DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that JEAN PAGANO

Located At 819 CONGRESS ST

Job ID: 2012-09-4999-HVAC

CBL: 053- C-034-001

has permission to Install Burnham Boiler Heating System in Basement
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

10/19/2012

Fire Prevention Officer **Code Enforcement Officer / Plan Reviewer**

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final Inspection

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Director of Planning and Urban Development
Jeff Levine

Job ID: 2012-09-4999-HVAC **Located At:** 819 CONGRESS ST **CBL:** 053- C-034-001

Conditions of Approval:

Fire

1. Installation shall comply with City Code Chapter 10.
2. Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.
3. Installation shall comply with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel–Burning Appliances*;
4. NFPA 54, *National Fuel Gas Code*;
5. NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*;
6. NFPA 91, *Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids*;
7. NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.
8. NFPA 31, *Standard for the Installation of Oil-Burning Equipment*;

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2012-09-4999-HVAC	**9/19/2012**	**053- C-034-001**	
Location of Construction: **817-819 CONGRESS ST**	Owner Name: **JEAN WALLACE REVOCABLE TRUST PAGANO**	Owner Address: **473 MAIN STREET SACO, MAINE 04072**	Phone:
Business Name:	Contractor Name: **Provencher Fuels - Roger**	Contractor Address: **139 CLEAVES STREET, BIDDEFORD, ME 04005**	Phone: **(207) 284-8068**
Lessee/Buyer's Name:	Phone:	Permit Type: **HVAC**	Zone: **B-2b**
Past Use: **Eleven Family Residential Building**	Proposed Use: **Same: Eleven Family Residential Building – to install Burnham Boiler heating system**	Cost of Work: **$21,000.00**	CEO District:
		Fire Dept: ___ Approved ___ Denied ___ N/A Signature: Capt. Larson 10/18/12	Inspection: Use Group: R-2 Type: 5B HVAC Signature:
Proposed Project Description: **Install Burnham Boiler in basement**		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Gayle		**Zoning Approval**	

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	✓ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	___ Approved w/Conditions
___ Maj ___ Min ___ MM	___ Denied	___ Denied
Date: OK 9/19/12	Date:	Date:

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT
HEATING OR POWER EQUIPMENT

2012 09 4999 66 34 85

05-3-C-3 B-25

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 819 CONGRESS ST Use of Building APT BLDG (1 D.U.) Date 8/19/12

Name and address of owner of appliance JEAN PAGANO 473 MAIN ST SACO 04072

Installer's name and address PROVENCHER FUELS 139 CLEAVES ST BIDDEFORD

Telephone 284 8068 04005

Location of appliance:
- ☑ Basement
- ☐ Floor
- ☐ Attic
- ☐ Roof

Type of Fuel:
- ☑ Gas
- ☐ Oil
- ☐ Solid

Appliance Name: BURNHAM BOILER

U.L. Approved ☑ Yes ☐ No

Will appliance be installed in accordance with the manufacture's installation instructions? ☑ Yes ☐ No

IF NO Explain: _____

The Type of License of Installer:
- ☐ Master Plumber # _____
- ☑ Solid Fuel # _____
- ☑ Oil # MS 30001177
- ☑ Gas # PNT4782
- ☐ Other _____

Type of Chimney:
- ☐ Masonry Lined
  Factory built _____
- ☑ Metal (CHIMNEY) OLYMPIA FOREVER FLEX
  Factory Built U.L. Listing # CULISTED
- ☐ Direct Vent
  Type _____ UL# _____

Type of Fuel Tank
- ☐ Oil
- ☑ Gas

RECEIVED
SEP 19 2012
Dept. of Building Inspections
City of Portland Maine

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ **feet.**

Cost of Work: $ 21,000

Permit Fee: $ 230.00

Approved

Fire: _____

Ele.: _____

Bldg.: _____

Approved with Conditions

☐ See attached letter or requirement

_____ Inspector's Signature

_____ Date Approved

Signature of Installer Roger Provencher

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

PORTLAND MAINE

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Receipts Details:

Tender Information: Check , BusinessName: Provencher Fuels, Inc, Check Number: 3565
Tender Amount: 230.00

Receipt Header:

Cashier Id: gguertin
Receipt Date: 9/19/2012
Receipt Number: 48405

Receipt Details:

Referance ID:	8076	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	230.00	Charge Amount:	230.00
Job ID: Job ID: 2012-09-4999-HVAC - Install Burnham Boiler in basement			
Additional Comments: 819 Congress St.			

Thank You for your Payment!

