A line drawing of a worker wearing a hard hat and safety harness, standing on a wooden A-frame ladder. The ladder is positioned against a wall. The worker is holding onto the top rail of the ladder. The drawing is in a light, sketchy style with some red highlights on the ladder's rungs.

GUIDELINE

FOR THE SELECTION, USE AND MAINTENANCE OF PORTABLE LADDERS

Legislative Decree N° 235 of 8th July 2003,
Implementation of Directive 2001/45/EC
concerning the minimum safety
and health requirements for the use
of work equipment by workers at work

GUIDELINE

For the selection, use and maintenance of portable ladders

Legislative Decree N° 235 of 8th July:

Implementation of Directive 2001/45/EC concerning the minimum safety and health requirements for the use of work equipment by workers at work.

Fogli d'Informazione, ISPESL

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PRESENTATION

Work at a height may expose workers to particularly severe risks to their health and safety, notably to the risks of falls from a height and other serious occupational accidents, which account for a large proportion of all accidents, especially of fatal accidents.

Improving safety, hygiene and health at the workplace is a basic goal to be achieved through European Directives and national current laws. The Legislative Decree n° 235 of July 8th 2003: "Implementation of Directive 2001/45/EC concerning the minimum safety and health requirements for the use of work equipment by workers at work", includes general and specific provisions concerning the minimum safety and health requirements for the use of the working equipment used more often to carry out temporary jobs at a height: portable rung ladders, scaffoldings, rope access and positioning techniques.

This document serves as a guide for carrying out temporary works at a height, especially when portable ladders are used for access, work positioning and exit from the workplace. This document also provides indications concerning the risks assessment, the execution criteria and the safety measures to be adopted when the worker is performing an activity where he is constantly exposed to the risk of fall from a height.

The main purpose is to help the employer in a particular sector, typified by the prevailing presence of small enterprises, where the safety and health of workers, who are constantly exposed to particularly high risks, depend on the correct use of such equipment.

The following types of portable ladders have been analyzed: double ladders, leaning ladders (simple, sectional and extension) and combination ladders.

Ministry of Labour
General Management for Protection
of Working Conditions

Director General
Dr. Paolo Onelli

Italian National Institute
for Health and Safety at Work

President
Prof. Antonio Moccaldi

INTRODUCTION

Concerning the manifold needs expressed by the world of work, ISPESL has been assigned both the role of training Institute and reference Organization in order to consult and support on such matters as prevention and protection in the workplace. It is, however, committed to cooperate with other public and private safety corporations for the attainment of common objectives, namely accident reduction and the safeguard of workers' health.

ISPESL is performing new tasks as a public body, with by-laws related to the new regulation of research bodies and updated to take into account the principles and criteria from the new regulations on improving safety and health at work, may offer further and more effective type of actions in the field of research and transfer of results. These achievements are of paramount importance in performing its duties of assistance, advice, information and drafting of guidelines to support all sectors showing a high level of risk, such as construction, SMEs, agriculture and transportation.

Specifically, the drafting of good practice guidelines will encourage considerable improvement in health and safety in workplaces.

This guideline provides some hints concerning the minimum contents of the risk assessment document, regarding the selection, the use and the maintenance of portable ladders.

The specifications provided in the present guideline have been formulated in compliance with the regulation in force on accident prevention and health at work.

Italian National Institute for
Health and Safety at Work

Director General
dott. Umberto Sacerdote

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FOREWORD

Obligations of the employer and worker relating to the use of work equipment are determined by Title III of Legislative Decree 626/94 as amended, art. 35, which provides as follows:

- “1. The employer must make work equipment available which is suitable for the work being carried out, i.e. suitable for the purposes of the work and consistent with safety and health objectives.
2. The employer must take those technical and organizational measures necessary to minimize risks relating to the use of work equipment by workers and to prevent such equipment from being used in activities for which they are not suitable and in unsuitable conditions.omissis.
3. In selecting the work equipment, the employer must bear in mind the following:
 - a) the conditions and the particular characteristics of the work to be carried out;
 - b) the risks pertaining in the working environment;
 - c) the risks deriving from the use of the equipment itself;
 - c-bis) ... omissis.
4. The employer must take any necessary measures to ensure that the work equipment is:
 - a) installed in accordance with the manufacturer’s instructions;
 - b) used correctly;
 - c) properly maintained so as to ensure, over time, that the requirements of art. 36 are being adhered to and that the equipment is accompanied, where necessary, with the appropriate user instructions;
 - c-bis) that they are used in such a way that risks for users and others are reduced, by ensuring in particular that there is sufficient space available between the mobile components and the fixed or mobile components in the surrounding area and that all the power and substances utilized or produced can be brought in and taken away safely.
- 4-bis. ... omissis.
- 4-ter. ... omissis.
- 4-quater. ... omissis.
- 4-quinquies.... omissis.
5. When the use of the equipment requires particular knowledge or responsibility due to their special risks, the employer must ensure that:
 - a) work equipment must be used only by specially entrusted workers;
 - b) for repair, combination or maintenance work, the worker in charge must have the required competence before he is permitted to carry out such duties”.

Specifically, where equipment is used for work at a height, Legislative Decree of 8th July 2003 No. 235 supplements Legislative Decree 626/94 and art. 36 bis provides that "where temporary works at a height cannot be carried out in conditions of safety and in ergonomic conditions, primarily a workplace which is suited to the purpose, the employer must select the work equipment that best guarantees and maintains safe working conditions, in keeping with the following criteria:

- a) priority must be given to collective protection measures over personal protective measures;
- b) the scale of the work equipment must be appropriate to the nature of the work to be carried out, to any foreseeable stress and to the free and safe circulation of the worker.

The employer must select the most suitable system for access to temporary workplaces at height, taking into account the frequency of circulation, the difference in height and the duration of the job. The system of access adopted must permit speedy evacuation in case of imminent danger. Passage from and back to a system of access to platforms, planking, gangways must not bring increased risk of fall.

The employer must make available for use a portable ladder at the workplace at a height only in those cases where the use of other working equipment considered safer is not justified due to the limited risk factor and the short duration of use or due to existing features of the sites which he is unable to alter."

1. OBJECTIVE AND SCOPE

This guideline, of a non-binding nature, is aimed to provide guidance for the selection, use and maintenance of portable ladders in the work environment.

In addition, a general objective of the guideline is to provide a methodology for the risk assessment of work carried out at a height, where this involves the use of a portable ladder.

These are the types of portable ladders taken into consideration: double ladder, leaning ladders (simple, sectional or Italian-style and extension) and combination ladders.

Other types of portable ladders that will be considered in a later update of the present guideline are the following:

- Sectional ladder with two side rails with connecting components equipped with an integrated anti-fall device and fastening systems for ascent onto vertical supports.
- Wooden single-side rail ladder (Decree of 27th March 1998 of the Ministry of Labour.
- Double ladder with single side rail supporting section.
- Rolling ladder with platform, movable on wheels by hand.
- Extending and sectional portable ladders for special professional uses in the industry (UNI 10401).
- Suspended rung ladder.
- Rope ladder.

2. STANDARD REFERENCES

The rules underlying this guideline are the State laws dealing with accident prevention and health at work and with Personal Protective Equipment.

2.1 Legislation

Presidential Decree 27th April 1955, No. 547 - Rules on accident prevention and health at work.

Presidential Decree 7th January 1956, No. 164 - Rules on the prevention of occupational accidents in construction.

Presidential Decree 20th March 1956, No. 323 - Rules on accident prevention at work in telephone installations.

Legislative Decree 19th September 1994, No. 626 as amended - Adoption of Directive 89/391/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 90/269/EEC, 90/270/EEC, 90/394/EEC, 90/679/EEC, 93/88/EEC, 95/63/EC, 97/42/EC, 98/24/EC, 99/38/EC, 2001/45/EC, 99/92/EC on how to improve safety and health of workers at work.

Decree of 27th March 1998 of the Ministry of Labour: Recognition of compliance with rules in force for safety means and systems for the construction sector and for the use of a new type of wooden single rail ladder.

Decree of 23rd March 2000 of the Ministry of Labour: Recognition of compliance with rules in force for safety means and systems for the construction sector and for the use of portable ladders.

Legislative Decree 8th July 2003, No. 235 - Implementation of Directive 2001/45/EC on the minimum safety and health requirements for the use of work equipment by workers at work.

2.2 European rules

UNI EN 131 part 1st – Ladders - Terminology, types, functional dimensions.

UNI EN 131 part 2nd – Ladders - Requirements, testing and marking.

3. WHAT THERE IS TO KNOW ABOUT LADDERS

3.1 Technical rules and legislation

At present there is no European product Directive for portable ladders. One has to go back to the Legislative Decree of 17th March 1995, No. 115 which incorporates European Directive 92/59/EEC relating to the safety of products in general and which lays down the priorities, at the design stage, for the choice of reference rules and technical norms:

- 1) in the absence of specific E.C. provisions, the product is presumed to be safe and in keeping with the laws in force in the member State in which the product is marketed and sold;
- 2) in the absence of the specific rules referred to in paragraph 1, the assessment of the product's safety is based on non-binding national standards which incorporate a European standard;
- 3) in the absence of the rules or technical specifications referred to in paragraph 2, the assessment of the product's safety is based on national rules enacted by the national standardization Institute, on good practice codes in existence in the sector in question or on new methods of control as well as on the level of safety which consumers may reasonably expect.

In Italy, in the absence of E.C. provisions on the matter, portable ladders used by workers must conform to the rules in force contained in arts. 18, 20 and 21 of Presidential Decree 547/55 which lay down the requirements relating to portable ladders and also to art. 8 of Presidential Decree 164/56 which lays down further requirements. The manufacturer must demonstrate that he has complied with the relevant legislative provisions, by producing calculations and/or tests which satisfy sound technical requirements.

There is now a European product regulation relating to portable ladders: UNI EN 131 -1 – (terminology, types, functional dimensions) and UNI EN 131-2 (Requirements, testing and marking). This Regulation does not apply to ladders for special professional purposes such as ladders for the Fire Brigade, roof ladders and towable step ladders. This regulation does not distinguish between portable work ladders in general and those intended for domestic use.

By Decree of 23rd March 2000 of the Ministry of Labour, under art. 28 a) of Legislative Decree 626/94 as amended, conformity to the laws in force has been recognized in respect of safety systems relating to construction and use of portable ladders, on the following conditions:

- a) that the portable ladders are constructed in accordance with the technical regulation UNI EN 131 part 1st and part 2nd;
- b) that the manufacturer provides the certifications required in the technical regulation referred to in paragraph (a), issued by an official laboratory;
- c) the portable ladders must come with a leaflet or booklet carrying:
 - a brief description and an indication of its component elements;
 - information for correct use;
 - instructions for storage and maintenance;
- d) the essential elements (the institute which carried out the tests, identification

- numbers of the certificates, date of issue) of the test certificates provided for by technical regulation UNI EN 131 part 1st and part 2nd;
- e) a declaration by the manufacturer of conformity to technical regulation UNI EN 131 part 1st and part 2nd;

In sum, as was explained in a circular n. prot. 15/0006125/01.02.07, of 13.07.2004, of the Ministry of Labour, General Management for Protection of Working Conditions, Div. VII, there are two ways for the manufacturer to prove that the portable ladder is in accordance with the laws in force (Presidential Decree 547/55 and Presidential Decree 164/56):

- 1) to make a declaration of conformity, after he has demonstrated by calculations and/or tests, through application of a product specification which, according to him, is the most suitable that he has complied with the legal requirements;
- 2) to make a declaration of conformity, having demonstrated that he has complied with the legal requirements imposed by the Decree of 23rd March 2000 of the Ministry of Labour.

3.2 Definitions

Ladder: working instrument with rungs or steps on which a person may ascend, descend and remain for short periods, which allows one to overcome differences in level and reach work positions at height.

Portable ladder: a ladder which may be transported and set up by hand without mechanical aid.

Leaning ladder: a ladder which, when it is ready to be used, supports its lower section on the ground and the upper section against a vertical surface, and is non self-supporting.

Simple leaning ladder with a single section: a fixed-height leaning ladder with a single section.

Leaning sectional ladder or Italian-style: a ladder of variable height obtained by connecting two or more sections together by means of end connection devices. The length may be adjusted only by adding an entire section.

Leaning extension ladder: leaning ladder of variable height, consisting of two or more sections travelling in guides or brackets. The length may be adjusted rung by rung.

Hand-operated leaning extension ladder: a leaning extension ladder whose upper sections are operated by hand.

Rope-operated leaning extension ladder: a leaning extension ladder whose upper sections are operated by a rope.

Double ladder: a self-supporting ladder which, when it is ready for use, supports itself by resting its two sections on the ground.

Double ladder with one section for ascending: a self-supporting ladder which, when it is ready for use, supports itself by having its two sections on the ground and permitting only one side to be scaled.

Double ladder with both sections for ascending: a self-supporting ladder which, when it is ready for use, supports itself by having its two sections on the ground and permitting ascent up either section.

Combination/extendible ladder: a rung ladder consisting of two or more sections which allows the creation of a simple leaning ladder with two or more sections, or of a double ladder, or of a double ladder with one extendible section.

Ascent section: ladder component consisting in general of two side-rails connected by steps or rungs.

Connecting cross-bracing: ladder component connecting the side rails of the support section.

Supporting section: component of a double ladder consisting in general of two side rails connected by a cross bracing and without steps or rungs.

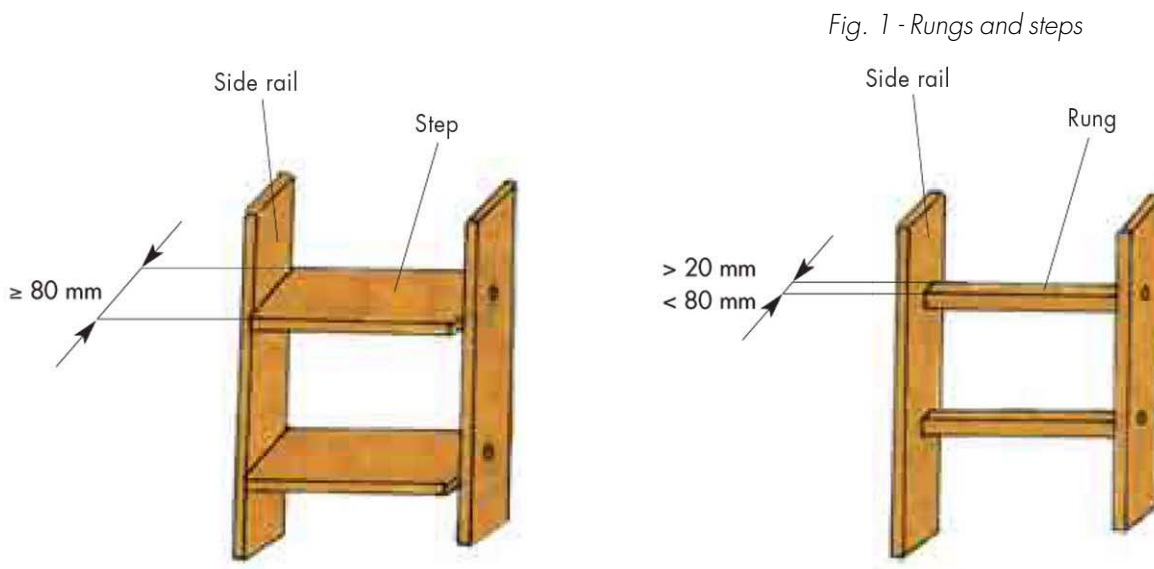
Side rail: ladder component which supports rungs, steps and also the connecting cross bracings of the support sections.

