

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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Date: 8/5/2024

Return Request: 8/12/2024

Project: LRAFB – Dorm 854 Renovation

Supplier: Boone & Boone

Manufacturer: Raypak

Submittal: Heating Water Boilers (Re-Submittal #1)

Submittal Number: 23 52 16-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

GENERAL CONTRACTOR

HGL Construction
P.O. Box 1035
Jacksonville, AR 72099
501-983-1160

ENGINEER

EECI
10 Corporate Hill Dr. Suite 100
Little Rock, AR 72205
501-244-0511

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

This re-submittal is to call attention (on pdf page 3 of 6) to the checked box toward the bottom of the first column showing that the submitted boiler is BACnet compatible. Refer to temperature controls submittal number 230923-01 for EMCS communication.

CSUSA PROJECT NO.

24-7031

joseph@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117



**Product Submittal for XFIIRE™ - Type H
Heating Boiler
Models 300B-1000B**

Date: 3/18/2024 Job: Airmen Dormitory Bldg 854 Location: Little Rock Air Force Base
Equipment Tags: B-1 Engineer: EEIC Contractor: Comfort Systems, USA
Model: XFIIRE H7-800B Notes: _____
Prepared by: Mark Eley Indoor ☒ Outdoor ☐ Gas Type: Natural Gas ☒ Propane ☐

Stainless steel water-tube construction, versatile and adaptive controls. Designed for ease of maintenance.

Up to 96.5% thermal efficiency at full rate

100% factory fire-tested

VERSA IC® modulating controller with 4.3" color touchscreen display

Raymote™ remote connectivity

7:1 turn-down

Fault history with full diagnostics

Status display lighting in logo on front panel

Cascade up to 8 heaters - no external sequencer required

Cascade in parallel or sequential modulation modes

Three pump control (DHW, system and boiler)

Modbus RTU BMS port

Maximum outlet water temperature: 200°F

Maximum system temperature: 192°F

Zero side clearance to combustibles

Indoor/outdoor construction - standard

PVC, CPVC, polypropylene or stainless steel venting certified

Limited 20-year thermal shock warranty

Limited 10-year heat exchanger warranty

SCAQMD rule 1146.2 certified ultra-low NOx, < 20 PPM

Proudly assembled in the USA



Features and Options

Heat Exchanger

- All stainless steel construction with brass connections
- Gasket-less heat exchanger design
- ASME H-stamped; 160 PSIG MAWP
- National Board registered
- ASME pressure relief valve (shipped loose)
- ☐ 60 PSIG (standard)
- ☒ 75 PSIG (optional)
- T&P gauge (shipped loose)

Power

- ☒ 120 VAC, 60 Hz, 1Ø power supply (standard)
- ☐ E-16 208 VAC, 60 Hz, 1Ø power supply (optional)

Control

- VERSA IC® with 4.3" color touchscreen display
- Raymont™ IoT connectivity
- Ignition module
 - ☒ 3-try (standard)
 - ☐ C-6 single-try (optional)
- 0-10 VDC input for BMS
- Cascade up to 8 heaters
- Cascade in parallel or sequential modulation modes
- Remote flame sensor
- High limit, manual-reset, fixed, 200°F
- Alarm dry contact connection
- On/off power switch
- Flow switch (factory-mounted)
- ☐ F-15 Flow meter and manifold kit
 - ☐ Shipped loose
 - ☐ Factory-mounted
- Low water cut-off, remote probe
- Blocked vent pressure switch
- Boiler, DHW & system pump contacts
- Water temperature sensors 10kΩ (2 mtd, 3 shipped loose, 1 well)
- Outdoor air sensor (shipped loose)
- Data logging
- Modbus RTU BMS port
- ☒ B-85 BMS Gateway, Modbus RTU to Modbus TCP, N2 Metasys, BACnet IP, or BACnet MS/TP
 - ☐ Shipped loose
 - ☒ Factory-mounted

- ☐ B-86 BMS Gateway, Modbus RTU, LonWorks
 - ☐ Shipped loose
 - ☐ Factory-mounted

Burner

- Direct spark ignition (DSI)

Gas Train

- Fuel
 - ☒ Natural gas
 - ☐ Propane (minimum grade HD-5)
- Dual-seat combination valve
- H7 electronic modulating firing mode

Construction

- Indoor/outdoor construction
- Enclosed front controls
- PolyTuf powder-coat finish
- Rear connections (water, gas, vent, electrical, combustion air, condensate and drain)
- Design certified ANSI Z21.13/CSA 4.9
- Built-in combustion air filter
- Built-in condensate trap and switch

Venting, Cat IV (PVC-CPVC-Polypropylene-Stainless Steel)

