

Incident Summary #II-812735-2019 (#10824) (FINAL)

SUPPORTING INFORMATION	Incident Date	February 4, 2019	
	Location	Kelowna, BC	
	Regulated industry sector	Electrical - Low voltage electrical system (30V to 750V)	
	Impact	Qty injuries	0
		Injury description	N/A
		Injury rating	None
	Damage	Damage description	Electrical arc and heat damage to a 120 volts 15 amp general use receptacle, heat damage to circuit conductors inside outlet box
		Damage rating	Minor
Incident rating	Minor		
Incident overview	A 120 volts 15 amp general use receptacle overheated which damaged the receptacle supply conductors. The supply conductors arced causing a small flash and some smoke to exit the receptacle and cover. Damage was contained within the outlet box except for minor smoke stain on the wall beside the receptacle cover. The owner was present and disconnected the circuit prior to calling the Kelowna Fire Department.		
INVESTIGATION CONCLUSIONS	Site, system and components	Residential device wiring and components are required to be installed within an outlet box. The box provides a means for mounting the device and equipment to the wall, provides an enclosed space to make branch circuit splices and contains sparks and hot metal should a wiring or device problem occur.	
	Failure scenario(s)	An individual replaced the original receptacle device with a newer one. The circuit connections from the conductors to the device were poorly made using the screws provided on the side of the device. The poor connection, made by wrapping just a portion of the copper wire around the screw head, overheated when the device supplied the lamp and other loads. The heat travelled back through the copper conductor a few centimeters to the point where the circuit splicing was made. The splice had been covered in electrical tape in a manner consistent with trade practise. The tape heated and melted until the energized conductor under the tape touched the side of the metal box creating a short circuit and the resulting sparks and hot metal flyings.	
	Facts and evidence	A new receptacle had been installed on the existing outlet box The branch circuit conductors could be seen connected to the receptacle screws provided in a manner which contravenes good trade practise. The line conductor could be seen burnt back to the circuit splice cap. Arc marks could be seen on the side of the outlet box Smoke stains could be seen on the wall paint beside the outlet box cover.	
	Causes and contributing factors	A poor circuit connection made to a general use receptacle overheated causing the circuit conductor insulation supplying the receptacle to fail and short circuit	



Receptacle and outlet box at scene of incident



Completed repair