Platform: upper support in a double ladder whose support surface for feet has a minimum width and minimum depth greater than 250mm.

Lifeline: device for gripping positioned in the upper section of a double ladder.

Rung: support for ascent and descent whose support surface for the foot is less than 80mm in width from the front side to the rear side (fig. 1).

Step: support for ascent and descent whose support surface for the foot is greater than or equal to 80 mm in width from the front side to the rear side. When the ladder is positioned for use the support surface must be horizontal (fig. 1).



Anti-opening safety device: safety device of a double ladder aimed at preventing the two sections from opening when the ladder is positioned for use.

Hooking device: hook-shaped device positioned at the top of the side rails of a leaning ladder.

Support device: device consisting of a bar positioned on the upper end of the side rails of a leaning ladder.

End-cap, anti-slip device: Device attached to the bottom of a ladder to prevent and avoid the ladder from slipping.

Inclination α and β : angle, α for the ascent section and β for the support section, between the sections of the ladder and the horizontal level (fig. 2).

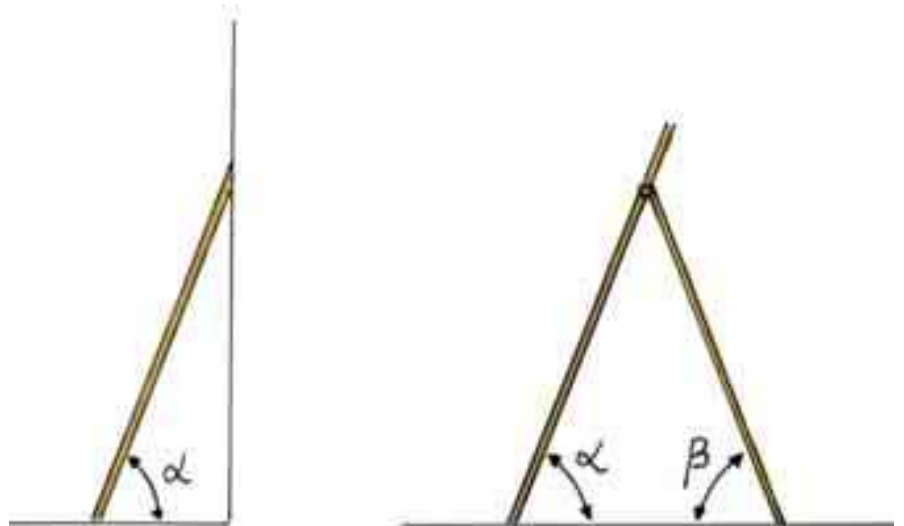


Fig. 2 - Inclination α and β

4. DOUBLE LADDER

4.1 What there is to know about double ladders

4.1.1 Models of double ladders in general use

Different types of double ladders are to be found on the market. The following types of ladders are generally used, and their maximum height must be no more than 5 metres (Art. 21 Presidential Decree. 547/55):

- Double step or rung ladder with one ascent section: a self-supporting ladder which, when it is ready for use, supports itself by having its two sections on the ground and permitting ascent up one side.
- Double step or rung ladder with two ascent sections: a self-supporting ladder which, when it is ready for use, supports itself by having its two sections on the ground and permitting ascent up one or the other side.

The double ladder may be equipped with a platform and a lifeline (fig 3).

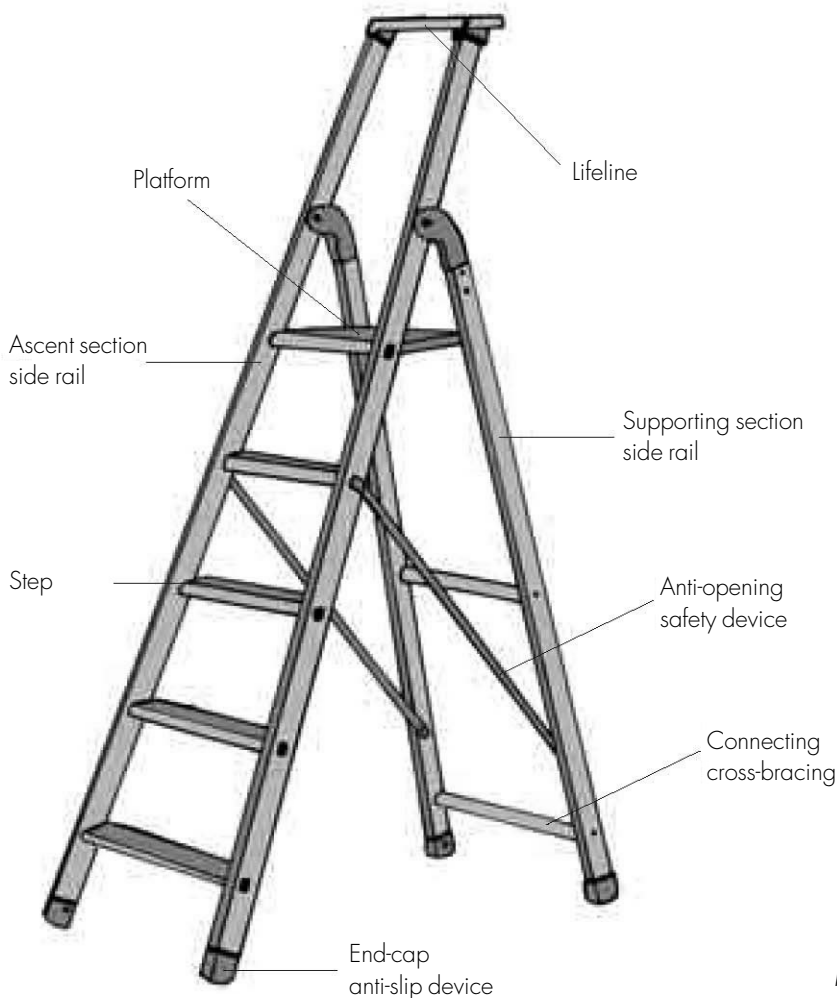


Fig.3 - Double rung ladder

4.2 When to use a double ladder

The employer must make available for use a portable ladder for work carried out at height only in those cases where the use of other work equipment considered safer is not demanded due to the limited risk factor and the short duration of use or due to existing features of the sites which he is unable to alter.

The double ladder is not suitable as a system of access to a different place (fig. 4).



Fig. 4 - Misuse of the ladder: lateral position and system of access to a different place

4.2.1 Checklist when choosing a double ladder.

- Decide what type of activity is intended to be carried out with the ladder, whether it will be indoors or outdoors, bearing in mind that the activity must be carried out safely:
 - the worker must not ascend to a height exceeding that which affords him at all times a safe support and grip;
 - the worker must not position himself sideways to carry out his work;
 - the worker must not have to ascend/descend the ladder while carrying heavy or cumbersome objects which might compromise his secure grip;
 - the ladder when it is being used must in relation to maximum height, comply with the provisions of art. 21 of the Presidential Decree 547/55.
- Where the ladder is not suitable for the activity to be carried out, the manufacturer must make work equipment available which conforms to the following criteria:

- a) priority must be given to collective protection measures over personal protective measures;
 - b) the scale of the work equipment must be appropriate to the nature of the work to be carried out, to any foreseeable stress and to the free and safe circulation of the worker;
 - c) the most suitable system must be selected for access to temporary work positions at height, relating to the frequency of circulation, the drop and the duration of the job.
- Where the ladder in question proves suitable:
 - Choose a proper ladder height:
 - a) do not use a ladder which is too high or too low for work;
 - b) do not use a ladder which is too low for work which is too high up.
 - Check that the ladder is in conformity with Presidential Decree 547/55 or with the Decree of 23rd March 2000 of the Ministry of Labour which recognizes technical regulation UNI EN 131 part 1st and part 2nd.
 - Check, where there is compliance with the Decree of 23rd March 2000, that the portable ladders are accompanied by a leaflet or booklet carrying:
 - a brief description and an indication of its component elements;
 - information for correct use;
 - instructions for maintenance and storage;
 - the essential elements (the institute which carried out the tests, identification numbers of the certificates, date of issue) of the test certificates provided for in technical regulation UNI EN 131 part 1st and part 2nd;
 - a declaration by the manufacturer of conformity to technical regulation UNI EN 131 part 1st and part 2nd.
 - **A rung ladder** is used to allow a worker to ascend to a height and position himself at height for a short period of time.
 - **A step ladder** used to allow a worker to ascend to a height and to position himself at a height for a short period of time, and with greater ease than a rung ladder due to the fact that the step is wider than the rung.

4.2.2 Does the double ladder satisfy the requirements of safety?

Many accidents are due to inattention and inappropriate use of the ladder; but a ladder in poor condition is a definite cause of potential accidents (figs. 11.a and 11.b).

Before starting any activity it is necessary to ensure the following:

- No component of the ladder must be missing (steps/rungs, locking devices, anti-slip components, etc.)
- The ladder must not show any signs of deterioration.
- None of the components, for example the side rails, the steps/rungs, the platform, the locking devices, the hinges etc., must be damaged. Welding and fixed joints must be unimpaired. Dents, cracking, fissures, bends and excessive play in the hinges may constitute sources of danger. Where there is damage to structural components, the ladder must neither be used nor repaired.
- Anti-slip rubber or plastic feet (end caps) must be correctly inserted into position on the base of the side rails. If defective or deteriorated, replace them with new ones available from the retailer.
- The steps/rungs must be clean, dry and free of oils, greases and fresh paints.

4.3 Handling the double ladder

To avoid falls from a height it is necessary to keep in mind the following:

Double ladders



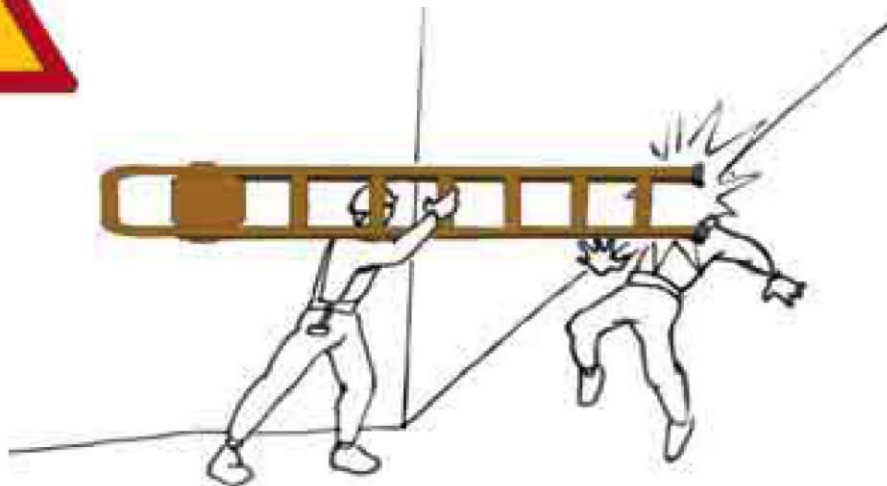
4.3.1 Before ascending/descending

- The worker ascending/descending the ladder must wear clothing and Personal Protective Equipment (PPE) which is deemed appropriate, based on the risk assessment. For example:
 - to use professional footwear designed to ensure perfect stability and positioning: not to ascend/descend barefoot on steps/rungs, with high-heeled shoes, with any type of sandal etc.;
 - not to ascend/descend the ladder with unsuitable clothing, for instance laces which might get entangled and end up underneath the shoes.
- Check that there are no hidden dangers in the working area, either high-up near the workplace or in the immediate vicinity. For example:
 - do not use the ladder near doors or windows, unless precautions have been taken to have them locked;

- do not position the ladder near areas where mounting the ladder would increase the risk of fall from a height (facing open areas without there being proper guards or protections, balconies, landings etc.);
- do not use metal ladders near electrical lines;
- assess whether the existence of other ongoing works might constitute a dangerous disturbance (for example, placing the ladder in the immediate vicinity of an area where loads are being lifted etc.);



Fig.5 - Incorrect manner of carrying a ladder on one's own shoulder



- the area in front of and to the sides of the ladder must be free of all obstacles;
 - where necessary, the work area near the ladder must be protected by barriers and, if required, by street signs;
 - there must be adequate lighting in the surrounding area.
- Do not use the ladder in an open area when there are adverse weather conditions (wind, rain, ice-formation on the ground etc.).
 - Handle the ladder with care, to avoid the risk of crushing of hands or limbs.
 - Handle the ladder with care and be aware of other workers present, taking care to avoid accidentally striking them (fig. 5).
 - When carrying the ladder on one's own shoulder, it must be tilted and not held horizontally, especially where visibility is limited (figs. 5 and 8).
 - When carrying the ladder on one's own shoulder, one's arm must not be positioned inside the ladder between the steps/rungs (figs. 6, 7 and 8).
 - When it is being moved, make sure that the ladder does not fall or knock against obstacles.
 - Portable ladders must rest on a support which is stable, firm, immobile and of suitable dimensions, so as to ensure that the steps/rungs are in horizontal position.
 - Do not place the ladder on equipment or objects used to obtain additional height.



Fig. 6 - Incorrect method of carrying a ladder on one's own shoulder

Fig. 7- Incorrect method of carrying a ladder on one's shoulder



Fig. 8- Correct method of carrying a ladder on one's shoulder



- Ensure that the ladder is positioned so as to face the work surface in question: do not ascend/descend the ladder when it is positioned sideways because the risk of overturning is higher.
- Check that the ladder is completely open.
- Check that additional manual anti-opening devices have been inserted.
- Check the maximum weight (capacity) permitted on the ladder.
- Do not use the ladder as a work platform or gangplank by which to ascend/descend (Fig. 9).



Fig. 9- Do not use the ladder as a platform or a gangplank

4.3.2 On the ladder

- Do not exceed the maximum permissible weight on the ladder.
- The worker must not ascend the ladder to a height exceeding that which affords him at all times a safe support and grip.
- The worker must keep to the median line in ascending the ladder just as much as in descending it, and he must face the ladder with his hands holding onto the rungs or the side rails.
- Do not jump off the ladder onto the ground.
- The ladder must be moved only when unencumbered by workers, and this goes for small movements as well.
- When the worker takes up position on the ladder, he must always have a secure grip by which to support himself.
- The worker must position both feet on the ladder, taking care not to lose his balance (fig. 10a).
- The worker must never position one foot on a step (or rung) and the other on an object or landing (fig 10b).
- The worker must not lean out sideways.



