

ADDENDUM NO. 2
to
Drawings
for
VA Omaha Boiler Replacement
Omaha, Nebraska

LEO A DALY
PLANNING·ARCHITECTURE·ENGINEERING·INTERIORS

DALY Project No. 003-10099-009
November 4, 2013

NOTICE TO ALL BIDDERS: The following Specifications and Drawings for the above referenced project are hereby revised as follows:

SPECIFICATIONS

- ITEM NO. G1-1 SPECIFICATIONS 23 09 11 – INSTRUMENTATION AND CONTROL FOR BOILER PLANT
a) Revised Paragraph 2.1.A.3.b to read as follows:
 “b. Parallel-positioning combustion control (air/fuel ratio, excess air) with flue gas oxygen trim.”
- ITEM NO. G1-2 SPECIFICATIONS 23 09 11 – INSTRUMENTATION AND CONTROL FOR BOILER PLANT
a) Delete Paragraph 2.1.A.3.c.
- ITEM NO. G1-3 SPECIFICATIONS 23 09 11 – INSTRUMENTATION AND CONTROL FOR BOILER PLANT
a) Revised Paragraph 2.1.A.3.c. to read as follows:
 “d. Boiler water level: 1 element system.”
- ITEM NO. G1-4 SPECIFICATIONS 23 09 11 – INSTRUMENTATION AND CONTROL FOR BOILER PLANT
a) Delete Paragraph 2.1.E.4.
- ITEM NO. G1-5 SPECIFICATIONS 23 09 11 – INSTRUMENTATION AND CONTROL FOR BOILER PLANT
a) Delete Paragraph 2.1.K.4.

DRAWINGS

- ITEM NO. G1-6 SHEET SF101
a) This Sheet is REVISED and REISSUED with the Addendum.

ATTACHEMENTS:

Specifications
Section 230911 – Instrumentation and Control for Boiler Plant; section 2.1.A.3.b, c, d.; section 2.1.E.4;
section 2.1.K.4
Drawings
Sheet SF101

In case of plant master signal fault the control shall automatically revert to boiler combustion control panel with control from the new boiler pressure transmitter.

b. Parallel-positioning combustion control (air/fuel ratio, excess air) with flue gas oxygen trim. ~~with O2 trim to include gas valve and FD damper. New actuators, servomotors, must be supplied for the gas valve and oil valve FD damper. The burner company will mount the servomotors and will supply the models compatible with the combustion control system. New transmitters and flow meters are provided for the replacement boilers.~~

e. ~~Boiler outlet draft. Draft control will be supplied for replacement boiler. New transmitter, draft safety switch and draft damper actuator are supplied.~~

c. Boiler water level: 1 element system. ~~, 2 or 3 element system shall be supplied with new steam flow meters, boiler water level transmitters, new feed water flow meters. New feed water control valves are provided by the boiler company. Safeties will be new one supplied by the boiler company.~~

4. Control features:

a. Operator interface on controller faceplates and touch screens and computer workstation. Provide one touch screen at replacement boiler with the combustion control panel. Operator interface shall include manual/automatic selection, manual loading, and displays that show set point, process variable, signal to actuator, process status and controller status. Touch screens have additional display requirements; refer to paragraph below.

b. Provide separate dedicated controller for replacement boiler. Fuel/air control loops, including oxygen trim may be incorporated into one station for each boiler. Boiler/economizer outlet draft and boiler water level control shall have separate stations for each item on each boiler. All control items for one boiler may be shown on one touchscreen at the boiler.

c. Variable frequency drives on forced draft fan motors will be provided for replacement boiler. VFD is to be provided by burner company for control by control company.

5. Refer to the paragraphs which follow for complete detailed requirements.

6. Refer to Par. 2.2 for burner management controls.

- c. Provide auxiliary contacts to prove low and high fire positions, feedback signals are not permitted to perform this function within the VA. Belt-type drive units not permitted.
- d. Drive unit shafts shall be keyed to fuel flow control valves and damper shafts to eliminate the possibility of slipping.
- e. Drive units shall be industrial rated.
- f. All gearing shall be brass or better, no plastic gears of any kind are permitted.

