

SINTEF Building Research confirms that

## MODUM Original Fire Escape Ladder

is considered suitable for use and satisfies requirements for product documentation in accordance with the Regulations on Sales and Documentation of Products for Construction (DOC) and the Regulations for Technical Requirements for Construction (TRC) for the characteristics, uses and conditions of use as specified in this document

### 1. Proprietor of the approval

Modum System AS  
Luramyrvæien 19  
4313 Stavanger  
[www.modum.com](http://www.modum.com)

### 2. Product Description

MODUM Original Fire Escape Ladder is a folding Fire Escape Ladder for escape from buildings in case of fire. The ladder is mounted vertically to the outside wall, balcony or so that it can be used as an exit from a window, balcony, etc., see fig. 1. When pulling out the release pin, the Fire Escape Ladder opens. Any overhead ladder sections can be opened separately from an upper floor.

The ladder is available in 16 standard lengths, from 0.9 m to 5.4 m, with increments of 0.3 m. The sections can be connected in order to adapt to individual buildings. When closed, the ladder looks like an aluminium drain pipe on the wall, as the steps are hidden inside the ladder, see fig. 2.

MODUM Original Fire Escape Ladders are manufactured from extruded aluminium profiles. The ladders and rungs are of quality EN AW-6060 T66, while the console is of quality EN AW-6063 T66, according to EN 573-3 and EN 755-2. The profiles are anodized according to ISO 7599. Figure 3 shows the profile dimensions. Steps screws and nuts are acid-proof steel A4-80 according to EN ISO 3506. The Release pin is in acid-proof stainless steel 1.4301 according to EN 10088-1.

In addition to the ladder parts, mounting brackets, release pin, a top cover and fixing screws are also supplied.



Fig. 1  
MODUM Original Fire Escape Ladders in use during escape.

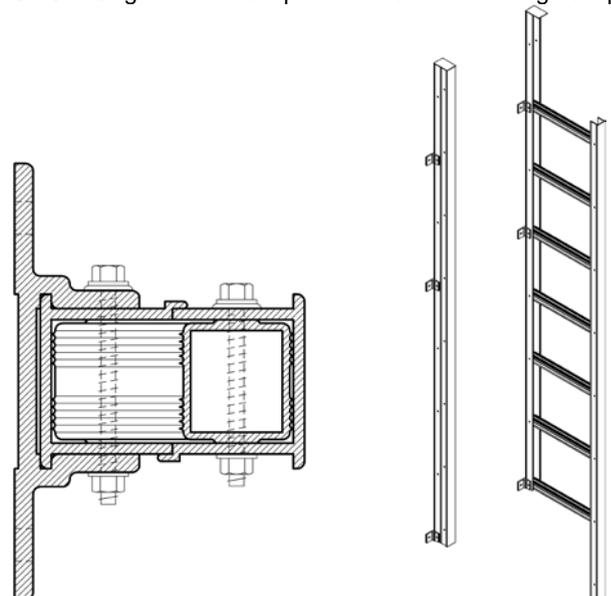


Fig. 2  
Cross section of closed ladder. When closed the dimensions are 72 mm x 47 mm. When open the dimensions are 398 mm x 47 mm. The rung width is 311 mm, the rung distance is 300 mm.

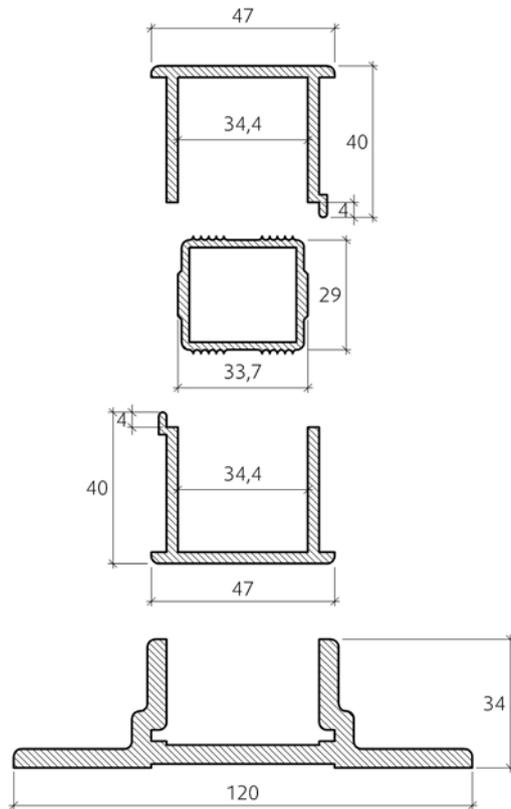


Fig. 3

Profiles for outer wings, steps, inner wings and brackets with thicknesses of 3.0, 2.0, 3.0 and 5.0 mm, respectively. The profiles are fastened together with M6 x 47 mm step screws and M6 locking nuts.