Fig. 10a - Positioning both feet on the ladder, taking care not to lose his balance



Fig. 10b - Positioning both feet on the ladder

- Only one worker at the same time must ascend/descend and stand on the ladder.
- Do not use work tools when on the ladder, because the ladder could slip or tip over.
- Do not ascend/descend the ladder while carrying heavy or cumbersome objects because it is difficult to compromise a secure grip.
- Where work tools be used, a holder must be used which is hooked to the ladder or a tool belt.
- Ascend/descend only on the ladder section intended for this purpose (i.e. using steps or rungs).
- Do not ascend/descend on the support section (i.e. without steps or rungs).
- The worker must stand on the ladder only for a short period, alternating his activity with pauses on the ground.
- The worker must not ascend/descend the ladder if he suffers from vertigo.
- The worker must not ascend/descend the ladder when he is tired or when the use of his limbs has become compromised (by injuries, pain etc.).
- The use of ladders must be forbidden to pregnant women.
- The worker must not ascend/descend a ladder with clothing which might get entangled or end up underneath his shoes.

4.3.3 When work has finished

- Return the ladder to a closed position.
- Place the ladder to an area which is covered, well-aired, dry and not exposed to bad weather.
- Place the ladder in a stable position.
- Carry out any cleaning required.
- Handle the ladder with care to avoid the risk of crushing one's hands.
- Handle the ladder with care and be aware of other workers present, taking care to avoid accidentally striking them.
- When it is being moved, make sure that the ladder does not fall or knock against obstacles.

4.4 Maintenance

- Carry out periodic checks in accordance with the manufacturer's instructions, giving particular attention to:
 - check that there are anti-slip end-caps and that they are intact;
 - check that the ladder's components are intact: side rails, rungs etc.;
 - check the connections between the various components of the ladder.

- If the ladder-type in question permits it, taking into account the manufacturer's specifications, any repairs must be carried out by the manufacturer or a person authorized by him.

Correct use

- Ladder which is not damaged
- Correct height ladder
- Holding onto the ladder with one hand

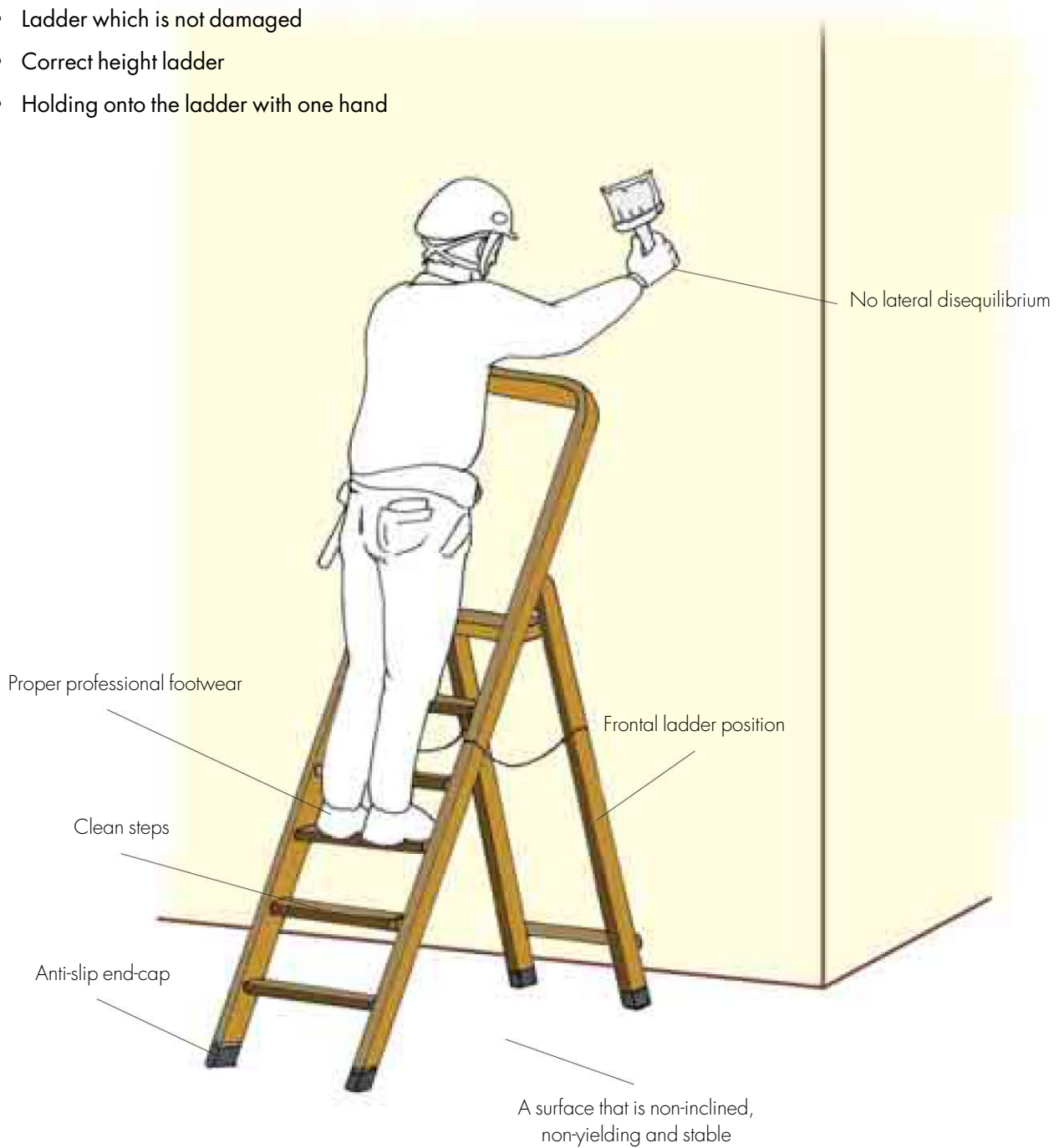


Fig. 11a - Correct use

Incorrect use



- The ladder in a sideways position

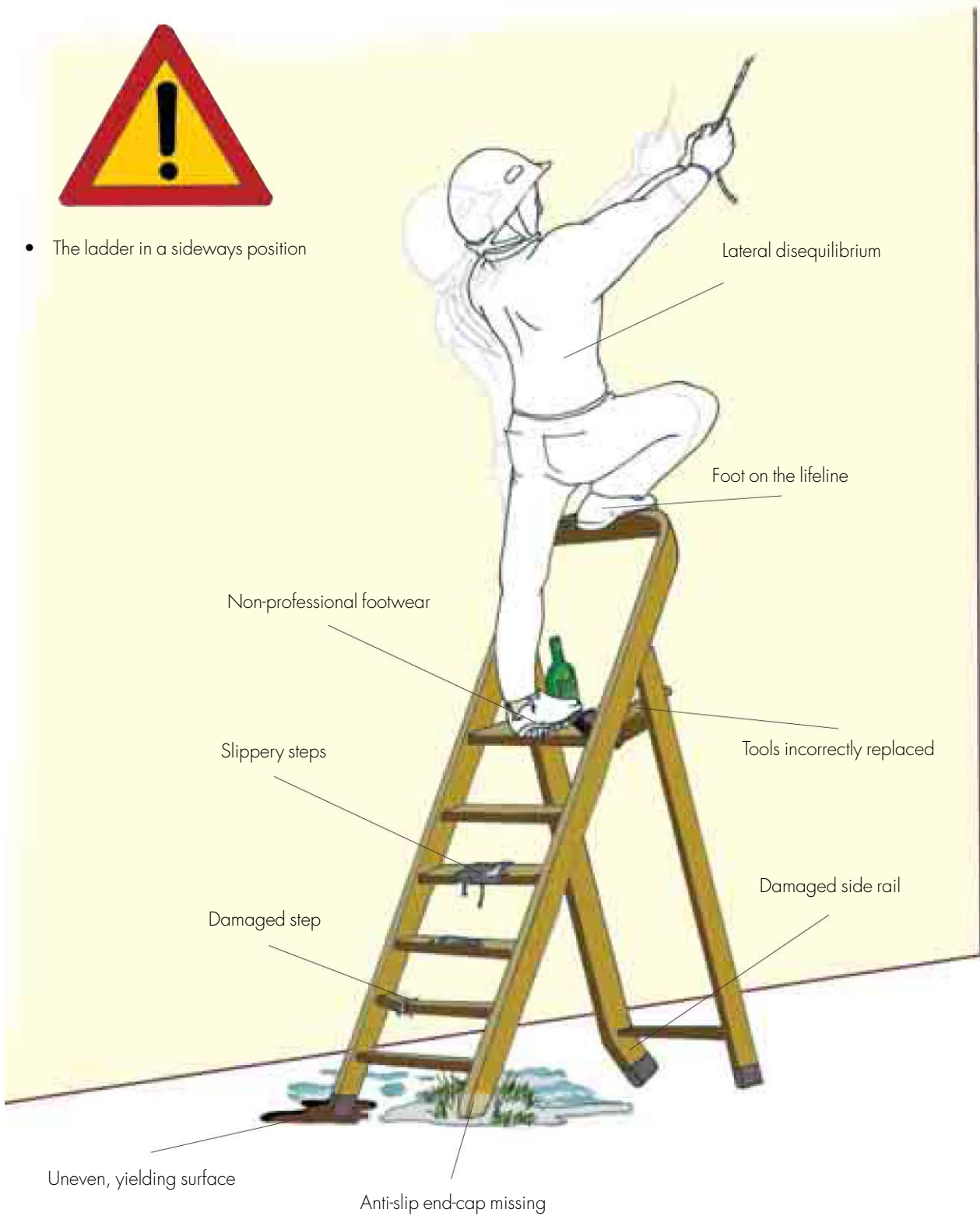


Fig. 11b - Incorrect use

5 LEANING LADDER

5.1 What there is to know about leaning ladders

5.1.1 Models of leaning ladders in general use

Different types of leaning ladders are to be found on the market. In general, the following types of ladder are used, whose maximum height must however be limited depending on use:

- **One section leaning ladder:** a fixed height ladder consisting of a single section, and when it is ready for use its lower part rests on the ground and its upper part leans against a vertical surface, without a proper support (fig. 12).

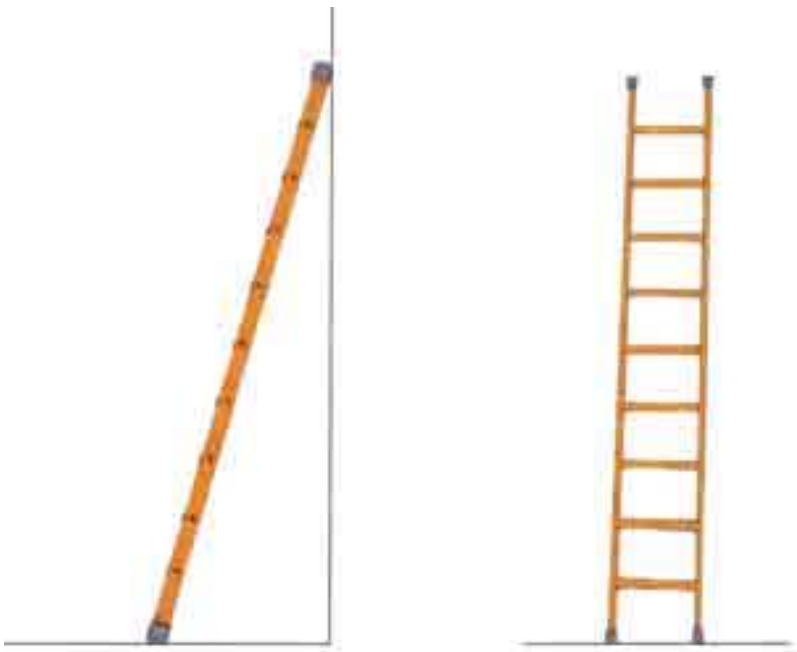


Fig. 12 - One section leaning ladder

- **Leaning sectional ladder or Italian style:** a ladder of variable height obtained by inter-connecting two or more sections by means of end connection devices. The length may be adjusted only by adding an entire section (fig. 13).

Article 20 of Presidential Decree 547/55 provides that "when using portable ladders comprising two or more connection components (the Italian type or similar), in addition to ensuring that there are anti-slip devices at the lower ends of the two side rails, the following rules must be observed:

- a) the length of the ladder in use must not exceed 15 meters, save in special circumstances, in which case the upper ends of the side rails must be secured to fixed parts;



Fig. 13 - Leaning sectional ladder

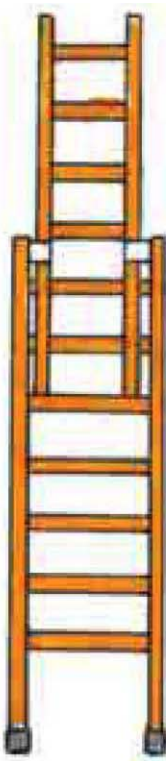


Fig. 14 - Hand - operated leaning extension ladder

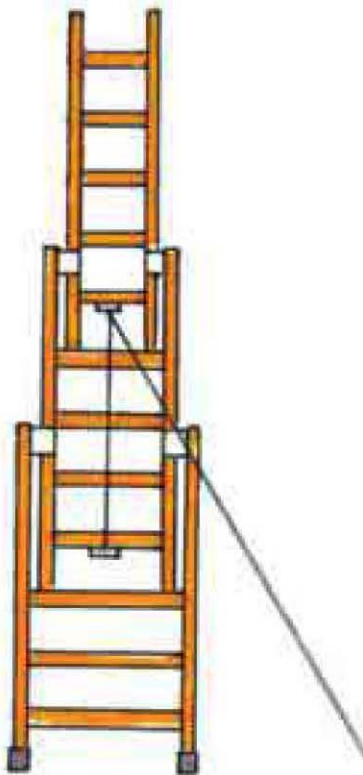


Fig. 15 - Rope - operated leaning extension ladder

- b) ladders which are longer than 8 meters must be equipped with a safety bar to reduce the deflection.
 - c) no worker must be on the ladder when it is being moved sideways;
 - d) while work is being carried out, there must be somebody on the ground supervising the ladder's use.
- **Leaning extension ladder with two or three sections:** a variable-height ladder with two or three sections which slide over each other in a parallel direction, and when it is ready for use its lower part rests on the ground and its upper part leans against a vertical surface, without a proper support. Its length is adjustable rung by rung.

The extension ladder may be of the kind whose upper sections are **adjusted by hand** (fig. 14) or by a **rope mechanism** (fig. 15).

5.1.2 Ladder for carrying out works at telephone installations

Article 3 of Presidential Decree 323/56 (**construction works, use, maintenance, repair and demolition of telephone facilities**) provides that "the maximum length of sectional ladders must not be greater than 21 metres"

Ladders which are longer than 18 meters must be equipped with a safety bar to reduce the deflection.

While work is being carried out, there must be somebody on the ground continually supervising work carried out on the ladder.