~~4. Boiler draft control is required. Boiler outlet damper drive units may be different model than drive units for fuel valves and forced draft damper. Drive units shall be capable of 100 ft-lb. torque minimum. Less powerful drive units may be utilized if certified as adequate by the burner manufacturer.~~

F. Variable Frequency Drives (VFD) for Forced Draft Fans: (Supplied by the burner company)

- 1. Refer to Section 26 29 11 LOW-VOLTAGE MOTOR STARTERS, for electrical requirements. In addition, there shall be a VFD mounted operator interface unit that allows configuration of drive parameters and displays diagnostic information for troubleshooting.
- 2. Provide feedback system including motor speed and direction of rotation to combustion controller. Feedback transmitter must have no-drift guarantee. Feedback system shall not be affected by position of H-O-A switch on motor control system.
- 3. Provide noise filters.
- 4. The VFD shall automatically limit the rate of fan speed increase to that which will prevent an over-current trip in the event of a "step" speed increase of 0 - 100%.
- 5. Provide constant speed feature and operator-selectable air/fuel program in the controller for constant speed operation maintaining specified air/fuel ratios (excess air).
- 6. Forced draft fan damper operation is required in conjunction with operation of the VFD at the lower firing rates.

G. Transmitters: See Paragraphs, PRESSURE SENSORS AND TRANSMITTERS, TEMPERATURE SENSORS AND TRANSMITTERS.

H. Final Control Elements:

- 1. Fuel flow control valves, forced draft fan dampers, variable frequency forced draft fan drives (VFD), feedwater control valves: Refer to Section 23 52 39, FIRE-TUBE BOILERS. Gas valve and oil

maintain the specified air/fuel ratio (excess air) at all firing rates 20 percent of maximum firing rate and greater.

b. Operation and Performance:

- 1) Separate characterized set point curves for each fuel, minimum ten points per fuel. A single curve with biasing for the other fuel is not acceptable. Automatic change over of set point curves when type of fuel being fired is changed.
- 2) Maximum deviations from set points shall not exceed ten percent at any firing rate. Combustion shall not generate carbon monoxide (CO) in excess of 200 parts per million (ppm) at any time.
- 3) At firing rates below 20 percent of maximum steam flow, trim shall automatically return to null position (no trim).
- 4) Variable gain to decrease output sensitivity at low loads.
- 5) Adjustable high and low trim limiting. Excessive high or low trim correction, low excess air, or oxygen analyzer failure shall actuate audible and visual alarm on the boiler submaster air/fuel ratio controller. Analyzer failure shall cause system to go to null position.
- 6) Manual trim output shall revert to null setting when system is placed in automatic control.

c. During burner start-up and adjustment of air/fuel ratios (excess air) by service technician, trim shall be on manual control at null position.

d. Refer to Paragraph, FLUE GAS OXYGEN ANALYZERS.

~~4. Boiler Outlet Draft Control:~~

~~a. Automatically modulate position of boiler or economizer outlet damper to maintain constant negative pressure (draft) at the flue gas outlet of the boiler. Utilize feed forward signal from the boiler/burner submaster air/fuel controller to enhance control response. Position damper open and closed during boiler start up and shut down cycles.~~

~~b. Maintain draft at negative 0.1 inches WC plus or minus 0.05 inches WC. Provide local gauge with remote indication at operator interface.~~

