

January 23, 2013

Via FedEx -- Urgent

Mr. Keith E. Williams
President, Underwriters Laboratories
333 Pflingsten Road, Northbrook, IL 60062-2096

Re: Backup Protection is Required for HVAC Equipment-Mounted Electric Heaters
To Correct an Ongoing Danger to Public Safety

Dear Mr. Williams:

Over the last decade, responding fire departments throughout the United States have identified thousands of homes damaged by fires caused by HVAC equipment-mounted Electric Heaters without integral backup overheating protection. It is expected and predicted that thousands more homes, and families residing in them, are going to be needlessly harmed by fires caused by a significant number of heaters, as currently designed, because of the omission of backup safety protection. Continued production and distribution of heaters without backup safety protection against fires is literally a matter of life or death for thousands of people, this year alone ... and each year thereafter.

The fires that we know will otherwise harm these homes and families can be substantially reduced or eliminated for less than one dollar (\$1) per heating element.

CALL FOR ACTION

By law, a product is defective in design when the foreseeable risks of harm posed by the product could have been reduced or avoided by adoption of a reasonable alternative design. Omission of the alternative design renders the product not reasonably safe.

It is imperative that all heaters capable of producing hazardous temperatures have reliable backup protection to shut down the heater elements before catastrophic risks are realized. Yet today, our industry knows that there are severe risks to consumers and the public created by heaters being widely marketed *without* such backup protection. Those risks can be eliminated or materially reduced easily, inexpensively and reliably, and without any diminution in the utility or function of the product. With this understanding, common sense and sound engineering principles demand that backup protection be required to safeguard the public from all heaters capable of creating hazardous risks before being sold or certified as safe for their intended use.

THE PROBLEM

Heaters are Capable of Producing Hazardous Temperatures

HVAC equipment-mounted Electric Heaters are designed for continuous operation during ideal conditions, without internal temperature concerns. These heaters, however, are *also* intended to operate during readily foreseeable conditions that are less than ideal. These conditions routinely involve reduced airflow, which results in increased internal temperatures. Such “abnormal temperatures” -- per UL1995.46 -- are within the maximum acceptable temperatures for safe heater operation (UL 1995 table 39.5). They are currently addressed, in part, through use of an automatically resetting thermal switch that cycles to control the operation of the heater and maintain safe internal temperatures. The problem is that the automatically resetting thermal switch is widely recognized to be unreliable over time, and will foreseeably fail in the closed circuit position during its expected life cycle. When this happens, the heater will continue to operate and produce heat without any protection. A significant number of heaters sold today are capable of creating dangerous risks of fire during these less than ideal, but foreseeable conditions.

THE SOLUTION

Backup Protection Devices Are a Critical Safety Requirement

The simple incorporation of reliable backup protective devices will safeguard against this dangerous fire risk to consumers and the public. Backup protective devices are designed to shut down the heater when the internal temperatures reach unsafe conditions for operation. Since unsafe temperatures for operation will not occur unless the automatically resetting thermal switch has failed, the backup protective devices are without any detriment to the utility or function during heater operation within intended conditions. Instead, they only function during unsafe conditions to protect against the hazard of continued heater operation.

BACKUP SAFETY PROTECTION IN APPLICATION

Warren Technology has been designing and manufacturing electric HVAC heaters for over 40 years. Recently, upon recognition of the problem and identification of a solution, Warren has voluntarily incorporated backup protective devices into its heater products to protect consumers and the public from these very real risks of overheating and subsequent fire. Incorporation of the devices is technologically feasible, relatively inexpensive and reliable. In fact, Warren Technology became even more aware of the reality of the risks based upon its receipt and examination of a number of automatically resetting thermal switches that failed in the closed circuit position. These exemplars were returned to us by some installers who serviced Warren heaters in which the backup protection was triggered, which in turn shut down the heater before any fire could occur.

HVAC INDUSTRY RESPONSE

In September 2012, Warren Technology contacted UL's standards division and submitted a proposal requesting UL to change the minimum safety standards to require reliable backup protection in the heaters to eliminate or reduce these dangers. UL forwarded the proposal to the Air-Conditioning, Heating and Refrigeration Institute ("AHRI") working group #3 for consideration.

Based upon AHRI's own recent and extensive review of the issue, as well as the underlying sound engineering principles discussed above, the AHRI now recognizes this dangerous overheating problem, and the likely consequences of home fires. As a result, AHRI proposes that the applicable UL1995 safety standard should clearly and unmistakably require backup protective devices to safeguard consumers and the public against fires, and to be in harmony with the current International Electrical code (IEC), which already requires backup protection in all similar type heaters. Due to the lengthy UL revision process, this essential safety requirement probably would not be implemented until 2017, under the best of circumstances. Yet this critical safety requirement needs to be incorporated into the heating products *currently* being manufactured and sold, lest lives be needlessly endangered. There needs to be a practical means to expedite the implementation of safety requirements when new designs or technology becomes available which eliminates or reduces known dangers to the public.

