

## Incident Summary (Reference # 5616714)

SUPPORTING INFORMATION	Incident Date		June 06, 2017	
	Location		Abbotsford	
	Regulated industry sector		Gas – Natural Gas System	
	Impact	Injury	Qty injuries	0
			Injury description	NA
			Injury rating	None
		Damage	Damage description	Major structural damage to rear of three story home. Fire and smoke damage inside.
			Damage rating	Major
		Incident rating		Major
Incident overview		A fire occurred at a single family residential home. The fire originated from the location of a newly installed natural gas fireplace and barbeque.		
INVESTIGATION CONCLUSIONS	Site, system and components		<p>A new gas line was installed from the gas meter on the side of the house to a new gas range, fireplace and outside barbeque box in the new basement suite on the first floor of the home. The gas line was run in corrugated stainless steel tubing (CSST) from the meter, then it converted to black iron pipe and brass shut off valves before the fireplace and barbeque box.</p> <p>CSST is a flexible tubing that is jacketed with a yellow outer sheathing. CSST connections are made with proprietary brass compression style fittings which may adapt to threaded fittings to allow conversion to black iron pipe. All gas systems need to be leaked checked prior to operation.</p> <p>Gas is supplied from the meter of the house at a pressure of 2 pounds per square inch (PSI) The gas appliances installed in this home require a lower inlet gas pressure. The pressure is lowered before the appliance inlets by the use of pressure regulators. One pressure regulator was installed in the gas system inside of the wall beside the fireplace and another was incorporated into the gas barbeque outlet box installed on the outside wall of the first floor next to the interior gas fireplace.</p> <p>The exterior of the house was covered in plastic vinyl siding.</p>	
	Failure scenario(s)		<p>1. A new gas line was installed to a gas fireplace and barbeque outlet box. A brass fitting converting from corrugated stainless steel tubing to black iron pipe was insufficiently tightened inside of a finished wall beside of a gas fireplace. Gas may have leaked from the fitting behind the wall until finding a source of ignition from the fireplace. The fire could have spread to the wall melting the appliance regulators for the fireplace and the one on the outside of the wall for the barbeque box which would have let uncontrolled gas fuel the fire.</p>	

