGINEERING.COM scture + design

PROJECT TEAM:

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OWNER'S REPRESENTATIVE: CRAIG CAMPBELL, Executive Director OMIC R&D 33701 Charles T. Parker Way Scappoose, Oregon 97056 503-983-0573

OREGON MANUFACTURING INNOVATION CENTER R & D

SCALE: DRAWN BY: CHECKED BY: CAD FILE:

DATE:

Y: MJC MECHANICAL NOV. 22, 2019

REVISIONS

DATE DESCRIPTION

LEGEND AND

SCHEDULES

SHEET NO:

P0.00

CIVIL ENGINEER: AKS ENGINEERING & FORESTRY 12965 SW Herman Road, Suite 100 Tualatin, OR 97062 P: 503.563.6151 F: 503.563.6152

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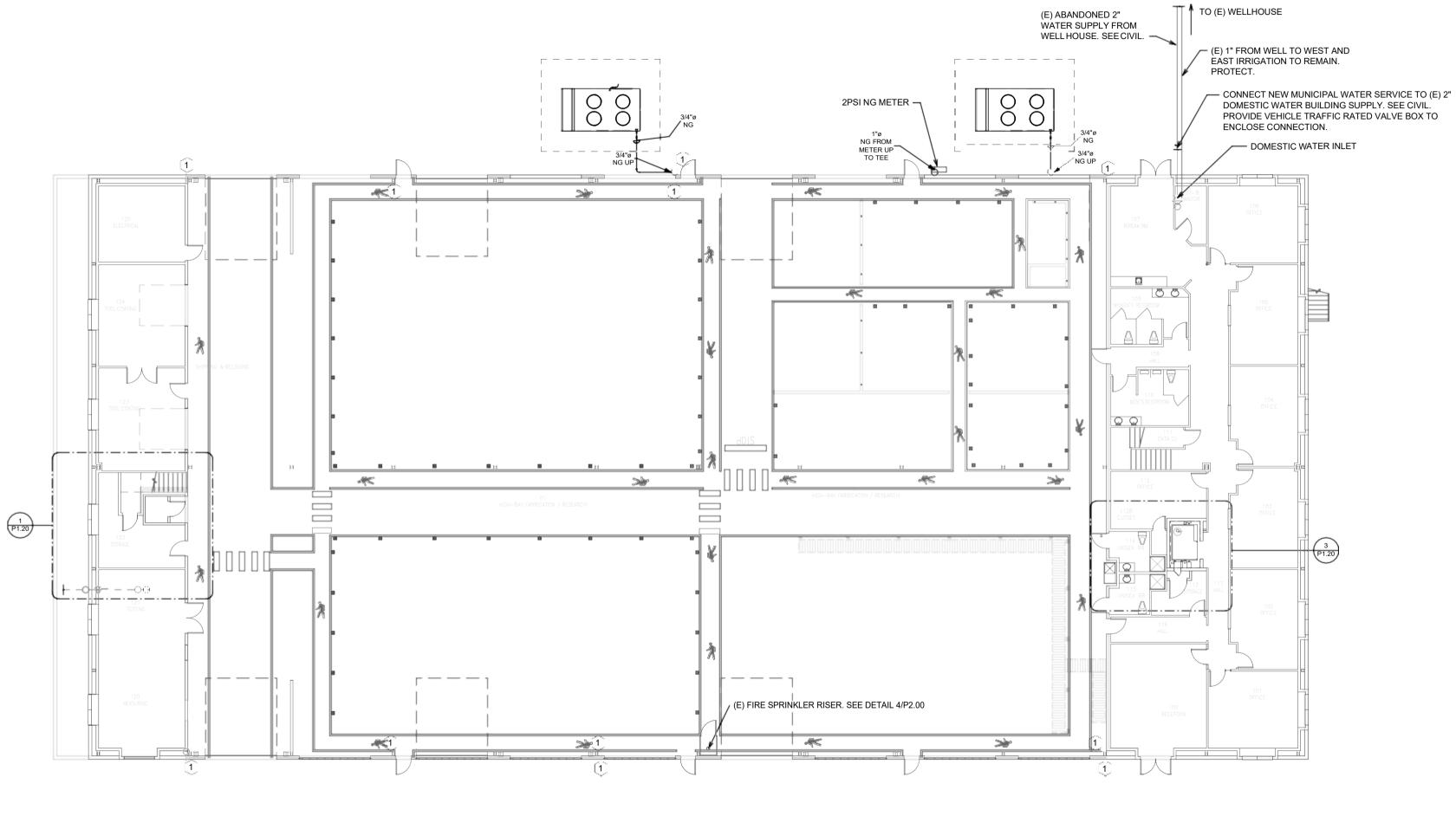
OREGON MANUFACTURING INNOVATION CENTER R & D

