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Walkways, Guard Rails and Roof Access

This bulletin has been jointly developed by Safety Services and the Building and Gas Sub-Councils to inform designers, vendors, builders, contractors and owners of the minimum requirements to ensure safe installation of gas appliances in Alberta. Under the **Safety Codes Act** it is the responsibility of the owner, vendor, contractor, and user to ensure that the installation and operation of equipment comply with the *Act* and are in accordance with the **CSA-B149.1-2010 "Natural Gas and Propane Installation Code"**. The installation of gas appliances and equipment shall comply with the requirements listed below.

The Natural gas and propane installation code identifies the requirements for the installation of gas fired appliances and that the installation also provides adequate access to the appliance for servicing.

The installation of gas fired appliances on rooftops of buildings has created challenges to industry and safety codes officers' in applying the current gas code to ensure safe access to appliances when installed on a sloped roof.

4.14.6 *When an appliance is installed on the roof,*

(a) the appliance shall be installed on a well-drained surface. When water stands on the roof, either at the appliance or in the passageways to the appliance, or when the roof is sloped or has a water seal, a suitable antiskid walkway shall be provided. Such a walkway shall be located adjacent to the appliance and control panels, and when the appliance is located on a sloped roof, the walkway shall extend from the appliance to the point of access and be equipped with guardrails so that the appliance can be safely accessed and serviced.

An appliance installed on the roof that has a slope equal to or greater than 4° (7%, ~1 in 12), will fall within the scope of clause 4.14.6(a) and require a suitable antiskid walkway and guardrails.

Other applicable code requirements will need to be complied with to ensure that proper accessibility of rooftop appliances are maintained for installing, servicing, and inspection, such as but not limited to:

- B149.1-10 4.14 Accessibility, 6.25 Rooftop gas piping and tubing.
- Alberta Building Code

Building Code Requirements

When access through a roof assembly is required by the Alberta Building Code 2014 (ABC) to facilitate the servicing of HVAC equipment, or if it is required to gain access to tie-back and anchor systems for window cleaning platforms, ABC Article 3.6.4.7. specifies that the access is to be provided by an interior stairway.

In buildings which are more than 3 storeys in building height and which have a low pitched or flat roof, Article 3.2.5.3 requires that an interior means be provided for firefighters to gain access to the roof. This may be accomplished by a stairway or a suitable fixed ladder and hatchway.

Normally, where ramps and stairways form part of an access to exit, then those ramps and stairways must conform to the dimensional, guard, and handrail requirements that apply to exits. However, if the ramps and stairways are only intended for occasional use for servicing equipment and machinery, Sentence 3.3.1.14.(2) specifies that they do not need to conform to those requirements.

1. Article 3.2.5.3. of ABC 2014 states :

3.2.5.3. Roof Access

(See also Article 3.6.4.7.)

1) On a *building* more than 3 *storeys* in *building height* where the slope of the roof is less than 1 in 4, all main roof areas shall be provided with direct access from the *floor areas* immediately below, either by

- a) a stairway, or
- b) a hatch not less than 550 mm by 900 mm with a fixed ladder.

2. Article 3.3.1.14. of ABC 2014 states:

3.3.1.14. Ramps and Stairways

1) Except as permitted by Sentence (2), Article 3.3.4.7. and Subsection 3.3.2., ramps and stairways that do not serve as *exits* shall conform to the dimensional, *guard*, handrail and slip-resistance requirements for *exit* ramps and stairways stated in Sentence 3.4.3.2.(8) and Articles 3.4.3.4., and 3.4.6.1. to 3.4.6.9.

2) Ramps and stairways that do not conform to the requirements of Sentence (1) are permitted to serve *service rooms* and *service spaces* and in *industrial occupancies*, provided the ramps and stairways are intended only for occasional use for servicing equipment and machinery.

3. Article 3.6.4.7. of ABC 2014 states:

3.6.4.7. Roof Access

- 1) A *building* shall be provided with direct access to the roof by an interior stairway if
 - a) heating, ventilating or air-conditioning equipment is installed on the roof, and
 - b) the roof elevation is more than 4 m above *grade*.
- 2) Access shall be provided to roof areas in which tie back and anchor systems are provided for window cleaning suspended power platforms and if access is through
 - a) the roof, it shall be by means of an interior staircase, or
 - b) a wall, the panels shall be openable from the outside without the use of keys or any specialized device or knowledge.

small CRU

(See Appendix A)

3) Fixed access shall be provided to rooftop heating, ventilating or air-conditioning equipment that is installed on a sloped roof.

Under a province-wide building code variance, the interior stairways and staircases required by Sentences 3.2.5.3.(1) and 3.6.4.7.(1) and (2) are permitted to be provided, alone or in combination, by any of the following methods:

↳ Does this apply to a small CRU

1. a fixed staircase similar to that depicted in Figure 1 in Appendix A (note that this is also known as a "ship's ladder") with a maximum length of 3.7 m,
2. a suitable folding stair with a maximum length of 3.7 m, or
3. a rung-type ladder that is permanent and fixed at an interior location with a maximum length as determined by the Occupational Health and Safety Code for ladders not requiring a safety cage or fall arrest system.

