

June 16, 2026

Request for Proposal Clarification

27.01 - Natatorium Boiler Replacement – Rochester Adams High School

Addendum 1

QUESTIONS:

1. The Domestic Water Heater Schedule calls out 3-DWH's only 2 are shown. Missing Boiler Room #104? Missing Boiler schedule and specification. Missing Breechings, chimneys, and stacks spec. Exhaust flues& Intakes will need to be ran up the wall. Please provide elevations and sections. CUH-1N is missing from the plans.

Answer: Sheet M 7.05 was issued with the RFP for reference. Refer to sheet M7.03 with the pertinent information on the existing boilers.

2. Provide 2018 mechanical schedule sheet that includes the correct PK boiler information?

Answer: Refer to sheet M7.03 with the pertinent information on the existing boilers.

3. Provide Cleaver Brooks model # to replace the PKs with: Refer to the attached information provided by DJ Conley on the boiler specifications?

Answer: The Cleaver Brooks CFCE model would be "CFCE-700-2000-125-HW". The relief valve would be set at 60 psi, but can be changed if needed by design.

CFCE = Cleaver Brooks Model

700 = Natural Gas

2000 = MBH Input Rating

125 = Boiler Pressure Vessel Design Rating

HW = Hot Water Application ("H" code stamp)

4. Clarify desired schedule to have work completed and if mandatory alternate #3 is accepted, that both boilers can be demo'd / removed at the same time?

Answer: If both boilers are to be replaced, then they would have to be completed one at a time to keep one boiler active or wait to replace them after the heating season when the boilers are not needed.

5. Clarify intent for primary pump CP-1N (the one that currently runs) if mandatory alternate #3 is accepted. i.e. should it be rebuilt / replaced or shall existing remain?

Answer: Pump CP-1N is to remain.

6. Provide CSI point of contact?

Answer: Scott Claerhout / East Branch Manager: e-mail: Sclaerhout@csibas.com, Office: 248 434-6270, Mobile 248 420-4340 Address: 1618 Star-Batt Drive, Rochester Hills, MI 48309.

7. Provide Pre-bid attendee list?

Answer: See attached attendance list.



26225 SHERWOOD AVENUE * WARREN, MICHIGAN 48091 * PHONE (248) 589-8220 * FAX (248) 589-3744

TO: ALL BIDDERS

June 15, 2026

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Proposal 26-AM-XXXX-DJC

ROCHESTER ADAMS HIGH SCHOOL NATATORIUM

CFCE 2000 HIGH EFFICIENCY BOILERS (1)

Item	Qty.	CFCE 2000 SCOPE OF SUPPLY
#1	1	<p>Boiler Description:</p> <p>Boiler Input Capacity: 2000 MBTU Model Dimension: 35.8in x 56in x 79.9in Unit Weight: 2166lbs Fuel: Natural Gas Emissions Level (NG): 20 ppm Safety Valve Setting: 60lb Voltage: 115 V Insurance: CSD-1 Compliant</p>
#2	1	<p>Connections:</p> <p>Gas Connection: 1.5" NPT Stack Connection: 8" I.D. Collar Direct Vent Connection: 8" I.D. Collar Supply and Return Connection: 4 in. 150FL Air Vent Connection: 1.5 in. NPT Waterside Drain Connection: 1.5 in. NPT Flue Gas Condensate Drain Connection: 1 in. NPT</p>
#3	1	<p>Boiler Trim:</p> <p>Air Vent Valve Kit: 0.75 in. Brass NPT (Shipped Loose) Condensate Treatment Package: Tank with Media, Trap By Others (8000 MBTU Capacity Each) Gas Regulator (Shipped Loose): RV81 w/vent</p>
#4	1	<p>Controls Package:</p> <p>Premix Burner/Flame Safeguard: Integrated Ember Controls W/7" Touchscreen Level Control Package: Main Low Water Cutoff (LWCO):Warrick 3E-1 Manual Reset Protocol translator will not be provided when Bacnet MSTP or Modbus RTU is selected as a BMS language. Main Power Distribution: Non-Fused Disconnect (115/1/60) (Ship Loose Kit)</p>
#5	1	<p>Gas Train Configuration:</p> <p>Nema Rating: NEMA 1 Piping Material: Prepiped Carbon Steel Manual Valve #2: 1.25in Ball (Factory Piped) Safety Shutoff Valves: Honeywell Dual Solenoid without POC (Factory Piped) GPR Configuration: RV81 (Ship Loose Kit) Manual Valve #1: 1.5in Ball (Ship Loose Kit); Customer Connection: 1.5in</p> <p>Pressure Requirements:</p> <p>Minimum Gas Pressure (@ Inlet of Manual Valve): 7 in. w.c. Maximum Gas Pressure (@ Inlet of Manual Valve): 14 in. w.c. Customer Supply Gas Pressure (@ Inlet of Manual Valve): 7 in. w.c.</p>
#6	1	<p>Submittal Package:</p> <p>Dimensional Diagram Wiring Diagram Test Fire Report ASME Data Report Integrated Controls Wiring Schematic System Arrangement: Primary Secondary Flow with Control of Boiler Pumps -Enable and Speed Control</p>
#7	1	Startup and Training by DJ Conley Associates, Inc

D.J. Conley Associates, Inc. ("Company") offers to furnish the Equipment described herein for the purchase price noted, exclusive of all taxes. Prices quoted are firm for 30 days from date of Proposal, but are subject to adjustment in accordance with the provisions as noted in the attached Terms and Conditions of Sale. This Proposal is subject to withdrawal at any time without notice and any contract resulting from this Proposal is subject acceptance by the Company at Troy, Michigan. No statements or understandings relating to the subject matter, other than those set forth herein, shall be binding on the Company. This includes any contract or additional Terms and Conditions that may be set forth in Buyer's purchase order submitted to Company in response to this Proposal. Buyer's acceptance of this document in writing or by issuance of a purchase order indicates that buyer has read, understands and agrees to be bound by all of the terms of this document, including the Terms and Conditions of Sale incorporated herein. D. J. Conley Associates, Inc. Terms and Conditions of Sale are available on the Company website and can be accessed at www.djconley.com.



