

## STANDARD INFORMATION

**Standard:** CSA C22.2 No. 130

**Standard ID:** Requirements For Electrical Resistance Trace Heating and Heating Device Sets [CSA C22.2#130:2025 Ed.5]

**Previous Standard ID:** Requirements For Electrical Resistance Trace Heating and Heating Device Sets [CSA C22.2#130:2016 Ed.4+U1;U2;E1]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** January 1, 2027

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

### Overview of Changes:

- integral components and maximum withstand temperature
- addition of requirements for the use of a ground-fault circuit device of the Class A type, for trace heaters and panels <50 mm from the surface of a wall or ceiling
- addition of a marking requirement for mechanically protected heaters
- termination kits and integral components and test requirements

Specific details of new/revise requirements are found in table below

Note: If the listing references a Canadian standard, per the Canadian Electrical Code (CSA C22.2#0) Section titled Language of markings, Caution and Warning Markings shall be in English and French.

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined out</del> below.
5	Info	<b>Markings</b>
5.1	Info	<b>Packaging</b>
		<b><i>New clause added;</i></b>
		<b>Heating devices for walls and ceilings less than 50 mm from the surface</b>
5.1.2		<p>In addition to the requirements of Clause 5.1.1, except for Item e), heating devices intended for the following applications shall be clearly and permanently marked with “CAUTION: A Class A ground-fault circuit-interrupter shall be used with this heating device” and “ATTENTION : Ce dispositif de chauffage doit être utilisé avec un disjoncteur différentiel contre les fuites à la terre de Classe A”, or equivalent:</p> <p>a) for wall heating devices installed within 50 mm from the surface; and b) for ceiling heating devices installed within 50 mm from the surface and not mechanically protected.</p>
		<b><i>New clause added;</i></b>
5.1.3		<b>Marking of heating devices for walls and ceilings less than 50 mm from the surface</b>
		Wall and ceiling heating devices complying with the mechanical protection tested in accordance with Clause 6.2.17.5 may be marked “X-MP”.
5.2	Info	<b>Factory-assembled heating device sets</b>
		<b>General</b>
5.2.1		<p>Factory-fabricated heating device sets shall be provided with a durable tag permanently attached to the products within 75 mm of the power connection or power-connection fitting and marked with the following information:</p> <p><u>h) the modifier to the “X” marking for “mechanically protected” as indicated in Table 1, if applicable;</u></p>



CLAUSE	VERDICT	COMMENT
<b><i>New clause added;</i></b>		
<b>Heating devices for walls and ceilings less than 50 mm from the surface</b>		
5.2.2		<p>In addition to the requirements of Clause 5.2.1, except for Item j), heating devices intended for the following applications shall be clearly and permanently marked with “CAUTION: A Class A ground-fault circuit-interrupter shall be used with this heating device” and “ATTENTION : Ce dispositif de chauffage doit être utilisé avec un disjoncteur différentiel contre les fuites à la terre de Classe A”, or equivalent:</p> <p>a) for wall heating devices installed within 50 mm from the surface; and b) for ceiling heating devices installed within 50 mm from the surface and not mechanically protected.</p>
5.3	Info	<b>Field-assembled heating device sets</b>
<b>Heating devices</b>		
5.3.1		<p>Heating devices intended for field assembly shall be clearly and permanently marked with the following information:</p> <p><u>f) the modifier to the “X” marking for “mechanically protected” as indicated in Table 1, if applicable;</u></p>
<b><i>New clause added;</i></b>		
<b>Heating devices for walls and ceilings less than 50 mm from the surface</b>		
5.3.2		<p>In addition to the requirements of Clause 5.3.1, except for Item k), heating devices intended for the following applications shall be clearly and permanently marked with “CAUTION: A Class A ground-fault circuit-interrupter shall be used with this heating device” and “ATTENTION : Ce dispositif de chauffage doit être utilisé avec un disjoncteur différentiel contre les fuites à la terre de Classe A”, or equivalent:</p> <p>a) for wall heating devices installed within 50 mm from the surface; and b) for ceiling heating devices installed within 50 mm from the surface and not mechanically protected.</p>



