

Incident Summary #II-1459160-2022 (#30241) (FINAL)

SUPPORTING INFORMATION	Incident Date	October 27, 2022	
	Location	Langford	
	Regulated industry sector	Gas - Natural gas system	
	Impact Injury	Qty injuries	0
		Injury description	None
		Injury rating	None
	Damage	Damage description	Fire damage to free standing patio enclosure.
		Damage rating	Minor
	Incident rating	Minor	
	Incident overview	A structure fire occurred that was contained to the ceiling space of a free-standing patio enclosure following installation and operation of two new radiant heaters.	
INVESTIGATION CONCLUSIONS	Site, system and components	<p>Radiant heaters utilize a catalytic membrane resulting in infrared energy with little to no open flame. The surface temperature of the burner face is 600-1000 F.</p> <p>The radiant heaters were Heatstar model HS 4040 SPNG 40,000 Btus.</p> <p>The following clearances to combustibles are required for proper installation.</p> <ul style="list-style-type: none"> • Side 30" • Rear 30" • Above 34" • Below 68" <p>Due to the open nature of the space, an on/ off power supply was provided instead of a thermostat.</p>	
	Failure scenario(s)	<p>Two new radiant type gas heaters had been installed in the patio enclosure. The heaters were secured directly to the underside of the structures combustible ceiling with a bracket supplied by the manufacture.</p> <p>The space above the heaters had been fitted with a sheet metal guard covering the exposed wood framing. (Photos 1 and 2)</p> <p>Insufficient clearance was provided between the top and backside of the heater to combustible material. The heaters were operated which caused the combustible material above to ignite.</p>	
	Facts and evidence	Due to fire suppression and the elimination of hot spots, the heaters and ceiling panels were removed at the time of assessment.	

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	<p>Clearances were scaled off based on photos provided by the gas utility. Full charring of the ceiling space was evident above the first heater (Photo 1) with additional charring noted above the second heater (Photo 2).</p> <p>Photos show a protective sheet metal guard with mineral wool insulation was installed between the heater and the wood roof trusses.</p> <p>Manufacturers installation instructions and the appliance rating plate show the following clearance to combustibles</p> <ul style="list-style-type: none">• Side 30"• Rear 30"• Above 34"• Below 68"
Causes and contributing factors	<p>It is possible that the minimum clearance requirements between the heater and combustible material were not provided, as stated by the manufacture, based on the supplied photos.</p> <p>The installation of the mineral wool insulation and the sheet metal guard may not have provided the overhead/rear clearance reductions shown in table 4.1 of the B149.1.20</p>



Photo 1: Location one



Photo 2: Location two

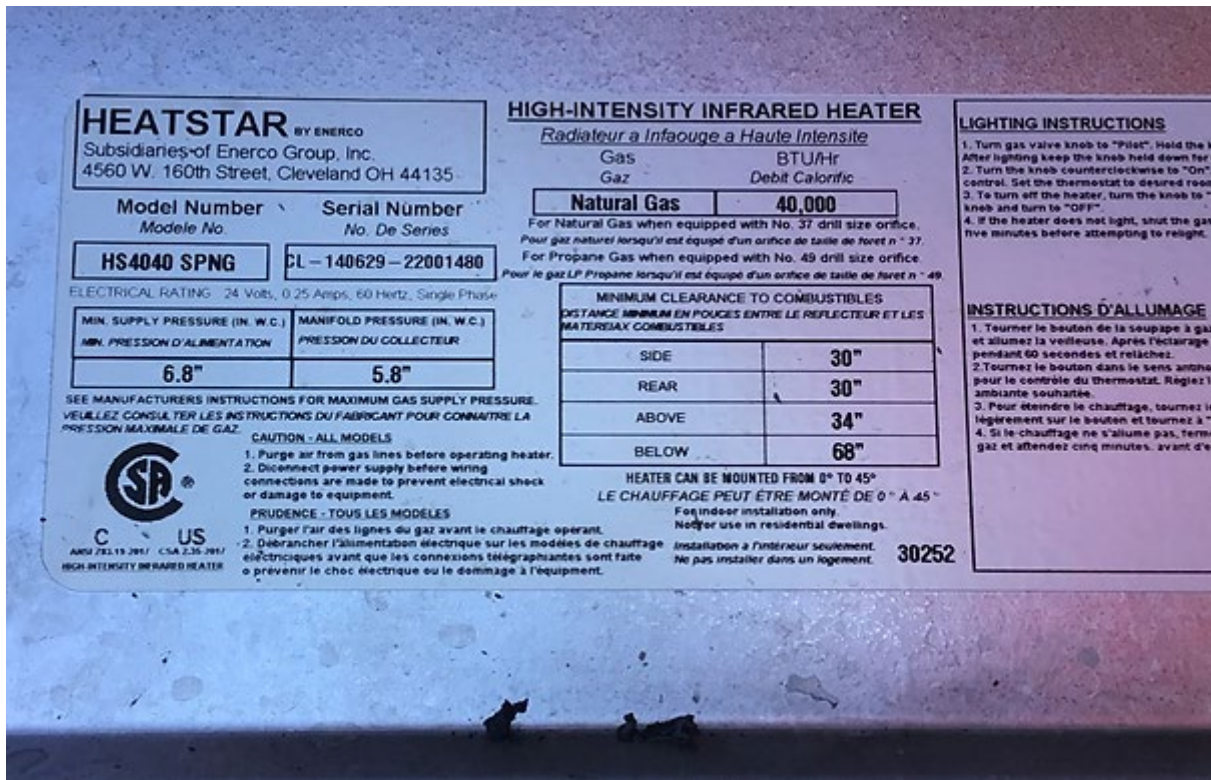


Photo 3: Rating plate showing clearances.



Photo 4: Charring above unit 2 when heater and metal sheeting removed.