

LAUNCHABLE ESCAPE LADDER

1. Picture of the product



Figure 1. Top of the ladder extension

Figure 2. Extension of the ladder

Figure 3. Ladder launched at the extension

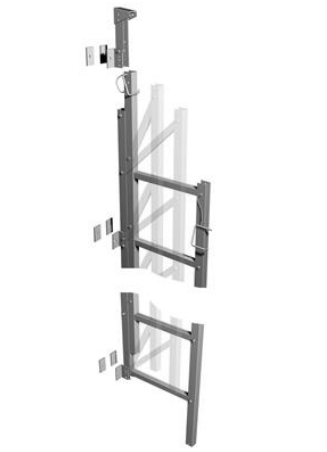


Figure 4. Principle drawing of the launching of the ladder

Figure 5. Person evacuating from the balcony

2. Product description

The escape ladder is used in buildings where the bottom edge of the window or the floor of the balcony used as an emergency exit is higher than 3.5 m from the ground or other safe place. In such a case, a fixed escape ladder must be installed (Nat. Building Code E1).

The launchable escape ladder is an aluminium ladder packed like a box that can be launched open by removing the launching pin. The ladder opens by itself when the pin is removed. Launching pins are placed at the top of the highest ladder and at each extension joint. The extension joints are placed at such heights that the pin can be removed. When

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the launching pin located at the top is removed, the ladder opens completely. The section of the ladder beneath the removed launching pin will always open. The sections above this level will not be opened. The ladder can therefore only be used for climbing down. Unauthorised climbing from the ground up is, therefore, almost impossible.

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A launchable escape ladder is used when an indiscernible but yet safe emergency exit route on the facade is needed. Typical installation locations include apartment buildings as well as multi-storey detached or semi-detached houses. In apartment buildings, emergency exit through the ladder is arranged for apartments if people cannot be rescued using the fire department's ladder truck. Another option is a so-called hatch ladder placed in the balcony slab.

A launchable ladder is usually placed next to the balconies in such a place that there is safe access from the balcony to the ladder.

If the apartments do not have balconies, the ladder can also be placed next to windows, but moving from the window to the ladder is considerably more difficult in such cases. The window that will be used as escape route must be easy to open. The height of the free opening must be minimum 600 mm and width 500 mm so that the sum of height and width is minimum 1,500 mm (Nat. Building Code E1).

The height of a balcony handrail is usually 1.1 m. The first or highest step of the launchable ladder is located 0.4 m down from the top of the ladder. The correct location for the top of the ladder is, therefore, at approximately 1.8 m from the balcony floor. Extensions must also be placed at corresponding heights.

Residents must be able to reach the launching pin.

If the handrail of the lowest balcony is less than 3.5 m from the ground, no ladder is needed from the lowest balcony to the ground. In such a case, the ladder frame starting from the second floor must, however, be approximately 0.6–1.2 m longer than the other sections. The length of the other frames equals the storey height.

The available frame lengths are 2.7 m, 3.0 m, 3.3 m, 3.6 m and 4.2 m. The frames can be cut smaller.

Wall fixtures are used on the frames (and in the starting section at the top) as follows (one on both sides):

- starting section at the top: 2 wall fixtures
- 2.7 m, 3.0 m, 3.3 m and 3.6 m frames: 6 wall fixtures
- 4.2 m frame: 8 wall fixtures

The ladder is fixed to timber facade with two 7 * 50 mm HVAC screws on each wall fixture. Use

M8 expansion anchors for attachment to concrete and tile facades. Attachment on Siporex or Leca blocks is only

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possible by using a chemical compound for fixing M8 threaded bars.

3. Technical properties

- Ladder side rails and steps are made of aluminium profile. Alloy EN-AW-6063 T6.
- The fixture parts are made of stainless steel.
- Ladder size when folded: 76 x 38 mm.
- When launched, the total ladder width is 410 mm and the free distance between side rails is 335 mm.
- The overall space needed for launching is 440 mm.
- The step distance is 300 mm.
- The launching of the ladder can also be modified so that the ladder is launched from the bottom.
- The Finnish National Rescue Association SPEKS recommends using Nesco's launchable ladder as an emergency exit route.

Surface treatment:

- Powder-coated with polyester powder coating.
- VTT Technical Research Centre of Finland Ltd has tested the paint's flame spread rate (research reports RTE 10999/98 and RTE 10998/98). The conclusion of the tests is that the paint does not sustain a flame.