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MEMORANDUM

DATE: December 20, 2017 1474.002.002
TO: COMPANY: Lane Education Service District
ATTENTION: Bradley Johnston
FROM: Mark D. Jones, PE E-mail: mjones@rweng.com
SUBJECT: Lane ESD HVAC Upgrade, Addendum 1

1. ADD: Wilo to list of allowed inline pump manufacturers in 15510, 2.02, A.
2. ADD: Camus Advantus, Buderus and Aerco to list of allowed fire-tube boiler manufacturers in 15510, 2.04, A, 1.
3. DELETE: "AX" from 15900, 1.4, D.
4. DELETE: "with Niagara AX front-end" and "AX" from 15900, 2.1, A.
5. ADD: Reliant to list of allowed control manufacturers in 15900, 2.1, A.
6. ADD (to 15900, 2.6):
 - F. Mixing Box Air Flow Sensor:
 1. Flow sensor shall be multi-point flow sensing ring velocity sensor. Single point sensing tap will not be acceptable.
 2. Flow sensor shall be suitable for retrofit application and to accomplish the specified Sequence of Operation. Contractor to install per manufacturer's recommendations, adding straight duct runs as needed.
7. CHANGE: 15900, 4.1, A to read "Heating and cooling air dampers upstream of mixing boxes shall modulate based on difference from zone setpoint. The further zone temperature is from setpoint, the further open the damper shall be. During occupied mode air supply to space shall not be reduced below 20% to maintain

code required ventilation. With a call for heating, and cold deck is active, heating damper shall modulate between 20% to 100% to maintain setpoint. If cold deck is off, heating damper shall modulate between 0% to 100% to maintain setpoint and neutral damper shall open to maintain 20% minimum airflow. With a call for cooling, and hot deck is active, cooling damper shall modulate between 20% to 100% to maintain setpoint. If hot deck is off, cooling damper shall modulate between 0% to 100% to maintain setpoint and neutral damper shall open to maintain 20% minimum airflow. During occupied mode, if no heating or cooling is required, and both hot and cold decks are active, air damper shall close to minimum of 20% of supply air to maintain ventilation and opposite temperature damper shall open to maintain discharge air temperature equal to zone setpoint. In unoccupied mode, air supply to zone shall be closed when setpoint is satisfied. If hot deck or cold deck is off, utilize the dampers on that duct to prevent over-pressurization of ductwork. If both hot deck and cold deck are active, additional same temperature dampers in adjacent zones shall open as needed to prevent over-pressurizing ductwork.”

8. See Revision Sketches below for changes to Drawings.

END OF MEMORANDUM

DRAWING INDEX

MECHANICAL

M1	MECHANICAL LEGEND & SCHEDULES
M2	MECHANICAL FLOOR PLAN – CONTROLS – EAST
M3	MECHANICAL FLOOR PLAN – CONTROLS – WEST
M4	MECHANICAL FLOOR PLAN – CONTROLS – CHASE
M5	MECHANICAL FLOOR PLAN – EQUIPMENT ROOMS
M6	MECHANICAL ROOF PLAN
M7	MECHANICAL DETAILS

GENERAL NOTES

- A. REMOVE ALL PNEUMATIC CONTROLS COMPONENTS AND ACCESSORIES, INCLUDING BUT NOT LIMITED TO SENSORS, PIPING, ACTUATORS, RELAYS, AND REPLACE WITH DIGITAL CONTROLS. PATCH AND MATCH WALL.
- B. WORK WITH OWNER TO ACQUIRE ENERGY TRUST OF OREGON INCENTIVES.
- C. VERIFY FINAL AIRFLOWS AT EACH MIXING BOX, MULTIZONE DAMPER, FAN AND VENTILATION DAMPER/RETURN DAMPER AS INDICATED.
- D. VERIFY FINAL HEATING AND CHILLED WATER FLOW AT EACH COIL AS INDICATED.



- E. ORDER OF WORK: SEQUENCE CONTROL UPGRADE AND BOILER WORK WITH OWNER TO MINIMIZE SYSTEM DOWNTIME.

ADDITIVE ALTERNATIVE

1. PROVIDE SEPARATE LINE ITEM AMOUNT IN BID FOR COST OF PROVIDING TYPICAL SINGLE NEW DAMPER IN DUAL DUCT SYSTEM.



EXPIRES 6/30/19

2017.12.20 14:57:17-08'00'

NOTE: THIS SKETCH CHANGES DRAWING M1.

