ORDINANCE No. 119478

COUNCIL BILL No. 112645

AN ORDINANCE relating to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code, Chapter 22.450, as adopted by Ordinance 117723 and amended by Ordinance 118654, amending Section 22.450.010 of the Seattle Municipal Code, and the following Sections of the Seattle Boiler and Pressure Vessel Code: Section 100, Exemptions from this Code; Section 160, Definitions; Section 170, Construction and Installation Requirements; Section 190, Boiler Installation Permits; Section 220, Inspection Requirements for New Installations; Section 230, Reinspection of Existing Installations; Section 290, Combustion Air; Section 310, Controls, Safety Devices, and Instrumentation; Section 320, Boilers Certified as Automatic; Section 360, Clearance Requirements; Section 370, Underground Installations; Section 380, Boiler rooms/Enclosures; Section 390, Fuel Piping; Section 400, Steam and Water Piping; Section 410, Pressure Reducing Valves; Section 420, Elevator Machine Rooms/Spaces and Hoistways; and adding a new Section 500, Appendices.

COMPTROLLER FILE No.

Introduced: 4-19-99	By: Drago
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Passed over Veto:	Veto Sustained:

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Honorable President:

Your Committee on

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report that we have considered the sa

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SMEAD 45 YSP 17703

Law Department

The City of Seattle--Legislative Department

Date Reported and Adopted

REPORT OF COMMITTEE

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that we have considered the same and respectfully recommed that the same:

(M)

5/18/99 BECD Do approve as amended 3-0

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24-99 Full Council: Passed 9-0

Committee Chair

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ORDINANCE 119478

AN ORDINANCE relating to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code, Chapter 22.450, as adopted by Ordinance 117723 and amended by Ordinance 118654, amending Section 22.450.010 of the Seattle Municipal Code, and the following Sections of the Seattle Boiler and Pressure Vessel Code: Section 100, Exemptions from this Code; Section 160, Definitions; Section 170, Construction and Installation Requirements; Section 190, Boiler Installation Permits; Section 220, Inspection Requirements for New Installations; Section 230, Reinspection of Existing Installations; Section 290, Combustion Air; Section 310, Controls, Safety Devices, and Instrumentation; Section 320, Boilers Certified as Automatic; Section 360, Clearance Requirements; Section 370, Underground Installations; Section 380, Boiler rooms/Enclosures; Section 390, Fuel Piping; Section 400, Steam and Water Piping; Section 410, Pressure Reducing Valves; Section 420, Elevator Machine Rooms/Spaces and Hoistways; and adding a new Section 500, Appendices.

Section 1. Section 22.450.010 of the Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

22.450.010 Adoption of Seattle Boiler and Pressure Vessel Code.

The Seattle Boiler and Pressure Vessel Code is hereby adopted and by this reference made a part of this subtitle. A copy of the Seattle Boiler and Pressure Vessel Code, with April 1999 amendments, is kept on file at the Department of Design, Construction and Land Use.

Section 2. Section 100 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was last amended by Ordinance 118654, is amended as follows:

Section 100 - Exemptions from this Code

The following boilers and pressure vessels and other equipment described shall not be required to comply with this code:

A. In other than Group A, E, and I occupancies, listed potable hot water heaters (fired, electric, thermal, solar, and indirect) and pool heaters, provided none of the following limitations are exceeded:

A heat input of 200,000 Btu/h, or
A water temperature of 210°F((.)), or
A nominal water-containing capacity of 120 gallons, or
A pressure of 160 pounds per square inch.

* * *

D. Unfired pressure vessels located in Groups B, F, H, M, R, S, and U Occupancies having a volume of 5 cubic feet or less and operated at pressures not exceeding 250 psi.

E. Unfired pressure vessels located in Group A, E, and I occupancies when they are:
1. less than 1 ½ cubic feet (11.25 gallons) in volume with safety valve setting of 150 psi or less, or
2. less than 6 inches in internal diameter, and less than 5 cubic feet (37.5 gallons) in volume with a safety valve set at any pressure.

((~~E.~~)) F. Unfired pressure vessels of any size, other than those containing steam, that are protected by approved pressure relief devices set to operate at a pressure not exceeding 15 psi.

((~~F.~~)) G. Any boiler or pressure vessel subject to regular inspection by federal inspectors or licensed by federal authorities.

((~~G.~~)) H. Combination water heaters listed for both potable water supply and space heating listed under ANSI Z21.10.3, "Gas Water Heaters", 1988 Addenda or later, that are used for both potable water and space heating.

((~~H.~~)) I. Electric Boilers:
1. Having a vessel volume not exceeding one and one-half cubic feet; and
2. Having a maximum allowable working pressure of eighty (80) psi; and
3. If constructed after June 10, 1994, constructed to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, or listed or otherwise certified by a nationally recognized testing agency or recognized foreign testing laboratory.

((~~I.~~)) J. Water storage tanks with no air cushion and no energy or heat source.

Section 3. Section 160 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 160 - Definitions

Certain words and terms used in this code, unless clearly inconsistent with their context, shall ((~~mean as follows~~)) have the meanings given below. When a definition is not found below, the definitions of the American Society of Mechanical Engineers' CSD-1-1998, Controls and Safety Devices for Automatically Fired Boilers (CSD-1, see Section 170) shall be used. When a definition is found here and in CSD-1, the definition given in this code shall govern.

* * *

BOILER is a closed vessel ((~~used for heating water or liquid, or for generating steam or vapor by direct application of heat from combustible fuels or electricity~~)) in which water is heated, steam is generated, steam is superheated, or any combination thereof, under pressure or vacuum by the direct application of heat. The term boiler shall also include fired units for heating or vaporizing liquids other than water where these systems are complete within themselves.

* * *

BOILER((,)) CERTIFIED AS AUTOMATIC is either a boiler installed prior to the adoption of CSD-1 which complies with Section 320 and Table 320-A of this code and for which an automatic certification installation permit has been finalized, or any other boiler installed after the adoption of CSD-1 for which an automatic certification permit has been finalized.

* * *

BOILER, HOT-WATER SUPPLY is a boiler ((~~having a volume exceeding 120 gallons, or a heat input exceeding 200,000 Btu/h or an operating temperature exceeding 210°F, or a~~)) exceeding any of the limitations of Section 100 A, but not exceeding pressure ((~~exceeding~~)) of 160 psi (1100 kPa), or a temperature of 250°F (121°C), that provides hot water to be used externally to itself.

BOILER, LOW–PRESSURE HOT–WATER–HEATING is a boiler ((~~furnishing~~)) from which hot water is circulated for heating purposes at pressures not exceeding 160 pounds per square inch (1100 kPa) and at temperatures not exceeding 250°F. (121°C((~~,~~))), then returned to the boiler.

* * *

BOILER, NON CODE is a boiler not constructed in accordance with ((~~the requirements~~)) Section 170.1 of this ((~~ordinance~~)) code.

* * *

BOILER, POWER is a boiler in which steam or vapor is generated at pressures exceeding 15 psi.

((~~**BOILER, RECYCLING** is any type of boiler in which the heat source cycles automatically in response to a control system.~~))

BOILER, RENTAL is any type of boiler that is owned by an entity for the purpose of renting to other entities for temporary or long-term usage.

BOILER, USED shall mean any boiler that is to be installed in Seattle that has been in previous service.

((~~**Btu/h** is British thermal units input per hour, unless otherwise noted.~~))

* * *

DEPARTMENT is the Department of Design, Construction and Land Use or a representative of the Director.

* * *

DIRECTOR is the Director of the Department of Design, Construction and Land Use and authorized representatives.

* * *

FUEL TRAIN is a series of valves, regulators, and controls, between the burner and the source of fuel, that regulates and controls the flow of fuel to the burner.

* * *

INSPECTOR, DEPARTMENT is an inspector employed by the Department of Design, Construction and Land Use.

* * *

PILOT is a small burner ((~~smaller than the main burner, which is ignited by a spark or other independent and stable ignition source, and which provides ignition energy required~~)) that is used to ((~~immediately~~)) light off (ignite) the main burner.

PILOT, CONTINUOUS, (also known as constant burning pilot), is a pilot that burns without turndown throughout the entire ((~~period that~~)) time the boiler is in service, whether ((~~or not~~)) the main burner is firing or not.

PILOT, INTERMITTENT is a pilot ((~~which burns during light-off and while the main burner is firing, and which is shut off with the main burner~~)) that is automatically lighted each time there is a call for heat. It burns during the entire period the main burner is firing.

PILOT, INTERRUPTED is a pilot ((~~which burns during light-off and which is shut off during normal operation of the main burner~~)) that is automatically lighted each time there is

a call for heat. The pilot fuel is cut off automatically at the end of the main burner flame-establishing period.