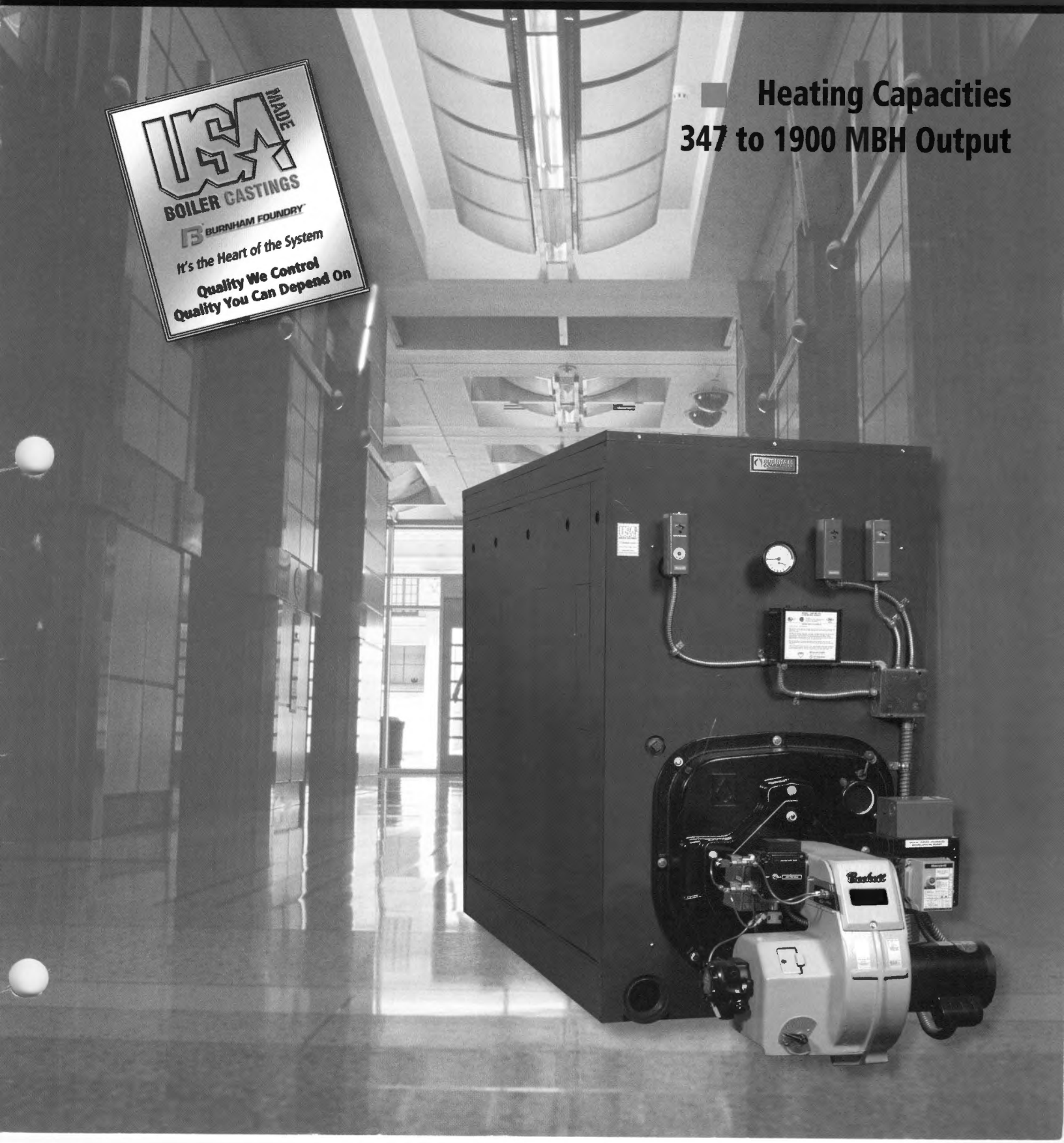
V9 Series

Commercial Hydronic Heat Pressure Fired, Wet Base, Oil, Gas or Combination

BURNHAM COMMERCIAL
AMERICA'S BOILER COMPANY®

USA MADE BOILER CASTINGS
BURNHAM FOUNDRY
It's the Heart of the System
Quality We Control
Quality You Can Depend On

Heating Capacities
347 to 1900 MBH Output



V9 Series - Hot Water or Steam Boiler

Maximum Allowable Working Pressure (MAWP): 80 PSI-Water; 15 PSI-Steam

Your Commercial Heating Solution

Available in ten sizes with gross output ratings from 347 to 1900 MBH, the V9 Series fires gas, oil or combination gas/oil and is available equipped with either steam or water trim. The product meets the energy efficiency requirements of ASHRAE 90.1 with combustion efficiencies up to 86%.

Cast iron construction, ease of assembly, two venting options, and stringent testing methods make the V9 Series boiler by Burnham Commercial your heating solution.

Cast Iron Dependability

Cast iron has the unique ability to absorb and transfer heat quickly and efficiently while providing unmatched durability. That's why the cast iron design of the V9 is the best choice for long lasting, trouble-free operation in commercial and industrial applications.

- **Manufactured with Quality**
  Burnham Holdings owns and operates a state-of-the-art foundry, in Zanesville, OH, ensuring quality and availability for all V9 castings and all other Burnham Commercial castings.

- **Cast Iron Nipple Difference**
  While gaskets used by other manufacturers can break down from oils and contaminants, the V9's cast iron nipples remain unaffected, ensuring long life and eliminating costly repairs.

The V9 section assembly includes precision machined cast iron nipples that expand and contract along with the sections they join, providing integrity to the entire assembly. Additionally, cast iron nipples resist boiler flue gases and petroleum based chemicals, including corrosion inhibitors, pump lubricants and antifreeze.

Installation & Service Flexibility

The cast iron sectional design of the V9 boiler makes it easy to maneuver through doorways and into the boiler room. In addition to being shipped as loose sections, the boiler is available with factory-assembled sections or as a completely packaged and fire-tested unit. Packaged units, fastened to a steel skid, are easily maneuvered through standard 36" x 80" doorways.

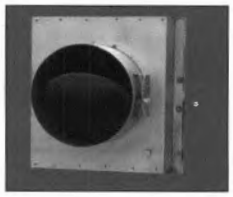
- **Hassle-free Section Assembly**
  V9 boiler sections have reinforced lugs that are used to assemble the sections with individual draw rods resulting in fast, strain-free assembly.

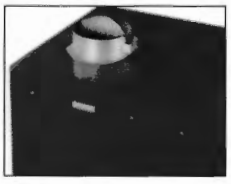
The sections can be assembled using two common tools—a 3/4" drive ratchet with a 1-1/16" deep socket and wrench.

The sections are surface ground to ensure smooth surface mating. An elastic sealant and fiberglass rope are used on all section joints for a completely sealed and pressure-tight assembly.

- **Extensive Testing Methods**
  Each boiler section is hydrostatically tested at two and one half times the rated working pressure at the foundry. Factory assembled sections are tested at one and one half times the rated working pressure.

- **Rear or Top Venting**
  As a forced draft boiler, the V9 provides optimum draft for controlled efficiency, eliminating the need for high chimneys or induced draft fans. A unique feature of the V9 boiler is it can be vented from the rear or the top. This enables easy chimney or sidewall venting for maximum installation flexibility.





Top outlet venting saves floor space and reduces installation time and materials. A plugged tapping is provided to take flue outlet pressure readings.

The "Smart" Choice

Specifying a heating system, preparing boiler room layouts and creating sales submittals are all made easy with Burnham Commercial's SmartDesign CD. Engineering and sales tools are all in one place along with AutoCAD drawings that are at a 1" to 1" scale and can be copied and pasted into an existing boiler room layout. Consult your local Burnham Commercial sales representative or visit our new website www.burnhamcommercialcastiron.com for details.

Commitment to Quality

Burnham Commercial, "America's Boiler Company," has earned a reputation for quality and dependability. Built for a variety of applications, the V9 Series is right for your next job.