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LANE ESD ADMINISTRATIVE BUILDING

CONTROL AND BOILER UPGRADES
EUGENE, OR

MECHANICAL LEGEND & SCHEDULES
ADDENDUM 1

DESIGNED	MJ
DRAWN	NK
CHECKED	MJ
DATE	12/21/17
DRAWING NO.	M1-R1
SHEET	1 OF 5

NOTES THIS SHEET

- ① REMOVE AND REPLACE (E) PNEUMATIC TEMP. SENSOR WITH DDC SENSOR. PATCH AND MATCH WALL.
- ② REMOVE AND REPLACE (E) PNEUMATIC VALVE AND ACTUATOR WITH NEW VALVE AND DDC ACTUATOR. SET COIL FLOW AT GPM INDICATED.
- ③ REMOVE AND REPLACE (E) PNEUMATIC DAMPER ACTUATOR WITH DDC ACTUATOR.
- ④ REPLACE (E) PNEUMATIC HOT AND COLD DUCT DAMPER ACTUATORS WITH DDC ACTUATORS FOR EACH MIXING BOX. PROVIDE WITH NEW AIR FLOW **SENSORS** AT THE INLETS AND DISCHARGE AIR TEMPERATURE SENSOR. SEE 2/M7. SET AIRFLOW AT ORIGINAL DESIGN CFM INDICATED.
- ⑤ REMOVE AND REPLACE (E) PROGRAMMABLE THERMOSTAT WITH DDC SENSOR. PATCH AND MATCH WALL.
- ⑥ PROVIDE DIGITAL TEMPERATURE SENSOR.
- ⑦ BALANCE OUTSIDE AIR DAMPER TO AIRFLOW SHOWN ON OUTSIDE AIR VENTILATION SCHEDULE.
- ⑧ SET FAN AIRFLOW AT ORIGINAL DESIGN CFM INDICATED.



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NOTE: THIS SKETCH CHANGES DRAWING M2.

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LANE ESD ADMINISTRATIVE BUILDING
CONTROL AND BOILER UPGRADES
EUGENE, OR

**MECHANICAL FLOOR PLAN - CONTROLS - EAST
ADDENDUM 1**

DESIGNED	MJ
DRAWN	NK
CHECKED	MJ
DATE	12/21/17
DRAWING NO.	M2-R1
SHEET	2 OF 5

NOTES THIS SHEET

- ① REMOVE AND REPLACE (E) PNEUMATIC TEMP. SENSOR WITH DDC SENSOR PATCH AND MATCH WALL.
- ② REMOVE AND REPLACE (E) PNEUMATIC VALVE AND ACTUATOR WITH NEW VALVE AND DDC ACTUATOR. SET COIL FLOW AT INDICATED GPM.
- ③ REMOVE AND REPLACE (E) PNEUMATIC DAMPER ACTUATOR WITH DDC ACTUATOR.
- ④ REPLACE (E) PNEUMATIC HOT AND COLD DUCT DAMPER ACTUATORS WITH DDC ACTUATORS FOR EACH MIXING BOX. PROVIDE WITH NEW AIR FLOW SENSORS AT THE INLETS AND DISCHARGE AIR TEMPERATURE SENSOR. SEE 2/M7. SET AIRFLOW AT ORIGINAL DESIGN CFM INDICATED.
- ⑤ DISABLED CRAC UNIT. NO NEW WORK.
- ⑥ WORKING CRAC UNIT. PROVIDE DIGITAL SENSOR ADJACENT TO CRAC TO MONITOR TEMPERATURE ONLY.
- ⑦ BALANCE OUTSIDE AIR DAMPER TO AIRFLOW SHOWN ON OUTSIDE AIR VENTILATION SCHEDULE.
- ⑧ SET AIRFLOW AT ORIGINAL DESIGN CFM INDICATED.
- ⑨ REMOVE (E) TRANE THERMOSTAT AND REPLACE WITH DDC SENSOR. PATCH AND MATCH WALL.
- ⑩ EXISTING AUTOMATIC AIR DAMPER TO REMAIN. MAINTAIN (E) SEQUENCE OF OPERATION.



EXPIRES 6/30/19

2017.12.20 14:57:43-08'00'

NOTE: THIS SKETCH CHANGES DRAWING M3.

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LANE ESD ADMINISTRATIVE BUILDING
 CONTROL AND BOILER UPGRADES
 EUGENE, OR

MECHANICAL FLOOR PLAN - CONTROLS - WEST
ADDENDUM 1

DESIGNED	MJ
DRAWN	NK
CHECKED	MJ
DATE	12/21/17
DRAWING NO.	M3-R1
SHEET	3 OF 5

NOTES THIS SHEET

- ① REPLACE (E) PNEUMATIC HOT AND COLD DUCT DAMPER ACTUATORS WITH DDS ACTUATORS FOR EACH MIXING BOX. PROVIDE WITH NEW AIR FLOW SENSORS AT THE INLETS AND DISCHARGE AIR TEMPERATURE SENSOR. SEE 2/M7. SET AIRFLOW AT ORIGINAL DESIGN CFM INDICATED.
- ② ALL WORK IN PLENUM TO BE RATED FOR USE IN PLENUM.



