



## Pellet Stove Fact Sheet

Pellet stoves use compressed pellets (made from wood or other biomass) for fuel. They can be either fireplace inserts or free-standing stoves.<sup>1</sup> Pellet stoves can be categorized into two types based on the pellet delivery systems, top-fed and bottom-fed.

- A top-fed pellet stove directs pellets into the combustion chamber from the hopper at the top of the stove. Its combustion chamber is more likely to be filled with ash and other debris.
- A bottom-fed pellet stove feeds pellets into the combustion chamber from the bottom and automatically pushes the ash into the ash pan.<sup>2</sup> The cleanup of this kind of stove is typically easier because of the larger capacity of the ash pan.<sup>3</sup>

### Types of Pellet Fuel

Wood pellets are normally manufactured from sawdust or woodchips through a combination of heat and pressure.<sup>4</sup> Other types of pellets, such as waste paper pellets and grass pellets, are created using a similar process. Pellets are uniform in size and shape (between 1-1.5 inches and approximately ¼ to 5/16 in diameters),<sup>5</sup> making them easy to store. Unlike logs for wood stoves that vary in moisture, pellets

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<sup>1</sup> Wood vs. Pellet. [http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet stoves](http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet%20stoves)

<sup>2</sup> Bottom Fed Pellet Stoves - The Straight Scoop. <http://www.pellet-stove-review.com/bottom-fed-pellet-stoves-the-straight-scoop>

<sup>3</sup> Bottom Fed Pellet Stoves - The Straight Scoop. <http://www.pellet-stove-review.com/bottom-fed-pellet-stoves-the-straight-scoop>

<sup>4</sup> Environmentally-friendly Fuel. [http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet stoves](http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet%20stoves)

<sup>5</sup> Ibid

contain the appropriate percentage of moisture for more efficient combustion.<sup>6</sup> There are two grades of pellets for residential use depending on the amount of ash they produce. Premium grade pellets have ash content below 1%; standard grade pellets have ash content between 1% and 3%.<sup>7</sup> Using premium grade pellets will help reduce the ash build up in stoves.

You can inspect the quality of pellets by checking the amount of dust in the bag. For a 40 pound (18kg) bag of pellets, the dust at the bottom of the bag should be less than half a cup.<sup>8</sup> Pellets are normally sold in 40-lb bags, although other package sizes are available. They can typically be purchased at hearth specialty stores, mass merchants, home improvement stores and feed stores.<sup>9</sup> In some areas of the country, pellets can be delivered to your home (see [woodpellets.com](http://woodpellets.com) for more information). It is important to know the kind of pellets available to you before purchasing pellet appliances. Some pellet stoves (called multi-fuel units) can burn various forms of pellet fuels, such as corn, hulled wheat, cherry pits, waste paper pellets and grass pellets. To prevent damage be sure to use only the fuel specified for your stove.<sup>10</sup> Pellet fuel appliance dealers usually maintain a supply of pellets or they can recommend a supplier.

## **Operation and Maintenance**

Among all the biomass technologies available, pellet stoves may be the easiest to operate and maintain.<sup>11</sup> Unlike wood stoves, pellet-burning involves no cutting, less hauling, no splitting, stacking or waiting for your wood to dry. Most pellet stoves feature auto-start ignition, which means there is no

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<sup>6</sup> Massachusetts Division of Energy Resources. Wood Pellet Heating. Page 7.  
[http://www.mass.gov/Eoca/docs/doer/pub\\_info/doer\\_pellet\\_guidebook.pdf](http://www.mass.gov/Eoca/docs/doer/pub_info/doer_pellet_guidebook.pdf)

<sup>7</sup> Wood and Pellet Fuels.