During the construction, repair, maintenance and demolition of telephone lines, lateral movement of **portable sectional ladders is permissible** while a single worker is on top, provided it does not exceed 1.50 m and only if the worker is equipped with and makes use of safety belts and provided the other provisions of Presidential Decree of 7th January 1956, No. 164 are satisfied which contains rules for prevention of accidents in construction work.

The ladder must be moved by at least two workers standing at the base; one worker is permitted to move it while standing at the base, provided the ladder does not exceed 12 meters in length.

Permission to move the ladder sideways in these cases has the effect of raising to 18 meters the limit beyond which the ladder must be equipped with a safety bar, **the relevant limit being 8 metres** for works not engaged in a telephone installation facility.

Only workers whose training has been certified by the Fire Brigade may be assigned to work on ladders whose length exceeds 15 meters. The certificate must be issued by the Fire Brigade Department.

The exceptions permitted in relation to the use of portable sectional ladders for the construction or maintenance of telephonic facilities are strictly related to the special characteristics of such operations and apply therefore to these alone. Therefore, in case that a work team which carries out telephonic operations is called on to do a different kind of work (construction, electric lines, etc.), the

general Rules of Presidential Decree 547/55 must be observed, rather than the specific rules of Presidential Decree 323/56.

5.2 When to use a leaning ladder

The employer must make available for use a leaning ladder for work carried out at a height only in those cases where the use of other working equipment considered safer is not justified due to the limited risk factor and the short duration of use or due to existing features of the sites which he is unable to alter.

The leaning ladder is also suitable as a method of access to a different place.

5.2.1 Checklist when choosing a leaning ladder

- Decide what type of activity is intended to be carried out with the ladder, whether it will be indoors or outdoors, bearing in mind that the activity must be carried out safely:
 - the worker must not ascend the ladder to a height exceeding that which affords him at all times a safe support and grip;
 - the leaning ladder, used for access, must extend by at least 1 metre above the level to be accessed,
 - unless there are other devices that guarantee a secure grip;
 - the worker must not lean out sideways to carry out his work;
 - the worker must not ascend/descend the ladder while carrying heavy or cumbersome objects which compromise a secure grip;
 - the ladder when it is being used must, in relation to maximum height, comply with the provisions of art 20 of the Presidential Decree 547/55 and of art. 3 of presidential Decree 323/56 (this relating exclusively to works carried out at telephonic facilities).
- Where the ladder is not suitable for the activity to be carried out, the manufacturer must make available work equipment which conforms to the following criteria:
 - a) priority must be given to collective protection measures over personal protective measures;
 - b) the dimensions of the work equipment must be appropriate to the nature of the work to be carried out, to any foreseeable stress and to the free and safe circulation of the workers;
 - c) select the most suitable system for access to temporary work positions at height, in relation to the frequency of circulation and the drop and the duration of the job.

- Where the ladder proves suitable:
 - choose an appropriate ladder height (fig. 16):
 - a) do not use a ladder which is too high for work which is too low down;
 - b) do not use a ladder which is too low for work which is too high up.

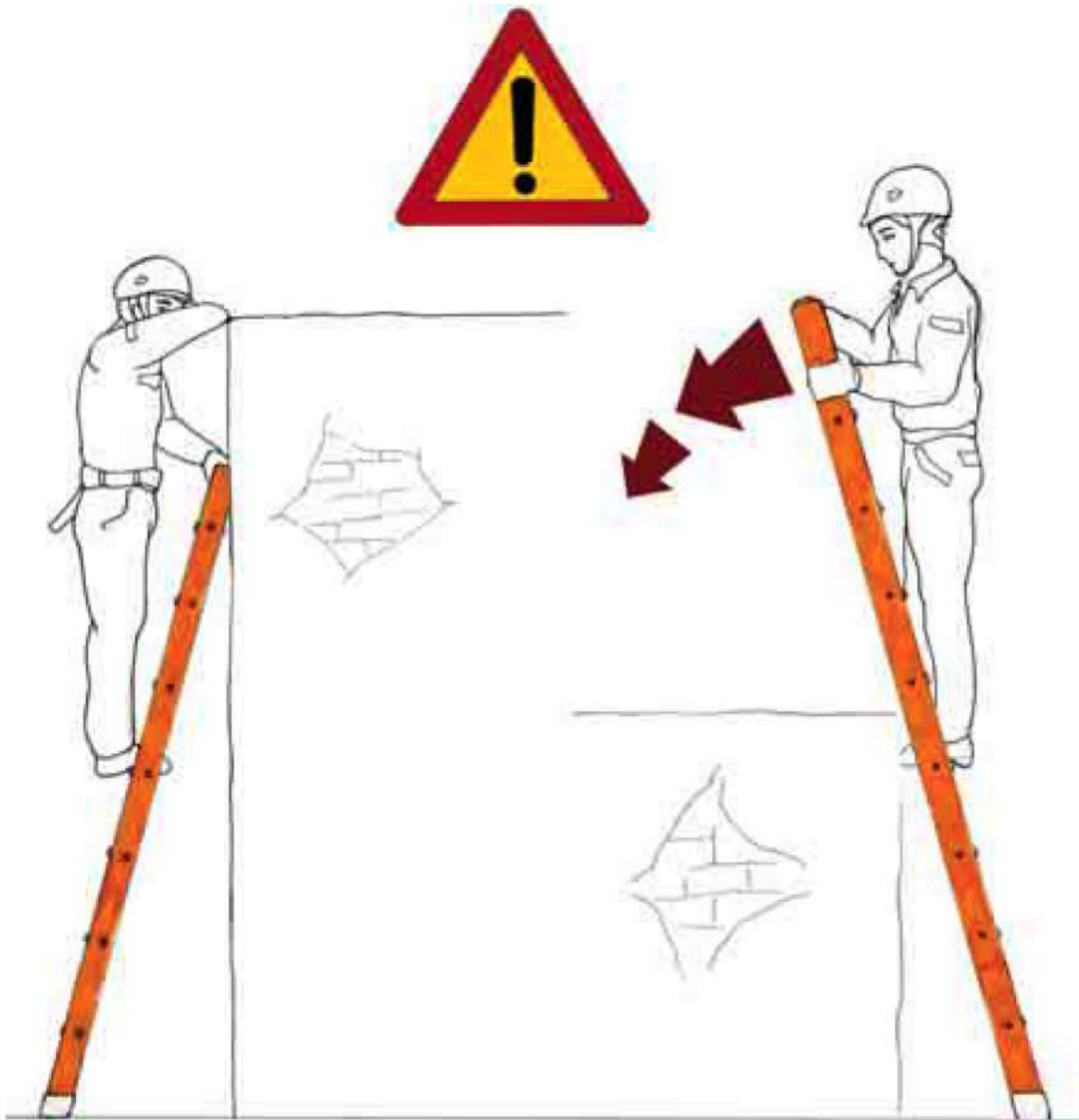


Fig. 16 - works being carried out at a position which is too high and too low

- Check that the ladder is in conformity with Presidential Decree 547/55 or with the Decree of 23rd March 2000 of the Ministry of Labour which recognizes technical regulation UNI EN 131 part 1st and part 2nd.
- Check, where there is compliance with the Decree of 23rd March 2000, that the portable ladders are accompanied by a leaflet or booklet carrying:
 - a brief description and an indication of its component elements;
 - information for correct use;
 - instructions for maintenance and storage;
 - the essential elements (the institute which carried out the tests, identification numbers of the certificates, date of issue) of the test certificates according to the technical regulation UNI EN 131 part 1st and part 2nd;
 - a declaration by the manufacturer of conformity to technical regulation UNI EN 131 part 1st and part 2nd.
- **A rung ladder** allows a worker to ascend to a height and position himself at a height for a short period.
- **A step ladder** allows a worker to ascend to a height and allows him to position himself at a height for a short period, with greater ease than a rung ladder due to the fact that the step is wider than the rung.

5.2.2 Does the leaning ladder meet the safety requirements?

Many accidents are due to a failure to take care or to improper use of the ladder, but a ladder in poor condition is certainly the cause of potential accidents.

Before starting a given activity it is necessary to ensure the following:

- No component of the ladder must be missing (steps/rungs, locking devices, anti-slip components etc.).
- The ladder must not show any signs of deterioration.
- No components may be damaged, e.g. the side rails, the steps, the locking devices, the hinges etc. The couplings of sectional ladders and of the sliding and hooking sections of extension ladders must be in good working condition. Welding and fixed joints must be unimpaired. Dents, cracking, fissures, bends and excessive play between the various components may constitute sources of danger. Where there is damage to structural components, the ladder must be neither used nor repaired.
- Anti-slip rubber or plastic end caps must be correctly inserted into position at the base of the side rails. If defective or deteriorated, replace them with new ones available from the retailer.
- The steps must be clean, dry and free of oils, grease and fresh paint.

5.3 Handling the leaning ladder

To avoid falls from a height it is necessary to observe the following:

Leaning ladder



5.3.1 Before ascending/descending

- The worker ascending/descending the ladder must wear clothing and Personal Protective Equipment (PPE) which is deemed appropriate, based on the risk assessment. For example:
 - to use professional footwear designed to ensure perfect stability and positioning: do not ascend/descend barefoot on steps/rungs, with high-heeled shoes, with any type of sandal etc.;
 - do not ascend/descend the ladder with unsuitable clothing, for instance laces which might get entangled or end up underneath the shoes.
- Check that there are no hidden dangers in the working area, either high-up near the workplace or in the immediate vicinity. For example:
 - do not use the ladder near doors or windows, unless precautions have been taken to have them locked;
 - do not position the ladder near areas where mounting the ladder would increase the risk of fall from a height (facing open areas without there being proper guards or protections, balconies, landings etc.);
 - do not use metal ladders near electrical lines;
 - assess whether the existence of other ongoing works might constitute a dangerous disturbance (for example, placing the ladder in the immediate vicinity of an area where loads are being lifted etc.);
 - the area in front of and to the sides of the ladder must be free of all obstacles;
 - where necessary, the work area near the ladder must be protected by barriers and, if required, by street signs;
 - there must be adequate lighting in the surrounding area.
- Do not use the ladder in an open area when there are adverse weather conditions (wind, rain, ice-formation on the ground etc.).
- The summit of the ladder must be supported safely (for example by avoiding windows, eaves, taut cables, corners etc. - fig. 18).

- Where ladder with a cylindrical support is being used, ensure that it is stable and that a suitable pole rest is used (figs. 17 and 19).

Fig. 17 - Pole rest



Fig. 18 - Wrong positioning of the ladder on a corner support

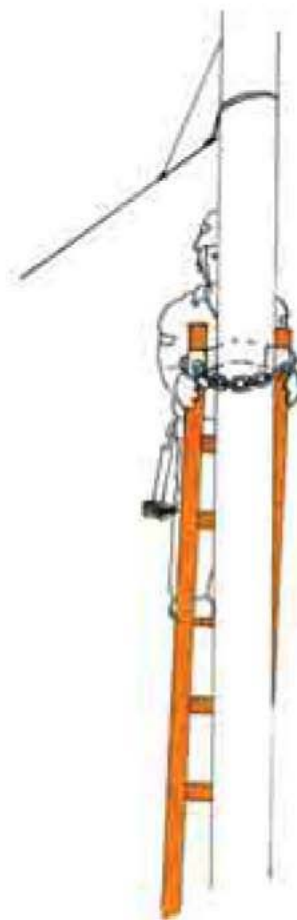


Fig. 19 - Leaning ladder with pole rest

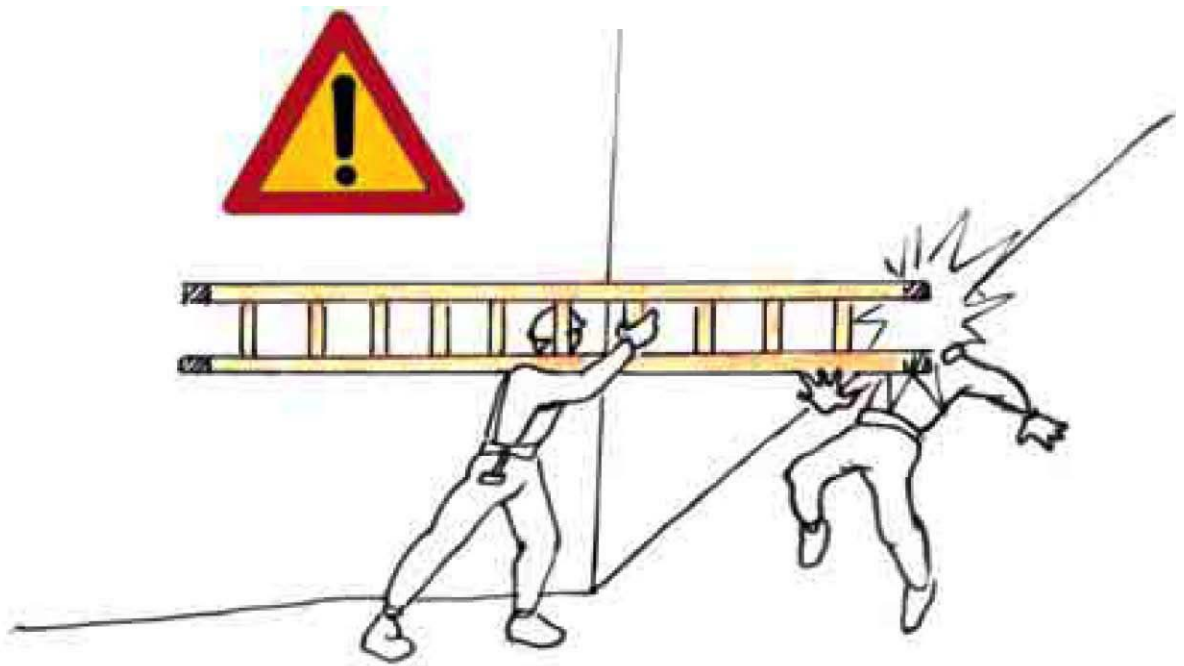


Fig. 20 - Wrong method to carry the ladder on one's own shoulder

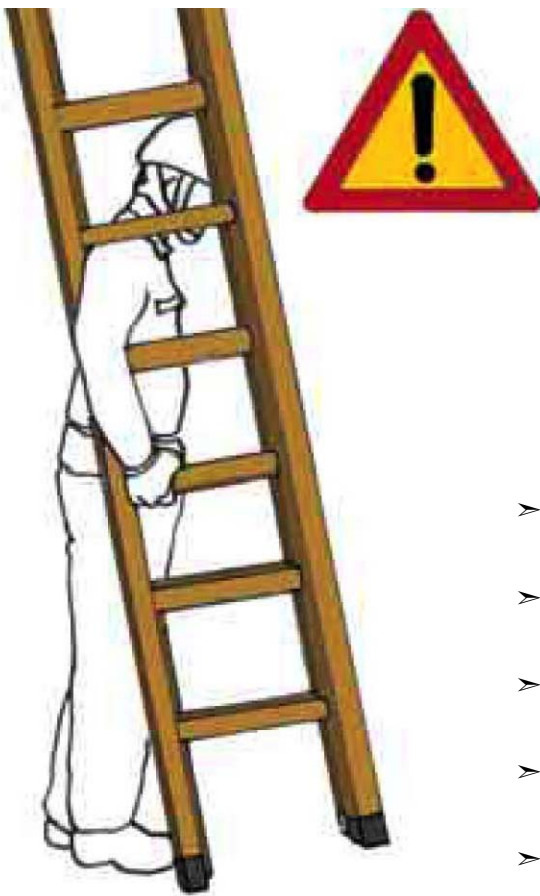


Fig. 21 - Wrong method to carry the ladder on one's shoulder

- Handle the ladder (sections) with care and be aware of other workers present, taking care to avoid accidentally striking them down (fig. 20).
- When carrying the ladder on one's own shoulder, it must be tilted and not held horizontally, especially where visibility is limited (fig. 23).
- When carrying the ladder on one's own shoulder, one's arm must not be positioned inside the ladder between the steps/rungs (figs. 21 and 22).
- When it is being moved, make sure that the ladder (sections) does not fall or hit against obstacles.
- Do not place the ladder on equipment used to obtain additional height.
- Portable rung ladders must lean on a support which is stable, strong and immobile, of a suitable size, so that the horizontal position of the rungs is ensured (fig. 25).



