2024 Canadian Electrical Code (CE Code) – Impact Assessment

DESCRIPTION OF TABLE

Section - Rule	Topic	Summary of proposed change	Impact to safety	Impact to other codes, regulations and standards	Impact to business	Impact rating
Specify old Rule number	Provide brief description of change	Summary of the proposal What is the current status (requirement) Why is the change required (rationale) What is the proposal trying to address What will be the scale of the impact? (i.e. e.g. every new home, niche market)	Safety impact Addressing new technologies Identify stakeholder impacted GBA+ Analysis Indigenous Impact	Consistency with other codes, regulations and standards	Cost (positive/negative) Change of practice Clarify wording Identify the stakeholders impact	High Medium Low

TECHNICAL SAFETY BC - CE Code 2024 Analysis

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New Energy Requirements and Equipment: Electric Vehicle Supply Equipment and Energy Management Systems						
Section 8	Electric vehicle supply equipment demand rules	The 2024 Code adds electric vehicle supply equipment (EVSE) and electric vehicle energy management system (EVEMS) demand factors to load calculations for all buildings except for single dwellings.	Previously, the interpretation of the rule was not clear. This will have a positive impact to safety as the new demand factor calculation of load imposed on the system and an EVEMS will mitigate the potential of overloading the service.	A 100% demand factor has been applied to the electric vehicle supply equipment (EVSE). As a result, Table 38 has been deleted. The requirements are in line with IB-2023-05, which was published in 2023 in anticipation of these changes.	This is dependent on the type of installation chosen. The cost impact may be a result of a larger calculated demand. This could be mitigated using EVEMS equipment that would see the reduction in the calculated load and potentially no increase in service size.	***HIGH***
Section 64	Energy storage and renewable energy systems requirements	The 2024 code clarifies requirements for energy storage systems (ESS), including ESS rated 1 kWh or less, ESS located in dwelling units, and ESS located in buildings containing multiple dwelling units.	This will have a positive impact to safety as it aligns with building code rules to allow for the installation of energy storage system within a dwelling unit. Previous code did not allow for energy storage systems in dwelling units.	These requirements align with the new BC Building and Fire Code. The requirements are in line with IB-2023-05, which was published in 2023 in anticipation of these changes. This bulletin will be modified or rescinded.	These changes allow flexibility in the placement of the equipment. Previously, the equipment could only be placed in the garage or outside the building.	***HIGH***
New Rules & Requirements						
Section 2	General Rules Marking of equipment	Changes requires the labelling of services based on loads. This will assist in scenarios where individuals need to add load (i.e., EV loads).	This provides clarification and precise requirements of actual size of the service. This will have a positive safety impact to workers. Qualified individuals		The marking contains information from the original install to inform future owners, contractors, designers, and maintenance staff when planning to add loads to the existing installation.	***HIGH***

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			will not need to be exposed to possible energized equipment when verifying the sizing of the concealed service conductors and equipment.		This will help with the province's electrification initiatives on existing installations when a qualified individual can identify the actual service characteristics. There will be no cost associated with the label, but there will be a cost savings when planning for additional loads as an initial review would not require a possible cost for a hydro disconnection to verify the concealed conductors and service equipment. In some installations, qualified individual would need to ask BC Hydro to disconnect to verify the concealed conductors and service equipment.	
Section 26	Additional receptacles for the outside of dwelling units	New rules requiring additional receptacles for the outside of dwelling units.	This is an increase in safety for homeowners. Eliminate excessive use of extension cords.		Minor cost increase for additional labour and materials.	***HIGH***
Section 56	Fibre optic cable	New rule allowing conductive fibre optic cable to be used alongside power conductors in raceways without separation in industrial establishments.	There is no direct impact to safety. The 2024 Code allows for use of power or communications to be in the same raceway as the conductive fibre optic cable. This is a cost savings to industry as an additional raceway would not need to be installed.		Contractors may experience cost savings as the previous code required an additional raceway or divider. As the new code permits the cable to be in the same raceway as other power and communication cables, an additional raceway or divider is not required. If a fibre optic cable is used alongside a power conductor in the raceway, the new Code requires a metallic armoured cable to also assist in meeting the required Section 2: FT 4 flame-spread requirements.	***HIGH***
Section 68	Requirements associated with pool, tubs, and spas	The new requirements now provide clear direction on bonding of electrical equipment and other conductive infrastructure associated with pools. The revisions include clarified requirements for bonding reinforcing steel.	This revision increases safety for both users and personnel maintaining pools, spas, and tubs, by providing clear		There will be an increased cost for installation of certain types of pools including hot tubs in certain scenarios. There will be an increased cost for	***HIGH***