DRAWN BY: CHECKED BY: CAD FILE: DATE:

MECHANICAL NOV. 22, 2019 REVISIONS

1ST FLOOR PLUMBING

SHEET NO: P1.00



1STFLOOR PLUMBING-OVERALL



**KEYNOTE LEGEND** 

(E) DOMESTIC WATER PIPING TO (E) HOSE BIBBS OR EQUIPMENT.

CAP EXISTING PLUMBING FROM FIXTURES BEING REMOVED. SEE ARCHITECTURAL FOR DEMO PLANS.

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27500 SW Parkway Avenue

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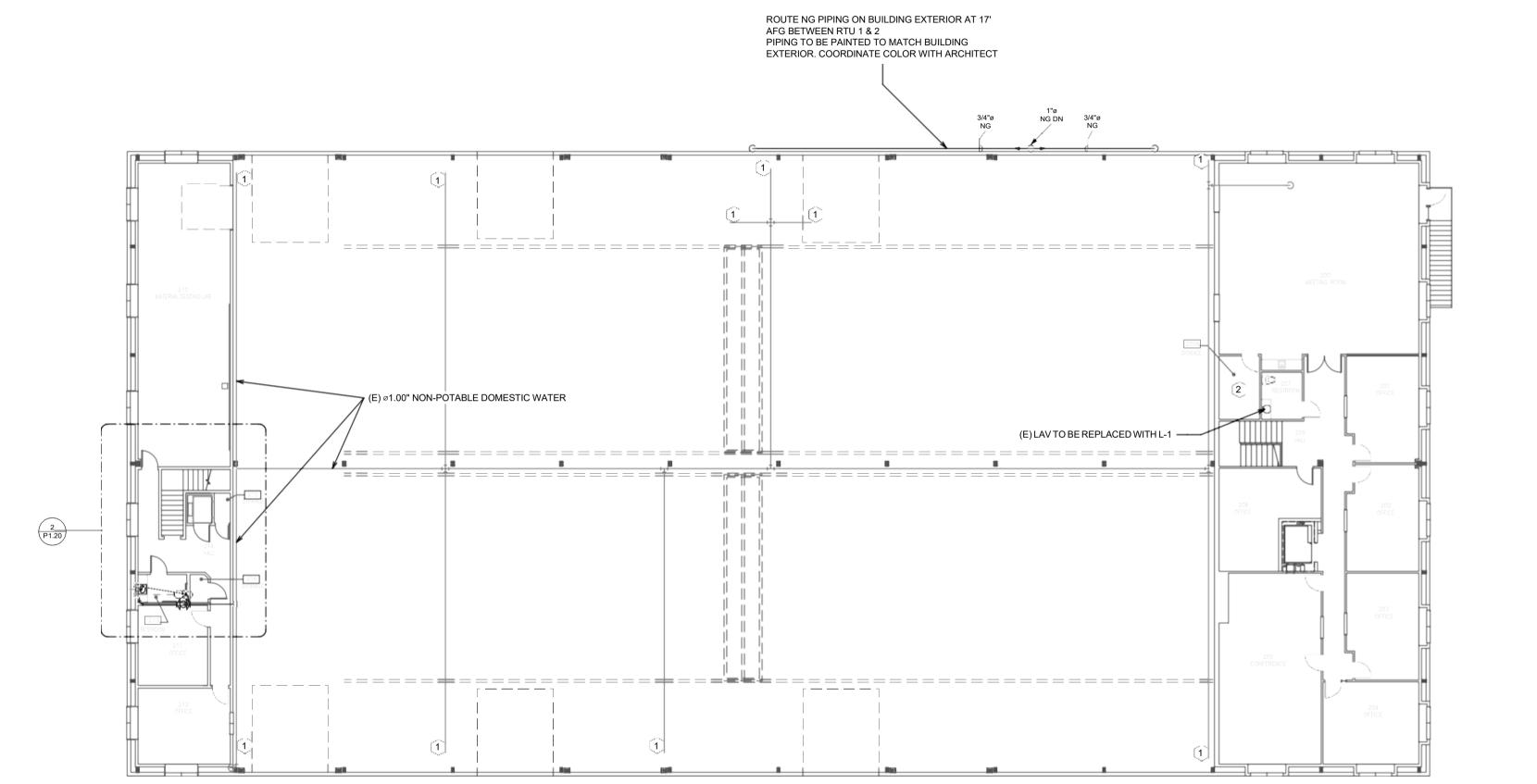
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2ND FLOOR **PLUMBING** 