Fig. 22 - Wrong method to carry the ladder on one's own shoulder

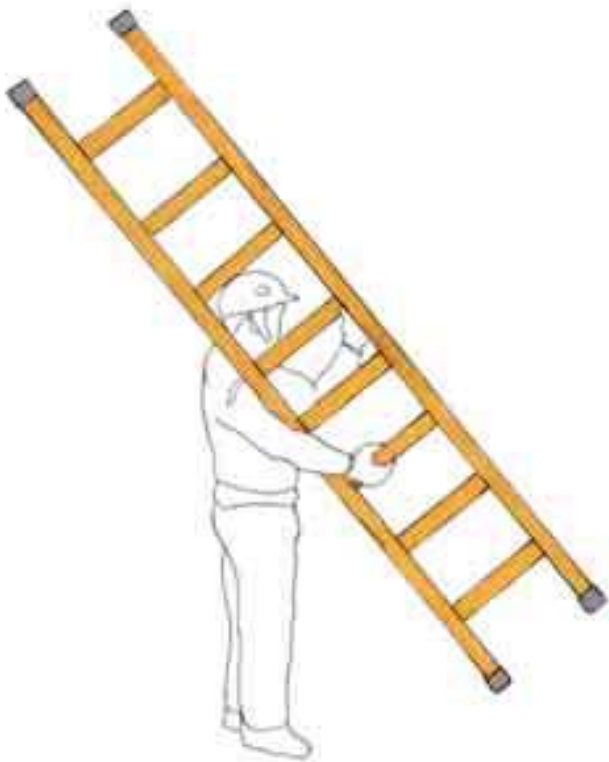


Fig. 23 - Correct method of transporting the ladder by shoulder



Fig. 24 - Do not lean the ladder on a slippery surface

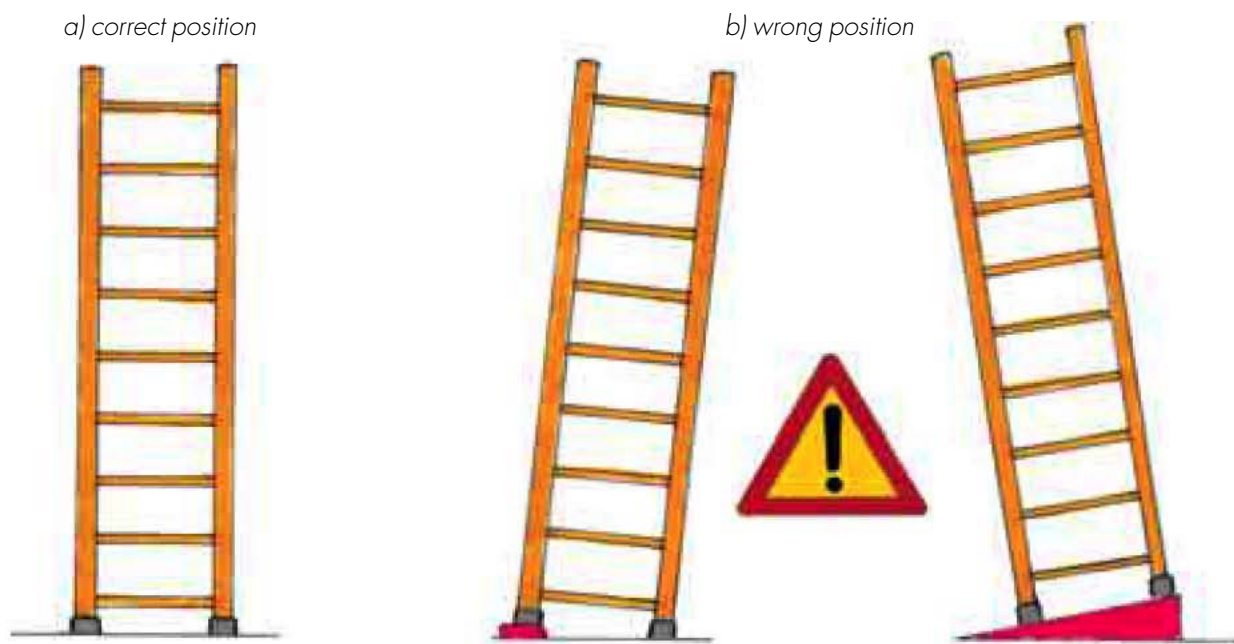


Fig. 25 - Portable ladders must rest in an horizontal position.

- Ensure that the ladder is so arranged and secured that there will be no listing, slippage, overturning, swinging or marked movement. Where the aforementioned measures are not possible, the ladder must be held at its base by another person (fig. 24).
- The leaning ladder used for access must extend by at least 1 meter above the level to be accessed, unless there are other devices which guarantee a secure grip (fig. 26).
- Check the maximum weight (capacity) permitted on the ladder (fig. 27).
- Do not use the ladder as a work platform or gangplank by which to ascend/descend (fig. 28).
- When using the **simple leaning ladder**, its wall distance depends on the length of the ladder assembled, the nature of the ground on which it is placed and the varying circumstances of the work involved (by "wall distance" is meant the distance between the base of the side rails and the vertical line passing through the ladder's support point).



Fig. 26 - Extension of the ladder beyond the level to be accessed

Lean the ladder against the wall in tilted position, at the angle permitted by the manufacturer if it has rungs and, if it has steps, in such a manner that the steps are parallel to the ground (horizontal).

In general the ladder must be leant against the wall at an angle in relation to the ground of between 65° and 75° if it has rungs and between 60° and 70° if it has steps, but always in accordance with the manufacturer's instructions. By way of approximate guidance, the point at which the top of the ladder is supported against the wall must be at a height from the ground equivalent to 4 times the distance of the base of the ladder from the wall (figs. 29, 30 and 31).



Fig. 27 - Maximum weight permitted on the ladder

Angle α of between:
65°-75° if it has rungs
60°-70° if it has steps

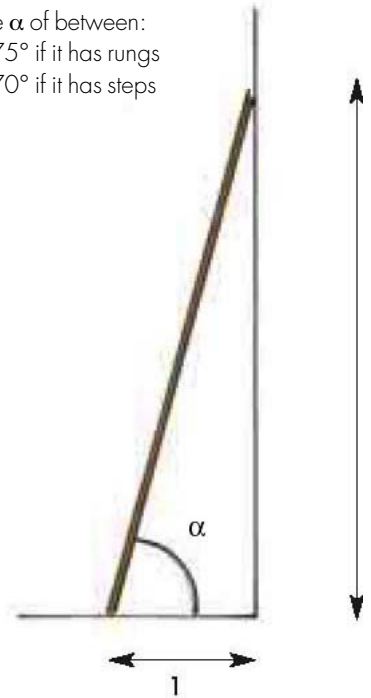


Fig.29 - Correct positioning of the leaning ladder



Fig 28 - Do not use the ladder as a scaffold or a gangplank



Fig. 30 - A simple method to assess the correct inclination of the leaning ladder

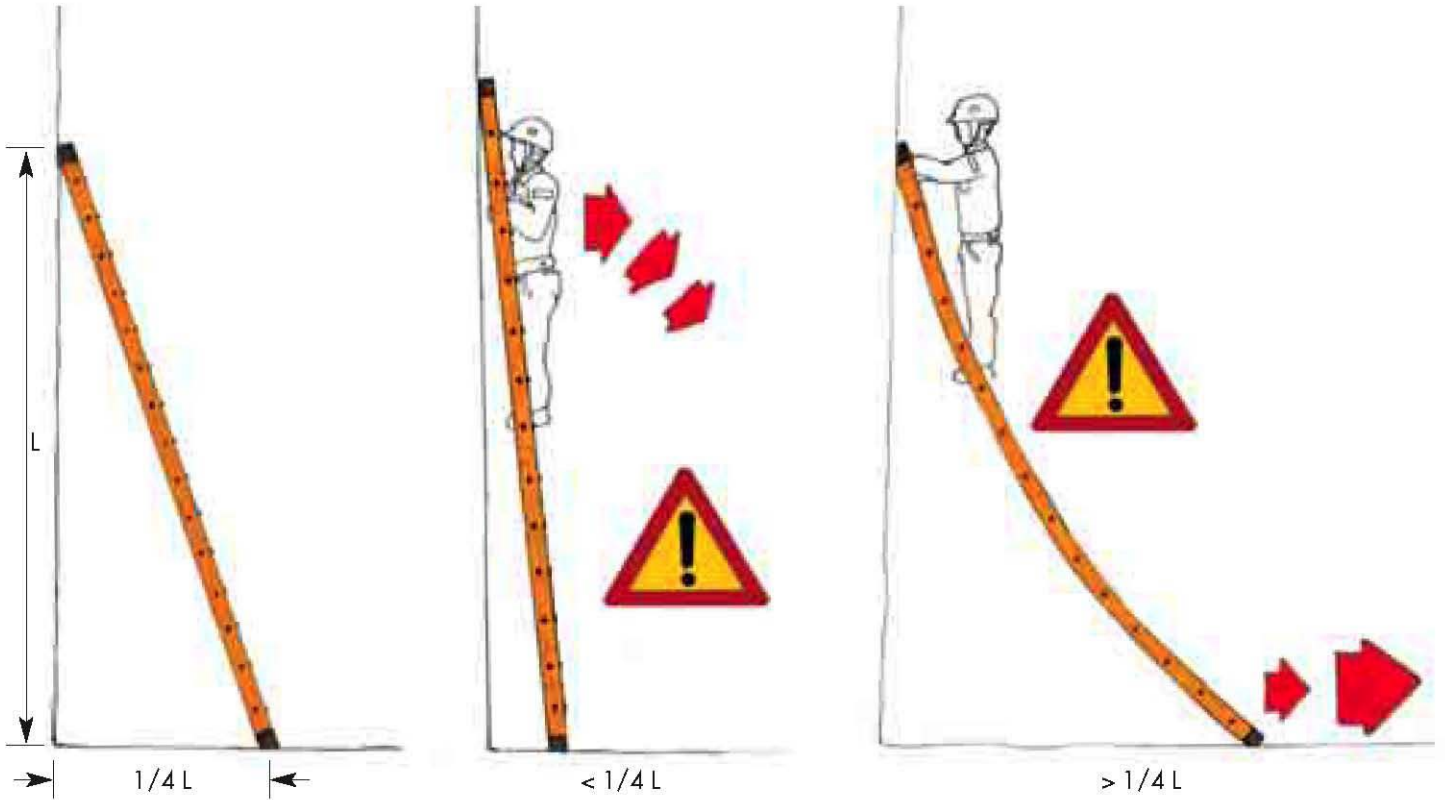
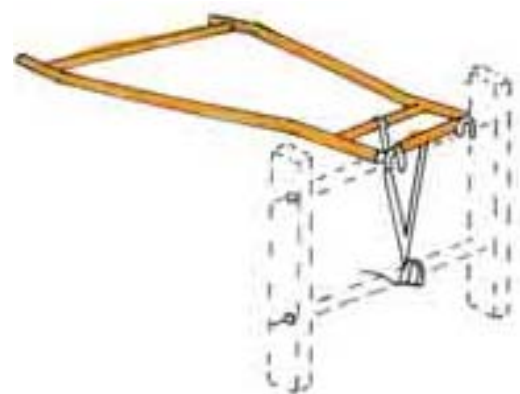


Fig. 31 - Effects of a wrong positioning of the leaning ladder

- The above holds equally for **sectional ladders with two sections** but where the lengths are greater such a proportion does not apply. To safely connect the next sections, it is necessary to start with a distance from the wall of between 80 to 90 cm and then, as assembly proceeds, the distance increases until it reaches about 2 metres at maximum heights.
- For **sectional ladders with two or more sections** the following considerations apply:
 - Using the safety bar (fig. 32), the ladder's distance must also be coordinated with the position and length of the safety bar installed; several safety bars of varying lengths must be made available, so as to produce the best results, depending on the final length of the ladder assembled and of the conditions of its support. The safety bar must be used to reduce deflection;
 - the opportunity to use a dividing-strip for ladder-lengths exceeding 8 metres is emphasized, so as not to expose the ladder to heavy stress which in the long term could compromise its solidity;
 - additionally, a situation is to be carefully avoided in which, either due to the effect of installing a safety bar in an incorrect position or due to an overhang of the support wall, it is discovered during the assembly phase that a component (BC fig. 33) of the ladder is lacking in support; connecting up a further component in these conditions will expose the worker to serious risk because it could cause an inversion in the ladder's curvature, with the consequence of breaking up or tipping over;
 - when using sectional or extension ladders, ensure that the locking mechanism for the various components is functioning properly;
 - sectional ladders must be equipped with anti-slip devices at the lower ends of the side rails, as with simple ladders, whether it is the first section that is supported or one of the succeeding sections;
 - use of end caps adjustable at height is recommended, so that the rungs may be kept horizontal even on uneven ground. If it has to do with the first section, one or two of the fastened end caps may be of the kind represented in fig. 34, with height adjustable by a bolt. Where one of the succeeding sections is supported on the ground, provision is made for attaching sliding end caps to the side rails (fig. 35); this is done by introducing pegs which ensure ladders are in fully horizontal position even where there are noticeable differences in level (10%);
 - the application of anti-slip devices does not exempt one from the obligation to supervise the ladder from the ground during operations;
 - when sections of ladder already assembled on the ground must be taken off, especially when more than two sections must be lifted, the operation must never be undertaken by lifting the ladder by its side rails (fig. 36). This operation should be avoided because it could cause the side rail to break at the connecting joint between the first and the second section. In addition, since the center of gravity is higher than the support point of the worker's hand, the ladder is likely to pivot thereby twisting the worker's wrist.