### 3. Applications

MODUM Original Fire Escape Ladders can be mounted as Fire Escape Ladders on detached houses, terraced houses, cabins, workplaces, low blocks of flats, and the like, where there may be a need for escape from a window, balcony, terrace, and the like.

MODUM Original Fire Escape Ladders are used as a measure to improve safety and security through improved modes of escape from buildings where the requirements for escape routes according to Building Technology Regulations (TEC) are otherwise satisfied. The primary use of the ladder is escape from windows at a distance of max. 5m above ground.

For use as approved escape route, see section 6 regarding conditions of use.

### 4. Properties

#### Load capacity

MODUM Original Fire Escape Ladders meet the load requirements specified in NS-EN 131 Ladder - Portable ladders. MODUM original ladders can be loaded with 2.6 kN in the middle of a step and by the external catch. This corresponds to two persons standing in each ladder unit at the same time, providing adequate wall mounting has been carried out as specified in section 6.

#### Effect from Fire

The materials of MODUM Original Fire Escape Ladders are of fire class A1 according to EN 13501-1.

#### Durability

Based on the material qualities specified in section 2, MODUM Original Fire Escape Ladders are considered to have satisfactory resistance.

MODUM Original Fire Escape Ladders are made with special bushings to prevent the release pin and screws from having direct contact with the aluminium and to eliminate oxidation.

### 5. Environmental conditions

#### Health and environment hazardous chemicals

The product contains no prioritised environmental pollutants nor other relevant substances in amounts considered to be hazardous to health and the environment. Priority environmental hazards include CMR, PBT and vPvB substances.

#### Impact on soil and groundwater

The product has not been tested for soil and water pollution.

#### Waste treatment / recycling

The product is sorted as metal upon disposal. The product is to be delivered to an approved collection point where it can be recycled.

#### Environmental declaration

No environmental declaration (ED) has been prepared for the product.

### 6. Terms of use

#### Engineering

MODUM Original Fire Escape Ladders are intended for the escape of buildings at an early stage of the fire and should be installed so as to be protected as much as possible from radiant heat and flames from the floors below. The ladder should not be placed near the windows of the floors below.

MODUM Original Fire Escape Ladder should be fitted with the lowest steps at least 0.5 m above the ground and the outside profile at least 0.2 m above the ground when open. Elevation should be increased if it is expected that the opening of the ladder could be prevented by snow or placement of objects along the wall.

MODUM Original Fire Escape Ladders are mounted so that the top is at least 1.0 m, and preferably 1.2 m, above the bottom window or at least 1.7 m above the balcony floor. The top steps used as support when climbing onto the ladder should be 0.6 - 0.9 m above the window ledge / railings. The ladder is provided with holes for the locking block at the first and third steps from the top. Only one release pin must be fitted in one of the holes. The release pin position should be easily accessible from the window, also for children. If necessary, the ladder can be supplied with holes for the release pin at another step.

The distance to the balcony should be at least 0.50 m. The distance to the windowsill's side frame should be max. 0.35 m, but for windows with a central post, the ladder should be placed right next to the side frame.

If exit conditions are restricted, e.g. by side-hinged and outward-facing windows with a central post, the ladder can be mounted in alignment with the central post to provide satisfactory accessibility for escape. The manufacturer has prepared assembly instructions adapted to the different window types, such as pivot windows, top-hinged windows, side-hanger windows, etc.

#### Use for enhanced escape

MODUM Original Fire Escape Ladder can be used for enhanced escape from existing buildings.

#### Use as escape route from window according to TEC with guidance

For buildings in classes 1, 2 and 4, a window with a lower edge less than 5 m above planned terrain can be used as an approved escape route according to TEC with guidance when the window opening height and width are as shown in Fig. 4.

