

PROTECTION OF ELECTRICAL RACEWAYS AND CABLES UNDER ROOF SYSTEMS AND DECKS

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The following bulletin provides guidance on the application of BC Electrical Code: Section 2.

The Roofing Contractors Association of British Columbia (RCABC) has reported a recent increase in damage to electrical raceways and cables being installed within, or adjacent to, the underside of roofing systems or roof decks. Cables and raceways installed in proximity to roofing systems or roof decks may be subject to mechanical damage during roof installation or repairs. Nails and screws, used to penetrate the roofing from the top during the roof installation process, can easily penetrate electrical cables and raceways installed within, or adjacent to, roofing systems or roof deck. This may result in electrical shock or create a fire hazards.

The figure below shows a typical roofing system and how a screw can easily penetrate electrical equipment (this example shows a conduit):

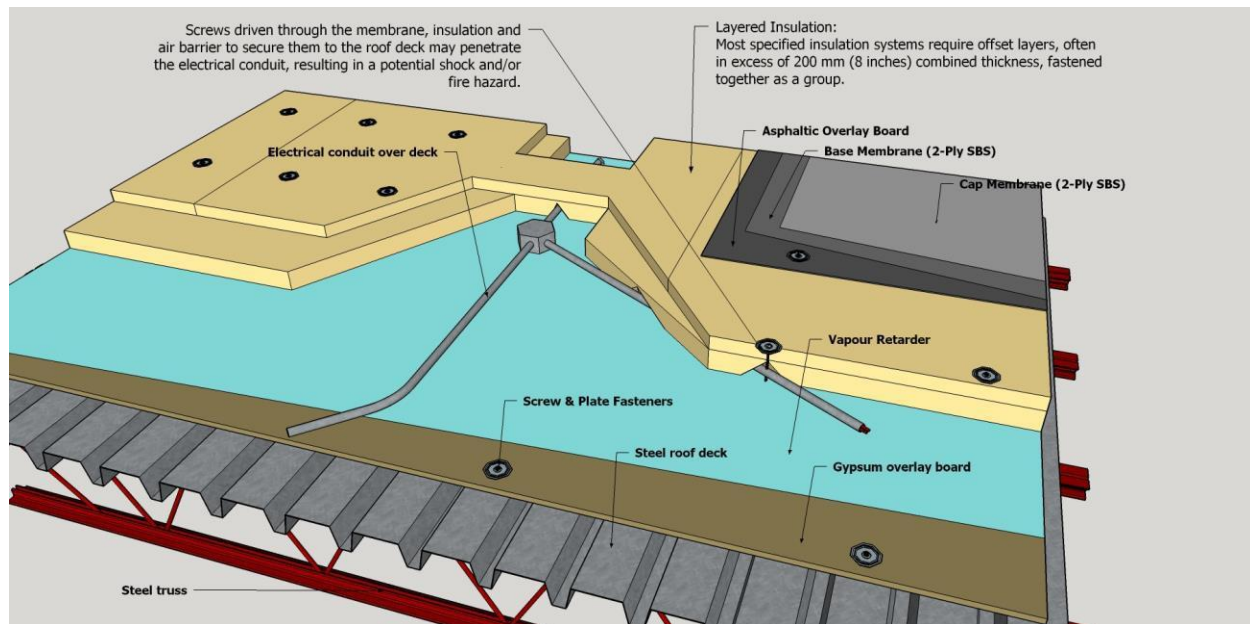


Diagram courtesy of Roofing Contractors Association of British Columbia

1. **Rule 2-032 Damage and Interference** requires that no person shall cause damage to an electrical installation or components thereof, except when it is necessary to disconnect or move components of an electrical installation during alterations or repairs.; it is the responsibility of the person carrying out the alterations or repairs to ensure the electrical installation is restored to safe operating condition.

Persons performing roof installation, alteration, or repair must ensure that they have identified and located all electrical equipment installed within, or adjacent to, the roofing system or roof deck before carrying out their work. Mapping of conduit and cable locations, disconnection of electrical power within work areas, and safe work practices will reduce or prevent electrical fire and shock hazards. Electrical contractors should ensure that electrical drawings accurately show the locations of electrical raceways and conduits upon completion of their work. Alteration or relocation of electrical conduits, raceways, and equipment may only be performed under a valid electrical permit.

2. **Rule 2- 200 General** requires that electrical equipment must be protected and guarded against mechanical damage or other damage to which it is liable to be exposed.

The Roofing Contractors Association of British Columbia recommends that electrical raceways and cables can be protected from mechanical damage by ensuring that:

- a) no electrical equipment is installed closer than 38mm (1.5") as measured from the nearest point of the roofing system or deck; or
 - b) the electrical equipment is protected from mechanical injury by a steel plate no less than 5mm (3/16 inch) thick, and extends at least 38mm (1-1/2 inches) beyond the electrical equipment on each side.
3. **Rule 12-022** Cables or raceways installed in roof decking systems (see Appendix B)
 - 1) Cables or raceways installed in accordance with this Section shall not be installed in locations concealed within a roof decking system where the roofing systems utilize screws or other metal penetrating fasteners.
 - 2) Notwithstanding Subrule 1), the following circuits shall be permitted for installations in locations concealed within a roof decking system:
 - a) Class 2 circuits in which the open-circuit voltage does not exceed 30V; and
 - b) embedded trace heat.
 - 3) Where wiring is concealed within the roof decking system in accordance with Subrule 2), a warning label shall be affixed
 - a) at all permanently installed roof access points, where provided; and
 - b) in a conspicuous location in the roof area where the wiring is installed.

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Provincial Safety Manager

References:
BC Electrical Code

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