Fig. 32 - Safety bar



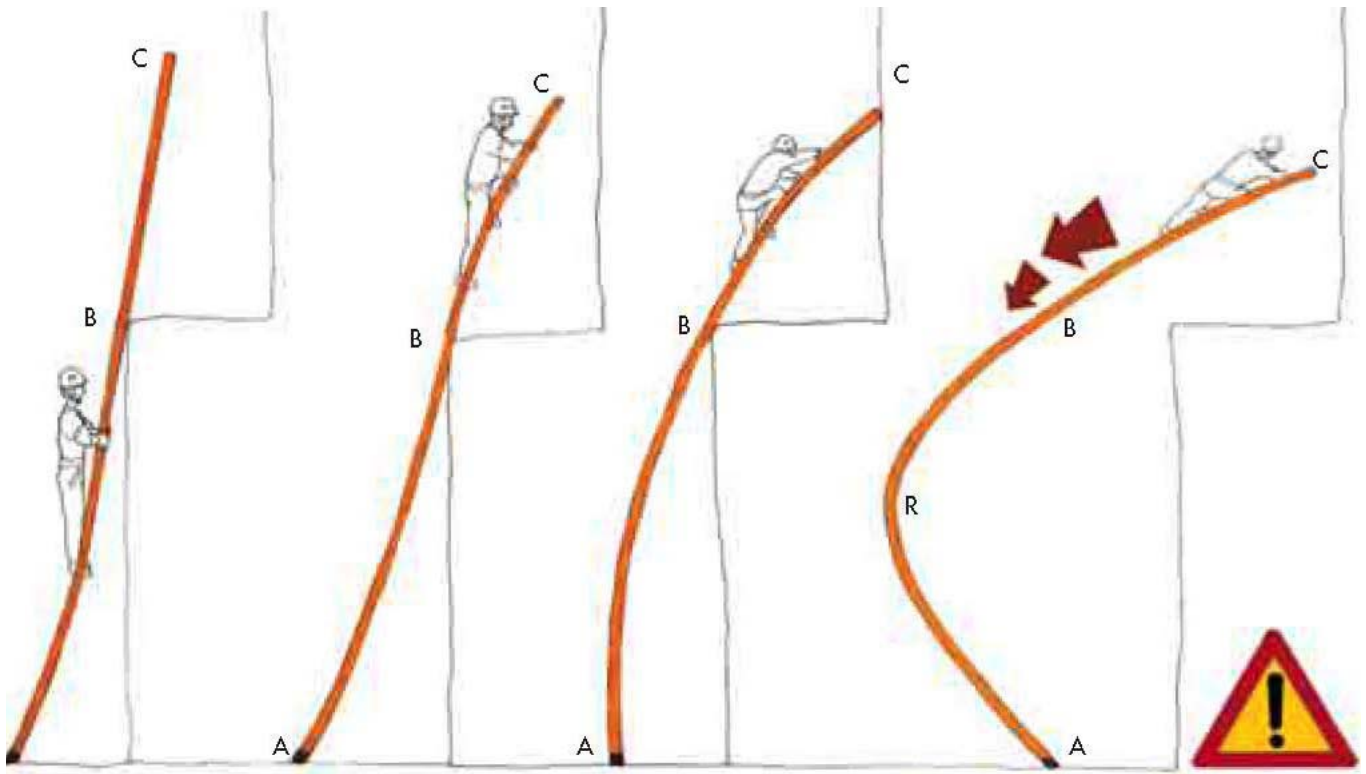


Fig. 33 - Component BC of the ladder lacking in support and inversion in the ladder's curvature

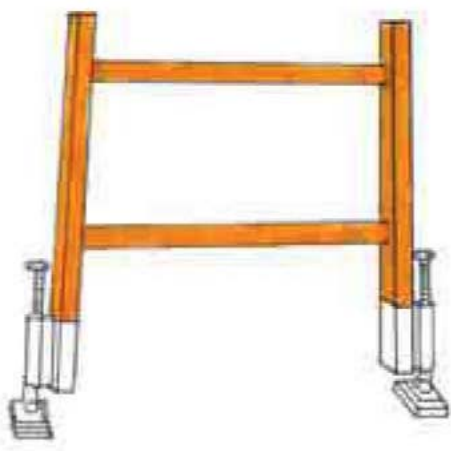


Fig. 34 - End caps adjustable at height

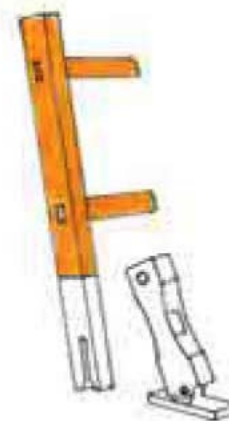


Fig. 35 - Sliding end and caps for sections succeeding the first one

Non correct operation

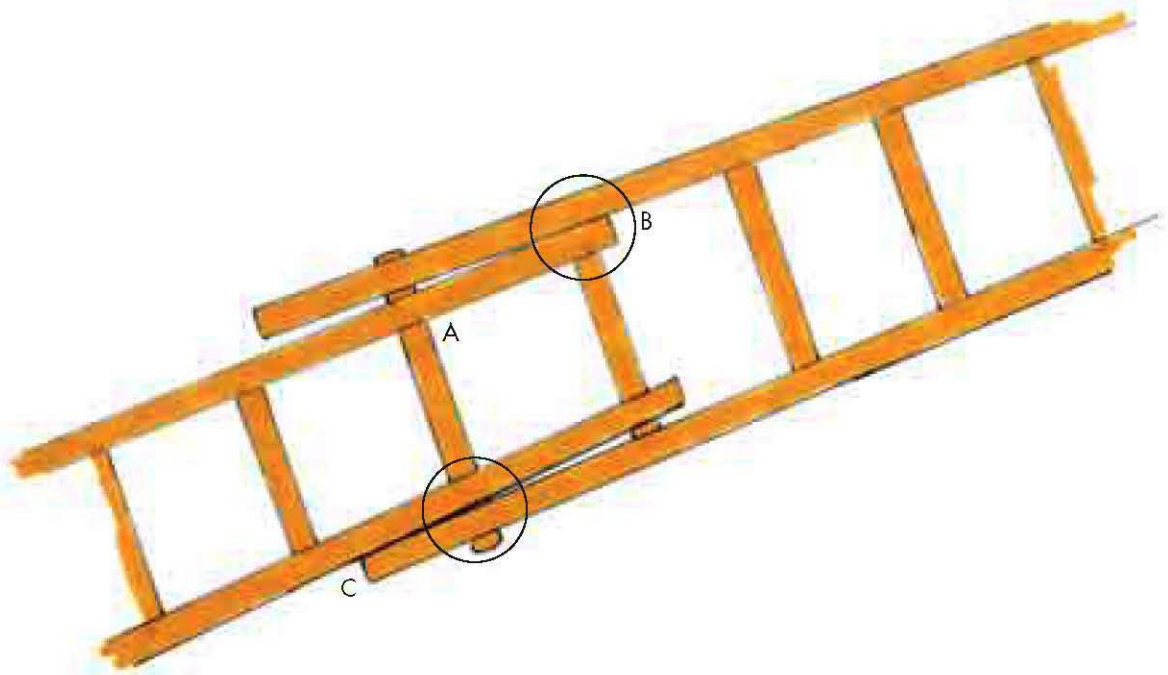
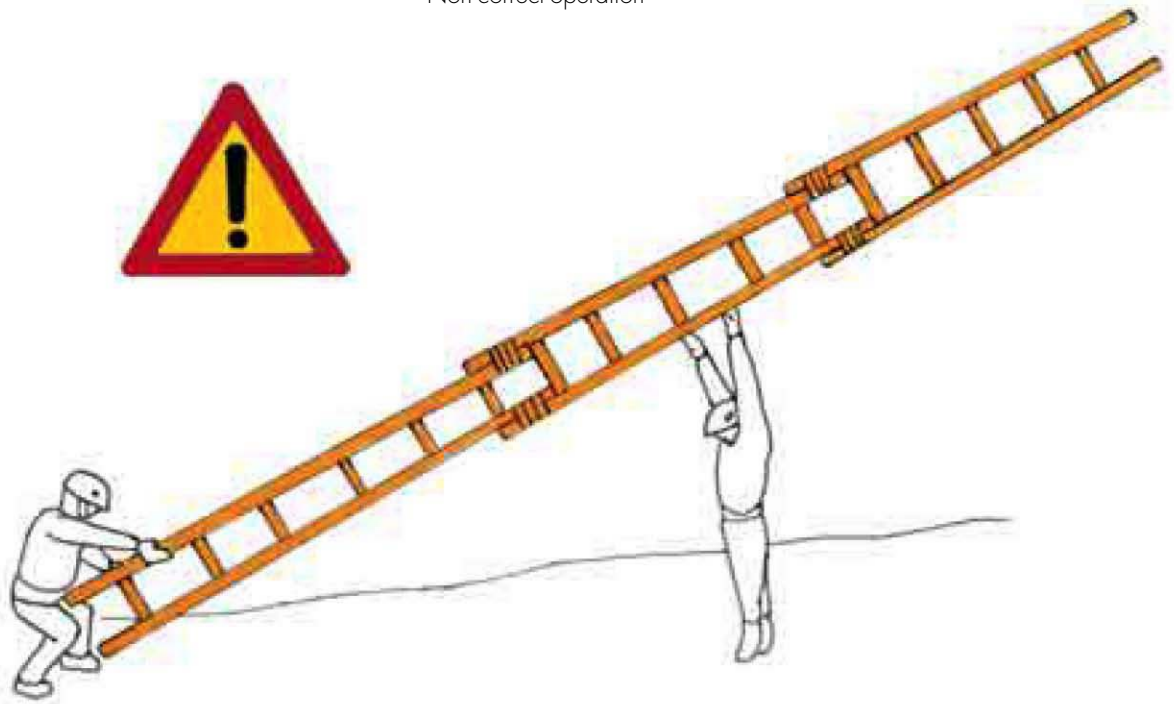


Fig. 36 - Non correct lifting operation of sections of ladder already assembled on the ground

In cases there are no other means of raising a ladder already assembled, a manoeuvre must be used involving ropes (fig. 37), which requires several persons (two to pull the ropes, tied at about two meters from the summit, one who supports the lower ends of the ladder and another who helps to raise it over his head).

- Assembly of the **leaning extension ladder with two or more sections**, when done by hand, must be carried out with the worker standing on the first step, and observing a lower ladder-height (figs. 38 and 39).

If the ladder is equipped with proper safety locking catches between the sections, it may be extended on the ground and positioned as described previously for sectional ladders.

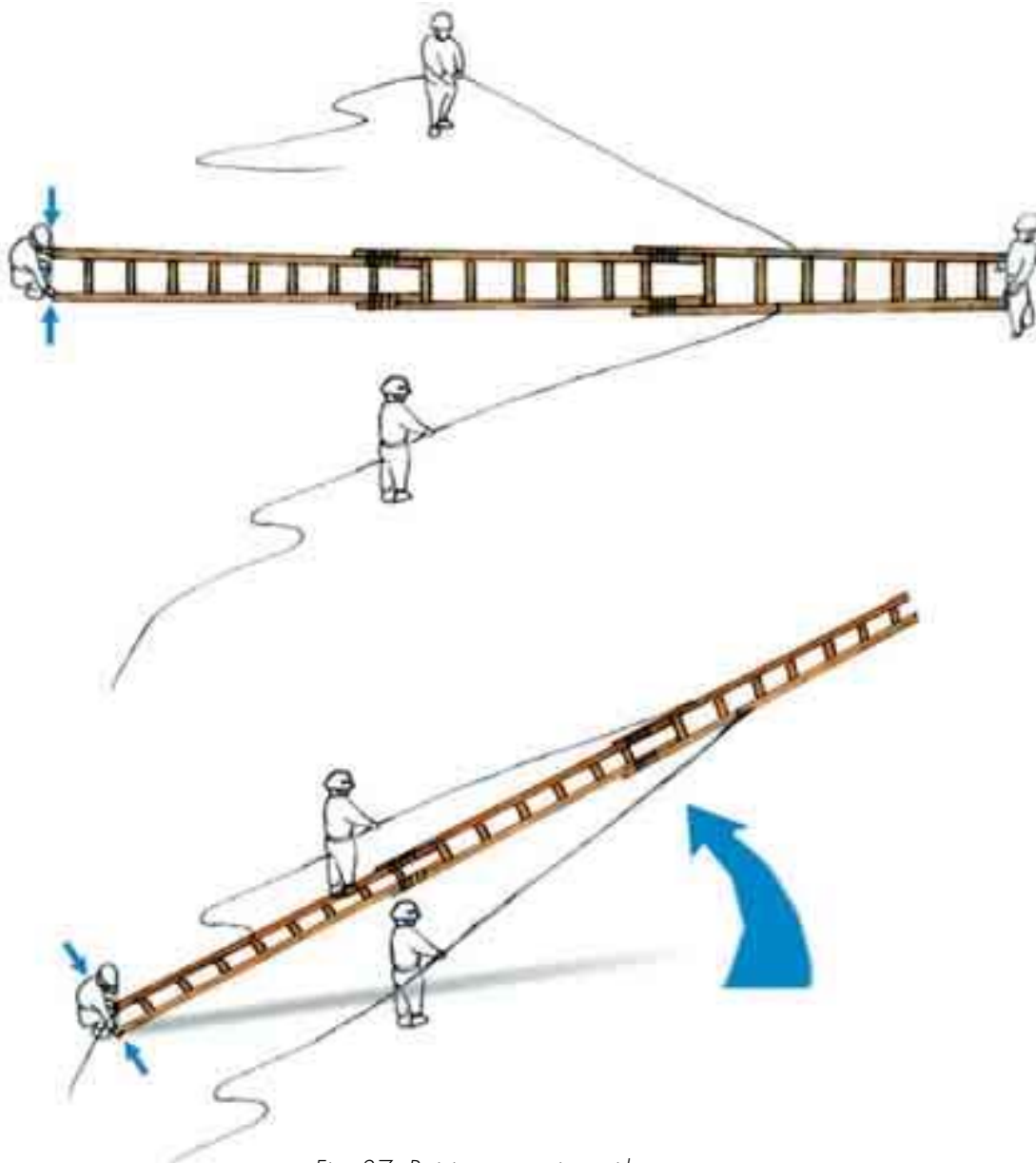


Fig. 37 - Raising operation with rope

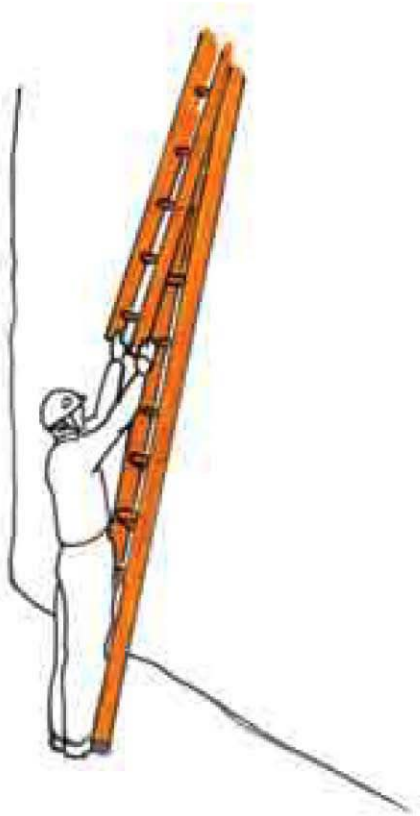


Fig. 38 - Incorrect assembly procedure



Fig. 39 - Correct assembly procedure

5.3.2 On the ladder

- Do not exceed the maximum permissible weight on the ladder.
- The worker must keep to the median line in ascending the ladder just as much as in descending it, with his face towards the ladder and his hands holding onto the rungs or the side rails (figs 40 and 41).
- Do not jump off the ladder onto the ground.
- The ladder must not be moved when the worker is positioned on it, excepting in circumstances set out in para. 5.1.2.
- While the sectional or extension ladder is being moved the necessary precautions must be taken in order to avoid the slipping of components and/or the listing of the ladder itself.