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Proposal 26-AM-XXXX-DJC

ROCHESTER ADAMS HIGH SCHOOL NATATORIUM

CFCE 2000 HIGH EFFICIENCY BOILERS (1)

Item	Qty.	Pricing	PTC (USD)
#1	1	CFC-E2-700-2000-125HW (120/1/60) Integrated Ember Controls	
Freight (EXW - Ex Works Factory) Cost (USD):			INCLUDED
Total Price to Customer (USD):			TO FOLLOW

EXCEPTIONS AND CLARIFICATIONS:

- Installation by others
- Exhaust venting can be quoted separately
- Freight included, unloading by others
- Sales Tax not included in pricing
- Submittal lead time: included with this quote
- Delivery lead time: 2-3 weeks from order placement

Payment Terms (with approved credit): 30 days net
 100% invoiced upon notification of shipment
 No Sales, Use or Excise Taxes are included in above quoted pricing

Please return one signed copy of the proposal or your purchase order referenced to this proposal number and date to:
D.J. Conley Associates, Inc.

Date Accepted: _____ 20____ By _____
(Purchaser) (Signature)

Proposal furnished by **D.J. CONLEY ASSOCIATES, INC., 26225 SHERWOOD AVENUE, WARREN, MI 48091**

Aaron Miller

amiller@djconley.com
Office: 248-589-8220 Cell: 248-379-3257

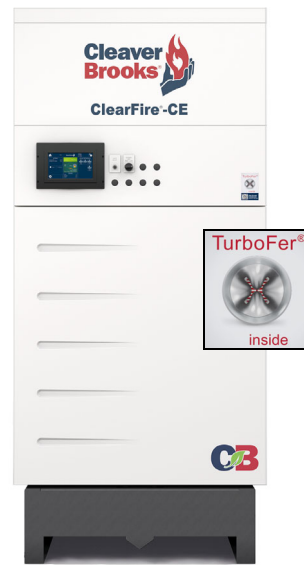
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CFC-E 2000

ClearFire®-CE
Condensing Boiler
2000 MBH

Submittal Sheet

JOB NAME: _____



REVIEWER NOTES:



PROJECT INFORMATION

CB REPRESENTATIVE _____
 JOB NAME _____
 EQUIPMENT TAGS _____
 LOCATION _____
 ALTITUDE _____
 CONTRACTOR _____
 ENGINEER _____
 MODEL NUMBER _____ QTY _____
 FUEL _____ NATURAL GAS _____ PROPANE _____
 BOILER ROOM GAS SUPPLY PRESSURE _____
 VOLTAGE _____
 DESIGN SUPPLY AND RETURN WATER TEMPERATURE _____
 FLOW RATE (GPM) _____ WATERSIDE PRESSURE DROP (FT HEAD @ FLOW RATE) _____
 _____ WATER _____ GLYCOL (if glycol, type and percentage): _____
 BOILER OUTPUT W/GLYCOL DERATE (or N/A) _____

BOILER RATINGS

Description	Units	2000*
Input Max.	Btu/hr	2,000,000
Natural Gas	ft ³ /hr	2000
Propane	ft ³ /hr	800
Output at 120/80 F [49/27 C] 100% Firing	Btu/hr	1,880,000
Output at 180/140 F [82/60 C] 100% Firing	Btu/hr	1,760,000
MAWP	psi	125
Operating Temp., Max.	°F	210
Dry Weight	pounds	2041
Shipping Weight	pounds	2166
Operating Weight	pounds	2858
Water Volume	gallons	98
Fan Motor Size	Watts	1,700
Operating Voltage, Fan	Volts/ph/Hz	115/1/60
Control Circuit	Volts/ph/Hz	115/1/60
Current Draw, Fan	Amperes	13.5
Current Draw Cont. Cct.	Amperes	2
Full Load Amps	Amperes	16
Max Over Current Protection	Amperes	20
Condensate Quantity Firing Nat. Gas & operating @ 120/80 F.	gal/hr	13.5
Flue Gas Mass Flow @ 100% Firing	lb/hr	2,226
Flue Gas Temp. Oper. 180/140 F	°F	180
Flue Gas Temp. Oper. 120/80 F	°F	130
Effective fireside heating surface	ft ²	488.09

*12% derate with 7ppm NOx option

STANDARD FEATURES

- Duplex Stainless Steel TurboFer® firetube heat exchanger.
 - True counterflow design
 - Thermal shock proof design
 - Superior effective heating surface area for excellent operational efficiency
 - Dual temperature returns provide 6% efficiency gain
 - Single pass design
- High water volume and low waterside pressure drop
 - Ideal for Primary Variable Flow pumping
 - Reduced cycling with no buffer tank required
 - Capable of low flow situations with no need for a flow switch
- Low emission premix burner featuring:
 - Self-regulating linkageless control
 - ECM variable speed combustion air blower modulation
 - Whisper quiet operation (<70dBA at high fire)
 - 10:1 turndown [natural gas]
 - <20 ppm NOx standard [natural gas]
 - <7 ppm NOx optional
 - SCAQMD Rule 1146.2 certified
- UL certified for natural gas or propane
- Combustion air intake via room air or direct vent connection on boiler
- Spark ignition with UV scanner for flame supervision
- ASME CSD-1 compliant
- ENERGY STAR certified
- Factory tested prior to shipment
- Standard short circuit current rating (SCCR): 10kA



