

Incident Summary #II-1644212-2023 (#42077) (FINAL)

SUPPORTING INFORMATION	Incident Date	December 4, 2023	
	Location	Duncan	
	Regulated industry sector	Electrical - Low voltage electrical system (30V to 1000V)	
	Impact	Qty injuries	1
		Injury description	2 nd degree burns to hands.
		Injury rating	Moderate
	Damage	Damage description	Burnt breakers, melted conductors, and buss bars.
		Damage rating	Minor
	Incident rating	Moderate	
Incident overview	A worker at a restaurant caused a line-to-line ground fault when installing an unapproved breaker into a 200amp, 208v panel.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>The restaurant had a 3 phase, 200amp, Sylvania combination panel, fed from a 600amp splitter. The panel label specified, approved for use with QB or QBH branch circuit breakers.</p> <p>The panel was equipped with a main disconnect and the panel branch circuit breakers were labelled with a Square D panel schedule. The new branch circuit breaker that was attempted to be installed in the panel was a Square D, QO, 2 pole 20amp.</p> <p>2-304 of the BC electrical code states that <i>“no repairs or alterations shall be carried out on any live equipment except where not feasible, and appendix B note to rule 2-304 gives examples of not feasible, as trouble shooting control circuits, testing, and diagnostics.”</i></p>	
	Failure scenario(s)	<p>A worker was installing a branch circuit breaker into a breaker panel to feed a new receptacle. The worker was a new Journeyman electrician, having just passed the BC trade qualification exam (4th year exam), earlier that month. There was no Field Safety Representative (FSR) (qualified individual) in charge of the work and no permits had been obtained for the work. The worker failed to recognize that the “Square D” style breaker was not compatible with the Sylvania breaker panel. The Sylvania panel had a Square D panel schedule, which displays information about the panel, circuits, and corresponding loads. The worker incorrectly used this schedule to determine he needed a Square D breaker.</p> <p>The worker did not de-energize the panel when installing the branch circuit conductors and the breaker. The panel was equipped with a main disconnect, but the worker did not want to inconvenience the restaurant by turning off the power.</p> <p>into a bolt on Sylvania panel that was not compatible to accommodate this type of breaker. The worker did not de-energize the panel prior to attempting the installation. When attempting to screw the new breaker onto the buss bar, the screwdriver slipped and caused a short circuit. The worker received 2nd degree burns to their hands and was transported to hospital via ambulance.</p>	

Incident Summary #II-1644212-2023 (#42077) (FINAL)

Facts and evidence	<p>Witness statements</p> <ul style="list-style-type: none">• The worker used the schedule on the panel and incorrectly identified a “Square D” style breaker for the Sylvania panel• The worker had only just become a Journeyperson after passing the qualification exam earlier that month.• The work was being done without a permit and there was no FSR responsible for the work• The worker stated they did not de-energize the electrical panel before working on it because they did not want to inconvenience the restaurant by turning off the power.• The bolt on the breaker was incompatible with the panel.• When the bolt was being attempted to be installed with a screwdriver, the screwdriver slipped contacting energized parts of the panel creating a short circuit
Causes and contributing factors	<p>The cause of the incident was the electrical work being done without first de-energizing the panel as required by BC Electrical Code.</p> <p>Contributing factors to the incident include the inexperience of the worker and along with no Field Service Representative responsible for the work allowing the incorrect breaker to be selected and attempted to be installed.</p>

