



Mechanical Services

Refrigeration – Air Conditioning – Heating - Plumbing

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Recently I was asked by a customer about the code requirements in regards to hot water storage tanks. Specifically the customer was inquiring about the requirement for a drain pan underneath a suspended hot water tank. They were also inquiring about the discharge pipe off of the relief valve.

Below is the response I received from the Building Code Advisor, Building Services Specialist Code Advisory Unit, Building and Development Branch, Ministry of Municipal Affairs & Housing.

Hi Al,

Q1. Is there a code requirement to install a drain pan underneath a hot water tank that is suspended in a ceiling? If yes can we discharge the relief valve into that pan as long as we meet the requirements of 7.6.1.12 (5).

A1. Please be informed that, the Ministry of Municipal Affairs and Housing is responsible for administering the Building Code Act, 1992 (BCA) and Building Code (Code). The Code establishes minimum requirements that must be met when a building is constructed, renovated or undergoes a change of use. You may wish to consult with the local authority having jurisdiction pertaining to an existing installation based on the Building Code requirements at the time of construction and if the installation has obtained a permit or not.

If this installation is new and has obtained a permit, the current applicable Building Code requirements are as follows:

7.6.1.12. Relief Valves

(1) Every pressure vessel that is part of a *plumbing system* or connected to a *plumbing system* shall be equipped with a pressure relief valve designed to open when the water pressure in the tank reaches the rated working pressure of the tank, and so located that the pressure in the tank shall not exceed 1100 kPa or ½ the maximum test pressure sustained by the tank whichever is the lesser.

(2) Every hot water tank of a *storage-type service water heater* shall be equipped with a temperature relief valve with a temperature sensing element,

(a) located within the top 150 mm of the tank, and

(b) designed to open and discharge sufficient water from the tank to keep the temperature of the water in the tank from exceeding 99°C under all operating conditions.

(3) A pressure relief valve and temperature relief valve may be combined where Sentences (1) and (2) are complied with.

(4) Every *indirect service water heater* shall be equipped with,

(a) a pressure relief valve, and

(b) a temperature relief valve on every storage tank that forms part of the system.

(5) Every pipe that conveys water from a temperature relief, pressure relief, or a combined temperature and pressure relief valve shall,

(a) be of a size at least equal to the size of the outlet of the valve,

(b) be rigid, slope downward from the valve, and,

(i) terminate with an indirect connection above a floor drain, sump or other safe location, with an air break of not more than 300 mm, or

(ii) terminate at a distance not less than 150 mm and not more than 300 mm from a floor and discharges vertically down,

(c) have no thread at its outlet, and

(d) be capable of operating at a temperature of not less than 99°C.

(6) The temperature relief valve required in Clause (4)(b) shall,

(a) have a temperature sensing element located within the top 150 mm of the tank, and

(b) be designed to open and discharge sufficient water to keep the temperature of the water in the tank from exceeding 99°C under all operating conditions.

(7) No shut-off valve shall be installed on the pipe between any tank and the relief valves or on the discharge lines from such relief valves.

7.4.3.2. Restricted Locations of Indirect Connections and Traps

(1) Indirect connections or any *trap* that may overflow shall not be located in a crawl space or any other unfrequented area.

A drain pan is not required by the Building Code, but a lot of designers are using them to minimize the risk of hot water tank leakage impact. If a drain pan is provided by the designer, the designer has to assure the drain pan is large enough to prevent from overflowing above the ceiling.

The local authority having jurisdiction can accept either an applicable Acceptable Solution in Division B, or an applicable Alternative Solution that will achieve the level of performance required by the applicable Acceptable Solution in respect of the Objectives and Functional Statements attributed to the applicable Acceptable Solutions in Supplementary Standard SA-1.

Under the Building Code Act, the local municipality is the authority having jurisdiction for enforcing the Act and its Regulations, and the permit applicants should contact the appropriate official with respect to any specific proposal.

I hope you find this information useful and if you have any questions about the above response please give me a call and we can discuss further. If there are other issues you would like me to research please feel give me a call.

Regards,

Al Martin