Top or Rear Outlet
with adjustable lock-type damper (not shown); includes plugged tapping for outlet pressure readings

Front Mounted Controls
for easy adjustment and maintenance

Removable Side Jacket Panels
Easy access to all cleanouts

Optional Tankless Heater
Provides domestic hot water

Rear Observation Port
Includes plugged tapping for over-fire draft readings (not shown)

Individual Draw Rods
with reinforced lugs for strain free assembly

Cast Iron Vertical Design
with pinned heating surface for maximum heat extraction

Burner Mounting Plate
with flame observation port

Wet Base
Side wall insulation creates improved thermal circulation

Cast Iron Nipples
ensure the integrity of the section assembly and resist petroleum based chemicals and flue gases

5 Burner Manufacturers
Options to best fit your needs

V9 Series Minimum Piping Recommendations — Water Boiler

System Design

Hydronic heating system designs include system piping, near boiler piping, water/steam circulation, controls and accessories. Our recommendations cover the near boiler piping. They are designed to facilitate the installation of the V9 into existing and new heating systems.

System Piping Factors

Many hot water heating systems involve the use of system zoning with zone valves or pumps and may include some form of mixing device. Use of these components can effect flow through the boiler and return water temperatures. These factors must be considered for proper system design.

Multiple zone heating systems, as shown in illustration 1, can produce varying flow rates and water temperatures through the boiler.

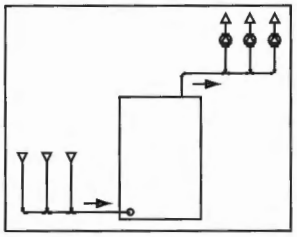


Illustration 1

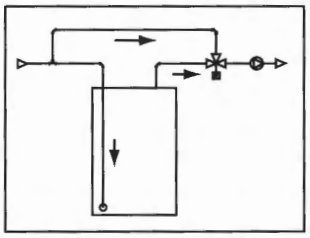


Illustration 2

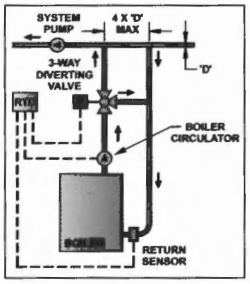
The piping arrangement shown in illustration 2 shows how tempering valves have typically been used to provide system blending: cool return water is mixed with hot supply water through a mixing valve. This tempers the water temperature to the system but can subject the boiler to varied flow and cool return water temperatures.

Recommended Near Boiler Piping

Burnham Commercial's near boiler piping recommendations are aimed at applying the V9 boiler to various system designs.

The three water boiler recommendations are each based on system operating characteristics. The minimum operating criteria are a maximum temperature difference of 40° F under all operating conditions and no less than 135° F return water temperature for prolonged periods of time.

- **Recommendation 1** - is used when the load is constant and not varied due to mixing or multiple zones.
- **Recommendation 2** - is a primary-secondary piping method that maintains a constant flow through the boiler by using a secondary boiler circulator. This arrangment isolates the boiler from flow variations but does not safeguard against cold return water temperatures.
- **Recommendation 3** - is used when the return water temperature does go below 135°F for prolonged periods of time. This is also primary-secondary piping, but includes the addition of a 3-way valve, return water sensor and boiler-mounted RTC Return Temperature Control.



RTC Return Temperature Control

The concept of boiler protection has existed for many years. The Burnham Commercial RTC Return Temperature Control* simplifies the process and provides an economical and effective means of protecting the boiler from thermal shock and sustained condensing operation.

One RTC is required per boiler and can be incorporated into most hydronic hot water applications with minimal modifications to the system design and operation.

V11 pictured with RTC.

*Please see RTC specifications sheet for complete details and proper circulator sizing.

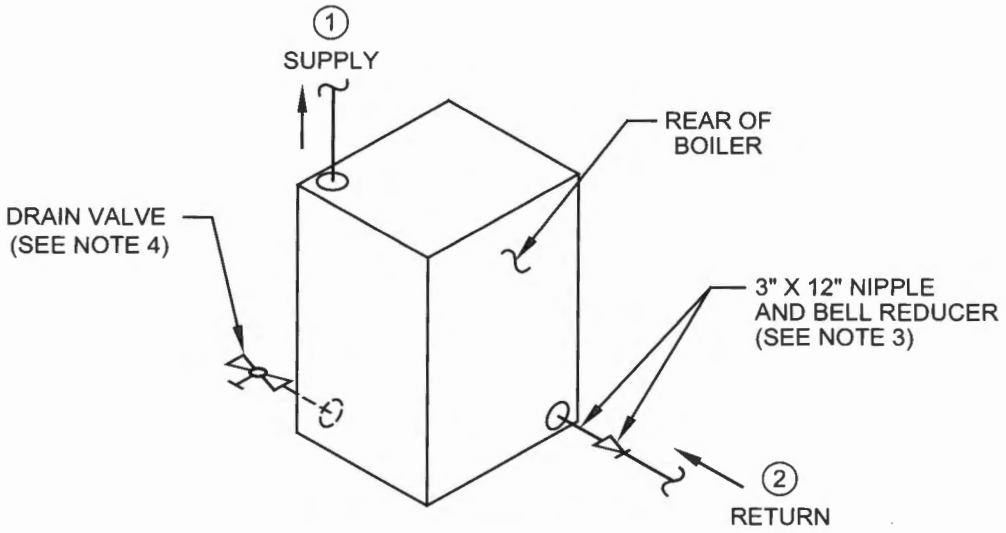
Outdoor Reset Option

The RTC outdoor reset option for single boiler applications provides additional energy savings by modulating system water temperature to closely match the building load requirements.