POTABLE WATER HEATERS (FIRED, ELECTRIC, THERMAL, SOLAR, AND INDIRECT) are ((~~used to heat potable water~~)) closed vessels in which water is heated by the combustion of fuels, electricity, or any other source, and withdrawn for use external to the system and which do not exceed any of the following: A heat input of 200,000 Btu/h, ((~~or~~)) a water temperature of 210°F((~~,~~)), ((~~or~~)) a nominal water-containing capacity of 120 gallons, or a pressure of 160 pounds per square inch.

PRESSURE VESSEL (((~~Unfired~~))) is a closed unfired container under internal pressure((~~, having a nominal internal diameter exceeding 6 inches and a volume exceeding 1½ cubic feet~~)).

PRESSURE VESSEL, NON CODE, is a pressure vessel not constructed in accordance with the requirements of Section 170.1 of this ((~~ordinance~~)) code.

PRESSURE VESSEL, USED shall mean any pressure vessel that is to be installed in Seattle that has been in previous service.

* * *

Section 4. Section 170 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 170 - Construction and Installation Code Requirements

170.1 The construction of boilers and pressure vessels and the installation thereof shall conform to minimum requirements for safety from structural and mechanical failure and excessive pressures. Compliance with the applicable section of the American Society of Mechanical ((~~Engineering's~~)) Engineers' (A.S.M.E.) Boiler and Pressure Vessel Code and the American National Standards Institute (A.N.S.I.) B31.1.0 Power Piping Code, together with addenda thereto is required.

170.1.1 Where this code calls for construction in accordance with any Section of the ((~~American Society of Mechanical Engineering's (~~)) A.S.M.E.((~~)~~)) Boiler and Pressure Vessel Code, the exemptions listed in Section 100 of this code shall prevail over any and all exemptions listed in any Section of the A.S.M.E. Code.

170.1.2 Adoption of A.S.M.E. CSD-1-1998

Except as otherwise stated herein, all fossil fuel fired boiler installations with fuel input ratings of less than 12,500,000 Btu/hr shall comply with the fuel train requirements of

A.S.M.E. CSD-1-1998, Controls and Safety Devices for Automatically Fired Boilers (CSD-1), which requirements are hereby adopted and incorporated by reference. When any conflict exists between CSD-1 and this code, the requirements of this code shall prevail. Alterations/modifications of existing burner controls require compliance of the entire fuel train with CSD-1.

170.1.2.1 Seattle Modifications to CSD-1

CSD-1 is modified as follows:

A. **CG-110 Scope, paragraph (b).** Chapter 100-A of this code exempts some pool heaters. Those not exempted are not required to comply with CSD-1, but must comply with all other requirements of this code.

B. **CG-130 Exclusions.** Installations of potable hot water heaters and lined hot water supply boilers are not required to comply with CSD-1. However, installation of lined hot water supply boilers must comply with all other requirements of this code.

C. **CG-220 Installation.** This chapter is adopted with the following modifications or clarifications:

1. Installation of boilers and burners, and certification of boilers as automatic or monitored shall be done only under permit in compliance with the requirements of Section 220 of this code.
2. When the burner of an existing installation is replaced, or the existing controls of a boiler have been altered or modified, the entire fuel train shall comply with CSD-1.
3. The requirements of Section 360 of this code shall apply in full.
4. Under paragraph (d): when modules of a modular boiler are replaced, the replacement shall also comply with the requirements of this code.

D. **CG-260 Combustion Air.** Not adopted. This chapter is replaced in its entirety by the requirements of Section 290 of this code and 1997 Seattle Mechanical Code Chapter 7 (see Appendix A), as amended. The following shall apply when combustion air is provided by means other than natural air circulation:

1. Louvers and grilles that are not fixed in the full open position shall be interlocked with the boiler(s) so that the boiler(s) will not start the pre-purge cycle unless the louvers/grilles are in the full open position. The interlock shall be placed on the driven member.
2. Fans supplying air to the boiler room for combustion shall be interlocked with the burner so that air flow is proven during boiler operation.
3. Fire dampers shall not be installed in the combustion air supply to the boiler room.

E. **CG-320 Installation** is adopted with the following modification: Installation of boilers and burners, and certification of boilers as automatic or monitored shall be

done only under permit in compliance with the requirements of Section 220 of this code.

F. **CG-610 Lockout** is adopted with the following addition to the end of paragraph CG-610: Resetting of safety controls from a place other than the boiler on which the safety device is installed is prohibited.

G. **Part CF - Combustion Side Control** is adopted with the following additions:

1. **Fuel Piping:** The fuel piping requirements of Chapter 13 of the 1997 Seattle Mechanical Code (see Appendix D), as amended, shall take precedence over the requirements of CSD-1.
2. **Boilers Certified as Automatic** must comply with the requirements of Sections 320.2 through 320.5 of this code.

170.2 Non-code boilers and non-code unfired pressure vessels shall not be installed or reinstalled.

170.3 Boilers, burner, and boiler-burner assemblies shall be listed by a nationally recognized testing agency and shall be installed in accordance with the requirements of the listing.

Section 5. Section 190 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 190 - Permits Required - Installation Permits

190.1 An installation permit shall be obtained from the Director prior to the installation or replacement of new and used boilers and pressure vessels, the installation of rental boilers, and to apply for the certification of a boiler as Automatic or Monitored. Alteration or modification of existing control systems on automatic boilers, replacement of a fuel burner, changing fuels or adding a different fuel to a combination burner previously operated on a single fuel, and the conversion of solid-fuel-fired boilers as permitted by Section 320.5((.)) shall also require a permit.

* * *

Section 6. Section 220 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 220 - Inspection Requirements - New Installations

220.1 Boiler installations upon completion shall have controls set, adjusted and tested by the installing contractor. A complete control diagram of a permanent legible type, together with complete boiler operating instructions, shall be furnished by the installer for each installation. Rental boilers and used boilers are subject to hydrostatic testing, non-destructive testing, or other special testing as required by the Director.

* * *

Section 7. Section 230 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 230 - Existing Installations - Reinspection.

The Director shall inspect all boilers and pressure vessels operated under permit at such intervals as deemed necessary but in no event less frequently than noted below:

230.1 Inspection of boilers, boiler controls, and boiler safety devices shall be as follows:

A. **External Inspections**: All boilers shall be inspected externally annually. ((~~Where construction and operating conditions permit, they shall, in addition, be subject to inspection internally annually.~~)) All required boiler controls and safety devices shall be tested during the external inspection to determine that they are operating properly.

B. **Internal Inspections**: Where construction and operating conditions permit, boilers shall be subject to an internal inspection as follows:

1. Low pressure hot water heating boilers not using corrosion inhibitors: shall be inspected internally at least every four years;
2. Low pressure hot water heating boilers using corrosion inhibitors, glycol, or oil: the frequency of internal inspections will be determined by the inspector depending upon such factors as history of the installation, adequacy of corrosion inhibitors, tightness of the system, and other factors observed and considered by the inspector; and
3. All other boilers, every year.

C. For steam boilers, an internal inspection of the low water cutoff chamber and connecting piping is required in all cases.

* * *

230.3 Potable water heaters located in any Group A, E, or I Occupancy shall be inspected externally biennially.

* * *

230.5 - Inspection by Insuring Companies. Inspection of boilers and pressure vessels ((~~covered by insurance~~)) may be made by employees of the insuring company holding commissions from the National Board of Boiler and Pressure Vessel Inspectors, subject to approval of the Director. Approved insuring company inspectors (Insurance Inspectors) shall make reports on prescribed forms on inspections authorized by the Director. The reports shall be filed with the Department. Insurance inspectors shall notify the Director immediately of suspension of insurance because of dangerous conditions and within 30 days for new insurance in effect and discontinuance of insurance coverage.

* * *

Section 8. Section 290 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 290 - Combustion Air

Combustion air shall be provided in accordance with Chapter 7 of the Seattle Mechanical Code (see Section 170 and Appendix A of this code).

Section 9. Section 310 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 310 - Controls, Safety Devices, and Instrumentation

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310.5 - Pressure and Temperature Relief.

310.5.1 The discharge from liquid relief valves shall be piped to within 18 inches of the floor or to an open receptacle, and when the operating temperature is in excess of 212°F((~~,~~)), shall be equipped with a splash shield or centrifugal separator.

310.5.2 Safety valve discharge from boilers and pressure vessels containing steam shall be directed upward to a minimum of 6 feet above the boiler room floor or horizontally to an inaccessible area of the boiler room. When the discharge from safety valves would result in a hazardous discharge of steam inside the boiler room, or when the discharge of multiple safety valves on boilers exceeds the capacity of 5,000 pounds of steam per hour, such discharge shall be extended outside the boiler room to a safe location.

310.5.3 When 310.5.2 cannot be met, the boilers in the particular boiler room shall be provided with an emergency shutdown switch located outside the boiler room. The purpose

of such a switch is to allow the shutdown of boiler(s) without having to enter the boiler room.

310.5.4 No valve of any description shall be placed between the safety or relief valve and the boiler, nor on the discharge pipe between the safety valve and the atmosphere.

