

**DIVISION 520**  
**HEAT PRODUCING APPLIANCES IN**  
**MANUFACTURED DWELLINGS**

**918-520-0010****Heat Producing Appliance Installation Standards**

All fuel-burning appliances, including but not limited to ranges, ovens, water heaters, furnaces, illuminating appliances and clothes dryers shall be installed to the **Oregon Manufactured Dwelling Standard**.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.400 & 446.405

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 32-1991(Temp), f. & cert. ef. 9-30-91; BCA 6-1992, f. 3-24-92, cert. ef. 3-27-92; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92; BCD 19-1995, f. 12-15-95, cert. ef. 1-1-96

**918-520-0015****Construction and Installation of Fireplace/Stoves**

(1) Solid fuel-burning factory-built fireplaces and fireplace stoves and other wood-burning appliances installed in manufactured dwellings or park trailers, except wood-burning pellet-fired appliances and gas-burning only stoves and fireplaces, shall be constructed, tested and listed according to the Department of Housing and Urban Development **Manufactured Home Construction and Safety Standards** dated October 25, 1995, (**24 CFR 3280, Subpart F**) and shall be installed according to the **Oregon Manufactured Dwelling Standard**; and

(2) Wood stoves, wood-burning fireplaces and other wood-burning appliances as defined in ORS 468A.005, installed in manufactured dwellings or park trailers shall be certified by the Oregon Department of Environmental Quality (DEQ) pursuant to ORS 468A.470 for new wood stove installation or ORS 468A.475 for replacement or retrofitted wood stoves.

(3) The following wood-burning equipment is exempt from the DEQ requirements in Section (2) of this rule but are not exempt from Section (1) of this rule:

(a) Antique wood stoves built before 1940 and meeting the definition in ORS 468A.510;

(b) Wood stoves that were purchased as new prior to July 1, 1986, and that have not yet been installed or used;

(c) Wood-burning cook stoves;

(d) Wood-burning pellet-fired appliances;

(e) Gas-burning only stoves and fireplaces; and

(f) Solid fuel-burning factory-built fireplaces and fireplace stoves and other wood-burning appliances

installed by the manufactured dwelling manufacturer at the time of construction that meet the requirements of the **Manufactured Home Construction and Safety Standards** dated October 25, 1995, (**24 CFR 3280, Subpart F**).

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.400 & 446.405

Hist.: BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92; BCD 19-1995, f. 12-15-95, cert. ef. 1-1-96; BCD 22-1998, f. 11-9-98, cert. ef. 1-1-99

**918-520-0020****Installation of Pellet-Fired Appliances**

Pellet-fired appliances shall be installed in manufactured dwellings and park trailers according to the **Oregon Manufactured Dwelling Standard**.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.400 & 446.405

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92; BCD 19-1995, f. 12-15-95, cert. ef. 1-1-96; BCD 22-1998, f. 11-9-98, cert. ef. 1-1-99

**918-520-0030****Pellet-Fired Appliance Reference Standards**

(1) Pellet-fired appliances for use in manufactured dwellings and park trailers shall be tested and listed by an approved testing laboratory or testing agency to the following standards:

(a) **Underwriter's Laboratories ("U.L.") Standard No. 1482, Sections 1 through 10 and 15 through 45 only** (Solid Fuel Room Heaters), 1988 edition, revised September, 1988;

(b) **U.L. Standard No. 127** (Factory Built Fireplaces), 1988 edition, revised January, 1989;

(c) **U.L. Standard No. 103**, 1989 edition, revised February, 1989, or No. 641 (Chimneys & Flue Pipes), 1986 edition;

(d) **U.L. Standard No. 507** (Electric Fans), 1977 edition, revised December, 1988; and

(e) **U.L. Standard No. 391, Sections 2, 3, 7, 20 through 36, 66 through 69 and Table 54.1 only** (Solid-Fuel Furnaces), 1981 edition, revised October, 1983.