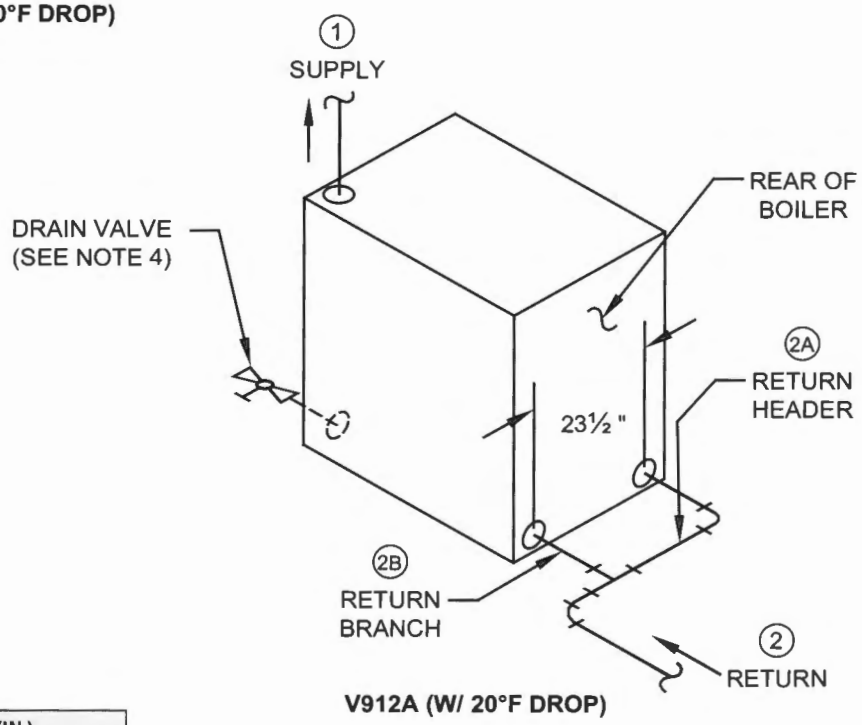
V9 Series Minimum Piping Recommendations — Water Boiler

Recommendation 1 — Use when:

- system return water is not less than 135° F for prolonged periods of time
- system flow does not impact flow through the boiler



V903A THRU V911A (W/ 20°F DROP)
V903A THRU V912A (W/ 40°F DROP)



V912A (W/ 20°F DROP)

Pipe Sizing and Notes

MODEL	SUPPLY PIPING SIZE (IN.) (1)		RETURN PIPING SIZE (IN.)			
			RETURN (2)		RETURN HEADER (2A)	RETURN BRANCH (QTY.) SIZE (2B)
	20°F DROP	40°F DROP	20°F DROP	40°F DROP	20°F DROP	20°F DROP
V903A	2	1-1/2	2	1-1/2	—	—
V904A	2	1-1/2	2	1-1/2	—	—
V905A	2	1-1/2	2	1-1/2	—	—
V906A	2-1/2	1-1/2	2-1/2	1-1/2	—	—
V907A	2-1/2	2	2-1/2	2	—	—
V908A	2-1/2	2	2-1/2	2	—	—
V909A	3	2	3	2	—	—
V910A	3	2-1/2	3	2-1/2	—	—
V911A	3	2-1/2	3	2-1/2	—	—
V912A	4	2-1/2	4	2-1/2	3	(2) 3

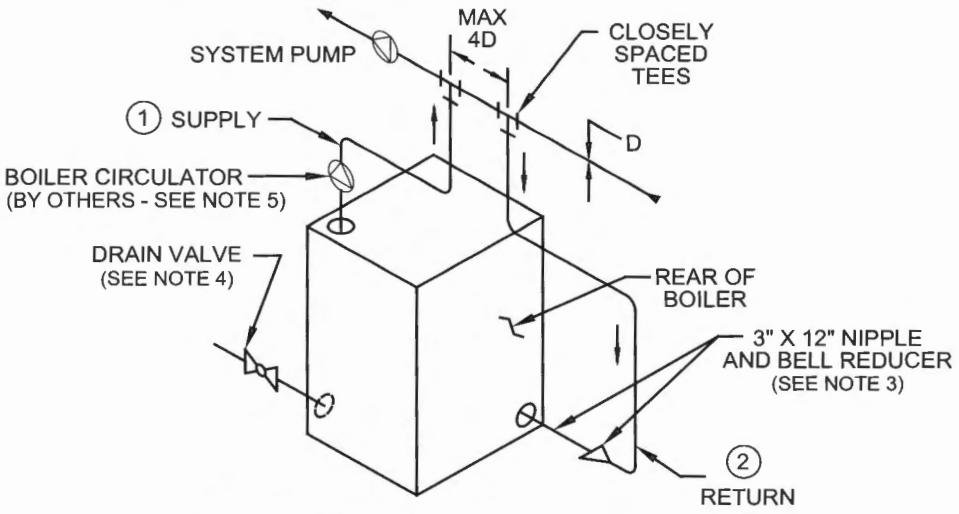
NOTES:

1. All piping is schedule 40.
2. Pipe sizes listed are based on a 20°F or 40°F differential (temperature drop). Select one to match application. Consult factory if boilers are used in low temperature applications or blending/mixing devices.
3. When specified return piping size is less than 3", install 3" X 12" nipple and appropriate size bell reducer directly into boiler return tapping as shown.
4. Drain valve — ball valve preferable, gate valve acceptable alternative (supplied by others).
   - Minimum valve size per ASME code is 3/4" NPT
5. For multiple water boiler piping, consult factory.

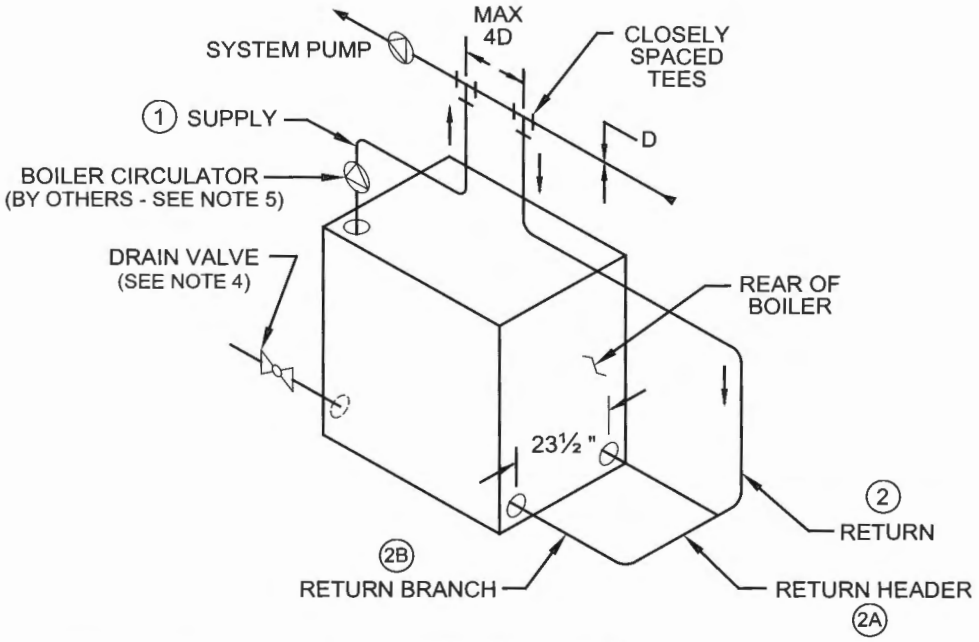
V9 Series Minimum Piping Recommendations — Water Boiler