Fig. 40 - Incorrect ascent/descent procedure



Fig. 41 - Correct ascent/descent procedure



Fig. 42 - Position both feet on the ladder, do not lose balance

- Portable ladders comprising several connecting components or extension ladders must be used so as to ensure the mutual locking of the various components.
- When the worker positions himself on the ladder, he must always have a secure grip with which to support himself.
- The worker must not lean out sideways.
- Only one worker at the same time must ascend/descent and stand on the ladder.
- Do not apply excessive force with work tools because the ladder could slip or turn over.
- The worker must not ascend/descent the ladder while carrying heavy or cumbersome objects which compromise a safe grip.
- Where work tools must be used, a holder must be used which is hooked to the ladder or a tool belt.
- The worker must always position both feet on the ladder, taking care not to lose his balance (fig. 42).
- The worker must never position one foot on a step (or rung) and the other on an object or platform (fig.43).



Fig 43 - Do not rest one foot on a step (rung) and the other on an object or platform.

- The worker must stand on the ladder only for short periods, alternating his activity with pauses on the ground.
- The worker must not ascend/descend the ladder if he suffers from vertigo.
- The worker must not ascend/descend the ladder when he is tired or when the use of his limbs has become compromised (by injuries, pain etc.).
- The use of ladders must be forbidden to pregnant women.
- The worker must ascend the ladder up to a height which gives him at all times a safe support and grip.
- The body must be centered in relation to the side rails.
- The assembly of a **sectional ladder requires** full and proper training. Sometimes it is customary to make the third last rung of each section red in colour, the one which must be stepped over with the leg during assembly or dismantling, to make it instantly visible and therefore to avoid errors. Even while work is being carried out it is necessary to use prudence and one's experience to avoid the ladder's becoming subjected to swinging or listing.
- The worker must not ascend/descend a ladder with clothing which might get entangled or end up underneath his shoes.

5.3.3 When work has finished

- In the case of an extension ladder with two or three sections, bring the ladder back to its minimum height.
- Return the ladder (sections) to a place which is covered, well-aired, dry and not exposed to bad weather.
- Place the ladder (sections) vertically with the side rails on the ground and make sure it will not fall over.
- The ladder (sections) may be replaced horizontally along its length, suspended along its side rails.
- Do not place the ladder (sections) horizontally on the ground, because this could be a source of obstruction.
- Carry out any cleaning necessary.
- Handle the ladder with care and be aware of other workers present, taking care to avoid accidentally striking them.
- While it is being moved, make sure that the ladder does not fall or knock against obstacles.

5.4 Maintenance

- Carry out periodic checks in accordance with the manufacturer's instructions, giving particular attention to:
 - check that there are anti-slip end caps and that they are intact;
 - check that the ladder's components are intact: side rails, rungs etc.;
 - check the connections between the various components of the ladder.
- If the ladder-type in question permits it, taking into account the manufacturer's specifications, any repairs must be carried out by the manufacturer or a person authorized by him.

6. COMBINATION LADDER

6.1 What there is to know about combination ladders

6.1.1 Models of combination ladders

A combination ladder, in all its possible configurations, must be used:

- 1) At a maximum height of 5 meters (Art. 21 of Presidential Decree 547/55) for the double configuration (fig. 44).
 - 2) At a maximum height of 5 meters (Art. 20 of Presidential Decree 547/55) for the leaning configuration (fig 45).
- **Combination/extension ladder:** a rung ladder consisting of two or more sections which allows the creation of a simple leaning ladder with two or three sections or a double ladder with extendible section at the upper end:
 - **a simple leaning rung ladder with two or more sections:** a ladder of variable height obtained by superimposing two or more sections on one another, which, when it is ready for use, has its lower part on the ground and upper part on a vertical surface which lacks proper support.
 - **double rung ladder:** a self-supporting ladder which, when it is ready for use, supports itself by having its two sections on the ground, allowing ascent from one side or from two sides.

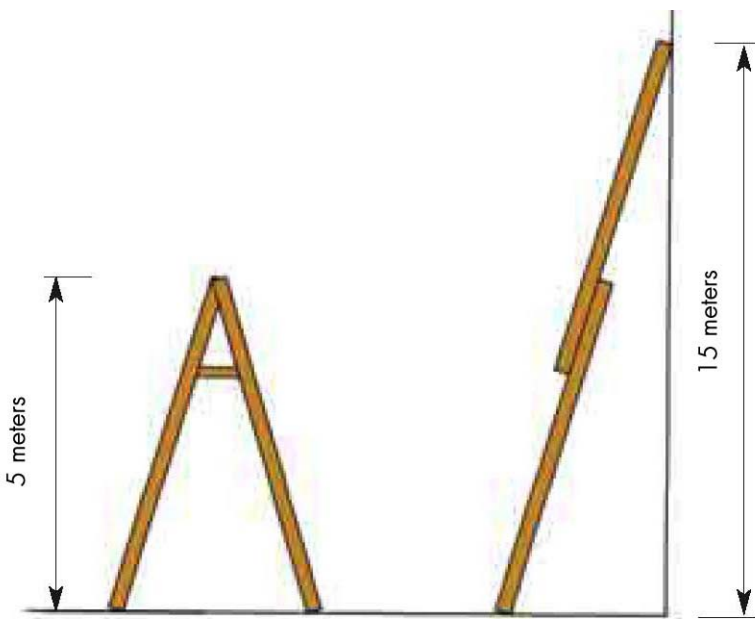
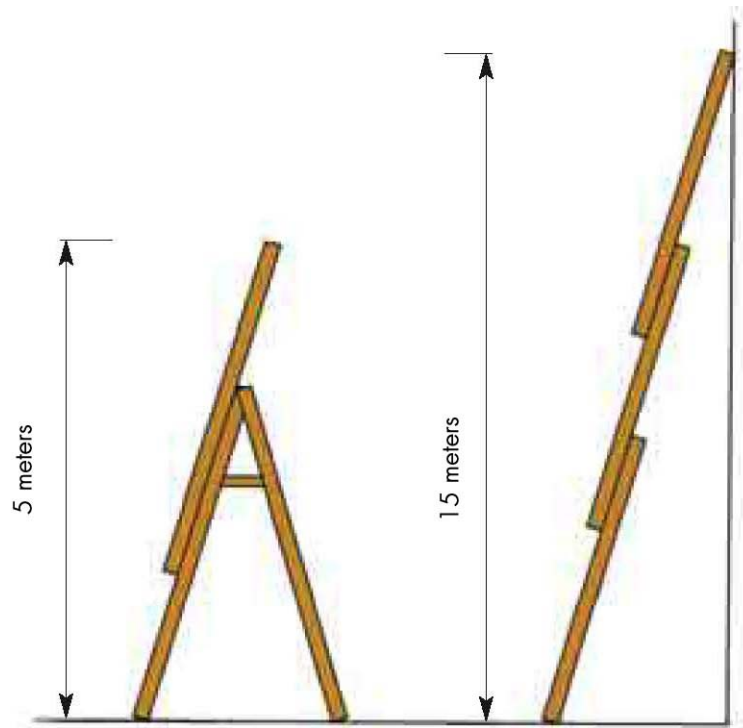


Fig. 44 - Combination/extension ladder with two sections: leaning and self-supporting

Fig. 45 - Combination/extension ladder with three sections: leaning and self-supporting



- **Multiposition combination ladder:** a rung ladder consisting of four or more hinged sections which, by locking the hinge in pre-set positions, allow the creation either of a simple leaning ladder or a double ladder or a ladder in closed position for storage (fig. 46). Other configurations are also possible:
 - the "wall separator or loft" configuration;
 - the "level adjustment" configuration;
 - the "platform or bridge" configuration.

Use of the ladder in platform position is permitted only if the ladder in this configuration satisfies the requirements relating to trestle bridges in keeping with art. 51 of Presidential Decree 164/56 (fig. 46).

Use of the ladder in the "wall separator or loft" and the "level adjustment" position is excluded, in so far as these configurations are not included among rectilinear leaning ladders or double ladders, in accordance with arts. 20 and 21 of Presidential Decree 547/55 (fig. 46).

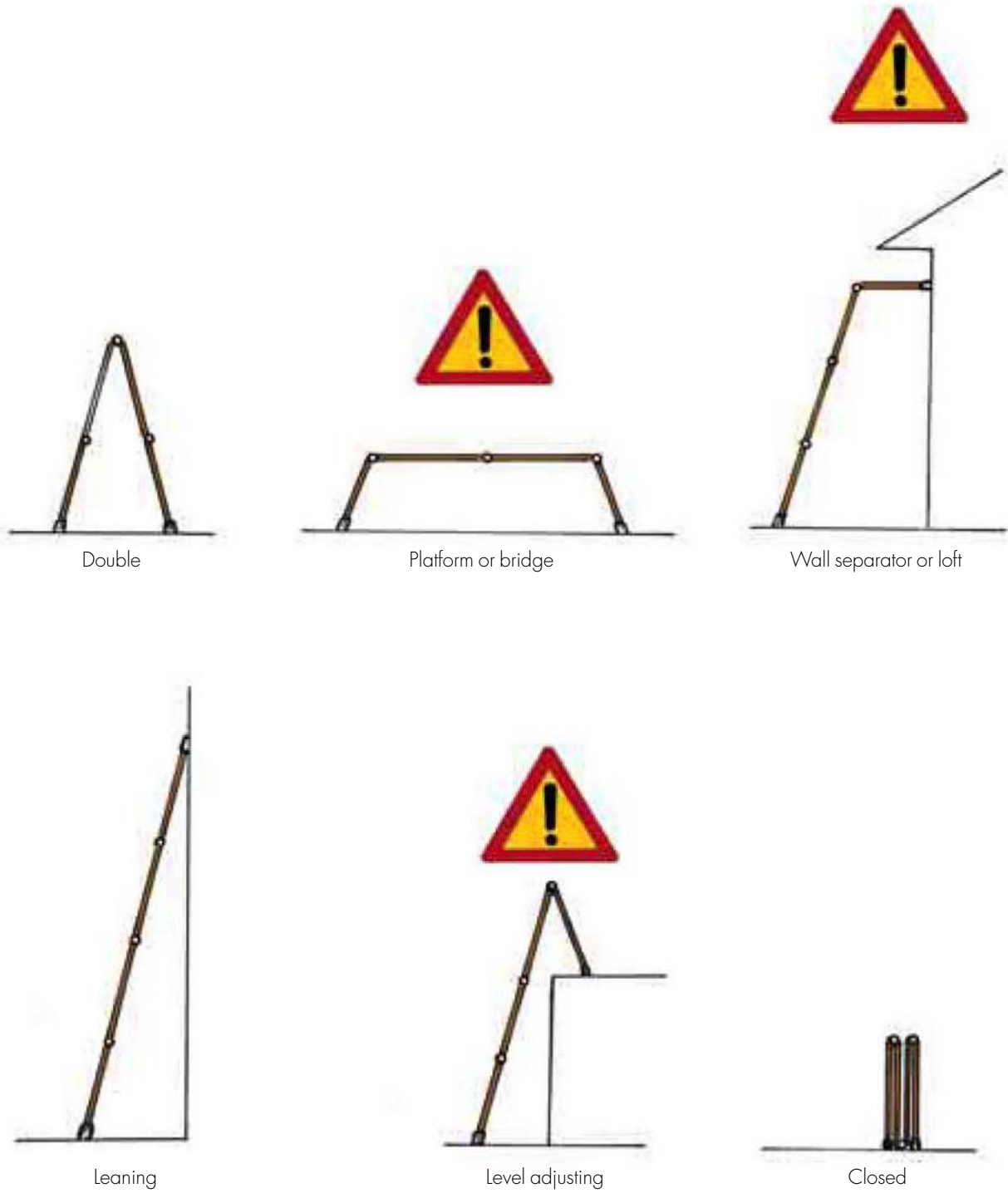


Fig. 46 - Configurations of a multi-position combination ladder

- **Telescopic combination ladder:** rung ladder which in addition to having the "double ladder" (fig. 47) and the "leaning ladder" (fig. 48) configuration by means of two sections being joined by a hinge, may have its length varied by adding two telescopic sliding ladder sections onto the two hinged sections.



Fig. 47 - Telescopic combination ladder in double position



Fig. 48 - Telescopic combination ladder in leaning position

6.2 When to use a combination ladder

The employer must make available for use a combination ladder for work carried out at height only in those cases where the use of other working equipment considered safer is not justified due to the limited risk factor and the short duration of use or due to existing features of the sites which he is unable to alter.

The double ladder is not suitable as a method of access to a different place.

The leaning ladder is also suitable as a method of access to a different place.

6.2.1 Checklist when choosing a combination ladder

- Decide what type of activity is intended to be carried out with the ladder, whether it will be indoors or outdoors, bearing in mind that the activity must be carried out safely:
 - the worker must be able to ascend the ladder to a height which gives him at all times a safe support and grip;
 - the ladder, when it is in the leaning configuration and ready for use, must extend by at least 1 metre above the level to be accessed, unless there are other devices ensuring a safe grip;
 - the worker must not position himself sideways in order to carry out the work;
 - the worker must not ascend/descend the ladder while carrying heavy or cumbersome objects which compromise a safe grip;
 - the ladder, when it is ready to be used, must comply with the requirements of arts. 20 and 21 of Presidential Decree 547/55 dealing with maximum height.
- Where the ladder is not suitable for the activity in question, the employer must make work equipment available which observes the following criteria:
 - a) priority must be given to collective protection measures over personal protective measures;
 - b) the dimensions of the work equipment must be appropriate to the nature of the work to be carried out, to any foreseeable stress and to the free and safe circulation of the worker;
 - c) select the most suitable system for access to temporary work positions at height, in relation to the frequency of circulation, the drop and the duration of the job.
- Where the ladder proves suitable:
 - choose an appropriate ladder height (figure 16):
 - a) do not use a ladder which is too high for work which is too low down;
 - b) do not use a ladder which is too low for work which is too high up.
- Check that the ladder is in conformity with Presidential Decree 547/55 or with the Decree of 23rd March 2000 of the Ministry of Labour which recognizes technical standard UNI EN 131 1° and part 2° (for the configurations provided for by the standard itself).