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		New and clear requirements around the location of pool equipment disconnecting means.	requirements for provision and location of disconnecting means. These disconnects means for pool pumps, spas, and hot tubs are now required to be readily accessible when the equipment is located outside the dwelling unit. Previously these disconnecting could be allowed inside the dwelling unit. To reduce voltage gradients and stray voltages in the vicinity of pools substantial revisions to Section 68 now provide clear direction on equipotential bonding of electrical equipment and other conductive infrastructure associated with pools. The revisions include clarified requirements for bonding reinforcing steel. To reduce electric shock hazards, the new rule is now requiring a continuous 1.5m wide bonding copper conductor grid pattern (300mm by 300mm) to be installed around the circumference of the pool.		installation of certain types of pools including hot tubs in certain scenarios. There will be an increased cost for installation for bonding of pool decks and other perimeter surfaces, including hot tubs and spas in certain scenarios (e.g., hot tubs or spas that are considered a complete package that have been made in a factory, not built on site). The added cost comes from the new rule now requiring a continuous 1.5m wide bonding copper conductor grid pattern (300mm by 300mm) to be installed around the circumference of the pool. This rule now clarifies that a ring of copper conductor to be placed 450mm to 600mm from the contour of all hot tub or spa is required. Previously this was not considered when the hot tub and Spas were manufactured in a factory as a regulated product and installed on site.	
Alignment with other Codes						
Section 2	General Rules Shock and arc flash protection	Changes require a means be provided and documented to reduce arcing fault clearing time for overcurrent devices rated 1200 amps or more.	This will have a positive safety impact to workers and equipment safety. Shock and arc flash protection will decrease hazards and increase the level of safety for personnel that operate or perform justified energized work such as	The revision aligns with Section 240.87 in the NEC.	There will be an added cost for the addition of equipment rated 1200 amps or higher for reducing the arc fault clearing time. There will be minimal training/education required to designers of the arcing fault	***HIGH***

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			testing and troubleshooting on switchboards, panel boards, industrial control panels, motor control centres and similar equipment.		clearing time for overcurrent devices rated 1200 amps or more. Qualified individual will be required to perform incident energy calculations and design arc fault mitigation strategies.	
Section 24	Health care facilities	Changes provide guidance for the location, securement, and accessibility of panel boards supplying circuits in patient care areas. 1. Branch circuit requirements for loads supplying loads equipment in intermediate and critical care areas have been extended to basic care areas to provide the same level of protection to patient regardless of where they are in the healthcare facility. The requirements were more stringent in the intermediate and critical areas and are now required in the basic care area. 2. Tamper-resistant receptacles, required in other areas of the code is now a requirement for basic care areas designated for diagnosis, therapy, and care of children. 3. New bonding options separating panels located within a basic care area and panel located outside of the area but supplying equipment within the area.	This will increase safety by having a two wire circuits requirement. Previously if multi-wire circuits were installed having a shared neutral, an electrical hazard at patient care area receptacles could take place if ever the neutral was inadvertently disconnected. New branch circuit requirements increase safety and remove inconsistency between requirements for basic care areas and intermediate/critical care areas	This aligns with the objectives of CSA Z8000, Canadian Health Care Facilities.	There will be a minor cost increase for two wire circuits. A conductor (neutral) is now required for each circuit as previously one conductor (neutral) may supply up to three circuits. There will be a minor cost for added tamper-resistant receptacles as previously they were not required. Additional bonding option for the location of the panel boards located outside of the patient care areas will reduce the cost of the bonding conductor and allow an aluminum conductor to be used in the feeder. This is extremely beneficial for existing buildings when not originally installed for patient care areas (e.g., a new installation for a dental office is located on the 11th floor in an existing building but the original feeder was installed using an aluminum bonding conductor). The previous code required that bond conductor be copper. This had a higher cost for the replacement of the conductor and cable.	***HIGH***
Section 36	New method for connecting high voltage equipment for temporary and portable power installations	New terms to recognize new temporary and portable power installations and the use of an acceptable means of connection. Rules have been added to allow 'couplers.	Increase in the safe operation for workers repeatedly connecting and disconnecting portable high voltage equipment.	This aligns with CSA M421, Use of Electricity in Mines.	Allows industry the flexibility to use alternative installation options and new products.	***HIGH***
Section 66	Ground fault circuit interrupter protection	New rule requiring ground fault circuit interrupter protection for extension cords plugged into a portable	This will have a positive safety impact for users of generators	This aligns with WSBC guidelines Part 19 – General Electrical Requirements	There will be an added cost due to the additional GFCI protected device.	***HIGH***