CLAUSE	VERDICT	COMMENT
<b><i>New clause added;</i></b>		
<b>Integral component kits</b>		
The cartons or containers and the instruction of integral components, intended for field assembly, shall be marked with the following information:		
5.3.4		a) the manufacturer's name, trademark, or other recognized symbol of identification; b) the catalogue number, reference number, or model; c) the month and year of manufacture, date code, applicable serial number, or equivalent; d) the usage marking as shown in Table 1; e) the type and model or catalogue number of heating devices which they are allowed to be installed with; f) the rated voltage; g) the maximum permissible steady-state current; h) the manufacturer's declared minimum installation temperature; i) the words "Refer to installation instructions", or equivalent wording, and any applicable notices, warnings, and directions to the installer; and j) an explanation of the specific applications.
6	Info	<b>Type tests</b>
6.2	Info	<b>Heating devices</b>
6.2.9	Info	<b>Resistance to cutting</b>
<b>Test</b>		
6.2.9.3		The machine shall be set in operation and the load recorded at the instant the blade contacts the conductor as indicated by the operation of the signal. <u>The force required to be applied to a heating device and an integral component shall not be less than 445 N (45.4 kgf).</u> For the heating device, the cutting force shall be repeated ten times at 0.15 m intervals along the specimen, which, if circular, shall be rotated in the same direction, through a 90° angle prior to each cut. <u>For the final tenth cut only, the test shall be done to the failure or the maximum limit of the force of the test apparatus and shall record the load. For the integral component, the cutting force shall be applied once to the least thick part of the specimen.</u>



CLAUSE	VERDICT	COMMENT
6.2.10		<b>Cold bend</b>
		This test applies only to trace heaters that have a stated minimum bend radius of less than 300 mm.
		<u>The system documentation shall state the minimum installation temperature and the minimum bending radius.</u>
		The apparatus used for the cold bend test is shown in Figure 5, <u>with the radius of the metal mandrel equal to the manufacturer's stated minimum bend radius. A sample at least 450 mm in length of trace heater, without integral terminations or connections, shall be fixed in the apparatus as shown.</u> The apparatus and sample shall be placed in a refrigerated compartment and maintained at the manufacturer's specified minimum installation temperature for a period of not less than 4 h. At the end of this period and while still at the manufacturer's specified minimum installation temperature, the sample shall be bent through at least 90° around one of the mandrels, then bent through at least 180° in the opposite direction over the second mandrel and then straightened to its original position. All the bending operations shall be carried out in the same plane. This cycle of operations shall be performed three times, and the rate of bend shall be $5 \pm 1$ s per cycle.
6.2.17	Info	<u>Conformity shall be verified by testing the electrical insulation in accordance with Clauses 6.2.1 and 6.2.2.</u>
		<b>Mechanically protected heaters — Penetration test</b>
6.2.17.1		<b><i>New clause added;</i></b>
		<b>Penetration test — Conditions</b>
		All heating devices installed in a wall or ceiling, without being recessed a minimum 50 mm, shall meet the following:
		a) for walls, comply with the penetration test of Clauses 6.2.17.3 to 6.2.17.5, and the manufacturer's installation instructions shall require installations to be protected by a Class A GFCI (ground-fault circuit-interrupter); and b) for ceilings, comply with the penetration test of Clauses 6.2.17.3 to 6.2.17.5, or the manufacturer's installation instructions shall require installations to be protected by a Class A GFCI.
		Notes:
		1) Refer to Section 62 of the Canadian Electrical Code, Part I, to determine which applications require mechanical protection.
		2) Heating devices passing the penetration test of Clauses 6.2.17.2 to 6.2.17.5 meet the requirements of a mechanically protected heater.
		3) Refer to Section 62 of the Canadian Electrical Code, Part I, for the required ground fault protection other than Class A.