310.6 - Low Water Cutoff

310.6.1 Every water boiler, other than manually fired, shall be equipped with a manual reset type low-water cutoff except that a coil-type boiler or a water-tube boiler which requires forced circulation to prevent overheating of the coils or tubes shall have a flow-sensing device installed in the outlet piping in lieu of the low-water cutoff. The required flow switch (if applicable) or the required manual reset type low-water cutoff((~~, or flow switch as applicable,~~)) shall be mounted so as to prevent damage to the boiler and to permit testing of the low-water cutoff without draining the boiler system. Manually operated and power actuated isolation valves between the low water cutoff and the boiler are prohibited. Delay functions incorporated in any low water cut-off or flow switch device will require the pre-approval of the Director. Delay functions not installed in accordance with the manufacturer's approvals shall not be used.

> **Exception:** Vertical tube hot water supply boilers, such as those bearing the A.S.M.E. "HLW" stamp, that are directly connected to, and pressurized by the public water supply, need not be equipped with a low water cutoff or flow switch.

310.6.2 Every steam boiler, other than manually fired, shall be equipped with two low-water cutoffs. The lower of the two cutoffs shall be equipped with a manual reset device.

310.6.3 In installations where two or more low-water cutoffs are installed, the cutoffs shall be separately piped where feasible.

310.6.4 Water Feeding Devices. All steam, vapor or water boilers shall be equipped with an automatic water feeding device. For steam boilers and boilers having an operating water level, the water feeder shall be controlled by the actual water level in the boiler.

> **Exception:** Boilers which have a constant attendant who has no other duties while the boiler is in operation.

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Section 10. Section 320 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 320 - Boilers Certified as Automatic ((~~Boilers~~)).

320.1 Boilers certified as automatic ((~~boilers~~)) shall be equipped with controls and limit devices as set forth in Table 320-A.

320.2 Boilers certified as automatic ((~~boilers~~)) shall also be equipped with the following gauges, as applicable: oil temperature, oil suction pressure, high and low gas pressure, stack temperature and windbox pressure. Feedwater systems for automatic boilers shall not require any manual operation.

320.3 A copy of the approved wiring diagram for ((~~an~~)) a boiler certified as automatic ((~~boiler installation~~)) shall be permanently and prominently displayed, under protective covering, in the boiler room. Such diagram shall include the coding of the actual wiring by color or by number to permit a ready check of the system.

320.4 All boilers certified as automatic ((~~gas- and oil-fired boilers~~)) of ((~~over~~)) 12,500,000 Btu/h and over shall also comply with the installation requirements of N.F.P.A. ((~~Standard No. 85 or No. 85B, 1985 edition~~)) 8501, 8502, 8503, 8504.

* * *

Section 11. Section 360 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 360 - Clearance Requirements

* * *

D. Adequate clearance for access and to permit entry shall be provided for pressure vessels. Pressure vessels equipped with manhole openings shall have a minimum of five feet clearance from any obstruction. All other inspection openings shall be at least 18 inches from any obstruction.

Section 12. Section 370 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 370 - Underground Installations

Where necessary to install a pressure vessel underground, it shall be enclosed in a concrete or masonry pit. If the pit is to be covered, it shall be equipped with a removable cover so that inspection of the entire shell and heads of the vessel can be made. Clearance requirements shall be in accordance with Section 360 of this code.

Section 13. Section 380 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 380 - Boiler Rooms / Enclosures

* * *

380.5 - Platforms Around Boilers

Platforms shall be provided allowing safe access to each boiler when the boiler controls, valves, manholes, or casing openings are over ten feet above the floor.

Section 14. Section 390 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was last amended by Ordinance 118654, is amended as follows:

Section 390 - Fuel Piping

* * *

C. Fuel piping shall conform to the provisions referenced in Appendix ((~~B, Chapter 13 of the Seattle Mechanical Code~~)) D and E of this code.

Section 15. Section 400 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 400 - Steam and Water Piping

* * *

400.1 - Materials and Construction

* * *

C. Marking. Materials and devices shall be suitable identified. In addition to the incised marking required in the standards, all hard drawn copper tubing shall be marked by means of a continuous and indelible colored stripe, at least ¼ inch in width, as follows:

((~~D.~~))1. Type L – Blue

2. Type K – Green
3. Type M – Red

((E.)) D. Protective Coatings. Protective coatings shall be watertight, durable, heat resistant, electrically non-conductive, and tightly adhere to the pipe.

((F.)) E. Insulation. Coverings or insulation used on hot-water or steam pipes shall be of materials suitable or the operating temperature of the system. The insulation, jackets, and lap-seal adhesives shall be tested as a composite product and shall have a flame spread of not more than 25 and a smoke-developed rating of not more than 50 when tested in accordance with U.B.C. Standard 8-1.

((G.)) F. Hangars and anchors. Hangers and anchors shall be suitable for the use intended.

G. Galvanized Piping and Fittings. Galvanized piping and fittings are prohibited.

H. Plastic Air Piping. Certain plastic pipes, limited to those so labeled and/or certified by the manufacturer for such use, are acceptable for compressed air service. Due to the effect of temperature, lubricants, and other physical factors on the allowable pressure, some restrictions may be imposed and their use requires case-by-case approval by the Director. CPVC or PVC piping for compressed air service is not allowed.

((**400.2 - Polybutylene Tubing**

Those portions of the hot-water piping systems in which the continuous pressure-temperature relationship does not exceed the following may be constructed of polybutylene pipe or tubing of SDR-11 conforming to specification ASTM D 3309.

TEMPERATURE (°F.)	**PRESSURE (PSI)**
73	200
180	100
200	80

Polybutylene also may be used for applications requiring up to one year total exposure at conditions of 210°F., 150 psi, typical conditions for temperature and pressure-relief valve discharge lines in heating systems.

A. Materials and construction.

(1) PB pipe and tubing. Pipe shall be IPS or copper tube size polybutylene, both SDR-11 conforming to ASTM D 3309.

(2) Fittings. Fittings shall be of polybutylene or metal.

(3) Insulation. Coverings and insulation used on hot-water pipes shall be of materials suitable for the operating temperature of the system. The insulation, jackets and lap-seal adhesives shall be tested as a composite product and shall have a flame spread of not more than 25 and a smoke-developed rating of not more than 50 when tested in accordance with U.B.C. Standard No. 8-1.

(4) Gaskets. Flanged PB systems may be installed without gaskets.

(5) Hangers, sleeves and anchors. Hangers, sleeves and anchors shall be suitable for the use intended as recommended by the manufacturer's installation instructions.

(6) Standards. All piping, tubing, valves, joints, fittings, devices and materials shall be free of defects and comply with nationally recognized standards approved by the Department.

(7) Marking. Materials and devices shall be suitably identified.

B. Fabrication of joints. Joints shall be made by one or more of the following methods:

(1) Socket fusion. Polybutylene socket fittings may be heat fused to the pipe.

(2) Crimp/Insert fittings. Insert fittings of metal with crimp rings of aluminum or copper may be used.

(3) Compression fittings. Metallic or polybutylene fittings utilizing compression seals are acceptable.

(4) Transition fittings. Connections to other piping materials shall be made by approved types of special transition fittings.

C. Changes in direction. Changes in direction shall be made by the appropriate use of fittings or with pipe bends having a radius of not less than 10 diameters of the pipe. No forming equipment or heating is required.

D. Hangers and supports. Piping and equipment shall be adequately supported to the satisfaction of the Director. Hot-water piping shall be supported, anchored and provided with swing joints, expansion loops or joints, or utilize the pipe's flexibility to avoid excessive strain on piping, equipment or the building structure to the satisfaction of the Director.))

Section 16. Section 410 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 410 - Pressure Reducing Valves

A. Where pressure reducing valves are used, one or more relief or safety valves and pressure gauges shall be provided on the low pressure side of the reducing valve ((in case the piping or equipment on the low pressure side does not meet the requirements for full initial pressure)). The relief or safety valves shall be located adjoining to or as close as possible to the reducing valve. Proper protection shall be provided to prevent injury or damage caused by the escaping steam from the discharge of relief or safety valves if vented to the atmosphere. The combined discharge capacity of the relief valves shall be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve sticks open.

B. The use of a hand-controlled ((by-passes)) bypass around a reducing valve((s)) is permissible. ((The by-pass, if used around a reducing valve, shall not be greater in capacity than the reducing valve unless the piping or equipment is adequately protected by relief valves or meets the requirements of the high pressure system. It is mandatory that a pressure gage as well as a relief valve be installed on the low pressure side of a reducing valve)) The capacity of the bypass shall not exceed the capacity of the reducing valve. Unless all the equipment downstream of the reducing station meets the requirements of the high pressure system, the low pressure side shall be protected by one or more safety valves having adequate capacity.