Recommendation 2 — Use when:

- system return water is not less than 135° F for prolonged periods of time
- system flow does impact flow through the boiler(ie. zoning, mixing)



V903A THRU V911A (W/ 20° F DROP)
V903A THRU V912A (W/ 40° F DROP)



V912A (W/ 20° F DROP)

Pipe Sizing and Notes

MODEL	SUPPLY PIPING SIZE (IN.) (1)		RETURN PIPING SIZE (IN.)			
			RETURN (2)		RETURN HEADER (2A)	RETURN BRANCH (QTY.) SIZE (2B)
	20°F DROP	40°F DROP	20°F DROP	40°F DROP	20°F DROP	20°F DROP
V903A	2	1-1/2	2	1-1/2	—	—
V904A	2	1-1/2	2	1-1/2	—	—
V905A	2	1-1/2	2	1-1/2	—	—
V906A	2-1/2	1-1/2	2-1/2	1-1/2	—	—
V907A	2-1/2	2	2-1/2	2	—	—
V908A	2-1/2	2	2-1/2	2	—	—
V909A	3	2	3	2	—	—
V910A	3	2-1/2	3	2-1/2	—	—
V911A	3	2-1/2	3	2-1/2	—	—
V912A	4	2-1/2	4	2-1/2	3	(2) 3

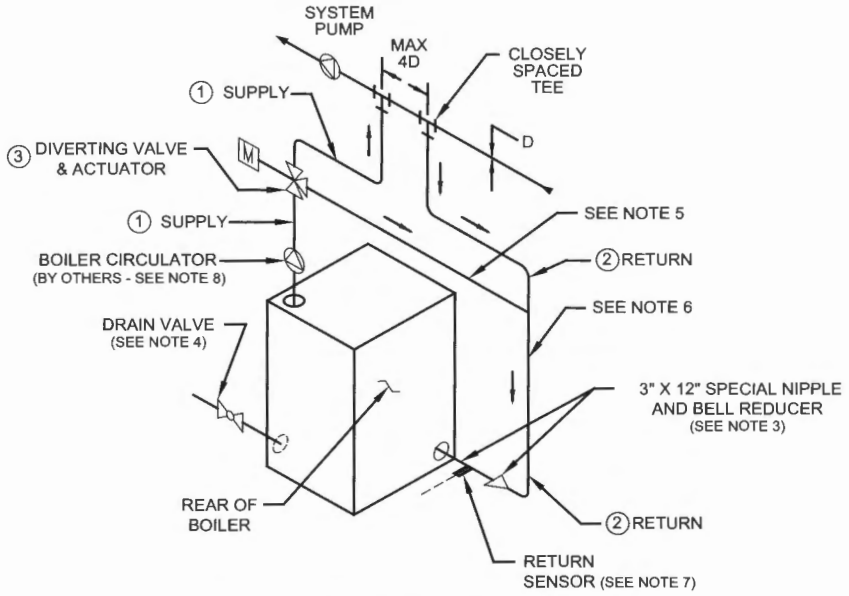
NOTES:

1. All piping is schedule 40.
2. Pipe sizes listed are based on a 20°F or 40°F differential (temperature drop). Select one to match application. Consult factory if boilers are used in low temperature applications or blending/mixing devices.
3. When specified return piping size is less than 3", install 3" X 12" nipple and appropriate size bell reducer directly into boiler return tapping as shown.
4. Drain valve — ball valve preferable, gate valve acceptable alternative (supplied by others).
   - Minimum valve size per ASME code is 3/4" NPT
5. Proper boiler circulator sizing is listed in RTC literature.
6. For multiple water boiler piping, consult factory.

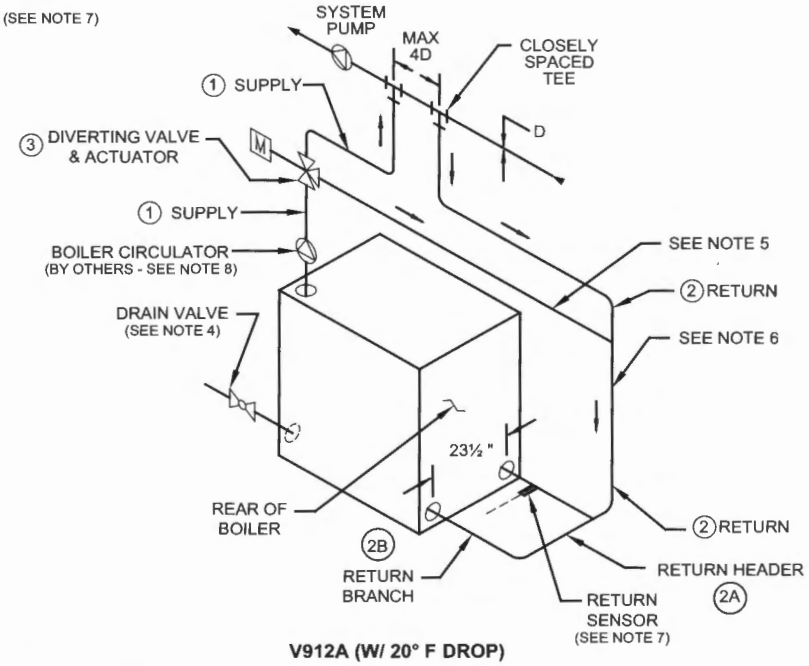
V9 Series Minimum Piping Recommendations — Water Boiler

Recommendation 3 — Use when:

- system return water is less than 135° F for prolonged periods of time
- system flow does impact flow through the boiler(ie. zoning, mixing)
- requires addition of RTC Return Temperature Control and accessories



V903A THRU V911A (W/ 20° F DROP)
V903A THRU V912A (W/ 40° F DROP)



V912A (W/ 20° F DROP)