STANDARD EQUIPMENT

- Trim and Controls
 - Manual reset high limit temperature cut-off with adjustable set point
 - Low water cutoff, probe type, manual reset with test switch
 - Thermistor sensors for supply and return water temperature readings
 - Combination temperature/pressure gauge
 - ASME Safety relief valve (ship loose)
 - Combustion air proving switch
 - Blocked flue/condensate safety switch
- Gas Train in Accordance with ASME CSD-1 and Includes:
 - Low and high gas pressure switches
 - Single body gas valve, dual solenoid safety shutoff
 - Leak test plugs
 - Manual shutoff valve

INTELLIGENT, INTEGRATED CONTROLS

- Ember integrated boiler safety and system control
- Color touch-screen display/interface
- Multiple loop PID set point control - central heat, domestic hot water and lead/lag demand priority
- Lead Lag control for up to eight boilers
- Boiler pump, DHW pump, system pump, iso valve, damper enable/disable
- Modulating pump speed control tracking firing rate or boiler delta T
- Outdoor temperature reset
- Post shutdown pump or valve delay
- Remote enable and set point capability
- Modbus RTU or BACnet MSTP communications (RS485)
- Multiple protocol gateway solutions available for other BMS integration requirements
- On-screen fault annunciation
- Remote alarm & boiler status contacts standard
- Non-volatile alarm history (last 10 lockouts)
- Cloud enabled for remote monitoring capabilities (with optional CB ProtoAir)



CFC-E Boiler Options Selection Guide

All options ship loose for field installation

Boiler Options
<input type="checkbox"/> Reusable air filter
<input type="checkbox"/> Adjustable feet
<input type="checkbox"/> Condensate neutralization <ul style="list-style-type: none"> <input type="checkbox"/> Combination trap / tank (8000 MBH) <input type="checkbox"/> Tank only (8000 MBH)
<input type="checkbox"/> Auto air vent
<input type="checkbox"/> Stack Thermometer
<input type="checkbox"/> Boiler drain valve
<input type="checkbox"/> Boiler Electrical Disconnect (NEMA 1 - non fused)
<input type="checkbox"/> Automatic isolation valve (24VAC standard)
<input type="checkbox"/> Auxiliary low water cut off
<input type="checkbox"/> Seismic anchor provisions
Gas train options
<input type="checkbox"/> Gas pressure regulator - stepdown <ul style="list-style-type: none"> <input type="checkbox"/> low pressure: up to 21 in. WC <input type="checkbox"/> medium pressure: 22 - 56 in. WC <input type="checkbox"/> high pressure: 2 - 15 psig
<input type="checkbox"/> Gas pressure relief valve - required above 1 psig (UL); 1/2 psig (cUL/CSA)
Control Options
<input type="checkbox"/> Supply header sensor for Lead Lag operation (NEMA 4X)
<input type="checkbox"/> Redundant supply header sensor for Redundant Lead (NEMA 4X)
<input type="checkbox"/> System pump control Module (in NEMA 1 enclosure with fuse and power supply) Includes: <ul style="list-style-type: none"> <input type="checkbox"/> Temperature control (two temperature transmitters) <input type="checkbox"/> Pressure control (D/P transmitter)
<input type="checkbox"/> Alarm lights and horn package
<input type="checkbox"/> Alarm horn only package
<input type="checkbox"/> Outdoor temperature sensor (with weather cover)
<input type="checkbox"/> Stack temperature limit sensor
<input type="checkbox"/> Flow switch BY OTHERS
<input type="checkbox"/> Protocol translator (in NEMA1 Enclosure with fuse and power supply) <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Modbus RTU / BACnet MSTP communication standard <ul style="list-style-type: none"> <input type="checkbox"/> BACnet IP <input type="checkbox"/> Modbus TCP <input type="checkbox"/> Metasys N2 <input type="checkbox"/> LonWorks
<input type="checkbox"/> Protocol translator ship loose for mounting in boiler control panel (includes 24VDC power supply) <ul style="list-style-type: none"> Modbus RTU / BACnet MSTP communication standard <ul style="list-style-type: none"> <input type="checkbox"/> BACnet IP <input type="checkbox"/> Modbus TCP <input type="checkbox"/> Metasys N2 <input type="checkbox"/> LonWorks

OPERATING EFFICIENCIES

Percent Efficiency

% Firing Rate	Return Water Temperature °F (°C)						
	68 (20)	80 (27)	100 (38)	120 (49)	130 (55)	140 (60)	160 (72)
20%	98.0	97.1	94.5	91.4	90.0	88.9	88.0
50%	96.6	95.5	93.0	90.5	89.3	88.5	87.7
75%	95.5	94.1	91.7	89.6	88.8	88.2	87.5
100%	94.3	92.7	90.5	88.8	88.3	87.8	87.2

Conditions: Natural Gas; ΔT = 20°F

AHRI Certified Efficiency

Combustion Efficiency (%)	Thermal Efficiency (%)
94.3	95.5



FLOW RATES

CFC-E Flow Rates*

System Temperature Drop °F					
10	20	30	40	50	60
Flow Rate GPM					
377	188	126	94	75	63

*Recommended flow rates relative to temperature drop so as not to exceed boiler output.

