

Working with flooded equipment

The flooding that took place in Southern Alberta this summer left more than 100,000 people dealing with the damage left in its wake, and the effects of the flooding on mechanical systems are likely to linger long after the waters have receded.

To help advise the public on maintenance and safety concerns, the Alberta Health Services and Canadian Water Quality Association (CWQA) issued bulletins advising about proper sanitation practices and informing home and business owners that water softeners, filtration equipment and drinking water devices should be inspected by a qualified, trained water treatment technician if the units came into contact with flood water.

"This is a matter of urgent safety to anyone with water treatment systems and the continued well-being of the public," stated CWQA president Aaron Biffert.

HRAI stressed a similar message to the public for taking proper precautions with regard to heating and cooling systems, and suggested replacement over repair.

"Standing water in a yard, house, basement or commercial building can damage the heating, cooling and water heating equipment in ways that are not always readily apparent, which can put families and businesses at risk," said HRAI president Warren Heeley. "We advise both homeowners and business owners to consult a qualified contractor and to play it safe by replacing, rather than repairing, flood-damaged heating, cooling and water heating equipment."

"Playing it safe" was a sentiment echoed for the contractors working on the flooded equipment as well.

"The biggest word of advice I can give to a technician is that when in doubt, replace it," says Stuart Olley, service technician and general foreman at Trane.

Olley says there is no benefit to trying to get a severely water damaged piece of equipment online. "If you start replacing parts and get it online, but a month later there are troubles, you now own it," he says.

FIRST STEP: Contact the manufacturer

According to John Kleist, technical service manager for Viessmann Manufacturing, the first thing a contractor should do is contact the manufacturer of any equipment they're working on to determine the company's policy towards their product being externally exposed to water.

At Viessmann, Kleist says heating products must be replaced in their entirety if any mechanical or electrical component of the product has been externally exposed to water – due to flooding, for example.

"If even one mechanical or electrical component of the heating product becomes externally exposed to water, this may potentially cause an unknown negative influence on other safety components within the heating product," he stated, explaining that temperature/pressure limits or burner gas valves could be impacted by the exposure to water. "The decision is very much a safety concern more than anything else," he says.

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Waterlogged water heaters

Dan Milroy, Canadian sales manager at Bradford White-Canada, says water heaters exposed to flood waters should be replaced. His company follows the recommendations of the Air-Conditioning, Heating and Refrigeration Institute (AHRI) that state all flood-damaged water heaters should be replaced, whether they are gas-fired, oil-fired or electric, due to the likelihood of future corrosion and compromised insulation.

The concern is that valves and controls in a gas-fired unit are likely to corrode, while the thermostat and controls in an electric unit are also likely to corrode. The pressure relief valves on both gas-fired and electric units also have the potential to corrode and stick, while the insulation surrounding the units could be contaminated by the flood water and it is almost impossible to disinfect that portion of the tank.

Suggested replacements

HRAI and the U.S.-based Air-conditioning, Heating and Refrigeration Institute (AHRI) have compiled a list of heating and cooling equipment for homeowners and business owners to consider replacing if flood-damaged.

The list includes gas and oil furnaces and boilers, electric furnaces, propane heaters, radiant floor heating systems, heat pumps, air conditioning systems, ductwork, and water heating systems. For a detailed explanation of the replacements, visit the HRAI website at hrai.ca.



Inspection process for water safety

The CWQA advises that inspections to water treatment devices are best done during or after the flood water damage is repaired in the building. Any water treatment devices that have a direct connection to a building's potable water supply, and were completely submerged in flood water, need to be isolated from the water supply as quickly as possible. The CWQA also states that water treatment devices that were not completely submerged must be sanitized to ensure the safety of a building's potable water.

Tips for techs

Stuart Olley of Trane offers the following tips to HVAC technicians who will be working on flooded equipment:

- Once a system is fully dried out, disconnect all outputs and inputs from the circuit board except power. Power up the board and add the wires one by one after checking everything out.
- If the board has heavy corrosion, then it needs to be replaced.
- If the fan motors are wet, then they need to be replaced.
- If a decision is made to keep the unit, regardless of condition, always replace relays, high limit and safeties, filters, and belts.
- If you know the motor and board need replacement and everything else is okay you can change them out and put the unit back online. If more replacements are necessary, then swap out the entire unit.
- Gas valves are easily damaged by water and will need replacement.
- Thoroughly clean all heat exchangers with a proper cleaner, thoroughly dry them out and inspect for damage.
- Regardless of whether a unit is repaired or replaced, it is a good idea to look at getting it off the floor, or relocating it to an area where future flooding may not damage it again. In some cases, it is possible to hang units from the ceiling instead of placing them on the floor.

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-- Stuart Olley of Trane