Pipe Sizing and Notes

MODEL	SUPPLY PIPING SIZE (IN.) (1)		RETURN PIPING SIZE (IN.)			
			RETURN (2)		RETURN HEADER (2A)	RETURN BRANCH (QTY.) SIZE (2B)
	20°F DROP	40°F DROP	20°F DROP	40°F DROP	20°F DROP	20°F DROP
V903A	2	1-1/2	2	1-1/2	—	—
V904A	2	1-1/2	2	1-1/2	—	—
V905A	2	1-1/2	2	1-1/2	—	—
V906A	2-1/2	1-1/2	2-1/2	1-1/2	—	—
V907A	2-1/2	2	2-1/2	2	—	—
V908A	2-1/2	2	2-1/2	2	—	—
V909A	3	2	3	2	—	—
V910A	3	2-1/2	3	2-1/2	—	—
V911A	3	2-1/2	3	2-1/2	—	—
V912A	4	2-1/2	4	2-1/2	3	(2) 3

NOTES:

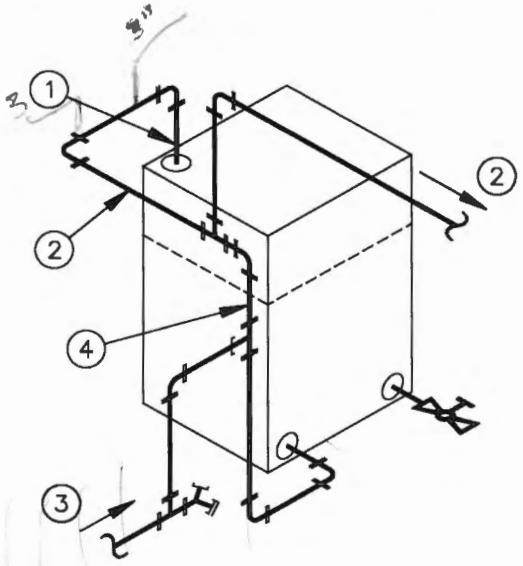
1. All piping is schedule 40.
2. Pipe sizes listed are based on a 20°F or 40°F differential (temperature drop). Select one to match application.
3. When specified return piping size is less than 3", install 3" X 12" nipple and appropriate size bell reducer directly into boiler return tapping as shown.
4. Drain valve — ball valve preferable, gate valve acceptable alternative (supplied by others).
   - Minimum valve size per ASME code is 3/4" NPT
5. Maximum linear feet of pipe from 3-way bypass port to sensor location = 11 feet. Bypass line shall be the same diameter as return ②
6. Minimum linear feet of pipe from point of mixing (where bypass meets return line) to sensor location = 4 feet.
7. Install special 3" x 12" nipple with 1/4" NPT side tapping closest to boiler. Where applicable, use bell reducer to adapt to recommended return pipe size.
8. Proper boiler circulator sizing is listed in RTC literature.

V9 Series Piping Recommendations — Steam Boiler

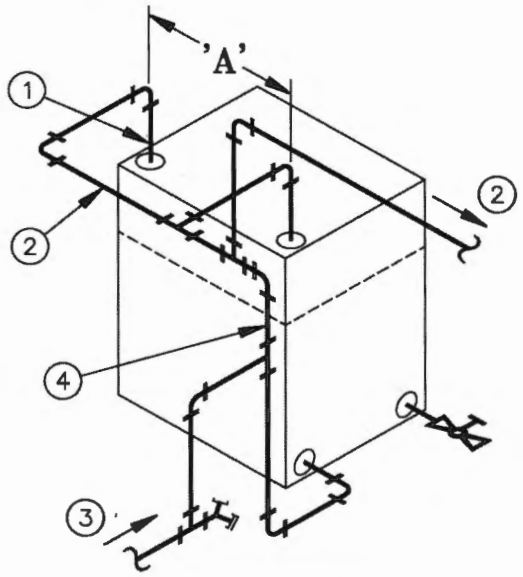
MODEL	PIPING SIZE (IN INCHES)				RISER SPACING (IN INCHES)	
	RISER (Qty.) SIZE (1)	HEADER & SUPPLY (2)	RETURN (3)	EQUALIZER (4)	'A'	'B'
V903A	(1) 3	3	1-1/2	2	—	—
V904A	(1) 4	4	2	2	—	—
V905A	(1) 4	4	2	2	—	—
V906A	(1) 4	4	2-1/2	2-1/2	—	—
V907A	(2) 4	6	2-1/2	2-1/2	36	—
V908A	(2) 4	6	2-1/2	2-1/2	42	—
V909A	(2) 4	6	2-1/2	2-1/2	48	—
V910A	(2) 4	6	3	3	54	—
V911A	(2) 4	6	3	3	60	—
V912A	(2) 4	6	3	3	30	36

NOTES:

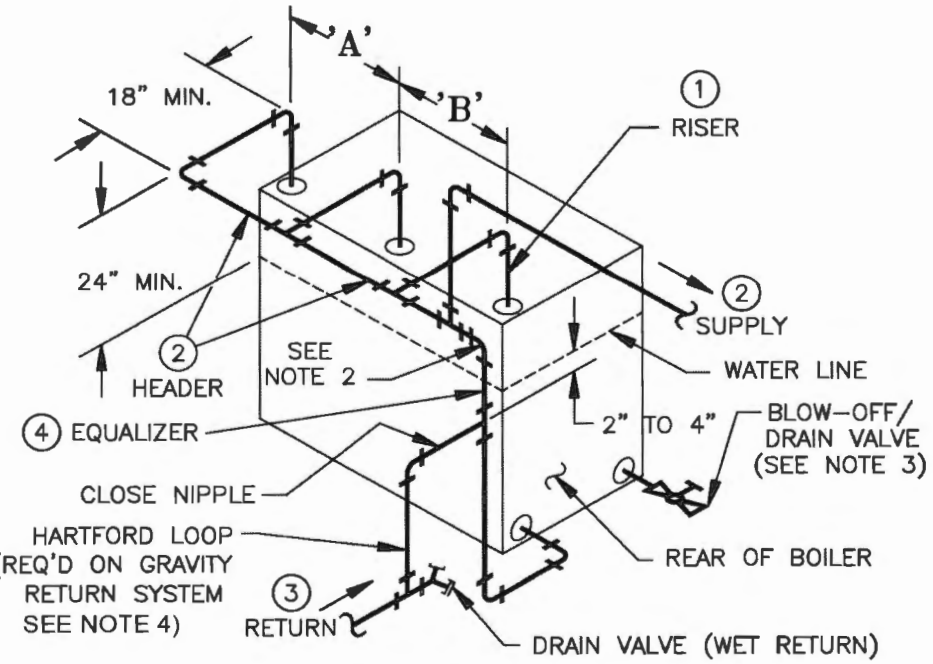
1. All piping is schedule 40.
2. To prevent condensate from being trapped in header, do not reduce equalizer elbow at header connection.
3. Drain/blowoff valve — ball valve preferable, gate valve acceptable alternative (supplied by others).
   - Minimum valve size per ASME code is 3/4" NPT 903A/905A; 1" NPT 906A/910A; 1-1/4" NPT 911A/912A.
   - Increasing the valve size will improve the blowdown operation.
   - In all cases, piping connection blowoff valve to boiler should be full size to the point of discharge.
4. For pumped return systems, see V9A installation manual.
5. For multiple steam boiler piping, consult factory.