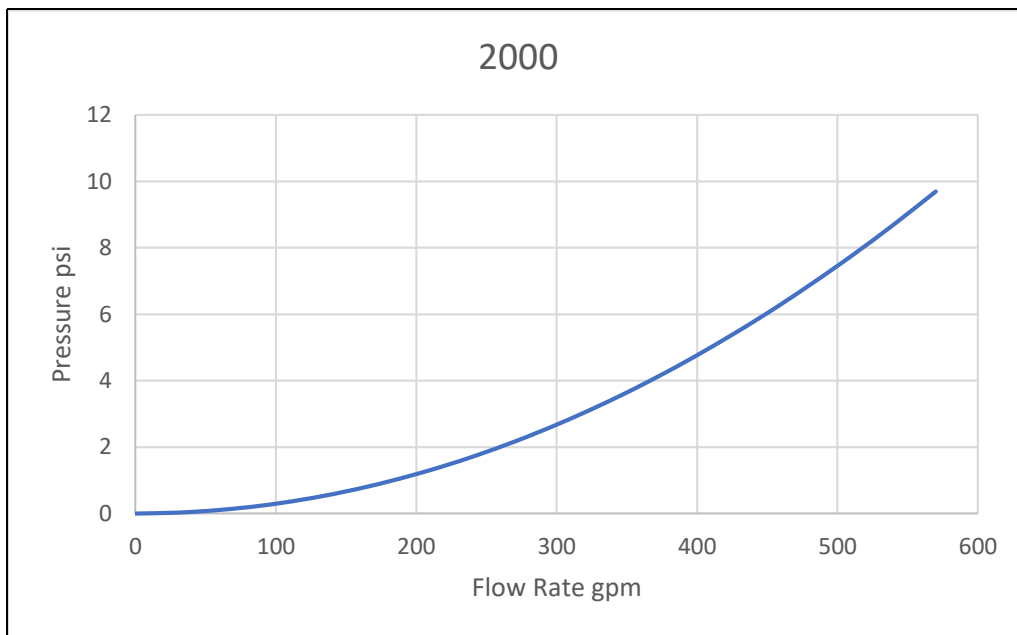
Based on 94% nominal efficiency

NOTE: Flow rates based on 100% water only. Not applicable to glycol solutions. Contact local C-B representative for assistance with glycol systems.

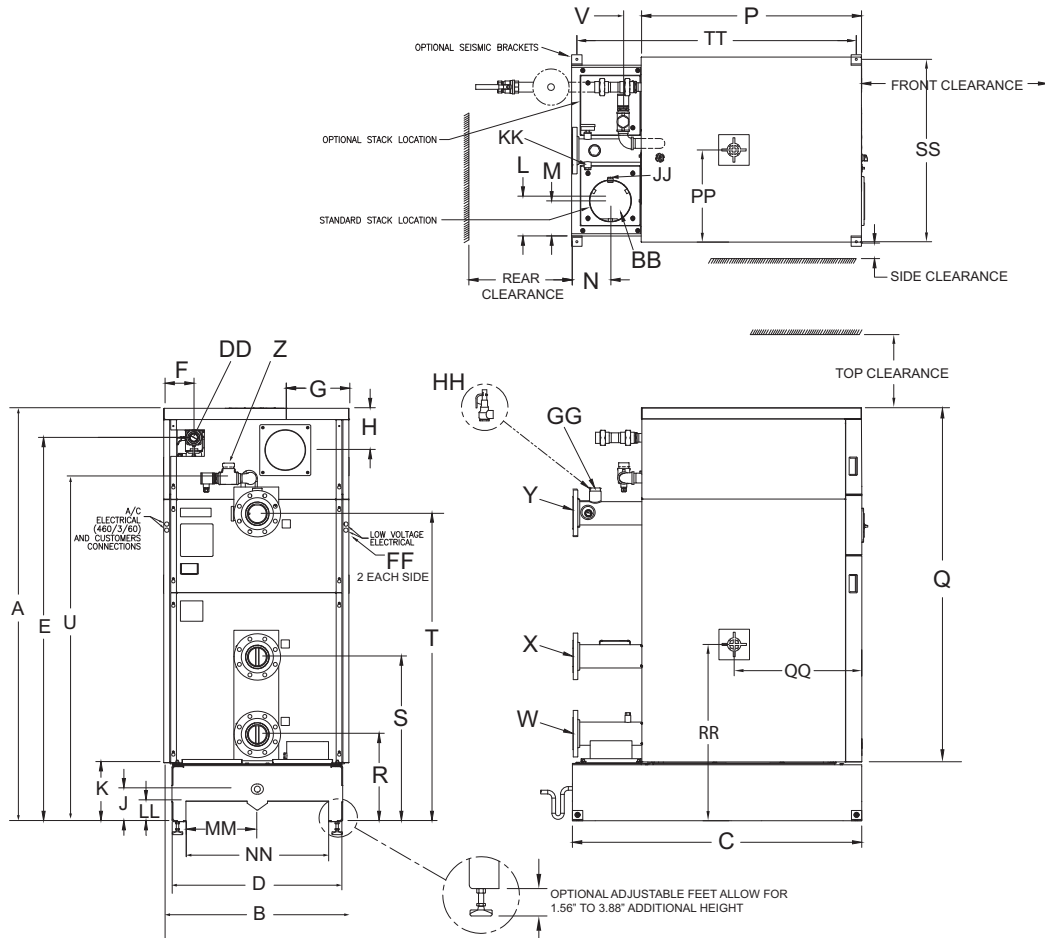
NOTE: The flow rates shown are recommended design flow rates. The CFC-E is capable of handling delta T's up to 120 deg F without damage to the heat exchanger.