(2) Brands when required by the above standards, may be substituted with pelletized fuel for the purpose of conducting tests to these standards.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92

#### 918-520-0040

##### Pellet-Fired Appliance Testing

In conjunction with the standards required in OAR 918-520-030, all pellet-fired appliances shall be tested using the following test criteria:

(1) General Tests:

(a) A test enclosure, complying with the requirements of **U.L. 1482**, shall be used to evaluate the appliance. Thermocouple locations on the walls, ceiling, and floor shall be selected as if the appliance were any other heat-producing solid fuel burning appliance. In addition, thermocouples shall be located on the appliance itself at all critical locations including, but not limited to, the pellet hopper, the auger tube, the firebox, the exhaust manifold and all electrical components;

(b) If the appliance is back-vented through the wall, particular attention shall be paid to locating an adequate number of thermocouples on the vent system and in the wall penetration. The construction of the wall shall simulate typical manufactured dwelling construction;

(c) The flue gas temperatures shall be measured at the vent collar on a forced draft appliance and at the draft inducer fan on an induced draft appliance. Temperatures in the venting system shall be measured at the chimney connection to the appliance, if a chimney is used.

(2) Normal Temperature Tests:

(a) Operate the appliance in a normal configuration at 100 percent power demand until equilibrium temperatures are reached at all locations;

(b) The approximate fuel consumption of the appliance shall be determined by weighing a small amount of pellets, placing them in the hopper, and timing its consumption; and

(c) Measure and record total electrical power consumption during this test. Instrumentation shall be supplied to measure the line voltage and the amperage.

(3) Abnormal Temperature Tests: All tests shall start from the equilibrium temperatures established in the previous normal temperature tests:

(a) Blower Failure (Hot Air Circulator):

(A) Disconnect the power from the blower or hot air circulator and let the appliance operate as it will until equilibrium temperatures are reached or all temperatures start to decline; and

(B) Reconnect the heat circulating fan and allow the appliance to return to equilibrium temperatures and record any observations.

(b) Draft Inducer Fan Failure: Disconnect the draft fan and operate as in subsection (3)(a) of this rule. At the conclusion of this test, reconnect the draft fan and return to equilibrium conditions. Record any observations;

(c) Electrical Component Failure: The testing or listing agency shall simulate failures in other electrical components in the appliance. Run a test with the auger motor disconnected to determine if there is any danger of the pellets burning back through the auger into the hopper. Run a test where a power failure is simulated with the appliance running at equilibrium temperatures and 100 percent power demand;

(d) Door Ajar:

(A) This test is normally performed on stick-fueled appliances to determine the amount of spillage and associated hazards from combustion products emitted from the firebox when the door is open. Perform this test for 30 minutes on pellet burning appliances and record the observations. No hazardous conditions must be encountered. Hazardous conditions would include excessive flames and sparks emitted from the firebox, or a sharp rise in carbon monoxide in the atmosphere of the test chamber;

(B) Carbon monoxide in the atmosphere shall be measured at approximately one-hour intervals during all tests.

(e) Excess Load: Bring the appliance to equilibrium temperatures and then add an excess quantity of pellets to the firebox. The excess load depends on the configuration of the firebox, but shall be to the maximum capacity of the firebox or at least ten times the amount of pellets that is normally in the fire chamber at 100 percent power. After the pellets are added, the appliance shall operate at 100 percent power demand with the excess fuel, and temperatures observed and recorded at 10-minute intervals until they peak out at all points of measurement and start to decline;

(f) The inside and outside of the pellet hopper shall not exceed 250 degrees fahrenheit during the abnormal temperature tests required by this rule.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92

#### 918-520-0050

##### Pellet-Fired Appliance Construction Standards

A pellet-fired appliance shall be equipped with the following:

(1) Integral door(s) or shutter(s) designed to close the pellet-fired appliance fire chamber opening.

(2) A complete means for venting to the exterior.

(3) A combustion air inlet.

(4) A hearth extension, when required by the listing.

(5) A means to securely attach the pellet-fired appliance to the manufactured dwelling.

(6) A listed factory-built exhaust vent designed to be attached directly to the pellet-fired appliance.

(7) A listed factory-built exhaust vent equipped with and containing as part of its listing a termination device(s).