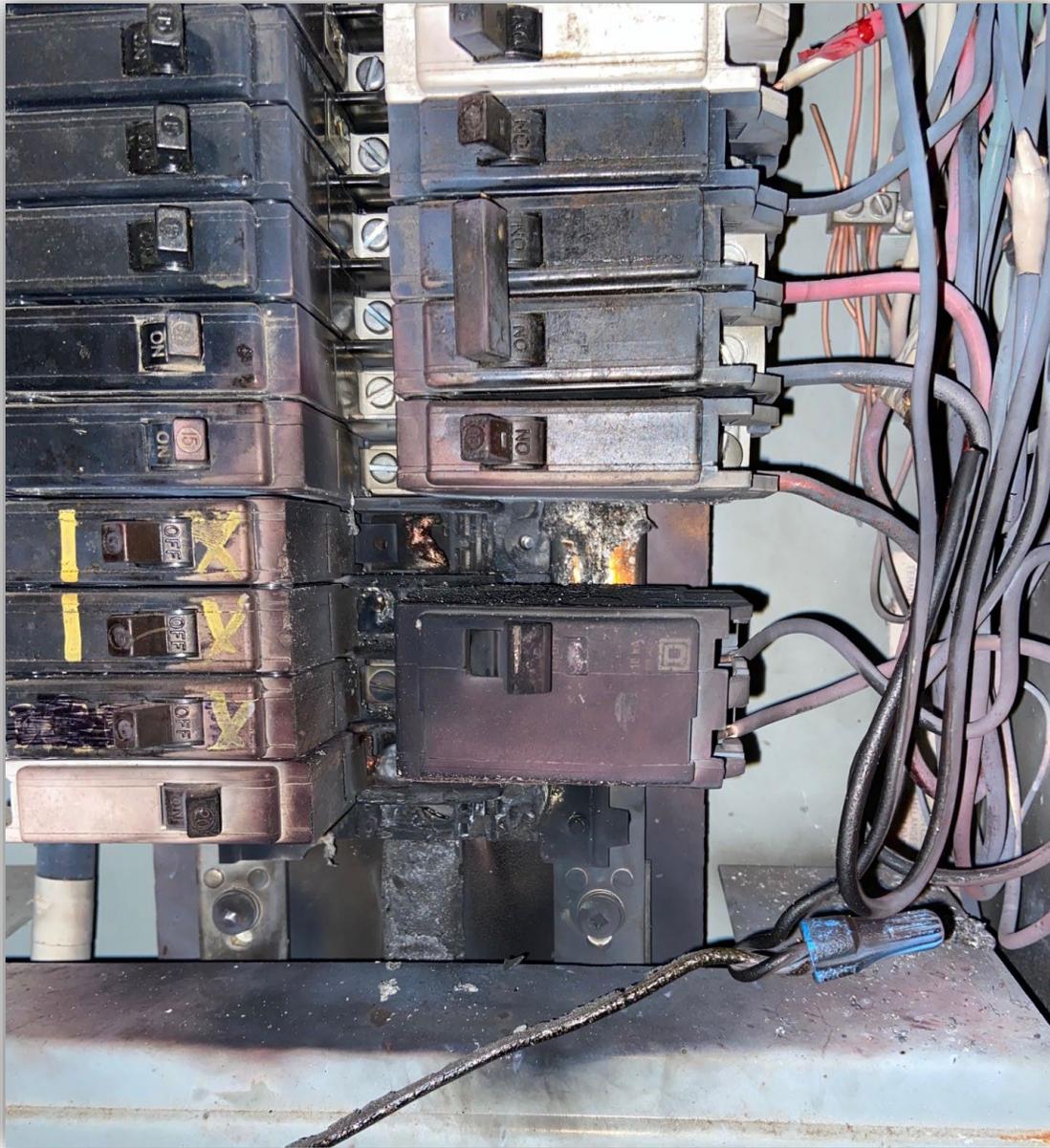


Image 1 – Panel showing damage from the short circuit.



Image 2 – Closeup of the panel showing damage from the short circuit.