V903A THRU V906A



V907A THRU V911A



V912A

V9 Series Burner Schedule

OIL BURNERS

BOILER MODEL	BECKETT		CARLIN		GORDON-PIATT		POWER FLAME		WEBSTER	
	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.
V903A	CF500	1/3	301CRD	1/4	—	—	—	—	—	—
V904A	CF800	1/3	301CRD	1/4	—	—	C1-OS	1/3	—	—
V905A	CF800	1/3	301CRD	1/4	R6.3-O	1/2	C1-OS	1/3	JB1O-02	1/4
V906A	CF1400	1/2	702CRD	1/2	R6.3-O	1/2	C1-OS	1/2	JB1O-03	1/3
V907A	CF1400	1/2	702CRD	1/2	R8-O	1/2	C1-OS	1/2	JB1O-03	1/3
V908A	CF1400	1/2	702CRD	1/2	R8.1-O	3/4	C2-OAS	3/4	JB1O-03	1/3
V909A	CF2300A	3/4	801CRD	3/4	R8.2-O	1	C2-OAS	3/4	JB1O-05	1/2
V910A	CF2300A	3/4	801CRD	3/4	R8.3-O	1-1/2	C2-OAS	3/4	JB1O-05	1/2
V911A	CF2500A	2	801CRD	3/4	R8.4-O	2	C2-OB	1-1/2	JB1O-07	3/4
V912A	CF2500A	2	801CRD-B	1-1/2	R8.4-O	2	C2-OB	1-1/2	JB1O-07	3/4

Standard Burner Motor Voltage:
Beckett – CF500, CF800, CF1400, and CF2300A are 120/60/1. CF2500A is 240/60/1.
Carlin – 301CRD and 702CRD are 120/60/1. 801CRD is 240/60/1.
Gordon-Piatt – R6.3-O, R8-O, R8.1-O and R8.2-O are 120/60/1. R8.3-O and R8.4-O are 240/60/3.
Power Flame – C1-OS is 120/60/1. C2-OAS and C2-OB are 240/60/1.
Webster – JB1O-02, JB1O-03, and JB1O-05 are 120/60/1. JB1O-07 is 240/60/1.

Optional Motor Voltage:
Most models have 208-240 or 480 volts/3phase available at additional cost as an option. Consult your Burnham Commercial sales representative.

GAS BURNERS*

BOILER MODEL	BECKETT			GORDON-PIATT			POWER FLAME C SERIES		POWER FLAME JR SERIES			WEBSTER	
	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES	BURNER MODEL	H.P.	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES	BURNER MODEL	MIN. GAS PRESSURE INCHES
V903A	CG10-1S	1/3	3.3	S4.2-G	1/3	7.2	—	—	JR15A-10	1/4	4.0	—	—
V904A	CG10-4S	1/3	3.7	S4.1-G	1/3	5.2	C1-G-10	1/3	JR30A-10	1/3	4.2	JB1G-02	5.0
V905A	CG10-5S	1/3	4.7	R6.3-G	1/2	6.4	C1-G-10	1/3	JR30A-12	1/3	5.9	JB1G-02	8.0
V906A	CG10-6S	1/3	5.5	R6.3-G	1/2	7.4	C1-G-12	1/2	JR30A-12	1/3	4.3	JB1G-02	5.0
V907A	CG15-3S	1/2	5.4	R8-G	1/2	6.1	C1-G-12	1/2	JR50A-15	1/3	5.4	JB1G-02	6.0
V908A	CG15-4S	1/2	6.2	R8.1-G	3/4	7.3	C2-G-15	1/2	JR50A-15	1/3	4.4	JB1G-03	8.0
V909A	CG25-2S	3/4	4.7	R8.2-G	1	5.8	C2-G-20A	3/4	JR50A-15	1/3	5.0	JB1G-05	6.0
V910A	CG25-3S	3/4	5.0	R8.3-G	1-1/2	5.8	C2-G-20A	3/4	—	—	—	JB1G-05	6.0
V911A	CG25-4S	3/4	4.9	R8.4-G	2	7.1	C2-G-20B	1	—	—	—	JB1G-07	7.0
V912A	CG50-2S	2	3.9	R8.4-G	2	6.4	C2-G-20B	1	—	—	—	JB1G-07	9.0

Standard Motor Voltage:
Beckett – All burners are 120/60/1.
Gordon-Piatt – S4.2-G, S4.1-G, R6.3-G, R8-G, R8.1-G, R8.2-G, and R8.3-G are 120/60/1. R8.4-G IS 240/60/3.
Power Flame C Series – C1-G-10, C1-G-12, C2-G-15 are 120/60/1. C2-G-20A and C2-G-20B are 240/60/1.
Power Flame JR Series – All burners are 120/60/1.
Webster –JB1G-02, JB1G-03 and JB1G-05 are 120/60/1. JB1G-07 is 240/60/1.

Optional Burner Motor Voltage:
Most models have 208-240 or 480 volts/3phase available at additional cost as an option. Consult your Burnham Commercial sales representative.
*For gas connection size on Gordon-Piatt, Webster and Power Flame C burners and minimum gas pressure for C burner see gas/oil burner chart.