P1.10



2ND FLOOR PLUMBING - OVERALL



PROJECT TEAM:

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OREGON MANUFACTURING INNOVATION CENTER R & D

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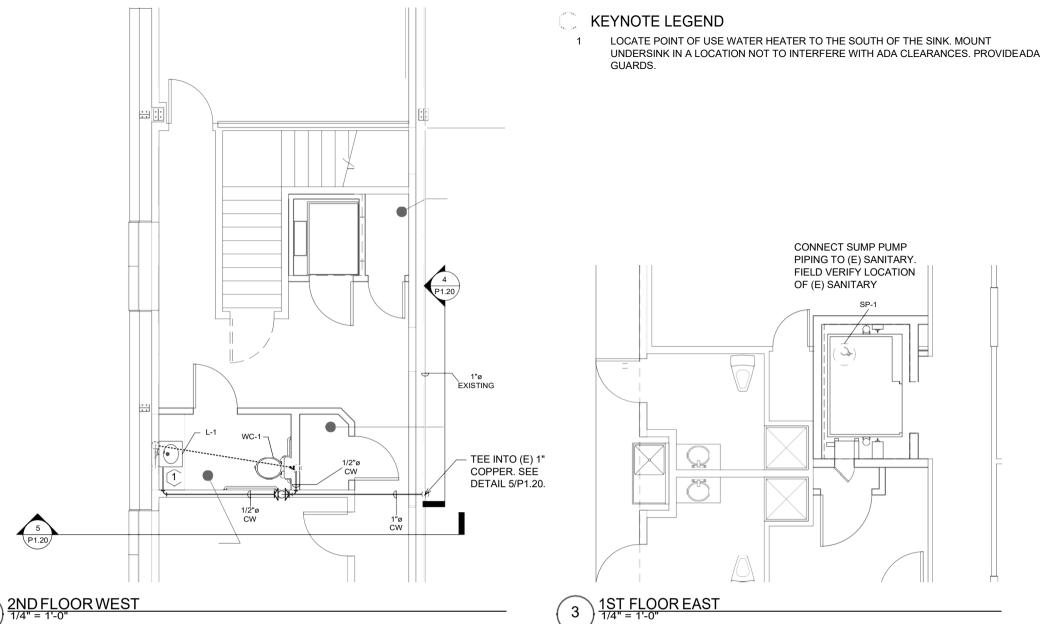
NOV. 22, 2019