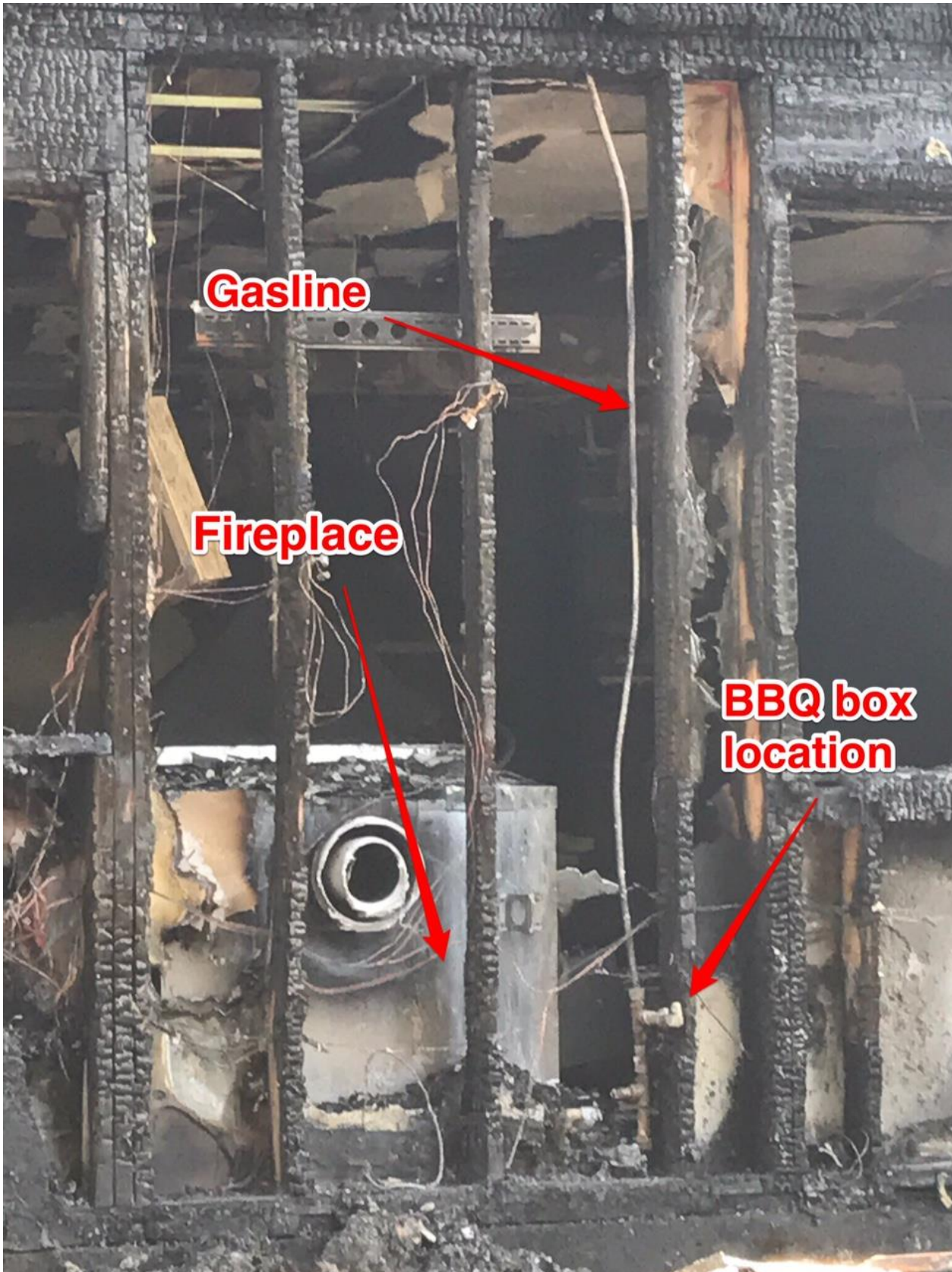
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		<p>2. A new natural gas barbeque was hooked to certified gas barbeque box at the rear of the home. The barbeque may have been left on and forgotten about. This could have started a fire on the exterior of the home. The fire could have spread to the wall, melting the gas appliance regulators for the barbeque box and the one inside the wall for the gas fireplace which would have let uncontrolled gas fuel the fire.</p>
	Facts and evidence	<p><b>Interview statement: Fire Department</b></p> <ul style="list-style-type: none"> <li>• Fire started approximately 1:00am at the rear of the house on the first floor.</li> <li>• Fire appears to have originated from the location of the new gas fireplace and barbeque.</li> <li>• Gas was fueling the fire at that location until the fire department shut off the gas meter.</li> </ul> <p><b>Interview statement: Gas contractor</b></p> <ul style="list-style-type: none"> <li>• Installed new CSST gas line from meter to new fireplace location.</li> <li>• Installed a new certified barbeque box with stainless steel cover and integral 2psi regulator on the exterior of the first floor of the house.</li> </ul> <p><b>Interview statement: Occupant</b></p> <ul style="list-style-type: none"> <li>• Purchased and installed a new dedicated natural gas barbeque one week before the fire occurred</li> <li>• No evidence of a gas smell was detected inside of the home any time after the gas line, fireplace or barbeque were installed.</li> <li>• Awoke approximately 1:00am to the sound of the smoke detector alarm.</li> <li>• When exiting the bedroom, the occupant looked down the hallway toward the back of the house and saw fire outside through the window at the back of the house.</li> </ul> <p><b>Site investigation and photographs</b></p> <ul style="list-style-type: none"> <li>• Fire patterns and wood charring identify the location of the fire origin to be the center of back of the house on the ground floor.</li> <li>• This is the location of the gas fireplace, gas fireplace regulator and natural gas barbeque box outlet and natural gas barbeque.</li> <li>• A new CSST gas line had been installed to this location at the back of the house. The CSST line dropped into the exterior wall bay from the ceiling and converted to black iron approx. 2' from the floor inside the wall bay. One black iron branch line went through the exterior wall to a stainless steel barbeque box. Another branch line inside the house went to a regulator and a copper gas line to the new fireplace.</li> <li>• The gas regulators for the fireplace and barbeque box outlet had both melted away allowing the escaping gas to help fuel the fire at this location.</li> <li>• The brass fitting from the CSST to the black iron was loose and could be moved by hand after the fire. None of the other threaded connections could be moved by hand.</li> </ul>
	Causes and contributing factors	<p>It is possible that a loose gas connection allowed gas to escape and find a source of ignition causing the fire.</p> <p>It is plausible that the natural gas barbeque was left on overheating the exterior wall causing the fire.</p>



Rear of house.





Rear of house first floor