Section 17. Section 420 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 420 - Elevator Machine Rooms/Spaces and Hoistways

Pipes conveying gases, vapors or liquids which are not used in connection with the operation of the elevator shall not be installed in any hoistway, machine room or machinery space.

Appendices

Appendix A (Chapter 7, Seattle Mechanical Code, "Combustion Air")

Appendix B (Chapter 8, Seattle Mechanical Code, "Chimneys and Vents")

Appendix C - Occupancy Descriptions, Seattle Building Code Table 3-A.

Section 18. A new Section 500 is added to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code Chapter 22.450, to read as follows:

Section 500 - Appendices

The following code provisions, as now or hereinafter amended, are adopted as appendices to the Seattle Boiler and Pressure Vessel Code.

Appendix A - Seattle Mechanical Code Chapter 7, *Combustion Air*

Appendix B - Seattle Mechanical Code Chapter 8, *Chimneys and Vents*

Appendix C - Seattle Building Code Table 3-A, *Occupancy Descriptions*

Appendix D - Seattle Mechanical Code Chapter 13, *Fuel Gas Piping*

Appendix E - Seattle Mechanical Code Chapter 16 Part III, *Recognized Standards*

Section 19. This ordinance shall take effect and be in force thirty (30) days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten (10) days after presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.

Passed by the City Council the 24th day of May, 1999, and signed by me in open session in authentication of its passage this 24th day of May, 1999

President _____ of the City Council

Approved by me this 1st day of June, 1999.

Paul Schell, Mayor

Filed by me this 1st day of June, 1999.

City Clerk

(SEAL)

City of Seattle

Paul Schell, Mayor

Department of Design, Construction and Land Use
R. F. Krochalis, Director

TO: Sue Donaldson, President
Seattle City Council

FROM: R. F. Krochalis, Director

Contact Staff: Michael Aoki-Kramer
Code Development Analyst

DATE: March 5, 1999

SUBJECT: Proposed Amendments to the Seattle Boiler and Pressure Vessel Code

Attached for your consideration is an ordinance amending the Seattle Municipal Code Chapter 22.450, the Seattle Boiler and Pressure Vessel Code. The amendments update several provisions of the code by incorporating commonly used language from national standards relating to the installation, operation, and maintenance of boilers and pressure vessels. Some amendments incorporate portions of the American Society of Mechanical Engineers (ASME) code relating to "Control and Safety Devices for Automatically Fired Boilers, CSD-1-1998 (CSD-1)," which were also recently adopted into the State Boiler Code by the Washington State Department of Labor and Industries. ASME has long offered a standard code for the construction of safe boilers and pressure vessels, but has not offered a standard code to address the controls that make the operation of an automatically fired boiler safe. CSD-1 is ASME's standard code, developed under procedures accredited by the American National Standards Institute (ANSI), to address boiler controls for automatically fired boilers. Other amendments clarify language necessary for the effective implementation and enforcement of this chapter.

Notice of upcoming changes to the Boiler and Pressure Vessel Code appeared in the June, August, and December 1998 issues of the *Seattle Steamer*, the DCLU Boiler Section's newsletter. The summary below is reproduced in the March, 1999 *Steamer*. The *Steamer's* circulation is around 800, 100 of which are sent to the Seattle Public Schools, owner and operator of the largest number of boilers in Seattle. A summary of the amendments and a copy of the proposed amendments were also sent to the Apartment Association of Seattle/King County(AASK), and the Building Owners and Managers' Association of Seattle and King County (BOMA). No comments were received from AASK, BOMA, or the Seattle Schools.

The Department held two meetings with a cross-sectional panel of boiler and pressure vessel industry representatives to propose, review, comment, and debate the proposed amendments. Panel membership was essentially the same as previous panels and

represented the same organizations participating before in the review of Seattle Boiler and Pressure Vessel Code amendment proposals. Amendments were adopted by consensus of the review panel. Members of the panel included the following City staff and private industry representatives: Chief Boiler Inspector, Mechanical Plan Review Supervisor, Code Development Analyst, and Chief Plumbing Inspector; a representative from the International Union of Operating Engineers Local 286; a retired Chief Boiler Inspector for the State of Washington; a representative from a local boiler manufacturer and installer; a boiler inspector from a boiler insurer; and an operating engineer from Boeing. In addition to their professional capacities, two members of the panel sit on or advise the State Board of Licensing for Operating Engineers, and two other panel members are supervising boiler inspectors and steam license examiners.

The Construction Codes Advisory Board considered the proposed amendments at its February 4 and March 4, 1999 meetings. The Board voted to recommend approval of the amendments at its March meeting.

The proposed amendments are prospective only; no retroactive amendments are proposed. Following is a brief description of the amendments:

Section 22.450.010 of the Seattle Municipal Code
This section is amended to let the public know copies of the current Seattle Boiler and Pressure Vessel Code are on file with the Department of Design, Construction and Land Use.

Section 100 - Exemptions from this Code
This section is amended to add a class of unfired pressure vessels to the list of boilers and pressure vessels exempted from the code.

Section 160 - Definitions
This section is amended to include definitions found in CSD-1.

Section 170 - Construction and Installation Code Requirements
Amendments to this section adopt and incorporate by reference the fuel train requirements of CSD-1 for all fossil fuel fired boiler installations with fuel input ratings of less than 12,500,000 btu/hr. In addition, this section sets forth Seattle modifications to CSD-1.

Section 190 - Permits Required - Installation Permits
This section is amended to clarify that installation permits are required before the installation or replacement of new, used, or rental boilers and pressure vessels, and that permits are required for alteration/modification of existing controls.

Section 220 - Inspection Requirements - New Installations
This section is amended to clarify that rental and used boilers are subject to certain testing.

Section 230 - Existing Installations - Reinspection
This section is amended to clarify and reduce the frequency of internal inspections for certain boilers and pressure vessels operated under permit. Where construction and operating conditions permit, low pressure hot water heating boilers not using corrosion inhibitors shall be inspected every four years. For low pressure hot water heating boilers using corrosion inhibitors, glycol, or oil, the frequency of inspection will be determined by the inspector based on the history of the installation, adequacy of the corrosion inhibitors, tightness of the system, and other factors observed and considered by the inspector. All other boilers shall be inspected internally every year. This section is also amended to allow inspection of boilers and pressure vessels by third-party insurers.

Section 290 - Combustion Air
This section is amended to add cross references to applicable code sections.

Section 310 - Controls, Safety Devices, and Instrumentation
This section is amended to clarify under what conditions safety valve discharges must be extended outside the boiler room to a safe location, and to clarify this section's application to flow switches or manual reset type low water cutoffs. To this section is also added requirements specifying the conditions under which delay functions may be used and how such functions must be installed.

Section 320 - Boilers Certified as Automatic
This section is amended to make the references to these devices consistent with the language adopted in Section 160 and CSD-1, and to update references to National Fire Protection Association Standards.

Section 360 - Clearance Requirements
This section is amended to specify that the minimum clearance from any obstruction for boilers equipped with manhole openings shall be five feet.

Section 370 - Underground Installations
This section is amended to clarify that if a pit is covered, its cover shall be removable.

Section 380 - Boiler Rooms/Enclosures
This section is amended to specify that platforms shall be required around boilers having boiler controls, valves, manholes, or casing openings over ten feet above the floor.

Section 390 - Fuel Piping
This section is amended to update code references.

Section 400 - Steam and Water Piping
This section is amended to extend the prohibition on the use of galvanized piping and fittings to hot water supply boilers and to prohibit the use of polybutylene tubing. The Boiler Code currently prohibits the use of galvanized piping and fittings for heating

boilers because of the advanced degradation hot water causes to galvanized piping and fittings. The Plumbing Code prohibits the use of polybutylene tubing and no longer contains standards for its use; thus the Boiler Code is amended to reflect this change in the Plumbing Code. This section is also amended to allow use of certain plastic pipes for air piping according to the manufacturer's label, certification, or listing.

Section 410 - Pressure Reducing Valves
This section is amended to clarify where safety valves and pressure gauges shall be located. Another amendment to this section also clarifies when a bypass may be installed around a reducing valve and where safety valves must be located.

Section 420 - Elevator Machine Rooms/Spaces and Hoistways
Appendices stricken from this section. The appendices were never intended to be a part of this section, but their appearance in the text of the code made it appear that the appendices were related to this section.

Section 500 - Appendices
This section is added to Seattle Municipal Code Chapter 22.450, which references other codes applicable to the installation, operation, and maintenance of boilers and pressure vessels.

These amendments are not anticipated to have any financial impact.

