# Approved Document for Maldives Building Code Safety from Falling Clause F4

Prepared by the Construction Industry Development Section of the Ministry of Construction and Public Infrastructure based on the Approved Document prepared by the Building Industry Authority of New Zealand.

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# Maldives Building Code
# Clause F4 Safety from Falling

This Clause is extracted from the Maldives Building Code.

**Clause F4—SAFETY FROM FALLING**

| Provisions | Limits on application |
|---|---|
| **OBJECTIVE**<br><br>**F4.1** The objective of this provision is to safeguard people from injury caused by falling. | |
| **FUNCTIONAL REQUIREMENT**<br><br>**F4.2** *Buildings* shall be constructed to reduce the likelihood of accidental fall. | Performance F4.3.1 shall not apply where such a barrier would be incompatible with the *intended use* of an area, or to temporary barriers on *construction* sites where the possible fall is less than 3 metres |
| **PERFORMANCE**<br>**F4.3.1** Where people could fall 1 metre or more from an opening in the external envelope or floor of a *building*, or from a sudden change of level within or associated with a *building*, a barrier shall be provided.<br>**F4.3.2** Roofs with permanent access shall have barriers provided.<br><br>**F4.3.3** Barriers shall:<br><br>(a) Be continuous and extend for the full extent of the hazard,<br>(b) Be of appropriate height,<br>(c) Be constructed with *adequate* rigidity,<br>(d) Be of *adequate* strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them,<br>(e) Be constructed to prevent people from falling through them, and | . |

# Contents

# References

For the purposes of Maldives Building Code compliance, referenced documents shall be deemed to include any amendments issued prior to the date of the Approved Document as displayed at the foot of the page on which the references are listed.

| | Where quoted |
|---|---|
| **New Zealand Legislation** | |
| Fencing of Swimming Pools Act 1987 | AS1 3.1.1 |

# Definitions

This is an abbreviated list of definitions for words or terms particularly relevant to this Approved Document

**Balustrade** The infill parts of a barrier (typically between floor and top rail).

**Building** has the meaning ascribed to it by the Maldives Building Code.

**Intended use** of a *building* includes:
a) Any reasonably foreseeable occasional other use that is not incompatible with the *intended use*; and
b) Normal maintenance; and
c) Activities taken in response to *fire* or any other reasonably foreseeable emergency – but does not include any other maintenance and repairs or rebuilding.

**Nosing** The rounded projecting edge of a stair tread.

**Pitch line** The line joining the leading edge or *nosings* (if any) of successive stair treads within a single flight of stairs.

# Verification Method F4/VM1

No specific test methods have been adopted for verifying compliance with the Performance of MBC F4.

# Acceptable Solution F4/AS1

## 1.0 Barriers in Buildings

### 1.1 Barrier heights

**1.1.1** Acceptable minimum barrier heights are given in Table 1.

**COMMENT:**
A *handrail* can be constructed as an integral part of a barrier. Refer to MBC D1 "Access Routes".

### 1.2 Barrier construction

#### 1.2.1 Buildings frequented by young children

Barriers located in any part of a *building* likely to be frequented by children under the age of 6 years shall have:
a) No openings which will permit the passage of a sphere greater than given by Table 2, and
b) No toeholds between the heights of 150 mm and 760 mm above floor level (or stair *nosing*), except that perforated sheet, mesh, or trellis rigidly fixed over the full barrier height is acceptable provided that
openings have a maximum dimension (other than perimeter) of 50 mm.

**COMMENT:**
While 50 mm openings could offer a toehold to children, a continuous mesh of this size is difficult for a child to climb.

c) The triangular opening formed by the riser, tread and bottom rail at the open side of a *stairway* shall be of such a size that a 150 mm diameter sphere cannot pass through it.

**COMMENT:**
Where barriers are provided for protection at a change of level in any *building* classified as Housing they will need to be constructed to restrict children under 4 years of age. Commercial *buildings* containing shops or health care facilities are also likely to need barriers that will restrict young children as will some Communal Residential and Communal Non-residential *buildings* such as motels and museums.

#### 1.2.2 Low risk areas

In areas used exclusively for emergency or maintenance purposes in *buildings*, and in other *buildings* not frequented by children, barriers may have openings with maximum dimensions of either:
a) 300 mm horizontally (between vertical balusters), or
b) 460 mm vertically (between longitudinal rails).

**1.2.3** These dimensional limitations apply also to any openable window or panel in a barrier.

**Table 1: Minimum Barrier Heights**
Paragraph 1.1.1

| Building type | Location | Barrier height (mm) (Note 1) |
|---|---|---|
| Detached dwellings and within household units of multi-unit dwellings | Stairs, landings, ramps or edges of internal floors | 900 |
| | External deck or external balcony | 1000 |
| All other *buildings*, and common areas of multi-unit dwelling | Stairs or ramps | 900 |
| | All locations other than stairs or ramps | 1000 |

Note:
1. Heights are measured vertically from floor level (ignoring floor coverings) on floors, landings and ramps, and from *pitch line* or stair *nosings* on *stairways*.
2. A landing is a platform with the sole function of providing access. A platform used as a space for people to congregate is described as a deck or balcony.

