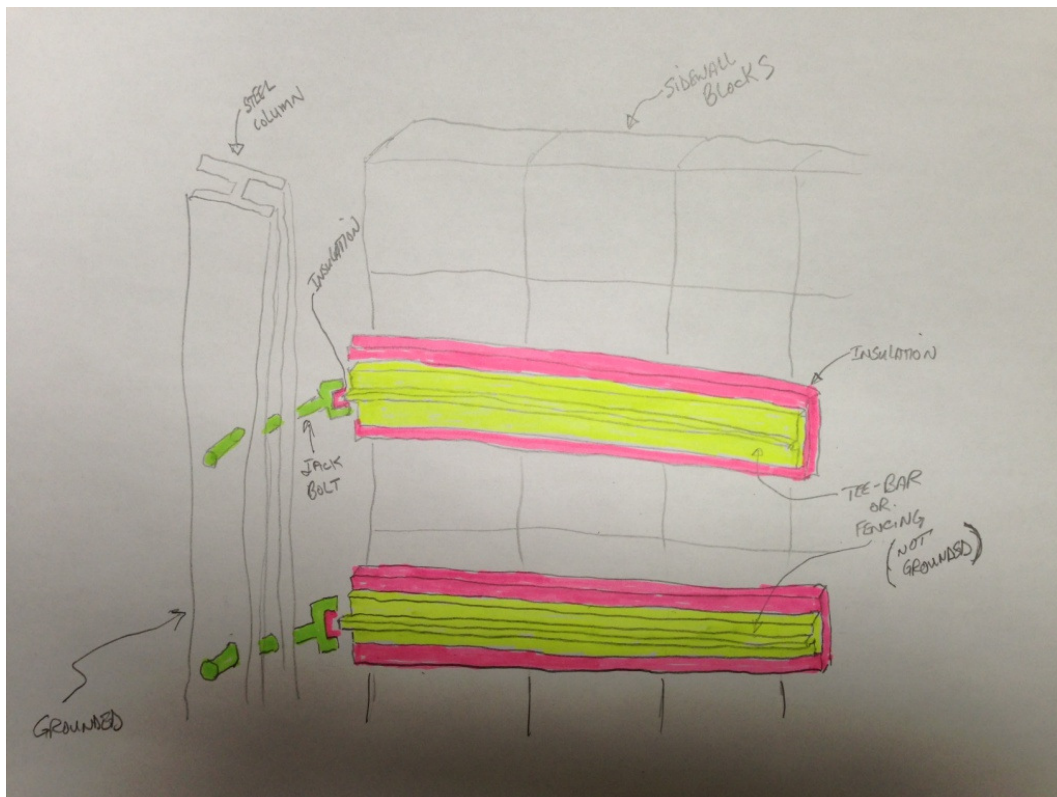


On Friday, a follow up meeting was held at Certainteed HQ to discuss the failed glass furnace drain in Athens and also the accident involving Karl Burger. Here's some feedback on each issue and corrective actions for the future.

A.) The Drain

The Certainteed Athens furnace is an all electric melter. The company has internally established standards for how much current to ground is acceptable. They are concerned about ground currents because they can lead to furnace failure. If a tiny flow of glass leaks thru refractory and comes in contact with a grounded structure, the glass becomes an electrical conductor to ground. As the current flows thru the glass, the glass becomes white hot which accelerates the failure of adjacent refractory. Therefore, Certainteed works hard to eliminate any and all electrical grounds. The furnace has a ground detection circuit that alarms the operators (and shuts off current) if the current to ground exceeds preset limits. During the drain, this circuit is actually disabled to avoid false furnace trips due to high ground current.

The furnace has "tee bars" (or furnace fencing) holding the sidewall blocks in place. There is insulating material between the tee bars and the furnace blocks. The tee bars are held in place by jackbolts threaded thru the furnace buckstays. The jackbolts contact the tee bars where a "saddle" goes over the ridge of the tee bar. Inside the saddle, there is insulating material to prevent the tee bar from going to ground via the jackbolt. So by design, the tee bars (or fencing) are electrically isolated from the rest of the steel structure.



Certainteed engineers believe that the Hotwork trough should not be connected to grounded steel. They recommend using the electrically isolated tee bars and/or using some type of insulated connection if it is necessary to secure the trough to grounded steel structure. Using a C-Clamp with insulating material is one possibility.

The picture below is the 2006 Athens drain setup which they considered proper. As you can see, the trough was connected to a vertical angle iron that was attached to two furnace tee bars. No connection was made to grounded steel structure.



Conclusion:

Hotwork has to work closely with the client to understand their requirements before setup. It appears that Certainteed may be more concerned than other clients about potential grounds created by the securing of the Hotwork trough. Hotwork must insure that the trough is adequately secured because failure to do so will create a glass leak potential that can be catastrophic. We need to work together to satisfy both objectives.

In addition to the issue surrounding the securing of the trough, Certainteed will be taking additional precautions to prepare for an emergency response to a potential glass leak. They will make some

provisions for additional water pressure and also have a long water lance prepared in advance (if it is feasible to access the tapsite internally).

B.) The Accident

The event was discussed in detail. There is a common understanding that the proper burner shutdown and line breaking procedure was followed. The issue arose due to disorientation and the inadvertent line breaking on operating equipment that was mistakenly believed to be shutdown. Hotwork reviewed the communication about this incident to alert all Technicians. Certainteed committed to have valve handles installed and secure access to the local and upstream valves.