GAS/OIL BURNERS

BOILER MODEL	GORDON-PIATT**			POWER FLAME - C SERIES				WEBSTER**		
	BURNER MODEL	H.P.	INLET GAS CONNECTION INCHES	BURNER MODEL	H.P.	INLET GAS CONNECTION INCHES	MIN. GAS PRESSURE INCHES	BURNER MODEL	H.P.	INLET GAS CONNECTION INCHES
V903A	S4.2-GO	1/3	3/4	—	—	—	—	—	—	—
V904A	S4.1-GO	1/3	1	C1-GO-10	1/3	1	4.4	—	—	—
V905A	R6.3-GO	1/2	1	C1-GO-10	1/3	1	4.4	JB1C-02	1/4	1-1/4
V906A	R6.3-GO	1/2	1-1/4	C1-GO-12	1/2	1	4.8	JB1C-03	1/3	1-1/4
V907A	R8-GO	1/2	1-1/4	C1-GO-12	1/2	1	5.2	JB1C-03	1/3	1-1/2
V908A	R8.1-GO	3/4	1-1/4	C2-GO-15	3/4	1	6.4	JB1C-05	1/2	1-1/2
V909A	R8.2-GO	1	1-1/2	C2-GO-20A	1	1-1/4	4.9	JB1C-05	1/2	1-1/2
V910A	R8.3-GO	1-1/2	1-1/2	C2-GO-20A	1	1-1/4	5.2	JB1C-05	1/2	1-1/2
V911A	R8.4-GO	2	1-1/2	C2-GO-20B	1-1/2	1-1/4	5.4	JB1C-07	3/4	2
V912A	R8.4-GO	2	2	C2-GO-20B	1-1/2	1-1/2	5.0	JB1C-10	1	2

Standard Burner Motor:
Gordon-Piatt – S4.2-GO, S4.1-GO, R6.3-GO, R8-GO, R8.1-GO and R8.2-GO are 120/60/1. R8.3-GO and R8.4-GO are 240/60/3.
Power Flame – C1-GO-10 and C1-GO-12 are 120/60/1. C2-GO-15, C2-GO-20A and C2-GO-20B are 240/60/1.
Webster – JB1C-02, JB1C-03, and JB1C-05 are 120/60/1. JB1C-07 and JB1C-10 are 240/60/1.

Optional Burner Motor Voltage:
Most models have 208-240 or 480 volts/3phase available at additional cost as an option. Consult your Burnham Commercial sales representative.
**For minimum gas pressure requirements, see gas burner chart.

Specifications

BURNHAM COMMERCIAL
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V9 RATINGS

BOILER MODEL (1)	BOILER H.P.	GROSS OUTPUT MBH (2)	NET I=B=R RATINGS (2) (3)			BURNER INPUT		NET FIREBOX VOLUME (CU. FT)	PRESSURE IN FIREBOX (IN. WTR. COLUMN)	I=B=R VENT DIA. (IN.)
			STEAM		WATER MBH	OIL (GPH) (4)	GAS (MBH)			
			MBH	SQ. FT.						
V-903A	10.3	347	260	1083	302	3.1	447	3.2	.33	7
V-904A	14.4	483	362	1508	420	4.2	606	4.8	.38	7
V-905A	19.3	646	485	2021	562	5.6	808	6.4	.31	8
V-906A	24.1	808	606	2525	703	7.0	1010	7.9	.38	8
V-907A	28.6	959	719	2996	834	8.3	1198	9.5	.36	8
V-908A	33.2	1110	833	3471	965	9.6	1386	11.0	.35	10
V-909A	40.1	1342	1014	4225	1167	11.6	1674	12.6	.35	10
V-910A	45.6	1528	1168	4867	1329	13.2	1905	14.2	.40	10
V-911A	51.2	1714	1323	5513	1490	14.8	2136	15.7	.45	12
V-912A	56.8	1900	1474	6142	1652	16.4	2367	17.3	.49	12

1. Suffix "S" indicates steam boiler, "W" indicates water boiler. Suffix "G" indicates gas-fired, "O" indicates oil fired and "GO" indicates combination gas/oil fired.
2. Boiler ratings are based on 12.5% CO2 on oil; 9.7% CO2 on gas, and .10 in. water column pressure at boiler flue outlet.
3. I=B=R net ratings shown are based on piping and pick up allowances which vary from 1.333 to 1.289 for steam and 1.15 for water. Consult manufacturer for installations having unusual piping and pick up requirements, such as intermittent system operation, extensive piping systems, etc.
4. The I=B=R burner capacity in GPH is based on oil having a heat value of 140,000 BTU per gallon.

Ratings shown above apply to altitudes up to 1000 feet on oil and 2000 feet on gas. For altitudes above those indicated, the ratings should be reduced at the rate of 4% for each 1000 feet above above sea level.

NOTE:
Maximum allowable working pressure (MAWP):

Steam:	15 PSI
Water – USA:	80 PSI (standard relief valve provided is 50 PSI) (30 PSI and 80 PSI relief valve optional)
Water – Canada:	45 PSI (standard relief valve provided is 45 PSI) (30 PSI relief valve optional)

STANDARD EQUIPMENT

ALL BOILERS: Sections unassembled, flush insulated jacket, burner mounting plate, burner adapter plate, **rear flue outlet damper** (top outlet optional), flue canopy, rear observation port cover, target wall (V-903A), and miscellaneous plugs, bushing and fittings, L4006B (low fire hold aquastat).

STEAM TRIM: 15 PSI safety valve, L404A pressuretrol, gauge glass assembly, steam gauge

WATER TRIM: 50 PSI safety relief valve, L4006A high limit, pressure/temperature gauge

OIL BOILERS: Flange mounted flame retention oil burner furnished with 2 stage fuel unit, primary control and dual oil valves

GAS BOILERS: Flange mounted gas burner with standard controls meeting the latest UL requirements, dual gas valves, gas-electric ignition with proven gas pilot, flame rod on JR burner, ultra violet flame detector on others, electronic programming controls and components are factory wired in a burner mounted control panel (available on S4 burner as remote mounted panel only).

GAS/OIL BURNERS: Flange mounted combination gas/oil burner with standard controls meeting latest UL requirements, manually operated fuel transfer switch for dual fuel changeover, dual gas valves and oil valves, electric ignition with proven gas pilot on both fuels (direct spark ignition of oil is optional), ultra-violet flame detector, electronic programming controls and components are factory wired in a burner mounted control panel (available on S4 burner as remote mounted panel only).

OPTIONAL EQUIPMENT

Assembled sections; completely packaged (includes manual reset high limit and manual reset low water cutoff); packaged and fire-tested; **top outlet flue damper**; tankless heaters; side inspection tappings with brass plugs; 30 PSI and 80 PSI safety relief valves (water); combustion and hydronic controls to meet special applications including F.M., I.R.I., and ASME CSD-1.

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