- Ready to vent with PVC/CPVC
- Adapter required for polypropylene & stainless steel
- Vent termination (options)
 - ☐ D-11 Outdoor flue exhaust termination kit (stainless steel)
 - ☐ D-15 Vent termination cap (horizontal)
- Extractor fan cascade vent as needed
 - ☐ By others
 - ☐ Not required

Other Options and accessories

- ☐ B-31 Tankstat well
- ☐ B-32 Outdoor air sensor
- ☐ B-65 Indirect tank aquastat controller
- ☐ D-18 Flue exhaust boiler adapter
 - Truseal™ Air Intake
 - ☐ D-21 Factory-mounted
 - ☐ D-22 (shipped loose)
- ☐ D-23 Flue exhaust vent support
- ☐ D-33 Polypropylene vent adapter (Centrotherm InnoFlue®)
- ☒ D-37 Motorized combustion air damper

- ☐ E-5 Boiler alarm with 4" bell
 - ☐ Shipped loose
 - ☐ Factory-mounted
- ☐ E-15 Boiler alarm with buzzer
 - ☐ Shipped loose
 - ☐ Factory-mounted
- ☐ I-5 High limit, manual-reset, 200°F max
 - ☐ Shipped loose
 - ☐ Factory-mounted
- ☒ I-13 High limit, auto-reset, 200°F max
 - ☐ Shipped loose
 - ☒ Factory-mounted
- ☐ I-21 High limit, auto-reset, fixed, 200°F max
 - ☐ Shipped loose
 - ☐ Factory-mounted
- ☐ M-1 Safety valve, motorized
- ☐ M-10 Safety valve, solenoid
- ☐ M-15 Vent valve (requires M-1 or M-10)
- ☐ P- Pump: ____ HP, 120 VAC, 1 Ø, 60 Hz
 - ☐ Cast iron
 - ☐ Bronze / Stainless Steel
- ☒ S-1 Low gas pressure switch, manual-reset
- ☒ S-2 High gas pressure switch, manual-reset
- ☐ X-1 SureRack™ vertical rack system
- ☐ Z-4 T & P relief valve
- ☒ Z-12 Condensate treatment kit
- ☐ Z-13 Side-by-side mounting brackets

Multi-Boiler System Controllers

- TempTracker Mod+ Hybrid Digital Controllers
 - ☐ B-36 2-4 boilers, OA reset
 - ☐ B-37 5-10 boilers, OA reset
 - ☐ B-38 11-16 boilers, OA reset
 - ☐ B-39* EMS 4-20 mA Remote set point Interface Module
 - ☐ B-62* BACnet MS/TP interface module (*requires B-36 to B-38)