[http://www.energysavers.gov/your\\_home/space\\_heating\\_cooling/index.cfm/mytopic=12570](http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12570)

<sup>8</sup> Ibid

<sup>9</sup> Wood Alternatives. <http://www.hpba.org/consumers/hearth/fuel-options>

<sup>10</sup> Pellet Stoves. <http://ccetompkins.org/energy/heating-wood/comparing-combustion-equipment>

<sup>11</sup> Ibid

need to set up a fire manually.<sup>12</sup> Each pellet stove has an automated feeding system that constantly directs pellets from the hopper to the combustion chamber, which keeps the temperature in the stove constant.<sup>13</sup> The physical size of a pellet stove is not as important as its heat-generating capacity and the size of its pellet hopper. A small stove can heat up a large house but will run out of fuel faster than a larger stove.<sup>14</sup> Typically single load of wood pellets in the hopper can last around 24 hours.<sup>15</sup> The maintenance of pellet stoves involves mostly removing the ash.<sup>16</sup>

Pellet stoves are typically cleaner and more efficient than wood stoves.<sup>17</sup> Technologies are used to ensure the best fuel-to-air ratio in the combustion chamber so that the fuel can burn completely.<sup>18</sup> The combustion air is forced to go through the fire, releasing a maximum amount of heat to the room instead of letting it escape from the venting.<sup>19</sup> If used correctly, pellet stoves produce very little smoke and creosote, the latter being the main cause of chimney fire.<sup>20</sup>

### **Cost and Other Considerations**

Pellet stoves can be more expensive to purchase and operate than wood stoves. A pellet stove usually costs from \$1700 to \$3000.<sup>21</sup> Like wood stoves, pellet stoves will require specialized venting that adds to the cost. According to ConsumerReports.org, although pellet stoves are more efficient, to generate the same amount of heat, they use fuel that can cost approximately 50% more than the fuel needed by

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<sup>12</sup> Ibid

<sup>13</sup> Pellet Stoves. [http://www.forgreenheat.org/technology/pellet\\_stoves.html](http://www.forgreenheat.org/technology/pellet_stoves.html)

<sup>14</sup> Pellet Stove Checklist. <http://pelletheat.org/wp-content/uploads/2010/06/FACT.pdf>

<sup>15</sup> Energy Efficiency. [http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet stoves](http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet%20stoves)

<sup>16</sup> Pellet Stoves. [http://www.forgreenheat.org/technology/pellet\\_stoves.html](http://www.forgreenheat.org/technology/pellet_stoves.html)

<sup>17</sup> What is a pellet stove? Do they burn cleaner? <http://www.epa.gov/burnwise/faqconsumer.html#whatisapellet>

<sup>18</sup> Energy Efficiency. [http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet stoves](http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet%20stoves)

<sup>19</sup> Energy Efficiency. [http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet stoves](http://www.hpba.org/consumers/hearth/tax-credit-information/wood-vs-pellet/?searchterm=pellet%20stoves)

<sup>20</sup> Pellet Fuel Appliances.

[http://www.energysavers.gov/your\\_home/space\\_heating\\_cooling/index.cfm/mytopic=12570](http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12570)

<sup>21</sup> Pellet Stoves. <http://ccetompkins.org/energy/heating-wood/comparing-combustion-equipment>

wood stoves.<sup>22</sup> In addition, pellet stoves need electricity to function, which means an electrical outage will interrupt the combustion process<sup>23</sup>. The good news is that some models of stoves feature battery packs just in case of power outages<sup>24</sup>. A final consideration is noise—pellet stoves use fans to circulate air. Some people find the noise from the fans to be bothersome,<sup>25</sup> so be sure to test the stove before buying it.

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<sup>22</sup> Fuel. [http://www.consumerreports.org/cro/appliances/heating-cooling-and-air/wood-stoves/buyers-guide-to-pellet-and-wood-burning-stoves-1-07/overview/0701\\_pellet-stove.htm](http://www.consumerreports.org/cro/appliances/heating-cooling-and-air/wood-stoves/buyers-guide-to-pellet-and-wood-burning-stoves-1-07/overview/0701_pellet-stove.htm)

<sup>23</sup> Pellet Stoves. <http://ccetompkins.org/energy/heating-wood/comparing-combustion-equipment>

<sup>24</sup> Pellet Stoves. <http://pelletheat.org/wp-content/uploads/2010/06/FACT.pdf>

<sup>25</sup> Pellet Stoves. <http://ccetompkins.org/energy/heating-wood/comparing-combustion-equipment>