ORDINANCE _____

AN ORDINANCE relating to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code, Chapter 22.450, as adopted by Ordinance 117723 and amended by Ordinance 118654, amending Section 22.450.010 of the Seattle Municipal Code, and the following Sections of the Seattle Boiler and Pressure Vessel Code: Section 100, Exemptions from this Code; Section 160, Definitions; Section 170, Construction and Installation Requirements; Section 190, Boiler Installation Permits; Section 220, Inspection Requirements for New Installations; Section 230, Reinspection of Existing Installations; Section 290, Combustion Air; Section 310, Controls, Safety Devices, and Instrumentation; Section 320, Boilers Certified as Automatic; Section 360, Clearance Requirements; Section 370, Underground Installations; Section 380, Boiler rooms/Enclosures; Section 390, Fuel Piping; Section 400, Steam and Water Piping; Section 410, Pressure Reducing Valves; Section 420, Elevator Machine Rooms/Spaces and Hoistways; and adding a new Section 500, Appendices.

Section 1. Section 22.450.010 of the Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

22.450.010 Adoption of Seattle Boiler and Pressure Vessel Code.

The Seattle Boiler and Pressure Vessel Code is hereby adopted and by this reference made a part of this subtitle. A copy of the Seattle Boiler and Pressure Vessel Code, with April 1999 amendments, is kept on file at the Department of Design, Construction and Land Use.

Section 2. Section 100 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was last amended by Ordinance 118654, is amended as follows:

Section 100 - Exemptions from this Code

The following boilers and pressure vessels and other equipment described shall not be required to comply with this code:

A. In other than Group A, E, and I occupancies, listed potable hot water heaters (fired, electric, thermal, solar, and indirect) and pool heaters, provided none of the following limitations are exceeded:

A heat input of 200,000 Btu/h, or
A water temperature of 210°F((.)), or
A nominal water-containing capacity of 120 gallons, or
A pressure of 160 pounds per square inch.

* * *

D. Unfired pressure vessels located in Groups B, F, H, M, R, S, and U Occupancies having a volume of 5 cubic feet or less and operated at pressures not exceeding 250 psi.

E. Unfired pressure vessels located in Group A, E, and I occupancies when they are:
1. less than 1 ½ cubic feet (11.25 gallons) in volume with safety valve setting of 150 psi or less, or
2. less than 6 inches in internal diameter, and less than 5 cubic feet (37.5 gallons) in volume with a safety valve set at any pressure.

((~~E.~~)) F. Unfired pressure vessels of any size, other than those containing steam, that are protected by approved pressure relief devices set to operate at a pressure not exceeding 15 psi.

((~~F.~~)) G. Any boiler or pressure vessel subject to regular inspection by federal inspectors or licensed by federal authorities.

((~~G.~~)) H. Combination water heaters listed for both potable water supply and space heating listed under ANSI Z21.10.3, "Gas Water Heaters", 1988 Addenda or later, that are used for both potable water and space heating.

((~~H.~~)) I. Electric Boilers:
1. Having a vessel volume not exceeding one and one-half cubic feet; and
2. Having a maximum allowable working pressure of eighty (80) psi; and
3. If constructed after June 10, 1994, constructed to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, or listed or otherwise certified by a nationally recognized testing agency or recognized foreign testing laboratory.

((~~I.~~)) J. Water storage tanks with no air cushion and no energy or heat source.

Section 3. Section 160 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 160 - Definitions

Certain words and terms used in this code, unless clearly inconsistent with their context, shall ((~~mean as follows~~)) have the meanings given below. When a definition is not found below, the definitions of American Society of Mechanical Engineers' CSD-1-1998, Controls and Safety Devices for Automatically Fired Boilers (CSD-1, see Section 170) shall be used. When a definition is found here and in CSD-1, the definition given in this code shall govern.

* * *

BOILER is a closed vessel ((~~used for heating water or liquid, or for generating steam or vapor by direct application of heat from combustible fuels or electricity~~)) in which water is heated, steam is generated, steam is superheated, or any combination thereof, under pressure or vacuum by the direct application of heat. The term boiler shall also include fired units for heating or vaporizing liquids other than water where these systems are complete within themselves.

* * *

BOILER((~~,~~)) CERTIFIED AS AUTOMATIC is either a boiler installed prior to the adoption of CSD-1 which complies with Section 320 and Table 320-A of this code and for which an automatic certification installation permit has been finalized, or any other boiler installed after the adoption of CSD-1 for which an automatic certification permit has been finalized.

* * *

BOILER, HOT-WATER SUPPLY is a boiler ((~~having a volume exceeding 120 gallons, or a heat input exceeding 200,000 Btu/h or an operating temperature exceeding 210°F, or a~~)) exceeding any of the limitations of Section 100 A, but not exceeding pressure ((~~exceeding~~)) of 160 psi (1100 kPa), or a temperature of 250°F (121°C), that provides hot water to be used externally to itself.

BOILER, LOW–PRESSURE HOT–WATER–HEATING is a boiler ((~~furnishing~~)) from which hot water is circulated for heating purposes at pressures not exceeding 160 pounds per square inch (1100 kPa) and at temperatures not exceeding 250°F. (121°C((~~,~~))), then returned to the boiler.

* * *

BOILER, NON CODE is a boiler not constructed in accordance with ((~~the requirements~~)) Section 170.1 of this ((~~ordinance~~)) code.

* * *

BOILER, POWER is a boiler in which steam or vapor is generated at pressures exceeding 15 psi.

((~~**BOILER, RECYCLING** is any type of boiler in which the heat source cycles automatically in response to a control system.~~))

BOILER, RENTAL is any type of boiler that is owned by an entity for the purpose of renting to other entities for temporary or long-term usage.

((~~**Btu/h** is British thermal units input per hour, unless otherwise noted.~~))

* * *

DEPARTMENT is the Department of Design, Construction and Land Use or a representative of the Director.

* * *

DIRECTOR is the Director of the Department of Design, Construction and Land Use and authorized representatives.

* * *

FUEL TRAIN is a series of valves, regulators, and controls, between the burner and the source of fuel, that regulates and controls the flow of fuel to the burner.

* * *

INSPECTOR, DEPARTMENT is an inspector employed by the Department of Design, Construction and Land Use.

* * *

PILOT is a small burner ((~~smaller than the main burner, which is ignited by a spark or other independent and stable ignition source, and which provides ignition energy required~~)) that is used to ((~~immediately~~)) light off (ignite) the main burner.

PILOT, CONTINUOUS, (also known as constant burning pilot), is a pilot that burns without turndown throughout the entire ((~~period that~~)) time the boiler is in service, whether ((~~or not~~)) the main burner is firing or not.

PILOT, INTERMITTENT is a pilot ((~~which burns during light-off and while the main burner is firing, and which is shut off with the main burner~~)) that is automatically lighted each time there is a call for heat. It burns during the entire period the main burner is firing.

PILOT, INTERRUPTED is a pilot ((~~which burns during light-off and which is shut off during normal operation of the main burner~~)) that is automatically lighted each time there is a call for heat. The pilot fuel is cut off automatically at the end of the main burner flame-establishing period.

POTABLE WATER HEATERS (FIRED, ELECTRIC, THERMAL, SOLAR, AND INDIRECT) are ((~~used to heat potable water~~)) closed vessels in which water is heated by the combustion of fuels, electricity, or any other source, and withdrawn for use external to the system and which do not exceed any of the following: A heat input of 200,000 Btu/h, ((~~or~~)) a water temperature of 210°F((~~.~~)), ((~~or~~)) a nominal water-containing capacity of 120 gallons, or a pressure of 160 pounds per square inch.

PRESSURE VESSEL (((~~Unfired~~))) is a closed unfired container under internal pressure((~~, having a nominal internal diameter exceeding 6 inches and a volume exceeding 1½ cubic feet~~)).

PRESSURE VESSEL, NON CODE, is a pressure vessel not constructed in accordance with the requirements of Section 170.1 of this ((~~ordinance~~)) code.

* * *

Section 4. Section 170 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 170 - Construction and Installation Code Requirements

170.1 The construction of boilers and pressure vessels and the installation thereof shall conform to minimum requirements for safety from structural and mechanical failure and excessive pressures. Compliance with the applicable section of the American Society of Mechanical ((~~Engineering's~~)) Engineers' (A.S.M.E.) Boiler and Pressure Vessel Code and the American National Standards Institute (A.N.S.I.) B31.1.0 Power Piping Code, together with addenda thereto is required.

170.1.1 Where this code calls for construction in accordance with any Section of the ((~~American Society of Mechanical Engineering's (~~)) A.S.M.E.((~~)~~)) Boiler and Pressure Vessel Code, the exemptions listed in Section 100 of this code shall prevail over any and all exemptions listed in any Section of the A.S.M.E. Code.

170.1.2 Adoption of A.S.M.E. CSD-1-1998

Except as otherwise stated herein, all fossil fuel fired boiler installations with fuel input ratings of less than 12,500,000 Btu/hr shall comply with the fuel train requirements of A.S.M.E. CSD-1-1998, Controls and Safety Devices for Automatically Fired Boilers (CSD-1), which requirements are hereby adopted and incorporated by reference. When any conflict exists between CSD-1 and this code, the requirements of this code shall prevail. Alterations/modifications of existing burner controls require compliance of the entire fuel train with CSD-1.