**Table 2: Acceptable Opening Sizes for Barriers (Note 1)**
Paragraphs 1.2.1 a), 4.0.2 b) c)

| Age group | Examples of application (Note 2) | Maximum sphere diameter (mm) |
|---|---|---|
| Children under 4 | Housing, early childhood centres, shopping malls, health care facilities | 100 |
| Children of 4 and 5 | Cinemas, motels, halls, mosques, bridges with pedestrian access | 130 |

Note:
1. Opening size restrictions are chosen on the basis of child head and chest dimensional statistics.
2. Because the barrier opening size is determined by the age and likely presence of children, and not by the classified use of the *building*, it is reasonable to expect different parts of a *building* to have different requirements. For example, in a public hall children may be expected in a public gallery, but not in a gallery reserved for lighting equipment or musicians. In shopping malls children are expected in public areas, but not in areas for the preparation of food or the unloading and reception of stock.

### 1.2.4 Balconies with fixed seating

Where a balcony or mezzanine floor accommodates fixed seating, a front barrier as shown in Figure 1 may be used as an alternative to Paragraph 1.2.1 and shall have:
a) A minimum height of 700 mm above floor level,
b) A horizontal projection extending at least 700 mm forward of the barrier at the top rail level, and
c) No opening through which a 100 mm diameter sphere can pass.

**COMMENT:**
This solution is expected to be used mainly in places such as assembly halls, theatres and cinemas.

## 2.0 Construction Site Barriers

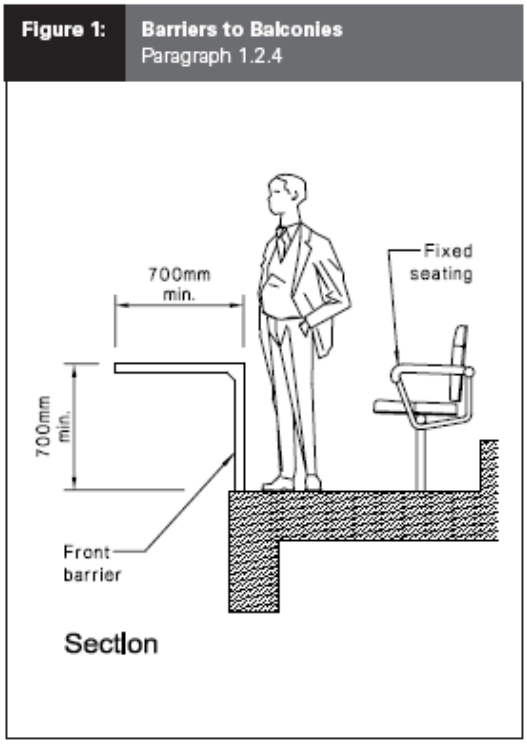
**2.0.1** Construction site barriers shall have, in addition to a top rail, one or more intermediate rails or a suitable toeboard as described in Paragraph 2.0.3. Maximum rail spacing shall be 500 mm.

**2.0.2** Scaffolding cross-bracing between standards within a single lift may be used as a top rail provided:
a) The braces cross at a height of between 1000 mm and 1100 mm above the platform, and
b) The platform is decked to within 200 mm of a vertical plane through the cross-bracing.

**2.0.3** The mid-height rail is not necessary where the top rail is at the minimum height if a toeboard extending more than 150 mm above the platform is provided.

**2.0.4** Each barrier rail shall be fixed as nearly as possible on a line vertically above the outer edge of the platform. In no case shall a rail be more than 200 mm beyond the platform edge.

**Figure 1: Barriers to Balconies**
Paragraph 1.2.4



## 3.0 Opening Windows

**3.0.1** Where the possible height of fall is 1.0 m or more, measured from the adjacent floor level, windows that open shall have:
a) The lower edge of the opening no less than 760 mm above floor level, or b) A window opening restrictor fitted to limit the maximum dimension of the opening to 460 mm, or
c) A 760 mm high barrier located in front of the window.

**3.0.2** In any part of a *building* frequented by children under 6 years of age, where the possible height of fall is 1.0 m or more, measured from the adjacent floor level, windows that open shall have:
a) The lower edge of the opening located no less than 760 mm above floor level and 610 mm above any toeholds, or
b) A window opening restrictor fitted to limit the maximum opening to a size which prevents the passage of a sphere greater than given by Table 2, or
c) A 760 mm high barrier located in front of the window, with the barrier having no toeholds above 150 mm from the floor, and with no openings that will allow the passage of a sphere greater than given by Table 2.