PRESSURE DROP

Waterside Pressure Drop CFC-E 2000



DIMENSIONS AND CONNECTION SIZES



DIMENSIONS (inches) CFC-E 2000

A	Overall Height	79.8
B	Overall Width	35.7
C	Overall Depth	56
D	Width Less Casing	33.0
E	Gas Connection to Floor	74.1
F	Side of Casing to Gas Connection	5.6
G	Side of Casing to Air Inlet	12.3
H	Top of Casing to Air Inlet	8.1
J	Floor to Condensate Drain	6.3
K	Floor to Bottom of Casing	11.4
L	Side of Base to Flue Outlet (Centered)	8.5
M	Side of Base to Flue Outlet (Offset)	7.5
N	Rear of Base to Flue Outlet	7.5
P	Casing Depth	42.6
Q	Casing Height	68.4
R	Floor to Lower Return Connection	16.9
S	Floor to Upper Return Connection	31.8
T	Floor to Supply Connection	59.5
U	Floor to Air vent Connection	66.3
V	Air Vent Line Projection From Rear of Casing	3.5

FORK POCKETS

LL	Pocket Height	3.9
MM	Pocket Width	11.8
NN	Overall Pocket Width	27.6

CENTER OF GRAVITY

PP	Casing - Side Panel	18.0
QQ	Casing - Front Panel	24.6
RR	Bottom of Base	34.0

SEISMIC BRACES (optional)

SS	Bracket-to-Bracket Width (hole center)	35.2
TT	Bracket-to-Bracket Length (hole center)	54

CONNECTIONS

W	Water Low Temp. Return, CL150 RF Flange	4"
X	Water High Temp. Return, CL150 RF Flange	4"
Y	Water Supply, CL150 RF Flange	4"
Z	Air Vent, NPT	1-1/2"
AA	Vessel Drain, NPT	1-1/2"
BB	Flue Gas Outlet	
	Standard (Offset)	8"
	Option	10"
CC	Combustion Air	8"
DD	Gas, NPT	1-1/2"
EE	Condensate Drain, NPT	1"
FF	Electrical Conduit, Left or Right	0.87"
GG	Safety Relief Valve Vessel Connection, NPT	1-1/4"
HH	Safety Relief Valve	
	30 psig Inlet x Outlet, NPT	1-1/4" x 1-1/2"
	50 - 60 psig Inlet x Outlet, NPT	1" x 1-1/4"
	75 - 125 psig Inlet x Outlet, NPT	3/4" x 1"
JJ	Flue Coupling, NPT	1/2"
KK	Water Outlet Coupling, NPT	3/4"

CLEARANCES

Top	14"
Side	3"
Rear	20"
Front	36"

Notes:
Boiler rear must be accessible for servicing.
Side clearance to wall or between boilers.
Side clearance typical each side.

RIGGING AND TRANSPORTATION

The boiler should be lifted by the base using a suitable fork lift. **Note:** The boiler should not be moved by pushing, prying, or pulling on any part of the casing. If the floor is not level, piers or a raised pad slightly larger in length and width than the boiler base dimensions will make boiler installation and leveling easier. The boiler must be installed so that all components remain accessible for inspection, cleaning, or maintenance. Field-installed piping and electrical connections must be arranged so as to avoid interfering with removal of the casing panels or with the burner door.



To avoid damage to casing, removal of front and side casing panels is recommended during installation.

Care should be taken to secure load at the top to prevent tipping.

WARNING! Do not install the boiler on carpeting.

NOTE: For crane lifting refer to CFC-E Installation manual 750-487 for instructions.

STACK DESIGN**STACK SIZING USING OUTSIDE AIR FOR COMBUSTION (DIRECT VENT)**

Boiler	Combustion Air Duct (Inches Diameter)	Combustion Air SCFM Required	Flue Connection/Duct (Inches Diameter)	Max. Length* (Equivalent Feet)
CFC-E 2000	8	500	8 standard	100
			10 optional	120

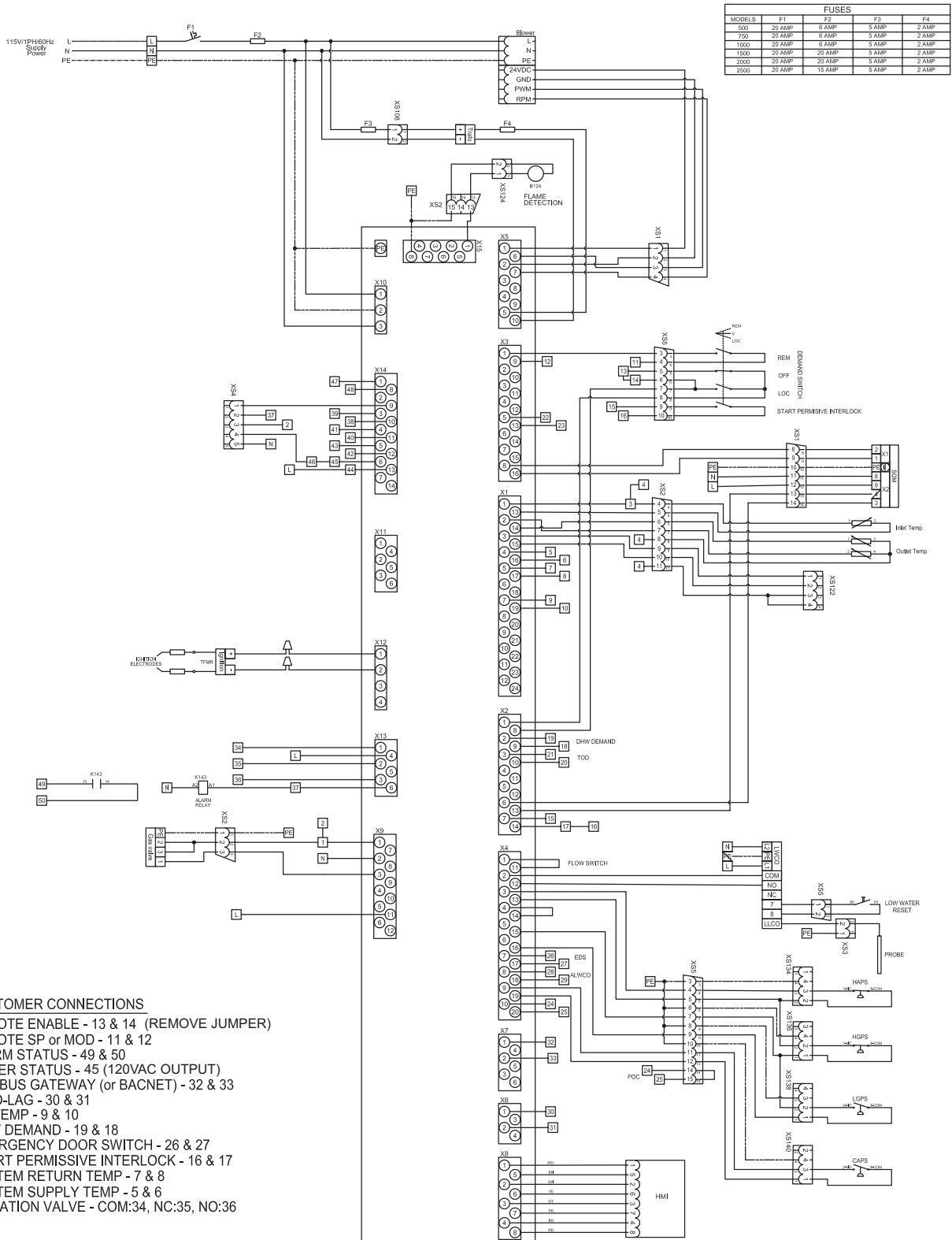
Each additional 90° elbow equals 5 equivalent feet of ductwork. Flue terminations may add 5-10 feet to the equivalent length and should also be included in the equivalent length calculation.

