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# Hard Hat Use in Cold Temperature Conditions

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CAGC INFORMATION ALERT

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# Information Alert

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The following information is not a definitive guide to government legislation and does not release users of this document from their responsibilities under applicable legislation.

Due to recent industry incidents, and verbal concerns expressed by field personnel, the following information is being provided for employers to help in selection of hard hats for field use. Please remember when reviewing the table below that our workers work in every type of environment conceivable. Temperature is the single most contributing factor to hard hat failure (ref: Optional Tests-Low temperature test page two (2)).

Please be sure to refer to each manufacturer's information, about what temperature rating their specific product has been tested to.

Below is a chart showing testing under ISO standard (ANSI/OSHA and CSA standard may differ).

Table 31.7 Safety helmets: testing requirements of ISO Standard 3873-1977		
Characteristic	Description	Criteria
<b>Obligatory Tests</b>		
Absorption of shocks	A hemispherical mass of 5 kg is allowed to fall from a height of 1 m and the force transmitted by the helmet to fixed false (dummy) head is measured.	The maximum force measured should not exceed 500 daN.
	The test is repeated on a helmet at temperatures of -10C, +50C and under wet conditions,	
Resistance to penetration	The helmet is struck within a zone of 100 mm in diameter on its uppermost point using a conical punch weighing 3 kg and a tip angle of 60 degrees.	The tip of the punch must not come into contact with the false (dummy) head.
	Test to be performed under the conditions which gave the worst results in the shock test.	

## HARD HAT USE IN COLD TEMPERATURE

Resistance to flame	The helmet is exposed for 10 s to a Bunsen burner flame of 10 mm in diameter using propane.	The outer shell should not continue to burn more than 5 s after it has been withdrawn from the flame.
<b>Optional Tests</b>		
Dielectric strength	The helmet is filled with a solution of NaCl and is itself immersed in a bath of the same solution. The electric leakage under an applied voltage of 1200 V, 50 Hz is measured.	The leakage current should not be greater than 1.2 mA.
Lateral rigidity	The helmet is placed sideways between two parallel plates and subjected to a compressive pressure of 430 N	The deformation under load should not exceed 40 mm, and the permanent deformation should not be more than 15 mm.
Low-temperature test	The helmet is subject to the shock and penetration tests at a temperature of -20C.	he helmet must fulfill the foregoing requirements for these two tests.

It is important to remember the low temperature that hard hats are tested to, and if they are adequate for the conditions being worked in.