

Flash, Kaboom! Water Heater Failures Involving GACs

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Lightning strikes and a water heater fails resulting in a fire. Is the subrogation investigation over? Not if the water heater failure involves a Gas Appliance Connector (GAC). GACs have properties similar to Corrugated Stainless Steel Tubing (CSST).

Recently, in a case tried by Cozen O'Connor, a jury imposed fault on a CSST manufacturer, finding that the CSST had failed during a lightning strike, causing a fire. CSST is used in gas distribution systems in residential and commercial construction. Lightning struck a home causing a leaking hole in the CSST, which ignited fuel, causing extensive damage. The jury determined that CSST was a defective product for which the manufacturer was strictly liable.

Similar to CSST, Gas Appliances Connectors (GACs) are pre-fabricated, similar in appearance and construction to CSST, with shorter runs. GACs service gas appliances such as furnaces, stoves, and water heaters. Like CSST, GACs can be subject to failure when impacted by errant electricity. The electrical current may result from a lightning strike, a failed air conditioning compressor, or other electrical anomalies such as energized or floating neutrals. The typical failure mechanism is an electrical arc and 'blow out' of the flared end of the GAC (see photo 2).



Photo 1 – yellow GAC feeding water heater



Photo 2- arced end of a failed GAC

The issue is whether a GAC is unreasonably dangerous given alternative, feasible designs. Although black iron pipe is an excellent alternative to CSST for gas distribution systems, it is not a good substitute for GACs given the difficulty in precisely lining up an appliance with the stub of a black pipe. Moreover, the GAC also functions to protect the gas system from leaks that might be caused by structural shifts in, or vibrations to, a black iron pipe system.

Recently patented inventions are applicable to GACs and address their shortcomings. The inventions work by placing a shunt in parallel with the GAC, so that electrical current bypasses the corrugated connector and flared ends of the tubing. The incremental manufacturing cost is that of a single run of copper wire (the 'shunt') paralleling the gas tubing. Patents analysis show that the inventions are feasible, and were so for many years. Using a risk/utility test, these inventions improve GACs, without interfering with their utility.

GAC failure fires require an experienced fire investigator and electrical engineer. Before the fire scene is substantively

disturbed, consider notifying the HVAC contractor, the plumber, the electrician and the GAC manufacturer. There should be an identifying steel ring on the GAC which identifies the manufacturer. Depending on the specific circumstances surrounding the loss, it may be appropriate to document any grounding and bonding equipment, sizes of conductors, HVAC compressor condition, sources of fugitive current and the condition of the breakers/fuses.

Cozen O'Connor's Subrogation and Recovery Department is ready to assist you as needed in conducting such research and otherwise handling these claims.