*

Where the above methods are used in combination, a landing conforming to Article 3.4.6.3. (for Part 3 buildings) or Subsection 9.8.6. (for Part 9 buildings) shall be provided between each different type of access method.

Note that while Sentence 3.3.1.14.(2) exempts these stairs from the dimensional, guard, handrail and slip-resistance requirements of the Code, the Occupational Health and Safety Code may contain additional dimensional and handrail requirements. Refer to the Occupational Health and Safety Code for more specific information.

with this wording you can use it up till where you have to include a cage. ~~(part of the)~~ wording.

info: a sidewalk can be 2-4% (low slope).

slope appears to come from OHT + J.

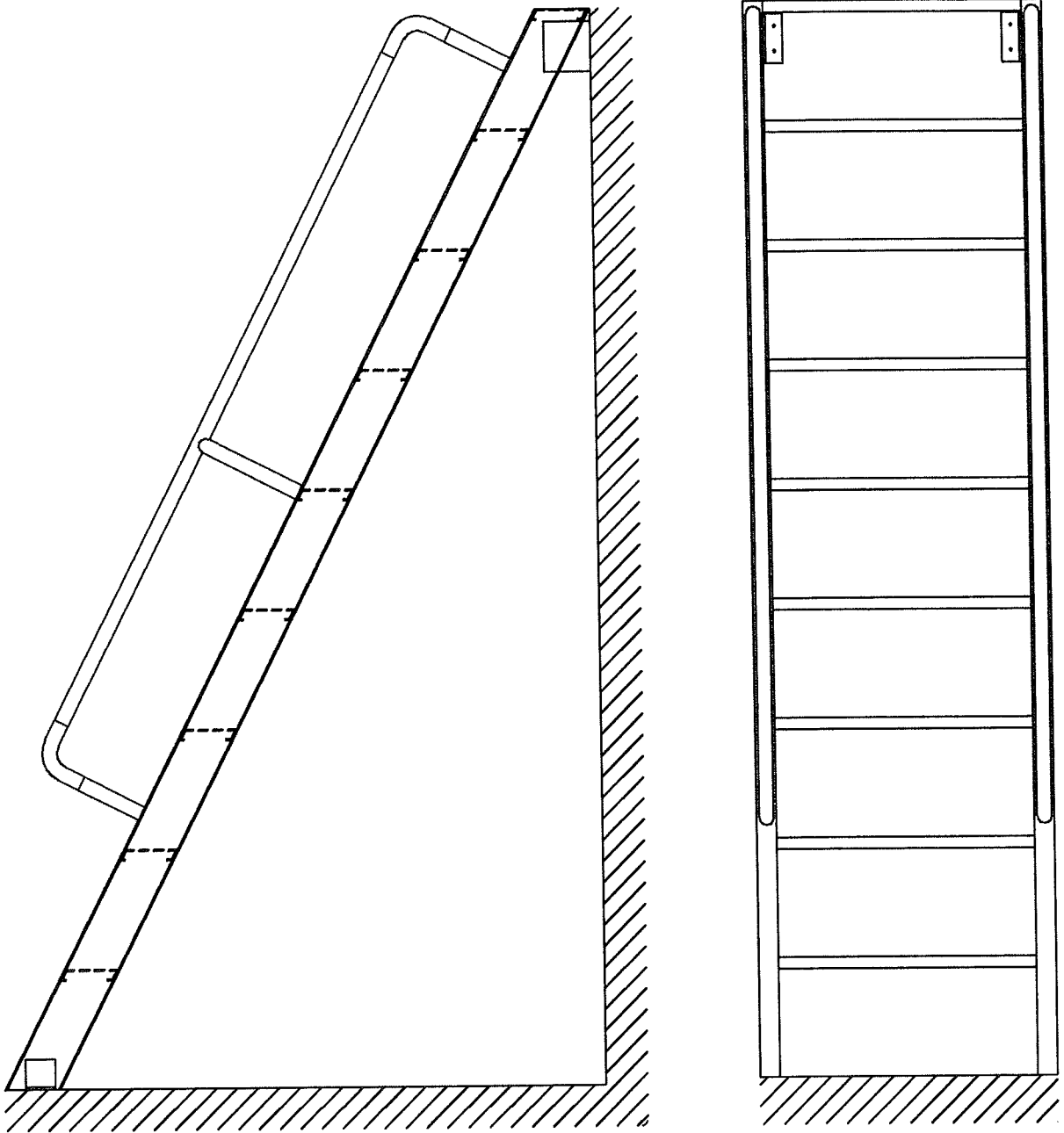


Figure 1- SHIP'S LADDER

NOTE: Figure provided for illustration purposes only.
Not intended to limit the design or configuration of any proposed design.

APPENDIX A