Draft tolerance at boiler flue connection during operation is +/-0.25" W.C.

*Maximum vent length assumes horizontal run and sidewall terminations. Larger diameter venting, vertical flue runs, and vertical flue termination may allow for longer vent lengths than indicated here, provided the engineered draft calculations are within the allowable operational tolerance of +/-0.25" W.C.

WIRING DIAGRAM

WD is typical and may not reflect actual customer boiler. Refer to job specific WD for actual wiring connections.



- CUSTOMER CONNECTIONS**
- REMOTE ENABLE - 13 & 14 (REMOVE JUMPER)
 - REMOTE SP or MOD - 11 & 12
 - ALARM STATUS - 49 & 50
 - BOILER STATUS - 45 (120VAC OUTPUT)
 - MODBUS GATEWAY (or BACNET) - 32 & 33
 - LEAD-LAG - 30 & 31
 - OD TEMP - 9 & 10
 - DHW DEMAND - 19 & 18
 - EMERGENCY DOOR SWITCH - 26 & 27
 - START PERMISSIVE INTERLOCK - 16 & 17
 - SYSTEM RETURN TEMP - 7 & 8
 - SYSTEM SUPPLY TEMP - 5 & 6
 - ISOLATION VALVE - COM:34, NC:35, NO:36

WARRANTY

In addition to our Standard Warranty, Cleaver Brooks offers the following non-prorated Extended Warranty on the ClearFire CFC-E boilers:

1. The pressure vessel is guaranteed against thermal shock for the lifetime of the boiler when utilized in a closed loop hydronic heating system with a temperature differential of 120°F or less. The boiler pressure vessel is guaranteed accordingly without a minimum flow rate or return water temperature requirement. The boiler shall not require the use of flow switches or other devices to ensure minimum flow.
2. The pressure vessel, tubes, and tube sheets (heat exchanger) are guaranteed against flue gas corrosion and materials/workmanship for a period of fifteen (15) years.
3. The condensate collection box shall be guaranteed against corrosion for twenty (20) years.
4. The burner cylinder shall be warranted for a period of five (5) years.

All parts not covered by the above warranties are valid for twenty-four (24) months from the date of initial operation of the Equipment, but in no event shall the Warranty extend more than thirty (30) months from the date of shipment of the Equipment by Cleaver-Brooks. This includes all electrical and burner components.

The pressure vessel thermal shock warranty covers leaks in the pressure vessel including the furnaces, tubes, tube sheets, and shell (not including failed gaskets), which, from our inspection, are attributed to unequal or rapid expansion, typically referred to as “thermal shock,” or stress cracking. This warranty does not cover damage or failures that are attributed, by our inspection, to corrosion, operation at low water level, accumulation of scale, sludge or dirt in the boiler, or other improper service, operation, or neglect.

Cleaver Brooks' liability hereunder is limited to repairing or furnishing a replacement pressure vessel or component parts thereof, as deemed necessary by our inspection. Cleaver Brooks is not responsible for shipping, handling, installation and other costs, including all costs associated with the removal and disposition of the old pressure vessel or component parts. In no event shall Cleaver Brooks be responsible for any incidental, consequential or other damages, including, without limitation, any damages resulting from loss of use of the boiler.

Refer to official warranty documents for specific warranty information.





ClearFire[®]-CE

High-Mass Condensing
Firetube Boiler

500 to 6,000 MBH



A Clever-Brooks
Sustainable Solution



Energy Savings and Environmental Benefits

The ClearFire®-CE (CFC-E) condensing boiler combines the patented TurboFer® heat exchanger technologies with innovative Ember controls and burner design to offer the most efficient condensing boiler on the market. With its proprietary combination of technologies, the CFC-E provides safe, efficient, reliable, and sustainable operation for a variety of applications.

The ClearFire-CE is future-ready and built to last with a robust design. It also helps you achieve your sustainable energy goals.

The ClearFire-CE offers:

- » **Lowest total cost of ownership** – due to its large water volume, the ClearFire-CE is designed for use in variable-flow primary systems, offering the lowest total cost of ownership spanning installation through operation
- » **Energy-efficient operation** – superior heat transfer and low waterside pressure drop reduces pumping energy, gas and electrical consumption
- » **Environmentally conscious burner design** – offers 20 ppm NOx standard and 7 ppm NOx optional
- » **Future-proof fuel flexibility** – features a burner and controls that can support renewable natural gas or a hydrogen blend without burner changes



Our CFC-E boiler meets the strict performance and sustainability criteria required to earn the Cleaver-Brooks Sustainability Seal. Find out more at cleaverbrooks.com/sustainability.