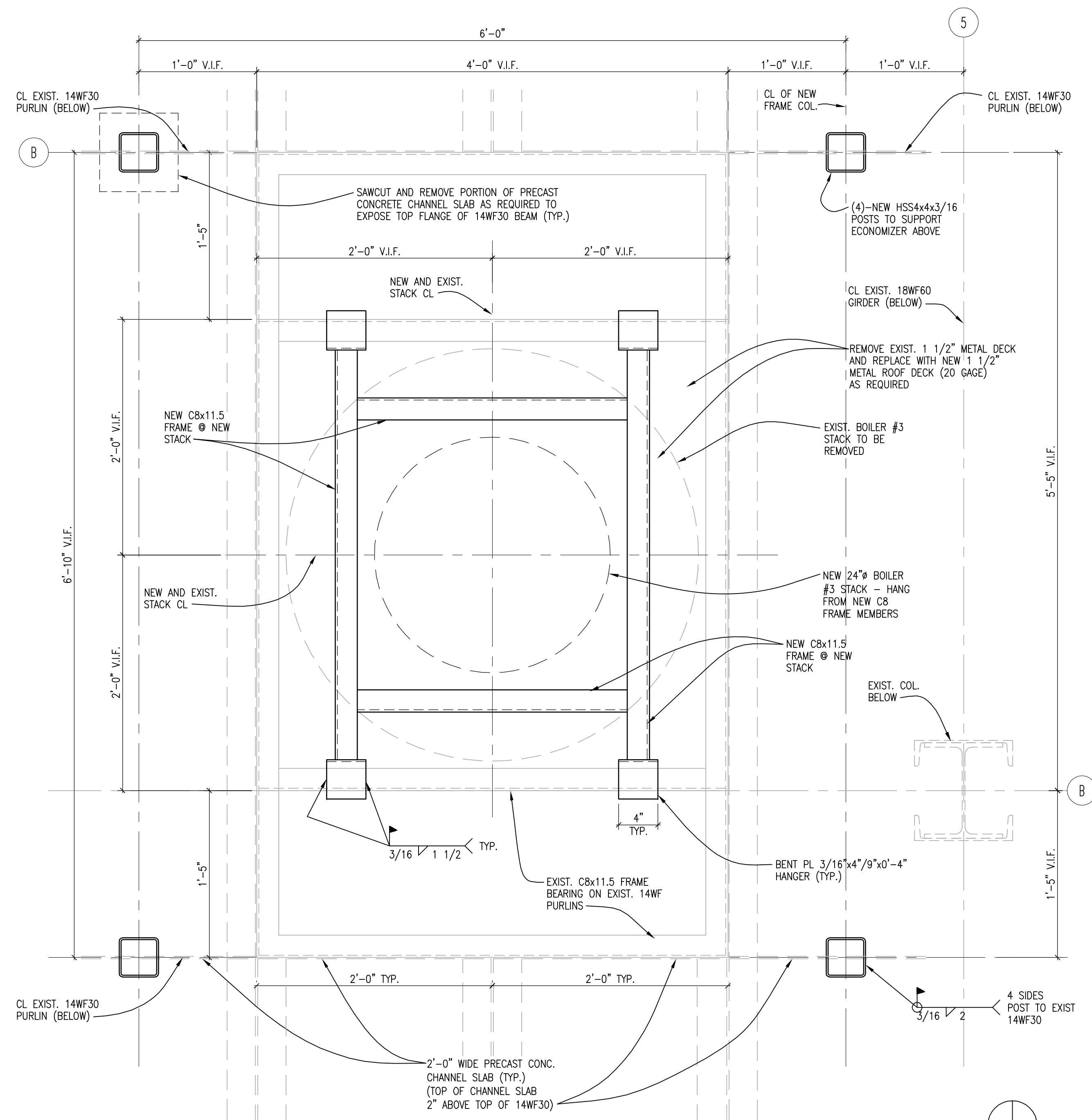
~~c. Panel mounted automatic controller, with manual/automatic feature and set point adjustment, for each boiler. Locate on main instrumentation panel unless otherwise shown.~~

- ~~d. Draft sensor, transmitter, and outlet damper actuator for each boiler. Refer to Article, PRESSURE SENSORS AND TRANSMITTERS.~~
- ~~e. Automatically position damper as required for pre-purge, burner ignition and shut down. Provide damper position switch interlocked with burner management system. Refer to Paragraph, BURNER MANAGEMENT SYSTEMS WITH SAFETY INTERLOCKS AND ACCESSORIES.~~