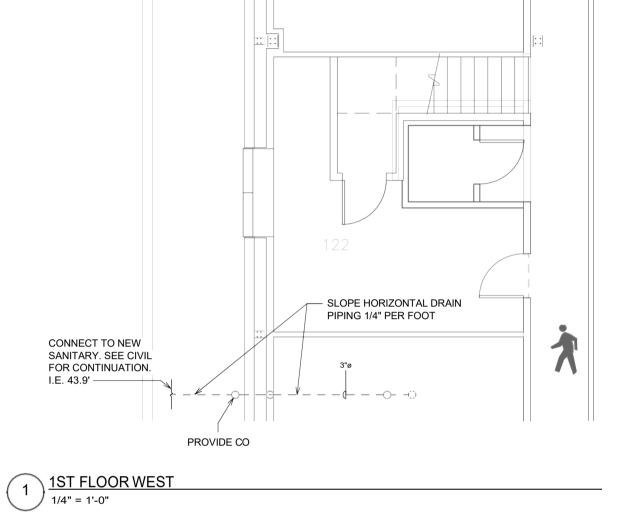
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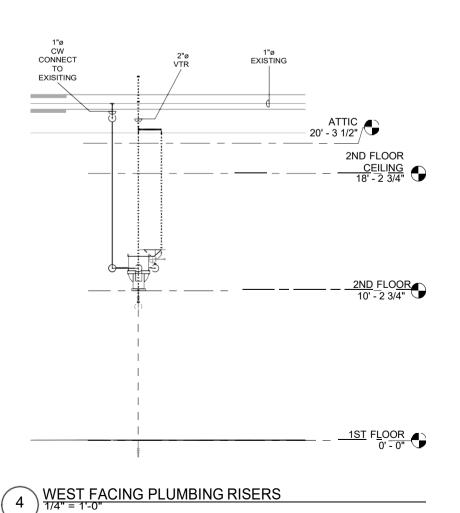
STEWARDSHIP THROUGH DESIGN 2110 STATE STREET 863-44-7-863-0 97301

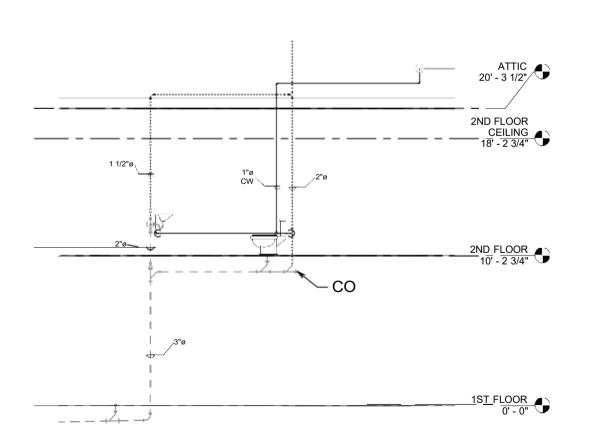
PLUMBING -\_\_DETAIL VIEWS

SHEET NO:



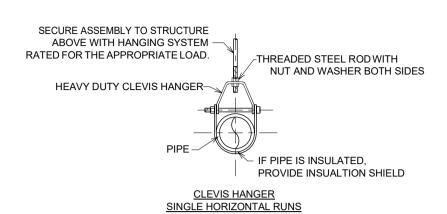






NORTH FACING PLUMBING RISERS

1 ELEVATOR SUMP PUMP DETAIL NOT BY ENGINEER OF RECORD



PIPE HANGER AND SUPPORT DETAIL



(E) DRY-TYPE VALVE SHALL BE CONVERTED TO A WET-TYPE SYSTEM. REMOVE AND SALVAGE TO OWNER (E) COMPRESSOR AND (E) DRY-TYPE VALVE. MAINTAIN AND/OR PROVIDE (E)FIREALARMTAMPERSWITCHESAS RÉQUIRED. PROVIDE WET-TYPE SPRINKLER VALVE AND SHUTOFF AND INSPECTION STATION AS REQUIRED. MAINTAIN AND/OR PROVIDE PRESSURE AND FLOW GAGES PER EXISTING AND AS REQUIRED. TYCO AV-1 OR APPROVED. SEE SPECIFICATIONS.

PROJECT TEAM:

Titure +

CIVIL ENGINEER: AKS ENGINEERING & FORESTRY 12965 SW Herman Road, Suite 100 Tualatin, OR 97062 P: 503.563.6151 F: 503.563.6152

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OREGON MANUFACTURING INNOVATION CENTER R & D

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REVISIONS

DATE

**PLUMBING** DETAILS

SHEET NO:

P2.00



FIRE RISER DETAIL 4

N.T.S.



NOT FOR CONSTRUCTION WHEN UNSIGNED