



Marketing vs. Science: the Myth of the Hot Hearth

Understanding combustion theory and its calculations can be a daunting task. Chamber volumes, air flow rates, temperatures, percentages of oxygen, moisture, composition of the case and type of fuel all play a role in determining the efficiency of an incinerator. Thankfully, with cremating machines, the work has been done by the manufacturer specific to the needs of the facility and the designs of modern cremation equipment are predicated by this science. One thing that does not play a factor, according to science, is the surface on which the case is cremated. The ubiquitous Hot Hearth vs Cold Hearth dilemma is merely nothing more than crafty and deceptive marketing.

As a matter of fact, there really is no such thing as a hot or cold hearth. Sit on one during operation and you will see how hot or cold it is!

Let's look at the marketing premise of the "hot" hearth. The floor or hearth is "hot" due to the design of the secondary chamber. With this design it is located below the floor. Thus, the bottom of the floor is actually the roof of the secondary chamber. The claim is that the heat from the secondary chamber adds to the heat in the main chamber to "save fuel". Keep in mind that the floor is made of 6 inches of dense refractory material designed to CONTAIN the heat! This would be like frying an egg on top of your stove, using only the heat from the oven. It just doesn't make sense.

There is nothing wrong with this design per se, but it is not the only way to design a cremator. As you know, the secondary chamber is necessary to further combust the "products of combustion" generated in the main chamber and it needs proper temperature, retention time, turbulence and oxygen to perform properly. It makes no difference where the secondary chamber is located, as long as it is hot enough, big enough, and has enough oxygen and turbulence to do its magic.

The "hot hearth" enthusiast will also mention that a "cold hearth" doesn't burn off the melted fat and could leak grease onto your floor. This is actually true with the old style ALL units that have the hole in the front of the floor for ash removal. This has nothing to do with the style of hearth, but the fact that the hearth is not sealed. With CMS Advanced Crematory Technology we have literally reinvented the wheel. The redesigned floor of the CMS units maximizes combustion and completely controls fluids during a cremation because of the materials used, the shape and design of the floor and most importantly, it is 100% sealed, so there is no chance for any leakage.

Because the "hot hearth" requires heating both sides of the refractory surface and heat will damage refractory surfaces over time, this type of floor will wear twice as fast. Also with this design, access to the secondary chamber for repairs or replacement will require removal and replacement with a new floor whether one needs it or not. This means significantly higher maintenance costs over time.

The retention time in a "hot hearth" being longer and better is also a bunch of marketing and cloudy science. If you look at the 3 major things needed in a secondary chamber, temperature is a big one. The placement of the thermocouple is the "end point" for the temperature and after that the gasses start cooling down fast and are not hot enough to further combust and the area after the thermocouple cannot count toward the retention time. If the thermocouple is placed only half way down the secondary chamber volume, the retention time is actually only half of what is claimed. Some manufacturers play fast and free with words, but the science doesn't lie.

The fact remains that the CMS designs cremate faster than any other unit in its class, use substantially less fuel due to the efficiency of the control systems, are far quieter, and emit cleaner air into our atmosphere. This is all despite the fact that our secondary chamber is NOT underneath the floor.