170.1.2.1 Seattle Modifications to CSD-1

CSD-1 is modified as follows:

A. **CG-110 Scope, paragraph (b).** Chapter 100-A of this code exempts some pool heaters. Those not exempted are not required to comply with CSD-1, but must comply with all other requirements of this code.

B. **CG-130 Exclusions.** Installations of potable hot water heaters and lined hot water supply boilers are not required to comply with CSD-1. However, installation of lined hot water supply boilers must comply with all other requirements of this code.

C. **CG-220 Installation.** This chapter is adopted with the following modifications or clarifications:

1. Installation of boilers and burners, and certification of boilers as automatic or monitored shall be done only under permit in compliance with the requirements of Section 220 of this code.
2. When the burner of an existing installation is replaced, or the existing controls of a boiler have been altered or modified, the entire fuel train shall comply with CSD-1.
3. The requirements of Section 360 of this code shall apply in full.
4. Under paragraph (d): when modules of a modular boiler are replaced, the replacement shall also comply with the requirements of this code.

D. **CG-260 Combustion Air.** Not adopted. This chapter is replaced in its entirety by the requirements of Section 290 of this code and 1997 Seattle Mechanical Code Chapter 7 (see Appendix A), as amended. The following shall apply when combustion air is provided by means other than natural air circulation:

1. Louvers and grilles that are not fixed in the full open position shall be interlocked with the boiler(s) so that the boiler(s) will not start the pre-purge cycle unless the louvers/grilles are in the full open position. The interlock shall be placed on the driven member.
2. Fans supplying air to the boiler room for combustion shall be interlocked with the burner so that air flow is proven during boiler operation.
3. Fire dampers shall not be installed in the combustion air supply to the boiler room.

E. **CG-320 Installation** is adopted with the following modification: Installation of boilers and burners, and certification of boilers as automatic or monitored shall be done only under permit in compliance with the requirements of Section 220 of this code.

F. **CG-610 Lockout** is adopted with the following addition to the end of paragraph CG-610: Resetting of safety controls from a place other than the boiler on which the safety device is installed is prohibited.

G. **Part CF - Combustion Side Control** is adopted with the following additions:

1. **Fuel Piping:** The fuel piping requirements of Chapter 13 of the 1997 Seattle Mechanical Code (see Appendix D), as amended, shall take precedence over the requirements of CSD-1.
2. **Boilers Certified as Automatic** must comply with the requirements of Sections 320.2 through 320.5 of this code.

170.2 Non-code boilers and non-code unfired pressure vessels shall not be installed or reinstalled.

170.3 Boilers, burner, and boiler-burner assemblies shall be listed by a nationally recognized testing agency and shall be installed in accordance with the requirements of the listing.

Section 5. Section 190 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 190 - Permits Required - Installation Permits

190.1 An installation permit shall be obtained from the Director prior to the installation or replacement of new and used boilers and pressure vessels, the installation of rental boilers, and to apply for the certification of a boiler as Automatic or Monitored. Alteration or modification of existing control systems on automatic boilers, replacement of a fuel burner, changing fuels or adding a different fuel to a combination burner previously operated on a single fuel, and the conversion of solid-fuel-fired boilers as permitted by Section 320.5((.)) shall also require a permit.

* * *

Section 6. Section 220 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 220 - Inspection Requirements - New Installations

220.1 Boiler installations upon completion shall have controls set, adjusted and tested by the installing contractor. A complete control diagram of a permanent legible type, together with complete boiler operating instructions, shall be furnished by the installer for each installation. Rental boilers and used boilers are subject to hydrostatic testing, non-destructive testing, or other special testing as required by the Director or the Director's designee.

* * *

Section 7. Section 230 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 230 - Existing Installations - Reinspection.

The Director shall inspect all boilers and pressure vessels operated under permit at such intervals as deemed necessary but in no event less frequently than noted below:

230.1 Inspection of boilers, boiler controls, and boiler safety devices shall be as follows:

A. **External Inspections**: All boilers shall be inspected externally annually. ((~~Where construction and operating conditions permit, they shall, in addition, be subject to inspection internally annually.~~)) All required boiler controls and safety devices shall be tested during the external inspection to determine that they are operating properly.

B. **Internal Inspections**: Where construction and operating conditions permit, boilers shall be subject to an internal inspection as follows:

1. Low pressure hot water heating boilers not using corrosion inhibitors: shall be inspected internally at least every four years;
2. Low pressure hot water heating boilers using corrosion inhibitors, glycol, or oil: the frequency of internal inspections will be determined by the inspector depending upon such factors as history of the installation, adequacy of corrosion inhibitors, tightness of the system, and other factors observed and considered by the inspector; and
3. All other boilers, every year.

C. For steam boilers, an internal inspection of the low water cutoff chamber and connecting piping is required in all cases.

* * *

230.3 Potable water heaters located in any Group A, E, or I Occupancy shall be inspected externally biennially.

* * *

230.5 - Inspection by Insuring Companies. Inspection of boilers and pressure vessels ((~~covered by insurance~~)) may be made by employees of the insuring company holding commissions from the National Board of Boiler and Pressure Vessel Inspectors, subject to approval of the Director. Approved insuring company inspectors (Insurance Inspectors) shall make reports on prescribed forms on inspections authorized by the Director. The reports shall be filed with the Department. Insurance inspectors shall notify the Director

immediately of suspension of insurance because of dangerous conditions and within 30 days for new insurance in effect and discontinuance of insurance coverage.

* * *

Section 8. Section 290 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 290 - Combustion Air

Combustion air shall be provided in accordance with Chapter 7 of the Seattle Mechanical Code (see Section 170 and Appendix A of this code).

Section 9. Section 310 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 310 - Controls, Safety Devices, and Instrumentation

* * *

310.5 - Pressure and Temperature Relief.

310.5.1 The discharge from liquid relief valves shall be piped to within 18 inches of the floor or to an open receptacle, and when the operating temperature is in excess of 212°F((,)), shall be equipped with a splash shield or centrifugal separator.

310.5.2 Safety valve discharge from boilers and pressure vessels containing steam shall be directed upward to a minimum of 6 feet above the boiler room floor or horizontally to an inaccessible area of the boiler room. When the discharge from safety valves would result in a hazardous discharge of steam inside the boiler room, or when the discharge of multiple safety valves on boilers exceeds the capacity of 5,000 pounds of steam per hour, such discharge shall be extended outside the boiler room to a safe location.

310.5.3 When 310.5.2 cannot be met, the boilers in the particular boiler room shall be provided with an emergency shutdown switch located outside the boiler room. The purpose of such a switch is to allow the shutdown of boiler(s) without having to enter the boiler room.

310.5.4 No valve of any description shall be placed between the safety or relief valve and the boiler, nor on the discharge pipe between the safety valve and the atmosphere.

310.6 - Low Water Cutoff

310.6.1 Every water boiler, other than manually fired, shall be equipped with a manual reset type low-water cutoff except that a coil-type boiler or a water-tube boiler which requires forced circulation to prevent overheating of the coils or tubes shall have a flow-sensing device installed in the outlet piping in lieu of the low-water cutoff. The required flow switch (if applicable) or the required manual reset type low-water cutoff((~~, or flow switch as applicable,~~)) shall be mounted so as to prevent damage to the boiler and to permit testing of the low-water cutoff without draining the boiler system. Manually operated and power actuated isolation valves between the low water cutoff and the boiler are prohibited. Delay functions incorporated in any low water cut-off or flow switch device will require the pre-approval of the Director. Delay functions not installed in accordance with the manufacturer's approvals shall not be used.

Exception: Vertical tube hot water supply boilers, such as those bearing the A.S.M.E. "HLW" stamp, that are directly connected to, and pressurized by the public water supply, need not be equipped with a low water cutoff or flow switch.

310.6.2 Every steam boiler, other than manually fired, shall be equipped with two low-water cutoffs. The lower of the two cutoffs shall be equipped with a manual reset device.

310.6.3 In installations where two or more low-water cutoffs are installed, the cutoffs shall be separately piped where feasible.

310.6.4 Water Feeding Devices. All steam, vapor or water boilers shall be equipped with an automatic water feeding device. For steam boilers and boilers having an operating water level, the water feeder shall be controlled by the actual water level in the boiler.

Exception: Boilers which have a constant attendant who has no other duties while the boiler is in operation.

* * *

Section 10. Section 320 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 320 - Boilers Certified as Automatic ((~~Boilers~~)).

320.1 Boilers certified as automatic ((~~boilers~~)) shall be equipped with controls and limit devices as set forth in Table 320-A.

320.2 Boilers certified as automatic ((~~boilers~~)) shall also be equipped with the following gauges, as applicable: oil temperature, oil suction pressure, high and low gas pressure, stack

temperature and windbox pressure. Feedwater systems for automatic boilers shall not require any manual operation.