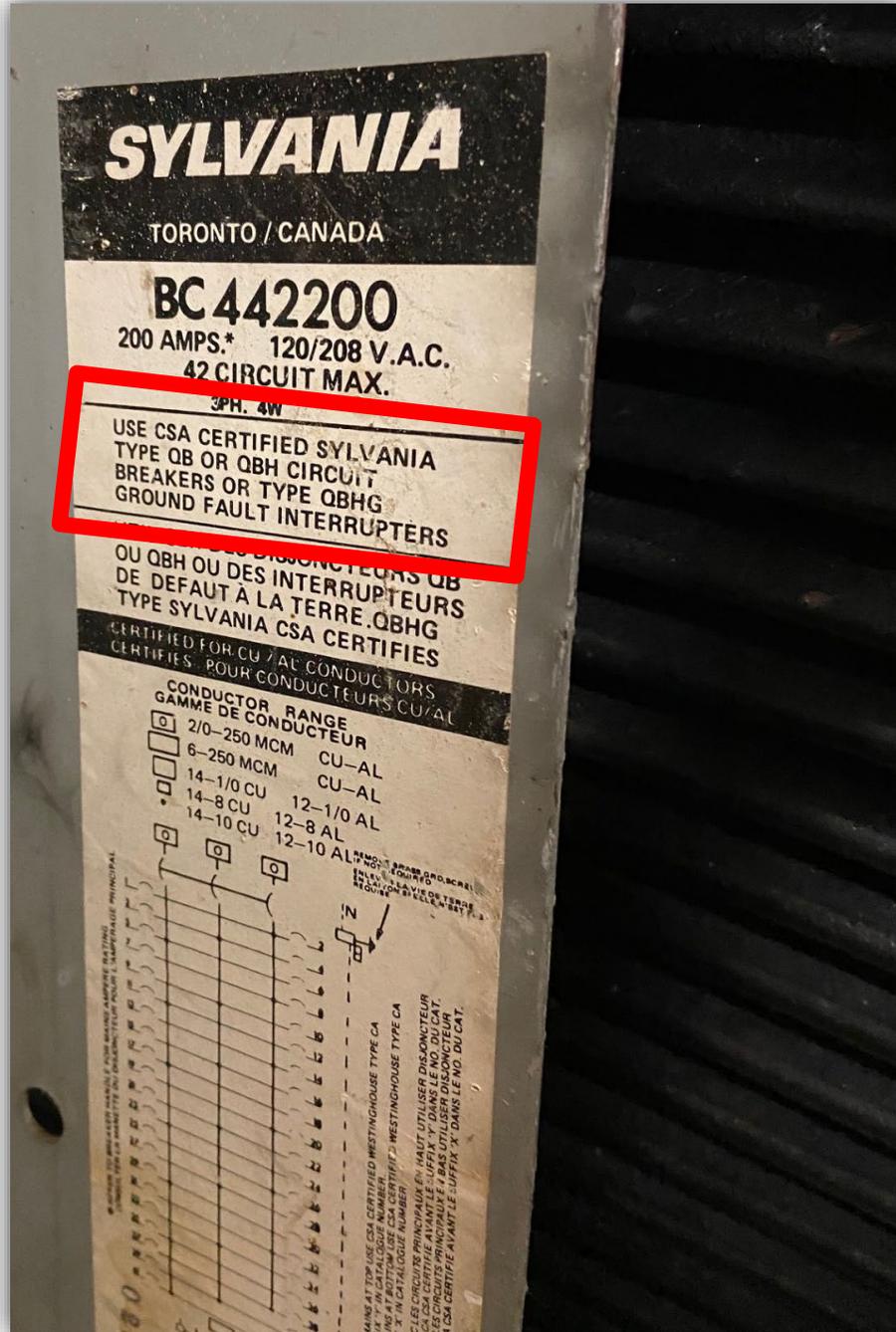


Image 3 – Panel schedule showing compatible breaker types.

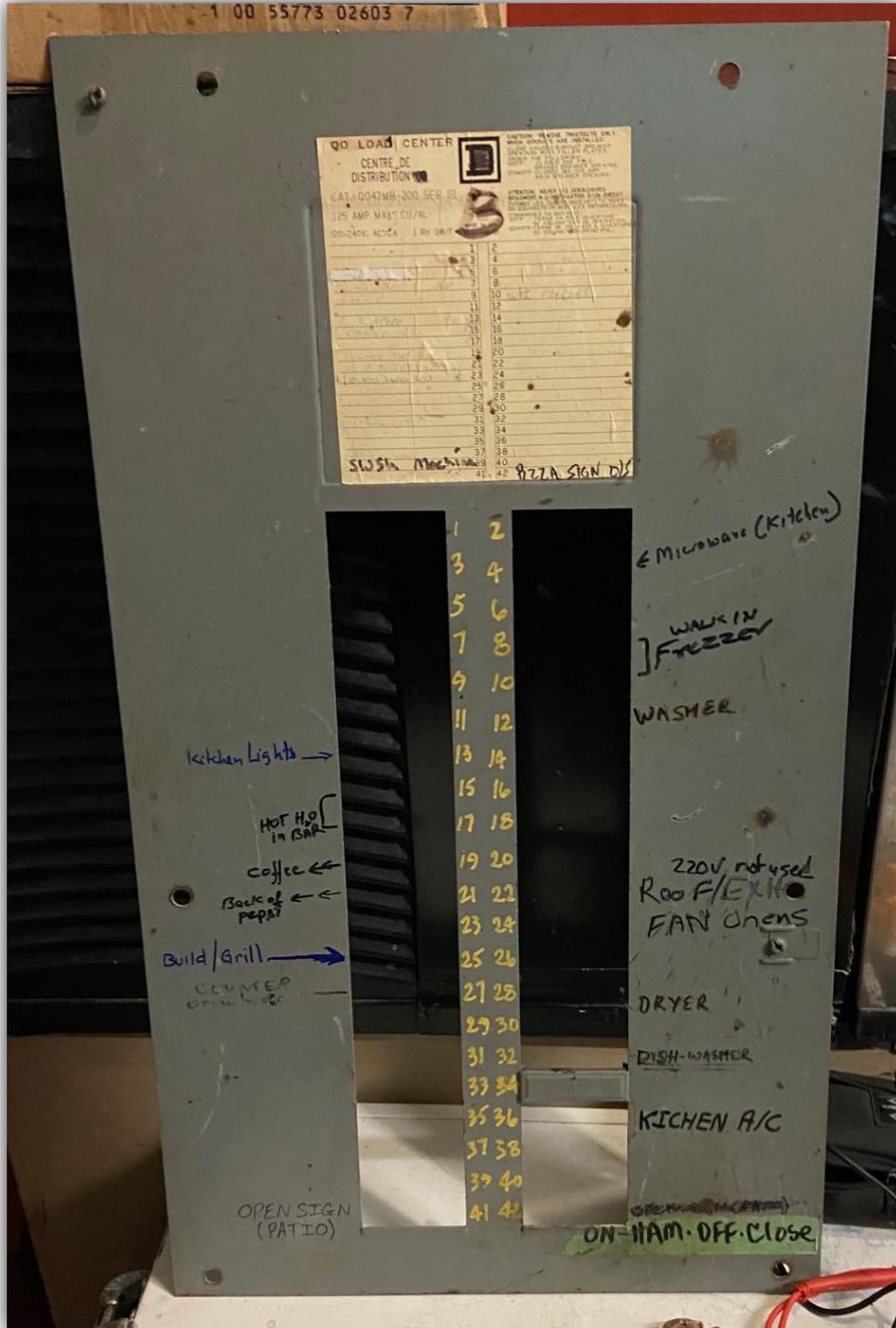


Image 4 – Panel cover showing a Square D schedule.



Image 5 – Two breaker panels next to each other.