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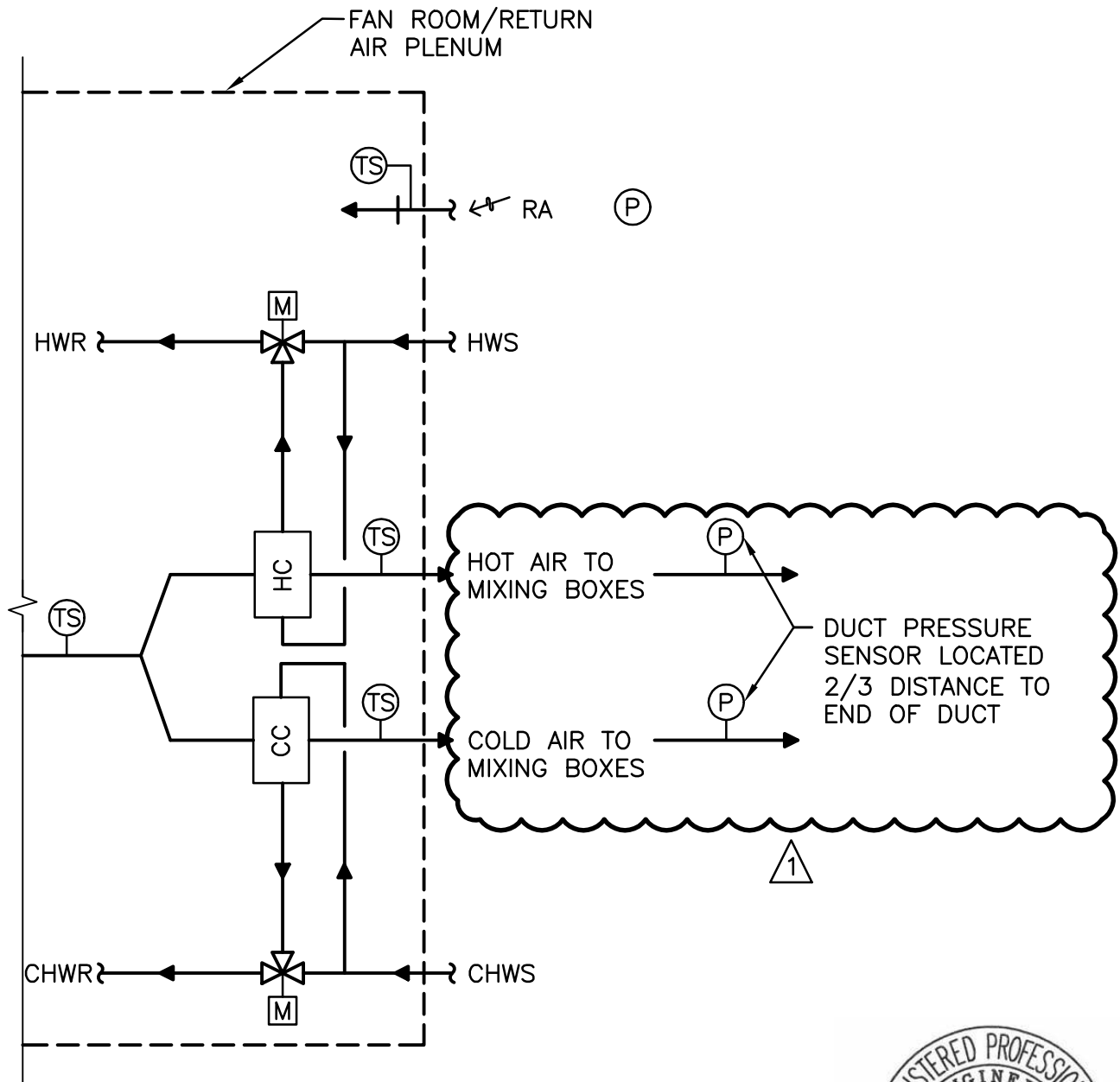
NOTE: THIS SKETCH CHANGES DRAWING M4.

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LANE ESD ADMINISTRATIVE BUILDING
 CONTROL AND BOILER UPGRADES
 EUGENE, OR

MECHANICAL FLOOR PLAN - CONTROLS CHASE
 ADDENDUM 1

DESIGNED	MJ
DRAWN	NK
CHECKED	MJ
DATE	12/21/17
DRAWING NO.	M4-R1
SHEET	4 OF 5



1 SF-1 / RF-1 CONTROL DIAGRAM
 M7 SCALE: NONE



EXPIRES 6/30/19

2017.12.20 14:58:00-08'00'

NOTE: THIS SKETCH CHANGES DRAWING M7.

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LANE ESD ADMINISTRATIVE BUILDING
 CONTROL AND BOILER UPGRADES
 EUGENE, OR

MECHANICAL DETAILS
 ADDENDUM 1

DESIGNED	MJ
DRAWN	NK
CHECKED	MJ
DATE	12/21/17
DRAWING NO.	M7-R1
SHEET	5 OF 5