Get Future-Ready with TurboFer®

Based on the first generation of ClearFire® boilers, which have operated reliably in a variety of applications for 20+ years, the latest model boasts a patented TurboFer® heat exchanger for even greater efficiencies in a more compact footprint.

The newest ClearFire-CE can operate on renewable natural gas or a hydrogen-and-natural-gas blend of up to 20% hydrogen.

The vertical design supports more distinct temperature stratification of the heating water. Along with the integrated dual-return connection, this leads to more effective heat transfer.



UP TO
99%
EFFICIENT

Efficiency-Gaining Features:

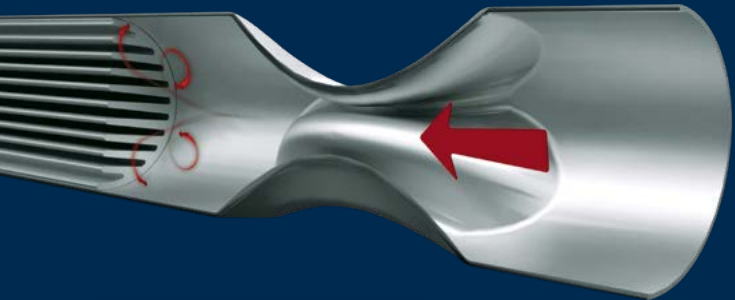
- » TurboFer heat exchanger with optimized heat transfer leads to superior operating efficiencies, up to 99%
- » 10:1 fully modulating turndown
- » Duplex stainless steel construction provides corrosion resistance to flue gas condensate and chloride stress cracking
- » Large-water-volume pressure vessel with low waterside pressure drop reduces pumping energy
- » Integrated lead-lag controls intelligently sequence and modulate up to eight boilers

CFC-E Updates:

- » Increased turndown to 10:1
- » New Ember controls
- » AluFer® to TurboFer technology
- » Enhanced casing design



Engineering Innovation Boosts Efficiency



The TurboFer® heat exchanger is a newly engineered, patented core component of the boiler. The unique design of the heat exchanger and its innovative technology generates turbulence on the fireside, increasing heat transfer and boosting efficiency. Combined with the other innovations, this reduces your initial investment and ongoing operating costs.

Heat Transfer Done Right

The TurboFer design starts with a duplex stainless steel tube die-fitted with an inner (fireside) aluminum-alloy finned heating surface. The top of the tube is then pressed together producing a smaller cross-sectional area that increases flue gas velocity and turbulence. The flue gases speed up, creating a swirling effect, which leads to superior heat transfer in a compact footprint.



Technology Enhancements

The firetube technology provides unmatched heat transfer and condensing characteristics and delivers excellent waterside corrosion resistance while keeping water treatment requirements simplified.

- » Thermal conductivity is 10 times greater than stainless steel alone
- » Provides maximum effective heating surface where it is needed most – on the fireside
- » Heating surface area is up to five times greater than other condensing boilers

6%+ Increase in Efficiency

The ClearFire®-CE features two separate returns: the high-temperature return at the upper inlet connection and the low-temperature return at the lower inlet connection. This strengthens counterflow heat exchange characteristics, resulting in increased condensing performance.

The dual-return design of the ClearFire-CE helps it achieve optimal condensing performance, even in applications with non-condensing temperature heating loops, resulting in 6%+ increases in system efficiency.



Industry-Leading Non-Prorated Warranties

- » Lifetime thermal shock
- » 15-year fireside corrosion
- » 5-year burner canister
- » 20-year condensate collection pan
- » 2-year parts warranty

Advanced Burner & Controls

Inherent O₂ Trim

The CFC-E uses a variable-speed ECM combustion air fan, reducing electrical consumption.

This design allows for true linear modulation and standard ultra-low emissions with premix combustion.

ClearFire® boilers utilize a gas valve/venturi that automatically adjusts for changes in combustion air density. This maintains consistent excess air levels from low-to-high fire without additional controls that require tuning and maintenance, meaning fewer service visits to maintain peak efficiency.



Integrated Ember Controls

The CFC-E features an integrated Ember control platform that has the built-in ability to control lead-lag, outside air temperature reset, automatic isolation valves, primary pumps, and BAS integration, enabling seamless design and functionality.

The controls have redundant host functionality. BACnet is included as standard, and true ΔT pump speed control means there are many built-in features to support different system requirements.