If no special precautions have been taken, the height of the lower ledge of the window should not exceed 1.0m above the floor.

Escape windows must be marked as exits, except in homes.

See also Building Research 520,391 Escape via window. Requirements and design and Chapter 11 of the TEC with guidance.

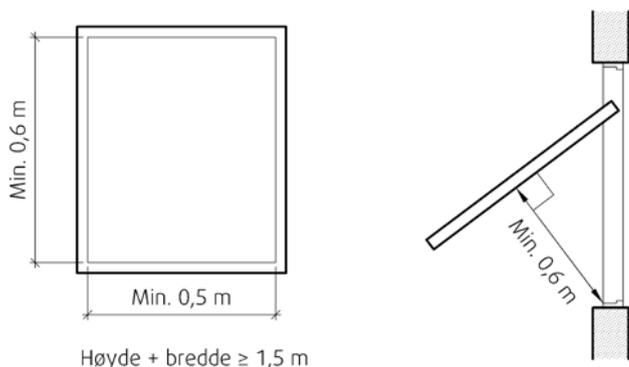


Fig. 4

Minimum measurements of opening in windows used as escape route. Windows with central post must meet the minimum measurements on each side of the central post.

MODUM Original Fire Escape Ladders can also be used as approved escape routes from balconies, terraces, etc.

#### Installation

On wooden walls, MODUM Original Fire Escape Ladder is mounted with stainless steel screws with a diameter of min. 6 mm. At the upper part of the ladder, tighten the screws in pairs with a vertical centre spacing of max. 0.6 m between the wall brackets / screw pairs. On the horizontal planks, it is recommended to use extra-long screws in order to secure the ladder to the wall.

Installation on wooden walls is done with wood screws, the ladder must be adjusted so that the load is distributed optimally, possibly with screws into the posts. It is assumed that planks have a minimum thickness of 19 mm and are attached to the structure as stated in the building regulations.

On masonry and concrete walls, the ladder is fastened with suitable expansion bolts, concrete screws or similar fasteners adapted to the actual wall material.

#### Maintenance / control

An annual test of the ladder and its functions should be carried out, as well as a control of the fixing screw attachment to the wall.

#### Transport and storage

MODUM Original Fire Escape Ladders are supplied in plastic packaging. The shipment must be accompanied by mounting instructions as well as the necessary accessories such as release pin, screws and joints.

## 7. Product and production control

The product is manufactured by:

MODUM ApS

Linkøpingvej 8

DK-4900 Nakskov

DENMARK

The Proprietor of the approval is responsible for the production control to ensure that MODUM Original Fire Escape Ladders are manufactured according to the prerequisites underlying the approval

The factory production of MODUM Original Fire Escape Ladder is subject to surveillance and product control according to contract for SINTEF Technical Approval

## 8. Basis for approval

The approval is based on a system assessment and verification of properties as documented in the following reports:

- TÜV Nord, Hamburg. *Belastungsprüfungen*, rapport no. 3837PR27230, 01.09.2003
- SP Technical Research Institute of Sweden, *Test of foldable ladder*, report no. P805377, 26.11.2008.
- MODUM Holding ApS. Profile Drawing; DLT 3143 (160590), DLT 3139 (060690), DLT 3111 (920316).  
From SAPA Extrusion Tønder A/S
- SINTEF Byggeforsk, *Byggeforskserien 520.391 – Escape through window. Requirements and design*, April 2017.
- MODUM System AS, *Installation Instructions for MODUM Fire Escape Ladder*.

**9. Labelling**

Each ladder must be marked with manufacturer name and an identification indicating the time of production. It may also be labelled with the SINTEF Technical Approval Mark; TG 2536.

**10. Liability**

The proprietor/producer carries the independent product liability in accordance with applicable law. Terms of use cannot be transferred to SINTEF Building Research beyond that mentioned in NS 8402.



Approval markings

for SINTEF Byggforsk

A handwritten signature in blue ink that reads 'Hans Boye Skogstad'.

Hans Boye Skogstad  
Approval Manager

This document is a translation from the original document written in Norwegian, In the event of clarification, the original document in Norwegian takes precedent.