Submittal

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 01/14/15

Job: 1332
409 Cumberland Ave
409 Cumberland Avenue
Portland, ME

Spec Section No: 230000 2.06
Submittal No: 1
Revision No: 0
Sent Date: 1/7/2014
Due Date: 1/14/2014

Spec Section Title:

Submittal Title: Hot Water Boilers

Contractor:
Ranor Mechanical

Contractor's Stamp

General Contractor:
Wright-Ryan Construction, Inc

Architect's Stamp

Engineer's Stamp

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Submittal Information Form

Specifications Dated: 9/16/13

Date: 01/14/15

Drawings Dated (if applicable): 9/16/13

1 Project: 409 CUMBERLAND

2 Specification Title: B-1 B-2

3 Description: Hot Water Boilers

4 Section: 23 00 00

5 Page/Sheet #: PG 6

6 Article/Paragraph: 2.6

7 Basis of Design: ☐ Yes ☐ No (if no please fill out 8-12)

8 Proposed Substitution:

9 Manufacturer:

10 Trade Name:

11 Model #:

12 Please list SPECIFICALLY the deviations from the basis of design:

13 Equipment Lead Time (after approved submittals) STOCK TO 2 WEEKS

Advanced Heating and Hot Water Systems

P.O. Box 429 · 120 Braley Road · East Freetown, MA 02717 · 508-763-8071· Fax: 508-763-3769

RESURGAM CITY OF PORTLAND, MAINE

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Mod Con Commercial Condensing Heating Boiler Submittal

JOB NAME: 409 CUMBERLAND

LOCATION: PORTLAND, ME

ARCH./ENGR.: BENNETT

WHOLESALER: FW WEBB - S. PORTLAND

MECH. CONTRACTOR:

MODEL NUMBER: MODCON 500

TYPE OF GAS:

BTU/HR INPUT LOW - HIGH FIRE:

Heat Exchanger

- **All Stainless Steel Construction. 160 PSI ASME stamped construction. National Board listed.**
- **Gasketless heat exchanger design**
- **ASME 75 PSI relief valve**
- **Front service access to combustion chamber and burner**
- **Inlet and outlet temperature sensor**

Combustion System

- **Modulating burner with 5 to 1 turndown**
- **94% thermal efficiency (All Models)**
- **High-Grade Inconel burner design**
- **Spark ignition**
- **Models available for Natural or LP Gas**
- **Dual flame monitoring (Spark and Flame probe)**
- **Gas Valve pressure range 3 ½" minimum to 14" maximum Water Column**

Integrated Control System

- **926 Digital operating control with LED display**
- **LED indicators for System Pump – Boiler Pump – DHW Pump – System Fault – System Operation – Freeze Protection – Flame On – Fault Indication**
- **On/Off Switch**
- **Password protected**
- **Outdoor reset with indirect priority**
- **Multiple 120 volt pump outputs – boiler pump – system pump - DHW pump**
- **24 volt monitoring**
- **0-10 VDC input from a building management system**
- **Boiler output regulation (adjustment of boiler output down to 50% of rated capacity)**
- **Cascade up to 8 boilers**

Additional Features

- **Superior condensate collection system with float switch (patent pending)**
- **A/C convenience receptacle for condensate pump**
- **10 year limited warranty**
- **Vents in PVC - CPVC - stainless steel – up to 200 equivalent feet (combined intake and exhaust)**
- **Optional stacking kit allows boilers to be double stacked for space savings**
- **Built-in low water cut-off**
- **Field wiring connection board / Cascade wiring CAT 3 or 5**
- **Adjustable leveling legs**
- **Flue/ Water High temperature limit with Manual reset**
- **Dry contact for alarm output**
- **Blocked vent pressure switch**
- **Pressure and temperature gauge**

Optional Equipment

- ☐ **Indirect Sensor (Part # 7250P-325)**
- ☐ **System Sensor (Part # 7250P-324)**
- ☐ **4" Stainless Steel Outside Termination Vent Kit (Part # V2000)**
- ☐ **6" Stainless Steel Outside Termination Vent Kit (Part # V3000)**
- ☐ **High and Low Gas Pressure Switch Kit with Manual Reset (Part # 7350P-600)**
- ☐ **Flow Switch Kit (Part # 7350P-606 for Mod Con 300, Part # 7350P-605 for 500 and 850 models)**
- ☐ **U.L. 353 Compliant Low Water Cut-Off Interface Kit w/ Manual Reset (Part # 7350P-601)**
- ☐ **Alarm System to monitor any failure (Part # 7350P-602)**
- ☐ **Condensate Neutralizer (Part # 7350P-611)**
- ☐ **Boiler Stacking Kit (Part # 7350P-603)**
- ☐ **Boiler Caster Kit (Part # 7350P-604)**
- ☐ **PC Connection Cable w / Software (Part # 7350P-320)**

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MODEL	A	B	C	D	D	F	G	H	J	K	L	M	N	O
MOD CON 300	20"	10-1/4"	6-1/4"	14-1/2"	26"	26"	5-1/8"	20-1/2"	36"	33-1/2"	36"	8-1/4"	25-1/2"	10-1/2"
MOD CON 500	20"	14-3/4"	6-1/4"	14-1/2"	33-1/4"	33-1/4"	5-1/8"	20-1/2"	36"	40"	43"	8-1/4"	25-1/2"	10-1/2"
MOD CON 850	20"	20"	6-1/4"	14-1/2"	18-3/4"	43-1/2"	20"	20-1/2"	36"	68-3/4"	70-3/4"	8-1/4"	25-1/2"	10-1/2"

NOTE: ALL DIMENSIONS ARE APPROXIMATE AND HEIGHTS DO NOT INCLUDE ADJUSTABLE LEGS.

