

DAY CARE FACILITY LOCATION RESTRICTIONS

DISCUSSION

The requirements in Sentence 7.6.1.3.(1) state that day care facilities shall not be located above the second floor of a building unless safe evacuation can be assured and shall not be located below ground level. Since the introduction of these requirements, the following questions have been raised:

1. What is meant by "*unless the safe evacuation of the day care facility from higher storeys can be assured*" in Clause (a)?
2. At what point is a day care facility considered "*totally below ground level*" from Clause (b)?

This STANDATA has been developed to clarify what these two phrases mean.

Please refer to the following publications for additional information on good fire protection engineering principles related to time-based egress analyses, occupant behaviour during fire conditions and emergency movement of building occupants:

- "The SFPE Handbook of Fire Protection Engineering, Third Edition", published by the National Fire Protection Association (ISBN 087765-451-4)

CODE REFERENCES

1. Article 1.4.1.2. of Division A states:

Storey means that portion of a *building* that is situated between the top of any floor and the top of the floor next above it, and if there is no floor above it, that portion between the top of such floor and the ceiling above it.

2. Sentence 7.6.1.3.(1) states:

7.6.1.3. Location Restriction

- ...
- 1) A *day care facility* shall not be located
 - a) above the second *storey* unless the safe evacuation of the *day care facility* from higher *storeys* can be assured, or
 - b) totally below ground level.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.

Issue of this STANDATA is authorized by
the Acting Chief Building Administrator

**Government
of Alberta** ■

[Original Signed]
Chris Salvian, P.Eng.



SAFETY CODES COUNCIL



3. Sentence 2.4.2.1.(8) of Division C states:

2.4.2. Professional Involvement
2.4.2.1. General
 ...
8) If the size or complexity of a *project* may give rise to special safety concerns, the *authority having jurisdiction* may require
 a) that all or part of the plans and specifications of a *building* be imprinted with a stamp or seal affixed by a
 i) *professional engineer* where *engineering work* is involved,
 ii) *registered architect* where *architectural work* is involved, or
 iii) both a *professional engineer* and *registered architect*, and
 b) that field reviews during construction of a *building* be performed by a
 i) *professional engineer* where *engineering work* is involved,
 ii) *registered architect* where *architectural work* is involved, or
 iii) both a *professional engineer* and *registered architect*.

INTERPRETATION

1. Assurance of safe evacuation from higher storeys, as required by Clause 7.6.1.3.(1)(a) can be obtained provided
 - a. The maximum travel distance from any point in the day care facility to an exit door that leads directly to the outside of the building or through a firewall with a minimum fire-resistance rating of 2 hr is not more than
 - i. 45 m for a sprinklered building, or
 - ii. 30 m for an unsprinklered building.
 - b. A time-based egress analysis has been performed and demonstrates a required safe egress time of not more than 4 min using the following formula:

$$T_{ET} = \left[\left(\frac{H_{td}}{H_s} \right) + \left(\frac{V_{td}}{V_s} \right) + \left(\frac{M_{td}}{M_s} \right) \right] * SF$$

where:

T_{ET} = the required safe egress time from any point in the day care facility to an exit door that leads directly to the outside of the building or through a firewall with a minimum fire-resistance rating of 2 hr,

H_{td} = horizontal travel distance from any point in the daycare to an enclosed exit stairwell or to an exit door that leads directly to the outside of the building or through a firewall with a minimum fire-resistance rating of 2 hr, in metres,

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H_s = occupant egress speed not more than 0.5 m/sec for horizontal egress routes,

V_{td} = vertical travel distance within an enclosed exit stairwell, in metres, measured on the diagonal along the nosing of the stairs,

V_s = occupant egress speed not more than 0.3 m/sec for vertical egress routes,

M_{td} = horizontal travel distance on the main floor, in metres,

M_s = occupant egress speed not more than 0.5 m/sec for horizontal egress routes on the main floor,

SF = safety factor, not less than 2.0.

Due to the complexity of the calculation procedure, it is highly recommended that the calculation to assure safe evacuation from higher floors only be performed by an architect or professional engineer registered to practice in the province of Alberta, in accordance with Sentence 2.4.2.1.(8) of Division C.

Note that it will be the responsibility of the fire safety codes officer to determine if the occupants are capable of achieving a 4 minute evacuation time after the facility is in operation. These criteria will need to be incorporated into the facility's fire safety plan in accordance with Section 2.8. of the Alberta Fire Code 2006. It is highly recommended that the fire safety codes officer be consulted as early in the design phase as possible to ensure that they are aware of different egress requirement and travel distances.

2. "*Totally below ground level*" in Clause 7.6.1.3.(1)(b) means a daycare facility shall not be located in any storey where the elevation of the lowest finished ceiling is lower than the exterior grade as defined by Sentence 1.4.1.2.(1) of Division A.

This INTERPRETATION is applicable throughout the province of Alberta.

