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**Michigan Department of Energy, Labor & Economic Growth
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Solid Fuel Hydronic Heaters (Outdoor Furnaces)

“Providing for Michigan’s Safety in the Built Environment”

Technical bulletins are issued to provide clarification on issues that arise regarding code administration and enforcement. The information provided in the bulletin is developed to promote uniform interpretation and enforcement of the state codes.

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Solid Fuel Hydronic Heaters “Outdoor Furnaces”

Issue:

Are outdoor furnaces required to be listed and labeled in accordance with the Michigan Mechanical Code Section 301.4 and the Michigan Residential Code Section M1302 when installed?

Discussion:

Outdoor furnaces are actually solid fuel hydronic heaters using a large fire box to heat water in an open reservoir. The hot water is then circulated into the building through an underground pipe system to a heat exchanger in the building and then returned to the reservoir. The hot water is used for space heating, domestic water heating, swimming pool water heating, etc.

The Michigan Residential Code (MRC) Section 1301.1 states that equipment and systems not covered in the MRC must be installed in accordance with the Michigan Mechanical Code (MMC). Section 101.2, scope of the MMC makes it clear that permanently installed mechanical systems utilized to control environmental conditions in buildings are to have the design, installation, and inspection regulated by the code. Section 301.4 of the MMC clearly states that equipment shall be listed and labeled or otherwise approved in accordance with MMC Section 105, which allows the code official to approve equipment in lieu of being listed and labeled.

Given that the subject equipment is a solid fuel burning appliance we would expect to find requirements in chapter 9 of the MMC. However, this type of equipment is not explicitly addressed. Therefore, we must rely on MMC Section 102.9 that allows the code official to establish requirements for mechanical systems not specifically covered, to assure public health, safety, and general welfare.

Listing and labeling is the process where equipment is tested to specific requirements by an independent third party. The third party then lists the equipment and its specifications and provides the manufacturer with a label that coincides with the listing, which is placed on each piece of equipment produced. As an alternative to listing and labeling, the code official may approve the equipment, or the manufacturer may have the equipment approved in accordance with the Stille-DeRossett-Hale Single State Construction Code Act, 1972 PA 230.

Section 21 of 1972 PA 230 allows the Construction Code Commission to issue a Certificate of Acceptability to a material, product, or method of construction or installation. This is done only after the commission has caused the material, product, method of construction, or installation to be tested and evaluated for compliance with the code for its intended use. There is no standard specific to these solid fuel hydronic heaters at this time, but we have found that portions of Standard UL 391, Solid fuel and Combination Fuel Central and Supplementary Furnaces or Standard CSA B366.1-M91 Solid-fuel Central Heating Appliances have been used for the listing and labeling process by some manufacturers.

Therefore, the bureau will use these standards as the basis of approval under the act for this equipment. Any testing or operational verification required by the standards must be conducted by an acceptable third party. This may be an independent testing agency or a licensed design professional. A report documenting how the test or evaluation was completed and the results must be sealed and signed by the design professional in responsible charge in accordance with 1980 PA 299 and submitted with the petition for approval. Once approved by the commission and issued a Certificate of Acceptability, the equipment must be accepted throughout the state.

Conclusion:

Solid Fuel Hydronic Heaters must be listed and labeled, or approved by the code official in accordance with MMC Section 105, or have a Certificate of Acceptability issued by the Construction Code Commission. The Certificate of Acceptability only certifies that the equipment complies with the code and does not preempt local ordinances regulating outdoor burning and the placement of these appliances.

If there are any questions you should contact the Bureau of Construction Codes, Mechanical Division at 517-241-9325. The “Petition Application for Approval of Material, Product, or Method” may be accessed from the bureau website at michigan.gov/bcc/forms/mechanical division.