# Incident Summary #II-1786583-2024 (#54049) (FINAL)

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| SUPPORTING INFORMATION | Incident Date | | November 4, 2024 |
| | Location | | McBride, BC |
| | Regulated industry sector | | Electrical - Low voltage electrical system (30V to 1000V) |
| | Impact – Injury | Qty injuries | 0 |
| | | Injury description | N/A |
| | | Injury rating | None |
| | Impact – Damage | Damage description | An electrical fire inside a supermarket damaged electrical wiring as well as the surrounding ceiling and wooden trusses. |
| | | Damage rating | Moderate |
| | Incident rating | | Moderate |
| | Incident overview | | Electric freezer door strip heaters were connected to an in-ceiling electrical junction box by an unlicensed individual. When energized, the connected electrical circuit overloaded, starting a fire. |
| INVESTIGATION CONCLUSIONS | Site, system and components | | This incident occurred at a supermarket utilizing a 120/208-volt, three phase, four wire electrical system.<br><br>Connected electrical loads are to be evenly distributed across the 3 phases of the electrical system, and appropriately sized wiring and breakers are to be utilized to ensure that circuits are not overloaded.<br><br>Applicable BC Electrical Safety Regulation 4(a) requires that regulated electrical work must be performed by qualified individuals to ensure that this work is safe and compliant. |
| | Failure scenario(s) | | The electric freezer door strip heaters were all connected between the neutral and one phase conductor (black) of the three-wire circuit. The second phase conductor (red) was left unconnected. With all of the heaters on one circuit, the heater circuit was overloaded, but the breaker protecting the overloaded circuit did not trip in time. As a result, a wire splice within the ceiling mounted outlet box overheated, starting a fire.<br><br>The freezer door strip heater circuits were supplied by a 30-amp, 120/208-volt breaker, feeding a 3 conductor #14 AWG NMD 90 branch circuit cable. This reconnected door heater circuit overheated within the ceiling junction box and started a fire inside the box which spread to the ceiling joists.<br><br>The #14 AWG branch circuit conductors were overloaded as they are rated for 20 amps in the BC electrical code and were connected to a 30-amp breaker. The maximum rating the breaker is allowed to be for a heating circuit using #14 AWG copper wiring is 25-amps. |

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| Facts and evidence | A refrigeration company was onsite installing four new refrigeration units for remodelled walk-in coolers. They rewired the new refrigeration equipment and reconnected the walk-in cooler front door strip heaters. The refrigeration company did not have an electrical installation permit, was not a licensed electrical contractor, and did not have a B-R Refrigeration FSR certification. |
| Causes and contributing factors | The incorrect wiring of the circuit was the cause of the incident.<br><br>The installation being completed by an unqualified individual may have contributed to the incorrect installation. |

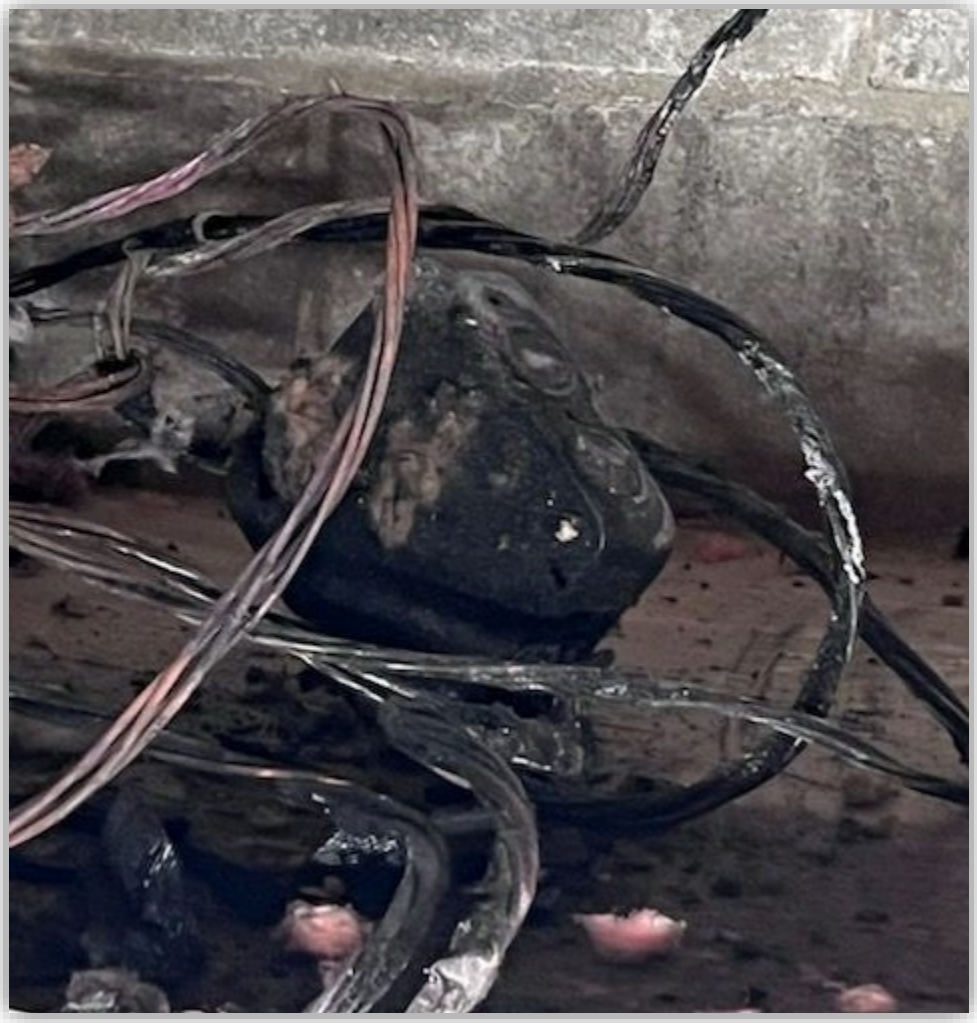

Image 1 – Burnt wiring.

Image 2 – Damage to ceiling.

Image 3 – More damage.