(8) A combustion air inlet which conducts the air directly into the fire chamber and is designed to prevent material from the fire chamber dropping onto the area beneath the manufactured dwelling.

(9) A combustion air inlet constructed to resist the entrance of rodents when terminating beneath the manufactured dwelling.

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92

### 918-520-0060

#### Pellet-Fired Appliance Electrical Equipment

Electrical material, devices, appliances, fittings and other equipment installed, intended for use in or attached to pellet-fired appliances shall be tested and listed for its intended use.

Stat. Auth.: ORS 446

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90

### 918-520-0070

#### Pellet-Fired Appliance Marking

(1) Pellet-fired appliance markings shall conform with the following:

(a) All markings shall be on a label or tag suitable to last the life of the appliance or stamped or embossed into the appliance;

(b) All labels or tags shall be installed in a permanent manner to last the life of the appliance;

(c) Labels or tags shall not be made of materials such as paper or plastics which are subject to deterioration from heat;

(d) All required markings shall be located to be easily readable when the appliance is properly installed; and

(e) All printed information on all markings shall have lettering no smaller than 1/16-inch except where specifically required by this rule.

(2) There shall be a permanent marking with 1/4-inch high letters near the door stating: **“WARNING, do not open door(s) while operating appliance.”**

(3) There shall be a permanent marking with 3/8-inch high letters on the outside of the fuel hopper stating: **“WARNING, for use with recommended pelletized fuel only.”**

(4) A label provided by the listing agency shall be permanently attached to the appliance with the following information:

(a) The name and identification mark of the testing laboratory and listing agency;

(b) The following wording: **“This pellet-fired appliance has been constructed, tested and listed for use in manufactured dwellings and park trailers according to OAR 918-520-0020 through 918-520-0110”**;

(c) The specific type(s) and size(s) of pelletized fuel for which the appliance is listed;

(d) The minimum horizontal and vertical clearances to combustibles;

(e) The appliance input rating, lighting and shutdown;

(f) The specific hearth size and material requirements;

(g) The appliance manufacturer’s name and address; and

(h) The appliance model number, serial number and listing number.

(5) Field application of listing labels shall only be made by the listing agency.

Stat. Auth.: ORS 183.325 - 410, 446.230, 446.240, 455.010 - 130 & 455.610

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCA 10-1992, f. 6-15-92, cert. ef. 7-1-92; BCD 22-1998, f. 11-9-98, cert. ef. 1-1-99

### 918-520-0080

#### Pellet-Fired Appliance Test Reports

Pellet-fired appliance test reports from the testing laboratory shall be made available by the dealer, manufacturer or testing laboratory within 48 hours upon request by the Division.

Stat. Auth.: ORS 446.185

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90; BCD 22-1998, f. 11-9-98, cert. ef. 1-1-99

### 918-520-0090

#### Pellet-Fired Appliance Fuels

(1) Pellet-fired appliances shall be tested with the pelletized fuel with which the appliance is intended to be used.

(2) All fuel substitutes or supplements shall be approved by the testing laboratory or listing agency and included in the listing and the operating instructions.

Stat. Auth.: ORS 446

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90

**918-520-0100**

**Acceptable Laboratories for Pellet-Fired Appliances**

Testing laboratories testing pellet-fired appliances shall be approved by the Oregon State Electrical Board for limited electrical testing as required by ORS 479.610 and 479.760.

Stat. Auth.: ORS 446

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90

**918-520-0110**

**Instructions for Pellet-Fired Appliances**

(1) Operating instructions shall be provided with each appliance. The instructions shall be approved by the testing laboratory and shall include at least the following directions and information covering:

- (a) The proper size and types of fuel to be used with the appliance;
- (b) The use of the appliance;
- (c) The operation, lighting and shut down of the appliance; and
- (d) Its proper maintenance.

(2) Installation instructions shall be provided with each appliance. These instructions shall be approved by a testing or listing agency and shall include, but is not limited to, directions for the installations, clearances to combustibles, venting, grounding and all electrical and mechanical connections.

Stat. Auth.: ORS 446

Stats. Implemented: ORS 446.230

Hist.: BCA 1-1990, f. & cert. ef. 1-2-90