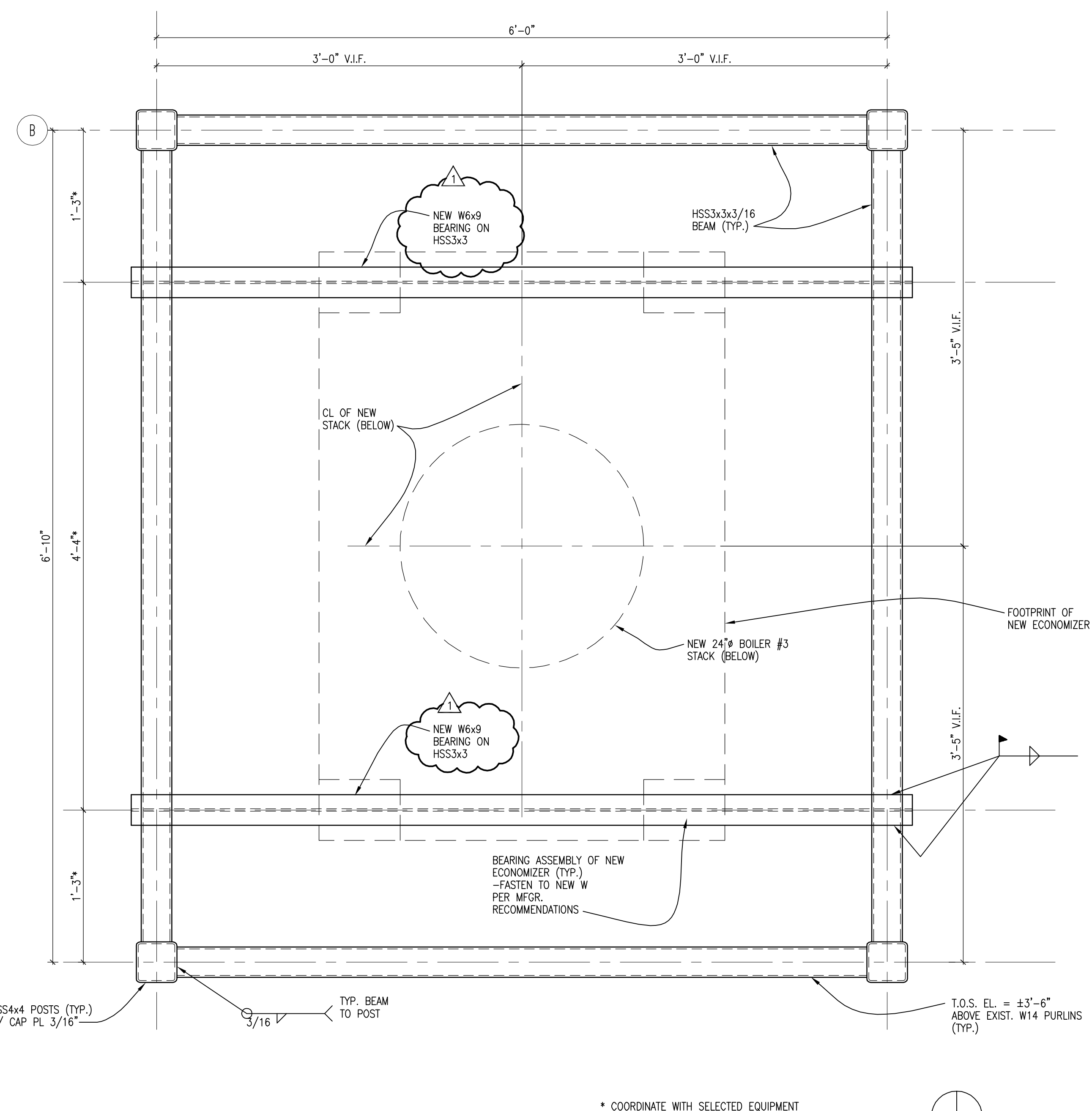
5. Boiler Water Level Control:

- a. Automatically modulate the position of feedwater control valve on each boiler to maintain the water level in the boiler within plus or minus 2 inches of set point with instantaneous load swings of 20 percent of boiler capacity. Adjustable set point.
- b. Type of System:
 - 1) Single Element System: Utilize signal from water level sensor on boiler.
- c. Boiler Water Level Sensors:
 - 1) Water Level Sensing and Safety Control Systems: Provide on fire tube boilers. Refer to Section 23 52 39, FIRE-TUBE BOILERS. The boiler company shall provide the water level sensing system.
- d. Steam Flow Sensors: Refer to Paragraph, FLOW METERS.
- e. Feedwater Pressure Sensors: Refer to Paragraph, PRESSURE SENSORS AND TRANSMITTERS.
- f. Controller: Controllers for two and three element systems shall include: manual/auto control station and indicators showing signal level to actuator, set point and actual water level, steam flow rates and totals and boiler feedwater flow rates and totals if flow meters are included. Locate on main instrumentation panel unless otherwise shown. For controller requirements for fire tube boilers, refer to Section 23 52 39, FIRE-TUBE BOILERS.
- g. Set point position as recommended by boiler manufacturer.

6. Boiler and Economizer Efficiency Calculation and Display: Provide continuous automatic calculations and indication of boiler efficiency (based on pressure compensated steam flow and the higher heating value of the natural gas and oil flow rates) and heat-loss combustion efficiency based on flue gas outlet temperature of boiler and flue gas oxygen, and type of fuel in use. Provide RTD for the economizer inlet and exit water and flue gas. The display of the values shall be on the boiler graphic with each boiler touch screen



1 PARTIAL ROOF FRAMING PLAN
SF101 SCALE: 1 1/2" = 1'-0"



ECONOMIZER SUPPORT FRAMING PLAN
SCALE: 1 1/2" = 1'-0"