320.3 A copy of the approved wiring diagram for ((~~an~~)) a boiler certified as automatic ((~~boiler installation~~)) shall be permanently and prominently displayed, under protective covering, in the boiler room. Such diagram shall include the coding of the actual wiring by color or by number to permit a ready check of the system.

320.4 All boilers certified as automatic ((~~gas- and oil-fired boilers~~)) of over 12,500,000 Btu/h shall also comply with the installation requirements of N.F.P.A. ((~~Standard No. 85 or No. 85B, 1985 edition~~)) 8501, 8502, 8503, 8504.

* * *

Section 11. Section 360 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 360 - Clearance Requirements

* * *

D. Adequate clearance for access and to permit entry shall be provided for pressure vessels. Pressure vessels equipped with manhole openings shall have a minimum of five feet clearance from any obstruction. All other inspection openings shall be at least 18 inches from any obstruction.

Section 12. Section 370 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 370 - Underground Installations

Where necessary to install a pressure vessel underground, it shall be enclosed in a concrete or masonry pit. If the pit is to be covered, it shall be equipped with a removable cover so that inspection of the entire shell and heads of the vessel can be made. Clearance requirements shall be in accordance with Section 360 of this code.

Section 13. Section 380 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 380 - Boiler Rooms / Enclosures

* * *

380.5 - Platforms Around Boilers

Platforms shall be provided allowing safe access to each boiler when the boiler controls, valves, manholes, or casing openings are over ten feet above the floor.

Section 14. Section 390 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was last amended by Ordinance 118654, is amended as follows:

Section 390 - Fuel Piping

* * *

C. Fuel piping shall conform to the provisions referenced in Appendix ((~~B, Chapter 13 of the Seattle Mechanical Code~~)) D and E of this code.

Section 15. Section 400 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 400 - Steam and Water Piping

* * *

400.1 - Materials and Construction

* * *

C. Marking. Materials and devices shall be suitable identified. In addition to the incised marking required in the standards, all hard drawn copper tubing shall be marked by means of a continuous and indelible colored stripe, at least ¼ inch in width, as follows:

((~~D.~~))1. Type L – Blue

2. Type K – Green

3. Type M – Red

((~~E.~~)) D. Protective Coatings. Protective coatings shall be watertight, durable, heat resistant, electrically non-conductive, and tightly adhere to the pipe.

((~~F.~~)) E. Insulation. Coverings or insulation used on hot-water or steam pipes shall be of materials suitable or the operating temperature of the system. The insulation, jackets, and lap-seal adhesives shall be tested as a composite product and shall have a flame spread of not more than 25 and a smoke-developed rating of not more than 50 when tested in accordance with U.B.C. Standard 8-1.

((~~G.~~)) F. Hangars and anchors. Hangers and anchors shall be suitable for the use intended.

G. Galvanized Piping and Fittings. Galvanized piping and fittings are prohibited.

H. Plastic Air Piping. Certain plastic pipes, limited to those so labeled and/or certified by the manufacturer for such use, are acceptable for compressed air service. Due to the effect of temperature, lubricants, and other physical factors on the allowable pressure, some restrictions may be imposed and their use requires case-by-case approval by the Director. CPVC or PVC piping for compressed air service is not allowed.

((~~**400.2 - Polybutylene Tubing**~~

~~Those portions of the hot-water piping systems in which the continuous pressure-temperature relationship does not exceed the following may be constructed of polybutylene pipe or tubing of SDR-11 conforming to specification ASTM D 3309.~~

~~**TEMPERATURE (°F.)**~~	~~**PRESSURE (PSI)**~~
~~73~~	~~200~~
~~180~~	~~100~~
~~200~~	~~80~~

~~Polybutylene also may be used for applications requiring up to one year total exposure at conditions of 210°F., 150 psi, typical conditions for temperature and pressure relief valve discharge lines in heating systems.~~

~~A. Materials and construction.~~

~~(1) PB pipe and tubing. Pipe shall be IPS or copper tube size polybutylene, both SDR-11 conforming to ASTM D 3309.~~

~~(2) Fittings. Fittings shall be of polybutylene or metal.~~

~~(3) Insulation. Coverings and insulation used on hot-water pipes shall be of materials suitable for the operating temperature of the system. The insulation, jackets and lap-seal adhesives shall be tested as a composite product and shall have a flame spread of not more than 25 and a smoke-~~

~~developed rating of not more than 50 when tested in accordance with U.B.C. Standard No. 8-1.~~

~~(4) Gaskets. Flanged PB systems may be installed without gaskets.~~

~~(5) Hangers, sleeves and anchors. Hangers, sleeves and anchors shall be suitable for the use intended as recommended by the manufacturer's installation instructions.~~

~~(6) Standards. All piping, tubing, valves, joints, fittings, devices and materials shall be free of defects and comply with nationally recognized standards approved by the Department.~~

~~(7) Marking. Materials and devices shall be suitably identified.~~

~~B. Fabrication of joints. Joints shall be made by one or more of the following methods:~~

~~(1) Socket fusion. Polybutylene socket fittings may be heat fused to the pipe.~~

~~(2) Crimp/Insert fittings. Insert fittings of metal with crimp rings of aluminum or copper may be used.~~

~~(3) Compression fittings. Metallic or polybutylene fittings utilizing compression seals are acceptable.~~

~~(4) Transition fittings. Connections to other piping materials shall be made by approved types of special transition fittings.~~

~~C. Changes in direction. Changes in direction shall be made by the appropriate use of fittings or with pipe bends having a radius of not less than 10 diameters of the pipe. No forming equipment or heating is required.~~

~~D. Hangers and supports. Piping and equipment shall be adequately supported to the satisfaction of the Director. Hot water piping shall be supported, anchored and provided with swing joints, expansion loops or joints, or utilize the pipe's flexibility to avoid excessive strain on piping, equipment or the building structure to the satisfaction of the Director.~~))

Section 16. Section 410 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 410 - Pressure Reducing Valves

A. Where pressure reducing valves are used, one or more relief or safety valves and pressure gauges shall be provided on the low pressure side of the reducing valve ((~~in case the piping or equipment on the low pressure side does not meet the requirements for full initial pressure~~)). The relief or safety valves shall be located adjoining to or as close as possible to the reducing valve. Proper protection shall be provided to prevent injury or damage caused by the escaping steam from the discharge of relief or safety valves if vented to the atmosphere. The combined discharge capacity of the relief valves shall be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve sticks open.

B. The use of a hand-controlled ((~~by-passes~~)) bypass around a reducing valve((~~s~~)) is permissible. ((~~The by-pass, if used around a reducing valve, shall not be greater in capacity than the reducing valve unless the piping or equipment is adequately protected by relief valves or meets the requirements of the high pressure system. It is mandatory that a pressure gage as well as a relief valve be installed on the low pressure side of a reducing valve~~)) The capacity of the bypass shall not exceed the capacity of the reducing valve. Unless all the equipment downstream of the reducing station meets the requirements of the high pressure system, the low pressure side shall be protected by one or more safety valves having adequate capacity.

Section 17. Section 420 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

Section 420 - Elevator Machine Rooms/Spaces and Hoistways

Pipes conveying gases, vapors or liquids which are not used in connection with the operation of the elevator shall not be installed in any hoistway, machine room or machinery space.

~~**Appendices**~~

~~***Appendix A (Chapter 7, Seattle Mechanical Code, "Combustion Air")***~~

~~***Appendix B (Chapter 8, Seattle Mechanical Code, "Chimneys and Vents")***~~

~~***Appendix C - Occupancy Descriptions, Seattle Building Code Table 3-A.***~~

Section 18. A new Section 500 is added to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code Chapter 22.450, to read as follows:

Section 500 - Appendices

The following code provisions, as now or hereinafter amended, are adopted as appendices to the Seattle Boiler and Pressure Vessel Code.

Appendix A - Seattle Mechanical Code Chapter 7, *Combustion Air*

Appendix B - Seattle Mechanical Code Chapter 8, *Chimneys and Vents*

Appendix C - Seattle Building Code Table 3-A, *Occupancy Descriptions*

Appendix D - Seattle Mechanical Code Chapter 13, *Fuel Gas Piping*

Appendix E - Seattle Mechanical Code Chapter 16 Part III, *Recognized Standards*

Section 19. This ordinance shall take effect and be in force thirty (30) days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten (10) days after presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.

Passed by the City Council the _____ day of _____, 1999, and signed by me in open session in authentication of its passage this _____ day of _____, 1999

_____
President _____ of the City Council

Approved by me this _____ day of _____, 1999.

_____
Paul Schell, Mayor

Filed by me this _____ day of _____, 1999.

_____
City Clerk

(SEAL)

TIME AND DATE STAMP

SPONSORSHIP

THE ATTACHED DOCUMENT IS SPONSORED FOR FILING WITH THE CITY COUNCIL BY THE MEMBER(S) OF THE CITY COUNCIL WHOSE SIGNATURE(S) ARE SHOWN BELOW:

FOR CITY COUNCIL PRESIDENT USE ONLY

COMMITTEE(S) REFERRED TO:

PRESIDENT'S SIGNATURE

STATE OF WASHINGTON - KING COUNTY

106752
City of Seattle, City Clerk

—ss.