Additional Options or Accessories

- ☐ _____

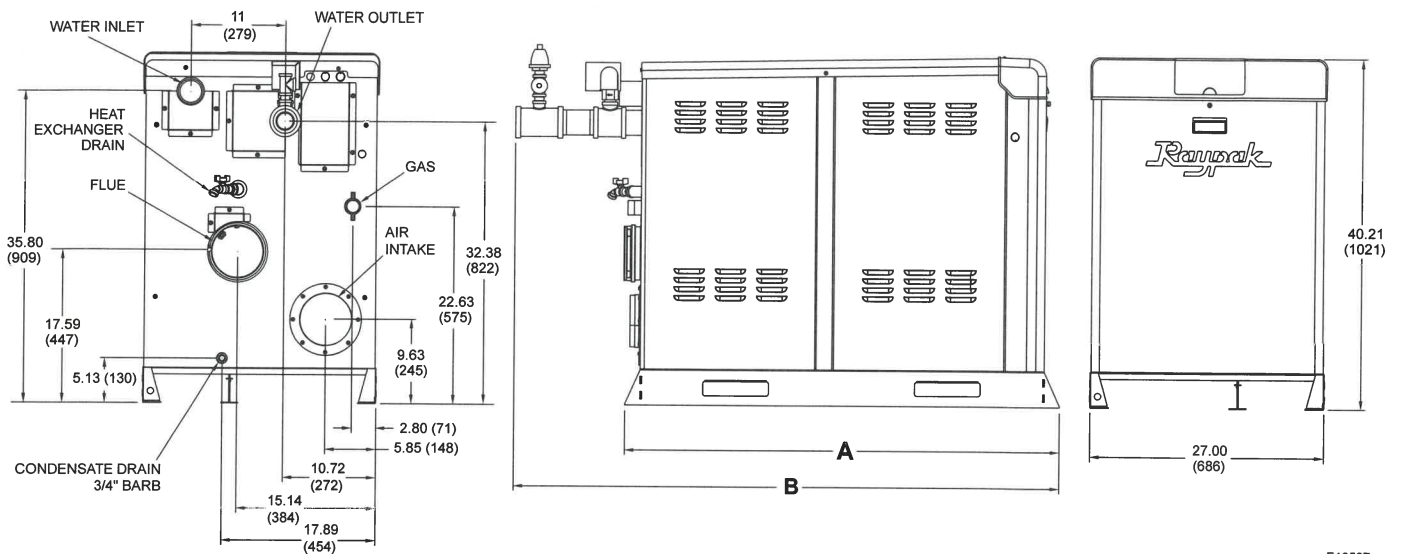
Regulatory Agency Requirements

- ☒ CSD-1



Product Submittal for XFIIRE™ - Type H

Job: Airmen Dormitory Bldg 854



F10567

Model H7-	MBTUH (kWh)		Turn Down	AHRI Thermal Efficiency	Dimensions - Inches (mm)						Approx. Shipping Weight lbs. (kg)
	Input	Output			A	B	Water Inlet/Outlet NPT	Flue Ø*	Air Intake Ø	Gas Connection NPT	
☐ 300B	300 (88)	289 (85)	7:1	96.5%	36.83 (935)	45.34 (1151)	2 (50)	4 (100)	4 (100)	1 (25)	411 (186)
☐ 400B	399 (117)	383 (112)		96.0%	36.83 (935)	45.34 (1151)	2 (50)	4 (100)	4 (100)	1 (25)	411 (186)
☐ 500B	500 (147)	480 (141)			36.83 (935)	45.34 (1151)	2 (50)	4 (100)	4 (100)	1 (25)	416 (189)
☐ 650B	650 (191)	624 (183)			45.25 (1149)	54.66 (1388)	2 (50)	6 (150)	6 (150)	1-1/4 (32)	501 (227)
☒ 800B	800 (235)	768 (225)			45.25 (1149)	54.66 (1388)	2 (50)	6 (150)	6 (150)	1-1/4 (32)	547 (248)
☐ 1000B	1000 (294)	960 (281)			50 (1270)	62.75 (1593)	2.5 (65)	6 (150)	6 (150)	1-1/4 (32)	627 (284)

* PVC/CPVC Standard

Clearance - Inches (mm)							
	Floor	Rear	Right	Left	Top	Front	Vent
Combustible Minimum	0	24 (610)	0	0	0	Open	1 (25)
Minimum Service	0	24 (610)	0	0	0	30 (762)	1 (25)

Model H7-	Boiler Current Draw	
	☒ 120 VAC	☐ 208 VAC
☐ 300B	<7.5 A	<5.0 A
☐ 400B	<7.5 A	<5.0 A
☐ 500B	<5.0 A	<5.0 A
☐ 650B	<5.0 A	<5.0 A
☒ 800B	<7.5 A	<7.5 A
☐ 1000B	<7.5 A	<7.5 A

* Current draw is for heater only. Supply breaker must have delayed trip.

** Single phase only.

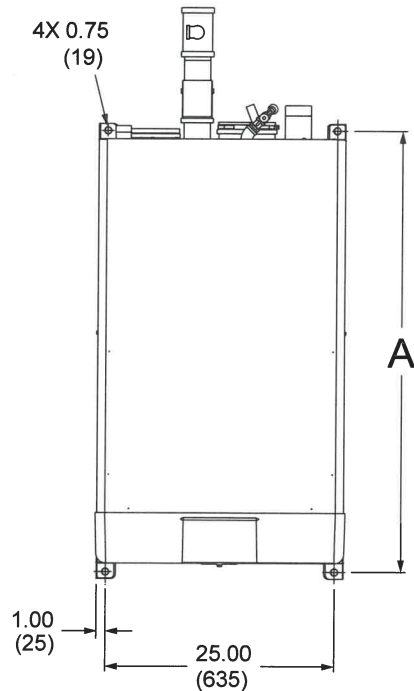
Flow and Pressure Loss Information

Model H7-	MBTUH (kWh)		20 °F ΔT		30 °F ΔT		Min. Flow			Max. Flow		
	Input	Output	GPM (L/min)	ΔP ft.wc. (kPa)	GPM (L/min)	ΔP ft.wc. (kPa)	GPM (L/min)	ΔP ft.wc. (kPa)	ΔT °F (°C)	GPM (L/min)	ΔP ft.wc. (kPa)	ΔT °F (°C)
☐ 300B	300 (88)	289 (85)	29 (110)	6 (18)	19 (72)	3 (9)	15 (56)	2 (6)	39 (22)	38 (144)	10 (30)	15 (8)
☐ 400B	399 (117)	383 (112)	38 (144)	11 (33)	26 (97)	5 (15)	20 (74)	3 (9)	39 (22)	50 (189)	17 (51)	15 (8)
☐ 500B	500 (147)	480 (141)	48 (182)	12 (36)	32 (121)	6 (18)	25 (93)	4 (12)	39 (22)	62 (235)	20 (60)	15 (8)
☐ 650B	650 (191)	624 (183)	62 (235)	11 (33)	42 (158)	5 (15)	32 (121)	3 (9)	39 (22)	80 (303)	17 (51)	16 (9)
☒ 800B	800 (235)	768 (225)	77 (291)	12 (36)	51 (194)	6 (18)	39 (149)	4 (12)	39 (22)	90 (341)	16 (48)	17 (9)
☐ 1000B	1000 (294)	960 (281)	96 (363)	14 (42)	64 (242)	6 (18)	49 (186)	4 (12)	39 (22)	90 (341)	12 (36)	21 (12)