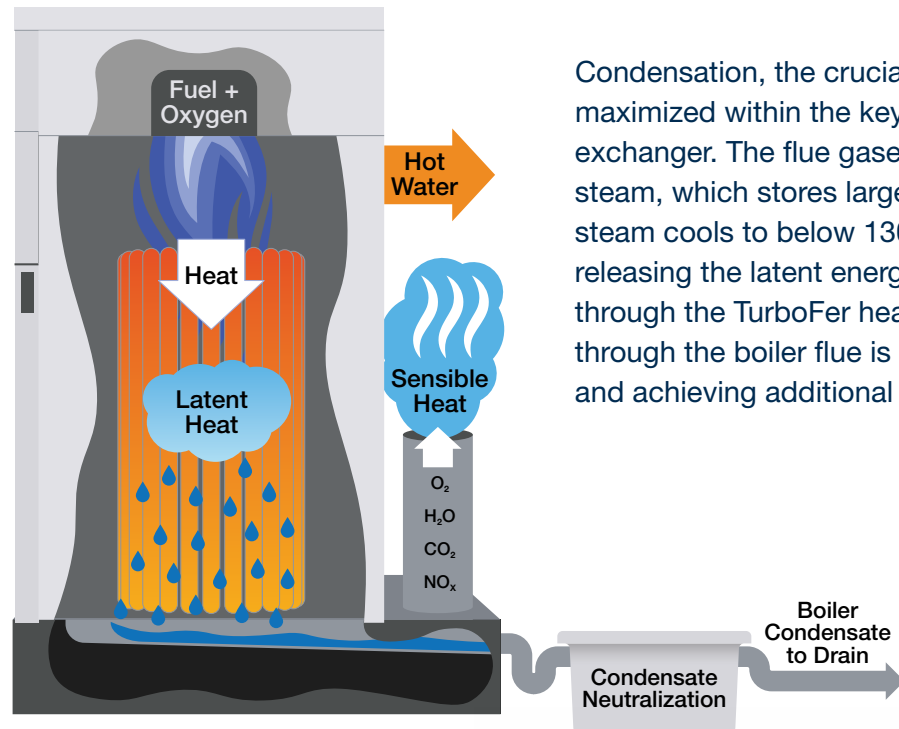
Improved Turndown

All capacities of the ClearFire®-CE now feature 10:1 fully modulating turndown. This turndown is achieved with the boiler operating efficiently across the entire firing range by keeping excess air levels consistent. Additionally, minimal moving parts simplifies maintenance and provides repeatable combustion performance.

The increased turndown helps the boilers match the load demand more closely, leading to increased system efficiencies as well as reduced boiler cycling and wear-and-tear on the burner components.



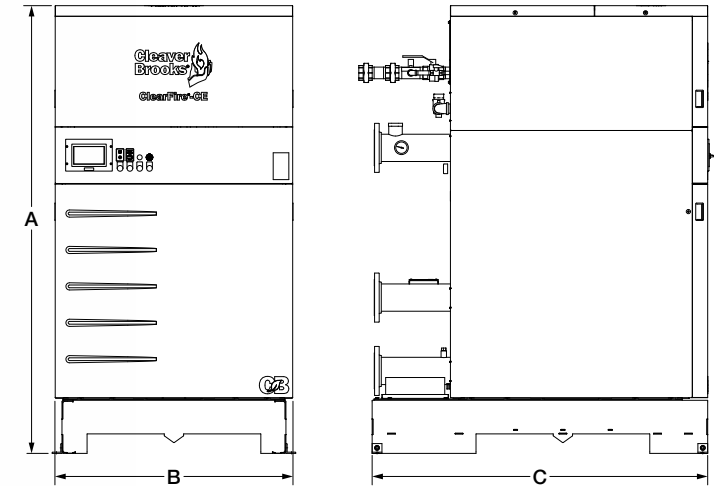
Condense for Maximum Efficiency



Condensation, the crucial element to improving efficiency, is maximized within the key design features of the TurboFer® heat exchanger. The flue gases from the combustion process contain steam, which stores large quantities of latent energy. When the steam cools to below 130° F, it becomes liquid, condensing and releasing the latent energy and transferring the heat to the water through the TurboFer heat exchanger. Energy otherwise lost through the boiler flue is now retained, increasing efficiencies and achieving additional energy savings of approximately 15%.

15%
INCREASED
ENERGY SAVINGS

ClearFire®-CE Dimensions and Ratings



	500	750	1000	1500	2000	2500	3000	3500	4000	5000	6000
Overall Height ("A" - inch)	78.0	78.0	78.0	79.8	79.8	95.2	95.2	91.3	91.3	93.6	93.6
Overall Width ("B" - inch)	32.6	32.6	32.6	35.7	35.7	35.7	35.7	48.4	48.4	58.7	58.7
Overall Depth ("C" - inch)	49.4	49.4	49.4	56.0	56.0	56.0	56.0	68.4	68.4	80.6	80.6
Dry Weight (lb)	1,298	1,298	1,396	1,861	2,041	2,420	2,475	3,575	3,575	4,900	5,275
Shipping Weight (lb)	1,413	1,413	1,511	1,986	2,166	2,541	2,596	3,725	3,725	5,075	5,450
Operating Weight (lb)	2,065	2,065	2,113	2,778	2,858	3,470	3,492	5,227	5,304	7,502	7,659
Water Volume (gallon)	92	92	86	110	98	126	122	198	198	312	285

Meeting Your Needs

Skid Systems

Cleaver-Brooks pre-engineered and pre-packaged, skid-mounted hydronic boiler solutions offer a simple solution to get up and running in less time, with less effort than traditional field-installed systems. Single-point piping and electrical connections, and robust skid design make installation simple and easy.



Outdoor Boiler

Cleaver-Brooks offers a UL-listed and AHRI-certified outdoor option for the ClearFire®-CE boiler that allows the boilers to be installed outdoors in moderate climates. The outdoor hood kit allows for simple installation and mounts directly onto all current ClearFire-CE boilers.



HxO Heat Exchanger

The HxO is designed to provide instantaneous domestic hot water supply to your building without the need for additional fuel-fired or electric heating equipment. By utilizing your new or existing hot water heating loop, the HxO will provide on-demand water for your system.



Broad Range of Applications

The ClearFire®-CE is capable of variable-flow pumping, allowing for maximum operating efficiency in a variety of system applications.

- » Office Buildings
- » Schools, Colleges & Universities
- » Healthcare Facilities
- » Multi-Family Housing
- » Building Heating
- » Manufacturing Processes



Office Buildings



Healthcare Facilities



Manufacturing Processes



Campus Systems



Multi-Family Housing



The power of total integration.

The **Power of Total Integration** is how Cleaver-Brooks delivers the world's broadest range of integrated, sustainable thermal solutions. In addition to our products, this includes Cleaver-Brooks global authorized sales representatives and independent service contractors, training resources, and trusted expertise that add significant value to your Cleaver-Brooks investment.



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