MISINTERPRETATION OF THE CURRENT SAFETY STANDARD UL 1995 (Oct 2011)

In recent months Warren Technology has extensively discussed this issue with the AHRI. During this time, we came to realize that the existing safety standard, UL 1995 (Oct 2011), does *in fact* require backup protection devices in every heater capable of creating dangerous temperatures during foreseeable conditions of operation. We invite you to review the materials attached discussing the requirement for backup protection on all heaters that can produce hazardous temperatures as (See UL 1995.30.16).

The requirement in UL 1995 is clear and precise: "**Electric heaters shall be provided with one or more manually resettable or replaceable backup protection devices....**" This language in section 30.16 goes on to describe the precise purpose of its requirement: "**to protect against dangerous temperatures "with the contacts of the automatically resetting temperature limiting control permanently closed."**" There is an exception to this requirement for backup protection that, properly interpreted, applies *only* to heaters designed with low heat output that cannot produce hazardous temperatures under any foreseeable condition of use (including reduced or no airflow). This is the only interpretation that is consistent with sound engineering principles, providing for reliable backup safety protection to avoid fire risks where it is needed – **in all heaters capable of producing hazardous temperatures during foreseeable conditions of operation.**

Unfortunately, the HVAC industry – manufacturers, certification labs, distributors and installers – has wrongly interpreted the exception to apply to *all* heaters, thereby completely negating the well-reasoned requirement of backup protection in section 30.16. In reliance upon this inexplicable and illogical misinterpretation of the UL standard, today the HVAC industry continues to manufacture, certify and sell heaters without backup safety protection, that we know present real risks to consumers and the public.

However, whether or not the existing UL standard requires backup safety protection is not necessarily determinative of what needs to be accomplished in the immediate future to remedy an unsafe situation. Whatever the interpretation, corrective action needs to be taken immediately – not months or years down the road.

THE CRITICAL MISSION

It is indisputable that heaters without backup protection are defective and dangerous, needlessly exposing consumers and the public to severe harm. Similarly indisputable are the sound engineering principles that demand this simple, feasible solution: a design that includes backup protective devices will eliminate or materially reduce known risks.

What is critically important right now is that, as an industry, we take action, with all deliberate speed, to safeguard consumers and the public from avoidable, foreseeable dangers created by heaters being sold today. We need to cease the manufacture and sale of products known to be defective and dangerous. And we need to adopt and implement forthwith safety standards that require backup protection in all heaters capable of producing hazardous temperatures.

There are sundry ways consumers and the public can be protected:

1. Voluntary assumption of the responsibility by the certification labs to refuse certification of any product known or reasonably believed to be unsafe despite “compliance” with the applicable UL 1995 safety standard as currently (and wrongly) interpreted;
2. Correctly interpret the applicable UL 1995 safety standard to require, as originally intended, backup safety protection for all HVAC equipment-mounted electric heaters capable of producing dangerous temperatures during foreseeable conditions (pursuant to UL 1995.30.16), and immediate notification and application of this standard; or
3. In the event that the applicable UL 1995 safety standard, as currently interpreted, may be seen as not necessarily requiring backup safety protection, immediately adopt and implement an emergency safety bulletin, and promptly revise the applicable safety standard to require backup safety protection for all heaters which are capable of producing hazardous temperatures during any conditions of foreseeable use.

Absent an effective response from within our industry or by UL, it is altogether likely that forces from outside the HVAC industry – most likely, the federal government in the form of the U.S. Consumer Product Safety Commission and/or the Occupational Safety and Health Administration, or others – will be forced to become involved and simply ban the distribution of any products presenting these kinds of unnecessary and unreasonable fire risks.

SUMMARY – IMMEDIATE ACTION REQUIRED

To date, Warren Technology has been more than a little frustrated in its ongoing efforts to resolve this problem within the HVAC industry. Because the industry has not responded to this known and continuing danger to the public, we urge UL to confront the situation and take appropriate action. As stewards of our products – safety, performance, quality and reliability – it is imperative that UL meet its underlying obligation to encourage reasonably safe products and protect consumers and the public from known, avoidable dangers. To do this, UL should immediately ensure that all heaters capable of producing hazardous temperatures under foreseeable conditions incorporate reliable integral backup protection before they are marketed or sold.

Please be assured that Warren Technology, as a longstanding leader in the electric heating industry, is soundly committed to public safety, and wants to bring this hazard concern to a prompt resolution by all appropriate means. We look forward to working closely with UL and the HVAC industry toward making this a reality as quickly as humanly possible. That is no more or less than UL 1995.30.16 contemplated, but, sadly, is not the state of affairs today.

Thank you for your prompt attention and consideration. We look forward to your response to this important matter.

Respectfully submitted,

**Roy Kelley, President
Warren Technology, Inc.**

**enclosures: 1. Warren Technology Safety Bulletin;
2. Backup Requirement Resources, Vol. 1 & 2.**

**cc: Brian Rodgers, UL
Alan McGrath, UL**