

## Incident Summary #II-925840-2019 (#15686) (FINAL)

SUPPORTING INFORMATION	Incident Date	October 17, 2019	
	Location	Burnaby	
	Regulated industry sector	Gas - Natural gas system	
	Impact	Qty injuries	0
		Injury description	N/A
		Injury rating	None
	Damage	Damage description	The front glass panel of the direct vent fireplace shattered and glass pieces flew about 6 ft to where they made contact and left small gouges on the front of the piano and on the floor in front of the piano. The metal at the back of the fireplace burner compartment fractured and metal pieces fell into the burner compartment. The direct vent fireplace cannot be used or repaired.
		Damage rating	Major
Incident rating	Major		
Incident overview	The owner of the dwelling unit attempted to ignite her direct vent fireplace by switching on the fireplace's remote switch that is located on the wall to the right of the fireplace. After a brief time she noticed that the fireplace's burner had not ignited. She went over to the remote switch and switched it off and on again where upon the glass blew out of the front of the fireplace striking her piano and floor.		
INVESTIGATION CONCLUSIONS	Site, system and components	The direct vent fireplace is located in a condominium on the 17 <sup>th</sup> floor of a high rise residential tower. This fireplace has 2 linear burners that are ignited by a standing pilot which also heats a thermocouple to supply millivolt power to hold open the pilot valve and a thermopile to supply additional millivolt power to operate the main gas valve from a remote switch. The combustion air is supplied directly from the outdoors and the products of combustion are exhausted directly to the outdoors through a coaxial flue system. The exhaust gases pass to the outdoors through the smaller vent pipe contained within the larger combustion air supply pipe. Combustion air enters the burner compartment through the larger combustion air supply pipe. The fireplace burners will ignite when the pilot light is lit, heating the thermocouple and the thermopile and producing sufficient millivolt power to open the gas valve from the switch circuit when the switch is moved to the on position.	
	Failure scenario(s)	The fireplace burners did not ignite when the remote switch was first switched to the on position. With the switch in the on position, power would open the gas valve allowing gas to flow into the burner compartment. The second attempt to ignite the burners would allow more gas to enter the burner compartment which then ignited creating sufficient force to fracture the glass and send it out into the room.	
	Facts and evidence	The fireplace had previously been used without any issue. The homeowner attempted to ignite the burners as she had done prior to the incident by switching the remote wall switch to the on position. After some time she noticed that the fireplace burners were not lit and switched the remote wall switch to the off position and then back to the on position. She reported that there was a small explosion in the burner compartment shattering the front glass and sending glass pieces out into the room.	
	Causes and contributing factors	The explosion was likely the result of too much gas in the burner compartment prior to ignition by an insufficient pilot flame or air/gas ratio.	