CLAUSE	VERDICT	COMMENT
<b>Penetration test — Instructions</b>		
6.2.17.3		The mechanical protection shall be installed <u>using a model with the minimum thickness for the type of material being tested and in accordance with the manufacturer's instructions on a wall section positioned horizontally and parallel to the floor. For the purpose of the test, the heating device shall be replaced by a metallic foil at its closest position relative to the mechanical protection.</u> The wall or ceiling section shall be rigidly fixed such that it cannot move in any direction during the test. See Figures 22A and 22B.
<b>New clause added;</b>		
<b>Penetration test — Inspection</b>		
6.2.17.4		The mechanical protection shall be inspected visually for damage and shall undergo a continuity test between the screws and the metallic foil, and/or between the nails and the metallic foil, as applicable.
<b>Penetration test — Pass or fail requirement</b>		
6.2.17.5		The mechanical protection shall be considered to comply with Clause 6.2.17.2 if  a) <u>the mechanical protection and/or tile grout lines, if any, do not show the presence of cracks with normal or corrected-to-normal vision (no magnification);</u> b) <u>the drywall screws do not provide electrical continuity with the metallic foil after 8 s of continuous load and screw gun operation, including ramp-up time; and</u> c) <u>the drywall nails do not provide electrical continuity with the metallic foil after a single impact from the 1.36 kg weight.</u>
8	Info	<b>Installation instructions</b>
<b>New clause added;</b>		
<b>Heating devices for walls and ceilings less than 50 mm from the surface</b>		
8.2		In addition to the requirements of Clause 8.1, except for Item n), heating devices intended for the following applications shall be clearly and permanently marked with "CAUTION: A Class A ground-fault circuit-interrupter shall be used with this heating device" and "ATTENTION : Ce dispositif de chauffage doit être utilisé avec un disjoncteur différentiel contre les fuites à la terre de Classe A", or equivalent:  a) for wall heating devices installed within 50 mm from the surface; and b) for ceiling heating devices installed within 50 mm from the surface and not mechanically protected.



CLAUSE	VERDICT	COMMENT
<b>Field assembly of heating devices</b>		
Instructions shall include the following:		
8.4		a) a list of the components; b) the recommended size of the overcurrent protective device; c) the order, preparation, and method of assembling all components; d) the minimum test requirements according to the Canadian Electrical Code, Part I; e) any other requirements or limitations from the Canadian Electrical Code, Part I; and f) an explanation of specific applications.
Annex B	Info	<b>Additional requirements and exemptions for specific applications</b>
<i>New clause added;</i>		
B.1		<b>General</b>  Where applicable, the markings shown in Table 1 shall be used to indicate conformance with the following additional requirements and exemptions.
B.2	Info	<b>Potable water heating applications</b>
<i>New clause added;</i>		
<b>General</b>		
B.2.1		Where installed internally in piping containing potable water, trace heaters or heating device sets shall meet all of the wet rating and pressure rating requirements (as specified in Table 1). If portions of the trace heaters or heating device sets are exposed to weather, the trace heaters or heating device sets shall additionally meet the requirements of weather resistance (as specified in Table 1).
B.3	Info	<b>Animal pen/grey water heating applications</b>
<i>New clause added;</i>		
<b>General</b>		
B.3.1		For applications where trace heaters or heating device sets are intended to be embedded in the floor of animal pens or in applications where the trace heater or heating device set is in direct contact with grey water, the trace heaters or heating device sets shall meet all of the wet rating requirements (as specified in Table 1). If portions of the trace heaters or heating device sets are exposed to weather, the trace heaters or heating device sets shall additionally meet the requirements of weather resistance (as specified in Table 1). Additionally, the trace heaters or heating device sets shall show no evidence of deterioration and shall withstand a dielectric strength test, without breakdown, when tested in accordance with Clause B.3.2.