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		generator or portable power distribution equipment located outdoors or in damp locations	for itinerant midways, carnivals, fairs, and festivals against electric shock. The GFCI is rated to trip quickly enough to prevent an electrical incident, which will reduce the risk of shock and electrocution			
Section 10	Equipotential bonding	Previously the Code had two points of connection for equipotential bonding, one through the gas appliance branch circuit, and one through the requirement of a #6 bond conductor attached to the gas piping system. The new Code does not require the redundancy of a #6 bond conductor as the branch circuit encompasses the equipotential bonding already.	This will have a positive safety impact from a labour and materials perspective as a #6 bond conductor is no longer required.	This aligns with the gas code- CSA B149.1.	This will be a cost savings as previously a gas piping system was to be bonded using a #6 AWG copper conductor and the bonding conductor with the branch circuit by an electrical connection to a gas appliance. The revision now allows just the branch circuit bonding conductor to the electrical connection to a gas appliance, be provided if it is a permanent connection.	***HIGH***
Clarifications						
Section 6	The use of a bare neutral in consumer's services	Significant changes to Section 10 resulted in the requirement of single-point grounding. However, Section 6 did not consider of the changes in Section 10. Section 6 may have had multiple points in contact with the metal raceway and service, thus creating an electrical shock and fire hazard with the associated equipment.	This will have a positive safety impact as it eliminates the potential shock or equipment damage due to multiple points of contact with the bare conductor.		Sections 10 and 6 have been clarified. This may decrease non-compliances related to confusions in bonding. There is no significant cost with the new requirement of an insulated conductor being installed when compared to a bare copper conductor. Change of practice is low as most installers were installing insulated conductors.	***HIGH***
Section 6	Methods of installing meter loops	Meter mounted transfer switches have been defined and rules created allowing new products to be used for emergency power outages	This will have a positive safety impact as there is an increased ability to respond to emergency power outages. Once installed, this will allow for a quick and safe connection to an alternative power source by a	This revision recognizes that product standard CSA C22.2 No. 115 was revised to include product requirements for combination meter-mounting devices incorporating service equipment.	Meter mounted transfer switches are a lower cost alternative than permanently installed emergency power. This may help in providing emergency power during natural disasters.	***HIGH***

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			non-qualified individual (e.g., homeowner). Meter mounted transfer switches will help prevent unauthorized connections to the electrical systems and assist in preventing inadvertent back feeding causing a hazard to the utility workers and equipment.	Meter mounted transfer switches are a relatively new product and may impact utilities requirements and policies.		
Section 12	Overhead installations	A distance between supports spans (poles) for the neutral supported cable is now not to be more than 10m away when the final point of attachment is to a mobile home, relocatable structure, or similar structure, which previously could be a maximum of 38m away from any structure.	This will have a positive safety impact. During storm events longer support spans can be compromised by ice loading, falling trees, and high winds. Shorter distances provide for a more stable and secure installation. The structures in question have been constructed with lesser structural integrity than that of a building or structure that had been built to the BC Building Code (BCBC). This new rule will increase safety when additional loading is imposed on the neutral support cable.		This would be an added cost to owners of mobile home, relocatable structure, or similar structure. An added support (pole) may be needed as previously the support pole could be a maximum of 38m away from any structure.	***HIGH***