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Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/29/14

Submittal

Job: 1403
Nathan Clifford
180 Falmouth Street
Portland, ME

Spec Section No: 230000 2.09
Submittal No: 1
Revision No: 0
Sent Date: 3/21/2014
Due Date: 3/28/2014

Spec Section Title:

Submittal Title: Hot Water Boilers

Contractor:
Ranor Mechanical
Wes Sirois

Contractor's Stamp

CCB, Inc

Architect's Stamp

Engineer's Stamp

Digitally signed by
Wesley P. Sirois
DN: cn=Wesley P. Sirois,
o=Ranor Mechanical, ou,
email=wes@ranormech.c
om, c=US
Date: 2014.04.14 13:11:01
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Submittal Information Form

Specifications Dated: 2/22/2014

Drawings Dated (if applicable):

1 Project: Nathan Clifford School Housing Project

2 Specification Title: Hot Water Boilers

3 Description:

4 Section: HVAC / Mechanical

5 Page/Sheet #: 230000-8

6 Article/Paragraph: 2.9 A, B, C

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) 4-6 weeks

Navien
NCB Combi-boiler

Finally, a combi-boiler strong enough to support heating and DHW for the whole house.

KD Navien®
The Leader in Condensing Tankless Technology

WE MAKE IT EASY TO GO TANKLESS

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Introducing Navien NCB Combi-boiler

Navien NCB is the first high efficiency tankless condensing combination boiler with the capacity to supply both heat and domestic hot water for larger homes — enough hydronic heat for a whole house, plus hot water to run two showers and a dishwasher all at the same time.

The Navien NCB saves installation time and reduces call backs. In addition, the NCB takes up 80% less space than a traditional floor standing boiler and tank water heater. Your customer now has more room, saves energy and enjoys all the hot water they need, whenever they want it.

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The Leader in Condensing Tankless Technology

The first high efficiency tankless condensing combi-boiler that can do it all

Applications

- Air handler
- Hydronic heating
  - Hydronic fan coils
  - Baseboard radiators
  - Radiant floors

For NCB technical drawings of specific installations and requirements, please visit NavienAmerica.com

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Compare these advantages to any tankless condensing combi system

Dual inputs of up to 120k BTU/h for heating and 199k BTU/h for DHW

Supplies all the heat and domestic hot water that most houses require.

4.5 GPM@77° temperature rise for domestic hot water

Separate stainless steel flat plate heat exchanger for DHW creates the highest flow rate for any combi-boiler in the industry.

Turn down ratio of 6:1 for heating and 11:1 for DHW

The sophisticated gas flow control system provides a high turn down ratio, reducing energy waste and excessive boiler cycling and enhances temperature control for DHW.

Dual stainless steel heat exchangers

Resist corrosion better than copper to provide longer life.

Field gas convertibility

Dual venturi system allows for easy field convertibility from NG to LP operation. Orifice for LP conversion included.

PVC venting

Low exhaust gas temperatures allows use of PVC, CPVC, ULC S636 and polypropylene vent systems, reducing installation time and costs. System can use 2" venting for up to 60', or up to 150' with 3" venting.

Low gas pressure operation

Our negative pressure gas valve ensures maximum performance all the way down to a minimum gas pressure of 3.5" of water column.

Uses existing ½" gas piping

Save time and effort in retrofit applications with ½" gas lines for up to 24'.

Space saving design

Occupies 80% less space than a traditional floor standing boiler and tank water heater.

Linkability

For extraordinarily large domestic hot water flow demand, the NCB can be cascaded with our NPE units.

NCB: the inside story

Quik-install manifold kit

For fast installation and maximum efficiency, install our system matched manifold kit.