MODEL	BTU/HR INPUT LOW FIRE	Gross Output BTU/hr	Net I=B=R BTU/hr	Thermal Effieciency	Boiler Water	Supply/Return Connection	Gas Conn.	Vent Dia.	Ship. Wt.	High Fan Speed	Low Fan Speed	Fan Speed at Ignition
MOD CON 300	60,000-301,000	283,000	245,000	94%	2.9	1-1/2"	1-1/4"	4"	410	5500	1250	3000
MOD CON 500	100,000-500,000	470,000	409,000	94%	4.2	2"	1-1/2"	4"	505	6930	1250	3000
MOD CON 850	170,000-850,000	799,000	695,000	94%	5.8	2"	2"	6"	580	5400	1500	3000

LP-205-C
09/21/10

Neutrasafe Corporation
Quincy, MA
www.ne
info@neutrasafe.com

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Neutra-Safe® Condensate Neutralizer

Job: **409 CUMBERLAND** Engineer: **BENNETT**

Date: 01/14/15

Contractor: _____ Rep: **EMERSON-SWAN**

Condensate and Neutralization

- What is pH? pH is the measurement of acidity or alkalinity of a fluid. Fluids that are neutral have a pH of 7.
- Fluids that have a pH greater than 7 and up to 14 are said to be Alkaline. Fluids with a pH below 7 are said to be acidic. The pH of a fluid can easily be measured with litmus paper or a digital meter for this purpose.
- Condensate from gas burning furnaces, boilers and domestic water heaters are slightly acidic and must be treated (to have pH raised) before discharging to a sewer or septic system to avoid damage to the piping system, sewer and septic systems.
- **NEUTRA-SAFE by MB Designs** condensate neutralizers are designed to raise the pH level of condensate discharged from gas fired high efficiency heating equipment and domestic water heaters. The pH will be raised by approximately 1 to 3 points on the pH scale after passing thru a **NEUTRA-SAFE** neutralizer **by MB Designs**.

IMPORTANT

- All piping should be in accordance with relevant building and mechanical codes, as well as any local, state or federal regulations.
- Do not connect more than one appliance to each neutralizer.
- Neutralizer should be installed below all traps and condensate outlets.
- Neutra-Safe® condensate neutralizers should always be mounted with a minimum of ¼" pitch downwards towards the outlet. It is also recommended that the installer maintain a pitch of ¼" per foot between the condensate neutralizer outlet and the pump or drain.
- Do not use pipe dope on threaded fittings - use only Teflon tape.
- Neutra-Safe® condensate neutralizers may **NOT** be installed in the vertical position.
- It is recommended that the neutralizer be installed before the condensate pump.
- All condensate traps should be primed before commencing operation of the appliance.
- Neutra-Safe® condensate neutralizer media should be replaced at least once a year or when pH falls below local regulations.

MOUNTING OPTIONS

- It is recommended that Neutra-Safe® condensate neutralizers be installed as close as possible to the outlet of the gas trap.
- Maintain a downwards pitch of ¼" towards the outlet of the neutralizer.
- Care should be taken when selecting mounting hardware. It is recommended that a mounting bracket capable of supporting the weight of a fully charged neutralizer kit be used. This will vary depending on the model.
- Neutra-Safe® condensate neutralizers may be installed on or above the floor so long as a pitch of ¼" per foot is maintained between the neutralizer and the drain or pump.
- It is recommended that unions be installed to facilitate maintenance of the condensate neutralizer

INSTALLATION

1. Neutra-Safe® condensate neutralizers are provided with ½" NPT tappings at either end to accommodate fittings of choice.

2. If using PVC pipe, apply Teflon tape to the threads of provided PVC socket adaptors and attach to neutralizer. **Do not over tighten.**

3. Identify suitable location for assembled condensate neutralizer. **Observe direction of flow as indicated on neutralizer**.

4. Position and secure the mounting brackets maintaining a pitch downwards of ¼" towards the outlet.

5. If using union kit, Neutra-Safe® Part # CNAK1, prepare threaded couplings with Teflon tape and secure one union at either end of the neutralizer.

6. Prime and glue PVC pipe to fittings.
   Note: If using flexible tubing, be sure to use hose clamps at barb fittings.
   Note: It is recommended that PVC pipe be used wherever possible as this will reduce any risk of tube kinking. Neutra-Safe® provides two ½" M NPT x ¾" PVC socket adaptors for this purpose

7. Route PVC pipe or tubing to drain or pump, maintaining a pitch of ¼" per foot.

8. **CN3STR and CN4STR**: where neutralizer is installed between the 9 and 3 o'clock position, a vent should be added after the neutralizer.

9. Fill condensate trap with water until flow is established through neutralizer.

10. Observe neutralizer during boiler operation to ensure unrestricted condensate flow.

MAINTENANCE

1. All service items should be und
   professional.

2. Visually inspect unit for signs o

3. Neutralizer media should be re
   or when pH falls below local regulations. Neutralizer efficiency can only be determined by measuring pH level of condensate outflow.

4. Refer to chart below for appropriate refill kit.

Neutra-Safe	
Replacement Media Kits	
Model #	Refill Kit #
CN2STR	CN2SRKT
CN3STR	CN3SRKT
CN4STR	CN4SRKT

5. Disconnect condensate line from both the inlet and the outlet of the neutralizer.

6. Unscrew end of neutralizer and remove media. Rinse empty neutralizer cartridge with water.

7. Add replacement media and replace end cap. Use Teflon tape on threads.

8. Reattach neutralizer to condensate line and prime flue gas trap with a minimum of 1 gallon of water.

11. Observe neutralizer during boiler operation to ensure unrestricted condensate flow.

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