No. ORDINANCE IN

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

CT:ORD 119478in full

was published on

06/16/99

The amount of the fee charged for the foregoing publication is the sum of $, which amount has been paid in full.

R. Patterson

Subscribed and sworn to before me on

06/16/99

M C Olivarez

Notary Public for the State of Washington,
residing in Seattle

months after the date of the filing of the copy of this Notice with the Clerk of the Co[…] whichever is the later or, exc[…] under those provisions of R[…] 11.40.011 or 11.40.013, […] claim will be forever barred.

Date of filing copy of Notice [to] Creditors with the Clerk of [the] Court: May 28, 1999.

Date of first publication: Ju[ne] 2nd, 1999.

Personal Co-Representativ[es] of said Estate:

PEGGY ANN MAGUIRE, 9026 — 29th Street We[st] University Place, WA 98466.

HEDY SUSAN FOGERTY, 5701 — 78th Avenue Cou[rt] West, University Place, W[A] 98466.

STEVEN M. BOBMAN, WS[BA] #9045, Attorney for Estate, 89[…] Gravelly Lake Drive S.W[.] Lakewood, Washington 9849[…] 3149. (253) 588-2743.

6/16(106229)

NOTICE TO CREDITORS
Estate of
DREAMA Y. FROST

IN THE SUPERIOR COUR[T] of the State of Washington f[or] Whatcom County.

Estate of Dreama Y. Frost[,] […] No. 99-4-03241-[…]

Date of first publ[…]

City of Seattle

ORDINANCE 119478

AN ORDINANCE relating to the Seattle Boiler and Pressure Vessel Code, Seattle Municipal Code, Chapter 22.450, as adopted by Ordinance 117723 and amended by Ordinance 118654, amending Section 22.450.010 of the Seattle Municipal Code, and the following Sections of the Seattle Boiler and Pressure Vessel Code: Section 100, Exemptions from this Code; Section 160, Definitions; Section 170, Construction and Installation Requirements; Section 190, Boiler Installation Permits; Section 220, Inspection Requirements for New Installations; Section 230, Reinspection of Existing Installations; Section 290, Combustion Air; Section 310, Controls, Safety Devices, and Instrumentation; Section 320, Boilers Certified as Automatic; Section 360, Clearance Requirements; Section 370, Underground Installations; Section 380, Boiler rooms/Enclosures; Section 390, Fuel Piping; Section 400, Steam and Water Piping; Section 410, Pressure Reducing Valves; Section 420, Elevator Machine Rooms/Spaces and Hoistways; and adding a new Section 500, Appendices.

SECTION 1. Section 22.450.010 of the Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

22.450.010 ADOPTION OF SEATTLE BOILER AND PRESSURE VESSEL CODE

The Seattle Boiler and Pressure Vessel Code is hereby adopted and by this reference made a part of this subtitle. A copy of the Seattle Boiler and Pressure Vessel Code, with April 1999 amendments, is kept on file at the Department of Design, Construction and Land Use.

SECTION 2. Section 100 of the Seattle Boiler and Pressure Code, Section 22.450.010, Seattle Municipal Code, which section was last amended by Ordinance 118654, is amended as follows:

SECTION 100 — EXEMPTIONS FROM THIS CODE

The following boilers and pressure vessels and other equipment described shall not be required to comply with this code:

A. In other than Group A, E, and I occupancies, listed potable hot water heaters (fired, electric, thermal, solar, and indirect) and pool heaters, provided none of the following limitations are exceeded:

A heat input of 200,000 Btu/h, or

A water temperature of 210 degrees F((.)), or

A nominal water-containing capacity of 120 gallons, or

A pressure of 160 pounds per square inch.

* * *

D. Unfired pressure vessels located in Groups B, F, H, M, R, S, and U Occupancies having a volume of 5 cubic feet or less and operated at pressures not exceeding 250 psi.

E. Unfired pressure vessels located in Group A, E, and I occupancies when they are:

1. less than 1 1/3 cubic feet (11.25 gallons) in volume with safety valve setting of 150 psi or less, or

2. less than 6 inches in internal diameter, and less than 5 cubic feet (37.5 gallons) in volume with a safety valve set at any pressure.

((E.)) F. Unfired pressure vessels of any size, other than those containing steam, that are protected by approved pressure relief devices set to operate at a pressure not exceeding 15 psi.

((F.)) G. Any boiler or pressure vessel subject to regular inspection by federal inspectors or licensed by federal authorities.

((G.)) H. Combination water heaters listed for both potable water supply and space heating listed under ANSI Z21.10.3 "Gas Water Heaters", 1988 Addenda or later, that are used for both potable water and space heating.

((H.)) I. Electric Boilers:

1. Having a vessel volume not exceeding one and one-half cubic feet; and

2. Having a maximum allowable working pressure of eighty (80) psi; and

3. If constructed after June 10, 1994, constructed to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, or listed or otherwise […] recognized test[…]

PILOT, INTERMITTENT is a pilot ((which burns during light off and while the main burner is firing, and which is shut off with the main burner)) that is automatically lighted each time there is a call for heat. It burns during the entire period the main burner is firing.

PILOT, INTERRUPTED is a pilot ((which burns during light off and which is shut off during normal operation of the main burner)) that is automatically lighted each time there is a call for heat. The pilot fuel is cut off automatically at the end of the main burner flame-establishing period.

POTABLE WATER HEATERS (FIRED, ELECTRIC, THERMAL, SOLAR, AND INDIRECT) are ((used to heat potable water)) closed vessels in which water is heated by the combustion of fuels, electricity, or any other source, and withdrawn for use external to the system and which do not exceed any of the following: A heat input of 200,000 Btu/h, ((or)) a water temperature of 210 degrees F((.)), ((or)) a nominal water-containing capacity of 120 gallons, or a pressure of 160 pounds per square inch.

PRESSURE VESSEL ((Unfired)) is a closed unfired container under internal pressure((, having a nominal internal diameter exceeding 6 inches and a volume exceeding 1 1/2 cubic feet)).

PRESSURE VESSEL, NON CODE, is a pressure vessel not constructed in accordance with the requirements of Section 170.1 of this ((ordinance)) code.

PRESSURE VESSEL, USED shall mean any pressure vessel that is to be installed in Seattle that has been in previous service.

* * *

SECTION 4. Section 170 of the Seattle Boiler and Pressure Vessel Code, Section 22.450.010, Seattle Municipal Code, which section was adopted by Ordinance 117723, is amended as follows:

SECTION 170 — CONSTRUCTION AND INSTALLATION CODE REQUIREMENTS

170.1 The construction of boilers and pressure vessels and the installation thereof shall conform to minimum requirements for safety from structural and mechanical failure and excessive pressures. Compliance with the applicable section of the American Society of Mechanical ((Engineering's)) Engineers' (A.S.M.E.) Boiler and Pressure Vessel Code and the American National Standards Institute (A.N.S.I.) B31.1.0 Power Piping Code, together with addenda thereto is required.

170.1.1 Where this code calls for construction in accordance with any Section of the ((American Society of Mechanical Engineering's ()A.S.M.E.(-)) Boiler and Pressure Vessel Code, the exemptions listed in Section 100 of this code shall prevail over any and all exemptions listed in any Section of the A.S.M.E. Code.

170.1.2 ADOPTION OF A.S.M.E. CSD-1-1998

Except as otherwise stated herein, all fossil fuel fired boiler installations with fuel input ratings of less than 12,500,000 Btu/hr shall comply with the fuel train requirements of A.S.M.E. CSD-1-1998, Controls and Safety Devices for Automatically Fired Boilers (CSD-1), which requirements are hereby adopted and incorporated by reference. When any conflict exists between CSD-1 and this code, the requirements of this code shall prevail. Alterations/modifications of existing burner controls require compliance of the entire fuel train with CSD-1.

170.1.2.1 SEATTLE MODIFICATION[S] TO CSD-1

CSD-1 is modified as follows:

A. CG-110 SCOPE, PARAGRAPH (b[…] Chapter 100-A of this code exempts som[e …] pool heaters. Those not exempted are n[ot] required to comply with CSD-1, but mu[st] comply with all other requirements of thi[s] code.

B. CG-130 EXCLUSIONS. Installation[s] of potable hot water heaters and lined h[ot] water supply boilers are not required t[o] comply with CSD-1. However, installatio[ns] of lined hot water supply boilers must com[ply] with all other requirements of th[is] code.

C. CG-220 INSTALLATION. This cha[p]ter is adopted with the following modific[a]tions or clarifications:

1. Installation of boilers and burne[rs …] and certification of boilers as automat[ic …] or monitored shall be done only und[er …] in compliance with the requi[…]