Maximum flow based on 15°F ΔT (8 °C) or 8 ft/s (2.4 m/s) velocity, whichever is less.

SHL = System Head Loss of water heater plus 100 equivalent feet (30 m) of pipe.

When water hardness is higher than 15 GPG, a softener **MUST** be used.



Dimensions are shown in inches (mm)

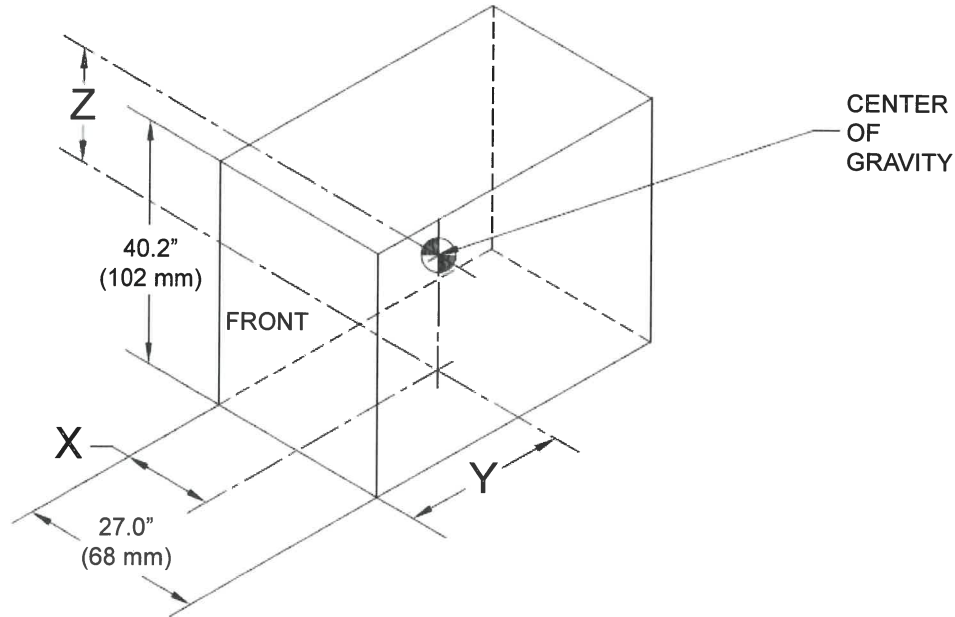
Footprint and Base Anchor Bolt Pattern

Model H7-	Dimensions Inches (mm)
	A
☐ 300B-500B	35.33 (897)
☒ 650B-800B	43.75 (1111)
☐ 1000B	48.50 (1231)

No Separate Boiler Pump on This Job

Model H7-	Standard H7 Boiler Pump				
	TACO MDL	HP	Amps @120 VAC	GPM/FT. HD.	ΔT °F (°C)
☐ 300B	0012	1/8	1.3	30@8.5'	19 (11)
☐ 400B	0012	1/8	1.3	30@8.5'	26 (14)
☐ 500B	0012	1/8	1.3	32@7.8'	30 (17)
☐ 650B	1611	1/4	5.7	55@14'	23 (13)
☒ 800B	1611	1/4	5.7	57@13'	27 (15)
☐ 1000B	1611	1/4	5.7	65@9.8'	30 (17)

Center of Gravity Information



Model H7-	Dimensions - Inches (mm)			Wet Weight lbs. (kg)
	X	Y	Z	
☐ 300B	14.7 (373)	23.7 (602)	19.3 (490)	403 (183)
☐ 400B	14.7 (373)	23.7 (602)	19.3 (490)	403 (183)
☐ 500B	14.5 (368)	23.6 (599)	20.2 (513)	426 (193)
☐ 650B	14.2 (361)	27.1 (688)	19.7 (500)	504 (229)
☒ 800B	14.2 (361)	26.7 (678)	19.3 (490)	555 (252)
☐ 1000B	14.4 (366)	29.4 (747)	19.1 (485)	633 (287)