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Dimensions

	Connection Size
A Air Intake	Φ 2"
B Exhaust Gas Vent	Φ 2"

	Connection Size
C Heating Supply Outlet	Φ 1"
D Heating Return Inlet	Φ 1"
E DHW Hot Water Outlet	Φ 3/4"
F Gas Supply Inlet	Φ 3/4"
G DHW Cold Water Inlet	Φ 3/4"
H Condensate Outlet	Φ 1/2"
I Auto Feeder Inlet	Φ 1/2"

Ratings & specifications

Navien Combination Boiler Space Heating Ratings

Model Number[1]	Heating Input, MBH		Heating Capacity[2], MBH	Net AHRI Rating, Water[3], MBH	AFUE[2], %
	Min	Max			
NCB-180	14	80	74	64	93.5
NCB-210	18	100	92	80	93.6
NCB-240	18	120	109	95	93.3

[1] Ratings are the same for Natural Gas models converted to Propane use.
[2] Based on U.S. Department of Energy (DOE) test procedures.
[3] The NET AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15.
Consult Navien before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.

Specifications

Item		NCB-180	NCB-210	NCB-240
Gas input	Space heating	14,000–80,000 BTU/H	18,000–100,000 BTU/H	18,000–120,000 BTU/H
	Domestic hot water	14,000–150,000 BTU/H	18,000–180,000 BTU/H	18,000–199,900 BTU/H
Flow rate (DHW)	77°F (43°C) Temp Rise	3.4 GPM (12.9 L/m)	4.0 GPM (15.1 L/m)	4.5 GPM (17.0 L/m)
Dimensions		17"(W) x 28"(H) x 12"(D)	17"(W) x 28"(H) x 12"(D)	17"(W) x 28"(H) x 12"(D)
Weight		74 lbs (34kg)	84 lbs (38kg)	84 lbs (38kg)
Installation type		Indoor wall-hung		
Venting type		Forced draft direct vent		
Ignition		Electronic ignition		
Water pressure (Hydronic/DHW)		12–30 PSI / 15–150 PSI		
Natural gas supply pressure (from source)		3.5"–10.5" WC		
Propane gas supply pressure (from source)		8.0"–13.5" WC		
Natural gas manifold pressure (min-max)		-0.07" WC to -0.66" WC	-0.05" WC to -0.36" WC	-0.06" WC to -1.2" WC
Propane gas manifold pressure (min-max)		-0.06" WC to -0.62" WC	-0.1" WC to -0.66" WC	-0.03" WC to -0.98" WC
Minimum flow rate (DHW)		0.5 GPM (1.9 L/m)		
Connection sizes	Heating supply/return	1" NPT		
	DHW inlet/outlet	3/4" NPT		
	Gas inlet	3/4" NPT		
	Auto feeder	1/2" NPT		
	Condensate outlet	1/2" NPT		
Power supply	Main supply	120V AC, 60Hz		
	Maximum power consumption	200W (up to 2 amperes)		
Materials	Casing	Cold rolled carbon steel		
	Heat exchangers	Primary/secondary heat exchanger: stainless steel DHW heat exchanger: stainless steel		
Venting	Exhaust	2" or 3" PVC, CPVC, polypropylene 2" or 3" special gas vent type BH (Class II, A/B/C)		
	Intake	2" or 3" PVC, CPVC, polypropylene 2" or 3" special gas vent type BH (Class II, A/B/C)		
	Vent clearances	0" to combustibles		
Safety devices		Flame rod, APS, gas valve operation detector, ignition operation detector, water temperature high limit switch, exhaust temperature high limit sensor		

Warranty

Residential Single Family Use Only	
Labor	1 year
Parts*	5 year
Heat exchanger	10 year

*Includes DHW flat plate HX

Complies with the 2014 National Lead Free Act.

Accessories

Quik-install manifold kit (GXXX001178)	Plumb easy valve set (BCSA0563–T standard) (UA0900002A–3/4" lead free)	Condensate neutralizer (UA1300001A)	Ready link communication cable (BCRA1129)	Outdoor reset sensor (NASS9EXOTS01)	Condensate drain hose (BH2206006A)

Navien America Inc.
20 Goodyear, Irvine, CA 92618
800-519-8794

To learn more, contact your Navien representative, wholesaler, or visit www.WholeHouseCombi.com, or www.NavienAmerica.com

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