- 010000 - GENERAL REQUIREMENTS AND DESIGN CRITERIA**
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1. THESE GENERAL NOTES ARE ORGANIZED BY THE SPECIFICATION NUMBER MOST CLOSELY ASSOCIATED WITH THE INFORMATION, ALTHOUGH SOME UNIQUE NUMBERS MAY BE ASSIGNED TO SECTIONS NOT INCLUDED IN THE SPECIFICATIONS. THESE STRUCTURAL GENERAL NOTES APPLY TO ALL WORK, NOT JUST FOR WORK WITHIN THE SECTION NUMBER INDICATED. ALSO REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. BUILDING CODE AND SELECT REFERENCED STANDARDS
- INTERNATIONAL BUILDING CODE, 2009 CITY OF OMAHA AMENDMENTS
ASCE 580-05 SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS
ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES INCLUDING SUPPLEMENT NO. 1 AND 2, EXCLUDING CHAPTER 14 AND APPENDIX 11A
AWS D1.1-04 STRUCTURAL WELDING CODE - STEEL
AWS D1.3-98 STRUCTURAL WELDING CODE - SHEET STEEL
AISC 303-10 CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL BUILDING AND BRIDGES
- THE PROVISIONS OF THE REFERENCED BUILDING CODE AND ALL REFERENCED STANDARDS THEREIN SHALL APPLY TO THIS PROJECT.

033000 - CAST-IN-PLACE CONCRETE (REINFORCED)

1. ALL STRUCTURAL CONCRETE SHALL BE DESIGNED FOR A 28-DAY COMPRESSIVE STRENGTH OF:
f'c EQUALS 3000 PSI (NORMAL WEIGHT) [HOUSEKEEPING PAD]
2. ALL REINFORCING STEEL SHALL BE DEFORMED, NEW, AND CONFORM TO ASTM A615 GRADE 60 (DEFORMED BARS).
3. HEADED SHEAR STUDS SHALL CONFORM TO A.W.S. D.1.1 - LATEST EDITION REQUIREMENTS FOR STANDARD HEADED STUDS.
4. CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT AT SURFACES NOT EXPOSED DIRECTLY TO EARTH OR WEATHER SHALL BE 3/4" FOR SLABS, UNLESS DETAILED OTHERWISE.
5. PROVIDE 3/4-INCH CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
6. SUBMIT COMPLETE SHOP DRAWINGS FOR REVIEW.

051200 - STRUCTURAL STEEL FRAMING

1. ALL NEW STRUCTURAL STEEL W SHAPES SHALL BE ASTM A992.
2. ALL EXISTING STRUCTURAL STEEL WIDE FLANGE SHAPES ARE ASSUMED TO BE ASTM A6 (ALLOWABLE STRESS = 20 KSI)
3. STRUCTURAL STEEL FOR CHANNELS, ANGLES AND PLATES SHALL BE ASTM A36
(UNLESS NOTED OTHERWISE)
4. STRUCTURAL STEEL HAS BEEN DESIGNED IN ACCORDANCE WITH "AISC, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2005". ALLOWABLE STRESS DESIGN METHOD.
5. ALL CONNECTIONS SHALL BE 7/8"-MINIMUM DIAMETER ASTM A325 BOLTS (BEARING TYPE CONNECTION, UNLESS NOTED OTHERWISE. BOLTS SHALL BE TIGHTENED IN CONFORMANCE WITH "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS OF THE ENGINEERING FOUNDATION.
6. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B WITH A MINIMUM YIELD STRENGTH OF 46,000 PSI.
7. ALL WELDING SHALL BE DONE WITH THE TEXTBOOK IN CONFORMANCE WITH THE AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE" (AWS D1.1 - LATEST EDITION).
8. SUBMIT SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW.

		CONSULTANTS:		ARCHITECT/ENGINEERS:		Project No. 003-10099-009		Drawing Title STRUCTURAL PARTIAL FRAMING PLANS		Project Title BOILER REPLACEMENT		Project Number 636-13-102		Office of Construction and Facilities Management			
				<div>LEO A DAILY</div> <div>PLANNING ARCHITECTURE ENGINEERING INTERIORS</div> <div>EST. 1915</div>								Building Number 2					
				8600 Indian Hills Drive Omaha, NE 68114-4039 USA Tel 402-391-8111 Fax 402-391-8564				Approved Project Director		Location OMAHA, NE		Drawing Number SF101					
<div><div></div><div>ADDENDUM NO. 2</div></div>		11/05/2013								Date JUNE 28, 2018		Checked DET		Drawn MAT		<div><div></div><div>Department of Veterans Affairs</div></div>	
Revisions:		Date															