- Check, where there is compliance with the Decree of 23rd March 2000, that the portable ladders are accompanied by a leaflet or booklet carrying:
 - a brief description and an indication of its component elements;
 - information for correct use;
 - instructions for proper maintenance and storage;
 - the essential elements (the institute which carried out the tests, identification numbers of the certificates date of issue) of the test certificates according to technical standard UNI EN 131 part 1st and part 2nd;
 - a declaration by the manufacturer of conformity to technical standard UNI EN 131 part 1st and part 2nd.
- **A rung ladder** permits the worker's ascent so as to overcome differences in height and allows him to position himself at a height for a short period.
- **A step ladder** permits the worker's ascent so as to overcome differences in height and allows him to position himself at a height for a short period, with greater ease than in the case of the rung ladder, because the step is of greater width than the rung.

6.2.2 Does the combination ladder satisfy safety requirements?

Many accidents are due to poor attention and inappropriate use of the ladder; but a ladder in poor condition is a certain cause of potential accidents.

Before initiating any activity it is necessary to ensure the following:

- No component of the ladder must be missing (steps/rungs, locking devices, anti-slip components etc.).
- The ladder must not show any signs of deterioration.

None of the components, for example the side rails, the steps/rungs, the platform, the locking devices, the hinges etc., must be damaged. Welding and fixed joints must be unimpaired. Dents, cracking, fissures, bends and excessive play in the hinges may constitute sources of danger. Where there is damage to structural components, the ladder must be neither used nor repaired.

- Anti-slip rubber or plastic end caps must be correctly inserted into their position at the base of the side rails. If defective or deteriorated, replace them with new ones available from the retailer.
- The steps/rungs must be clean, dry and free of oils, grease and fresh paint.

6.3 Handling the combination ladder

To avoid falls from a height the following rules must be observed.

6.3.1 Leaning combination ladders

The leaning ladder is also suitable as a method of access to a different place.



6.3.1.1 Before ascending/descending

- The worker who must ascend/descend the ladder must wear clothing and Personal Protective Equipment (PPE) which are deemed appropriate, based on the risk assessment. For example:
 - use professional footwear designed to ensure perfect stability and positioning: don't ascend/descend barefoot on steps/rungs, with high-heeled shoes, with any type of sandal etc.;
 - don't ascend/descend the ladder with unsuitable clothing, for instance laces which might get entangled or end up underneath the shoes.
- Check that there are no hidden dangers in the working area, either high-up near the workplace or in the immediate vicinity, for example:
 - do not use the ladder near doors or windows, unless precautions have been taken to have them locked;
 - do not position the ladder near areas where mounting the ladder would increase the risk of fall from a height (facing open areas without there being proper guards or protections, balconies, landings etc.);
 - do not use metal ladders near electrical lines;
 - assess whether the existence of other ongoing works might constitute a dangerous disturbance (for example, placing the ladder in the immediate vicinity of an area where loads are being lifted, etc.);
 - the area in front of and to the sides of the ladder must be free of all obstacles;
 - where necessary, the working area near the ladder must be protected by barriers and, if required, by street signs;
 - there must be adequate lighting in the surrounding area.

- Do not use the ladder in an open area when there are adverse weather conditions (wind, rain, ice-formation on the ground etc.).
- The summit of the ladder must be supported safely (for example by avoiding windows, eaves, taut cables etc.).
- Handle the ladder with care, to avoid the risk of crushing of hands in the case of a multi-position ladder (double ladder which can also be used as a leaning ladder).
- Handle the ladder with care being aware of other workers present and taking care to avoid accidentally striking them down (fig. 20).
- When carrying the ladder on one's own shoulder, it must be tilted and not held horizontally, especially where visibility is limited (fig. 23).
- When carrying the ladder on one's own shoulder, one's arm must not be positioned inside the ladder between the steps/rungs (figs. 21 and 22) When possible, transport it in closed position.
- While it is being moved, make sure that the ladder does not fall or knock against obstacles.
- Portable ladders must rest on a support which is stable, firm, immobile and of suitable size, so as to ensure that the steps/rungs are in horizontal position.
- Do not place the ladder on equipment or objects used to obtain additional height.
- Ensure that the ladder is correctly and fully open with the hinge in locked position.
- When using the **leaning ladder**, its wall distance depends on the length of the ladder assembled, the nature of the ground on which it is placed and the varying circumstances of the work involved (by "wall distance" is meant the distance between the base of the side rails and the vertical line passing through the ladder's support point).

Lean the ladder against the wall in inclined position, at an angle permitted by the manufacturer if it has rungs and, if it has steps, in such a manner that the steps are parallel to the ground (horizontal).

In general the ladder must be leant against the wall at an angle in relation to the ground of between 65° and 75° if it has rungs, between 60° and 70° if it has steps, but always in accordance with manufacturer's instructions. By way of approximate guidance, the point at which the top of the ladder is supported against the wall must be at a height from the ground equivalent to 4 times its horizontal distance from of the base of the ladder.

- Ensure that the ladder is so arranged and secured that there will be no listing, slippage, overturning, swinging or noticeable movement. Where the aforementioned measures are not possible, the ladder must be held at its base by another person.

- The leaning ladder, used for access, must extend by at least 1 metre above the level to be accessed, unless there are other devices ensuring a safe grip (fig 26).
- Do not use the ladder as a work platform or gangplank by which to ascend/descend.
- Do not exceed the maximum permissible weight (capacity) on the ladder.
- Do not position the ladder with the extendible section in leaning position.

6.3.1.2 On the ladder

- Do not exceed the maximum permissible weight on the ladder.
- The worker must keep to the median line in ascending the ladder just as much as in descending it, with his face towards the ladder and his hands holding onto the rungs or the side rails.
- Do not jump off the ladder onto the ground.
- The ladder must be moved only when unencumbered by workers, and this goes for small movements as well.
- When the worker positions himself on the ladder, he must always have a secure grip with which to support himself.
- The worker must always position both feet on the ladder, taking care not to lose his balance (fig. 42).
- The worker must never position one foot on a step (or rung) and the other on an object (fig 43).
- The worker must ascend the ladder up to a height which gives him at all times a safe support and grip.
- The worker must not lean out sideways.
- Only one worker at the same time must ascend/descend and stand on the ladder.
- Do not apply excessive force with work tools because the ladder could slip or turn over.
- The worker must not ascend/descend the ladder while carrying heavy or cumbersome objects which compromise a safe grip.
- Where work tools must be used, a holder must be used which is hooked to the ladder or a tool belt.
- The worker must stand on the ladder only for short periods, alternating his activity with pauses on the ground.
- The worker must not ascend/descend the ladder if he suffers from vertigo.
- The worker must not ascend/descend the ladder when he is tired or when the use of his limbs has become compromised (by injuries, pain etc.).
- The use of ladders must be forbidden to pregnant women.
- The body must be centered in relation to the side rails.
- The worker must not ascend/descend a ladder with clothing which might get entangled or end up underneath his shoes.

6.3.1.3 When work has finished

- Return the ladder to its minimum height in closed position.
- Place the ladder in a place which is covered, well-aired, dry and not exposed to bad weather.
- Place the ladder vertically with the side rails on the ground and make sure it will not fall over.
- The ladder may be placed horizontally along its length, suspended along its side rails.
- Do not place the ladder horizontally on the ground, because this could be a source of obstruction.
- Carry out any cleaning necessary.
- Handle the ladder with care, to avoid the risk of crushing of hands in the case of a multi-positional ladder (double ladder which can also be used as a leaning ladder).
- Handle the ladder with care and be aware of other workers present, taking care to avoid accidentally striking them.
- While it is being moved, make sure that the ladder does not fall or hit against obstacles.

6.3.2 Combination double ladders

The double ladder is not suitable, as a method of access to a different place.



6.3.2.1 Before ascending/descending

- The worker who must ascend/descend the ladder must wear clothing and Personal Protective Equipment (PPE) which are deemed appropriate, based on the risk assessment. For example:
 - use professional footwear designed to ensure perfect stability and positioning: do not ascend/descend barefoot on steps/rungs, with high-heeled shoes, with any type of sandal etc.;
 - do not ascend/descend the ladder with unsuitable clothing, for instance laces which might get entangled or end up underneath the shoes.

- Check that there are no hidden dangers in the working area, either high-up near the workplace or in the immediate vicinity, for example:
 - do not use the ladder near doors or windows, unless precautions have been taken for them to be closed;
 - do not position the ladder near areas where mounting the ladder would increase the risk of fall from a height (facing open areas without there being proper guards or protections, balconies landings etc.);
 - do not use metal ladders near electric lines;
 - assess whether the existence of other ongoing works might constitute a dangerous interference (for example, placing the ladder in the immediate vicinity of an area where loads are being lifted etc.);
 - there must be adequate lighting in the surrounding area.
- Do not use the ladder in an open area when there are adverse weather conditions (wind, rain, ice-formation on the ground etc.).
- Handle the ladder with care, avoiding the risk of crushing one's hands.
- Handle the ladder with care and be aware of other workers present, taking care to avoid accidentally striking them (fig. 5).
- When carrying the ladder on one's own shoulder, it must be tilted and not held horizontally, especially where visibility is limited (figs. 5 and 8).
- When carrying the ladder on one's own shoulder, one's arm must not be positioned inside the ladder between the steps/rungs (figs. 6, 7 and 8). When possible, transport it in closed position.
- While it is being moved, make sure that the ladder does not fall or hit against obstacles.
- Portable ladders must rest on a support which is stable, firm, immobile and of suitable size/scale, so as to ensure that the steps/rungs are in horizontal position.
- Do not place the ladder on equipment or objects used to obtain additional height.
- Ensure that the ladder is positioned so as to face the work surface in question: do not ascend/descend the ladder when it is positioned sideways because the risk of overturning is higher.
- Ensure that the ladder is correctly and fully open.
- Ensure that any additional anti-opening manual devices have been inserted.
- Do not use the ladder as a work platform or gangplank by which to ascend/descend.
- Do not exceed the maximum permissible weight (capacity) on the ladder.



Fig. 49 - Maximum height to be reached on a combination ladder

6.3.2.2 On the ladder

- Do not exceed the maximum permissible weight on the ladder.
- The worker must not ascend the ladder to a height exceeding that which affords him at all times a safe support and grip.
- The worker must keep to the median line in ascending the ladder just as much as in descending it, with his face towards the ladder and his hands holding onto the rungs or the side rails.
- Do not ascend beyond the step which corresponds with the vertex formed by the two ladder sections placed on the ground (fig. 49).
- Do not jump off the ladder onto the ground.
- The ladder must be moved only when unencumbered by workers, and this goes for small movements as well.
- When the worker positions himself on the ladder, he must always have a secure grip with which to support himself.
- The worker must always position both feet on the ladder, taking care not to lose his balance (fig. 10a).
- The worker must never position one foot on a step (or rung) and the other on an object (fig. 10b).
- The worker must not lean out sideways.
- Only one worker at the same time must ascend/descend and stand on the ladder.
- Do not apply excessive force with work tools because the ladder could slip or turn over.
- The worker must not ascend/descend the ladder while carrying heavy or cumbersome materials which compromise a safe grip.
- Where work tools be used, a holder must be used which is hooked to the ladder or a tool belt.
- Ascend/descend only on the section of the ladder which is intended to be so used (i.e. with steps and rungs).
- Do not ascend/descend the support section (without steps or rungs).
- The worker must stand on the ladder only for short periods, alternating his activity with pauses on the ground.
- The worker must not ascend/descend the ladder if he suffers from vertigo.
- The worker must not ascend/descend the ladder when he is tired or when the use of his limbs has become compromised (by injuries, pain etc.).
- The use of ladders must be forbidden to pregnant women.
- The worker must not ascend/descend a ladder with clothing which might get entangled or end up underneath his shoes.
- Always descend to the ground before moving the ladder or extending it, in the case of an extension ladder.

6.3.2.3 When work has finished

- Return the ladder to its minimum height in closed position.
- Place the ladder to an area which is covered, well-aired, dry and not exposed to bad weather.
- Place the ladder in its position for storage (closed) - vertically with the side rails on the ground and make sure it will not fall over.
- The closed ladder may be placed horizontally along its length, where it is suspended along its side rails.
- Do not place the ladder horizontally on the ground, because this could be a source of obstruction.
- Carry out any cleaning necessary.
- Handle the ladder with care, avoiding the risk of crushing one's hands.
- Handle the ladder with care being aware of other workers present, taking care to avoid accidentally striking them.
- While it is being moved, make sure that the ladder does not fall or hit against obstacles.

6.4 Maintenance

- Carry out periodic checks in accordance with the manufacturer's specifications, giving particular attention to:
 - check that there are anti-slip end caps and that they are intact;
 - check that the ladder's components are intact: side rails, rungs etc.;
 - check the connections between the various components of the ladder.
- If the ladder-type in question permits it, taking into account the manufacturer's specifications, any repairs must be carried out by the manufacturer or a person authorized by him.

APPENDIX

LEGISLATIVE DECREE No. 235, 8th July 2003

Implementation of Directive 2001/45/EC concerning the minimum safety and health requirements for the use of work equipment by workers at work. (OJ L 198, 27/8-2003)

THE PRESIDENT OF THE REPUBLIC

Having regard to the articles 76 and 87 of the Constitution;

Having regard to the Law No. 39, of 1st March 2002, and in particular to Article 1, subparagraphs 1, 3 and 5;

Having regard to Directive 2001/45/EC of the European Parliament and of the Council, of 27th June 2001 amending Directive 89/655/EC of the Council concerning the minimum safety and health requirements for the use of work equipment by workers at work;

Having regard to Legislative Decree No. 626 of 19th September 1994, and subsequent amendments;

Having regard to the preliminary resolutions of the Council of Ministers, adopted in sessions of the 12th March and 23rd May 2003;

Having acquired the opinion of the Permanent Conference for the relations between the State, the Regions and the Autonomous Provinces of Trento and Bolzano;

Having acquired the opinion of the competent committees of the Chamber of Deputies and of the Senate of the Republic;

Having regard to resolution of the Council of Ministers, adopted in the session of 3rd July 2003;

On the proposal of the Ministry for Community Policy and the Ministry of Labour, with the support of the Ministry of Foreign Affairs, of Justice, of Economy and Finance, of Health, of Production Activities and Regional Affairs;

Has issued the following Legislative Decree:

Art. 1

1. The following amendments have been made to article 89, subparagraph 2 of Legislative Decree n° 626 of 19th September 1994, and subsequent amendments (hereinafter referred to as «Legislative Decree »):

- a) at letter a) after the words: «36, subparagraph 8-ter,», are inserted the following: «36-bis, subparagraphs 5, 6; 36-ter; 36-quater, subsections 5 and 6; 36-quinqies, subparagraph 2,»;

- b) after letter b) is added the following: «b-bis) with imprisonment up to three months or a fine of between euro 258 and euro 1.032 for breach of articles 36-bis, subparagraphs 1, 2, 3, 4 and 7, 36-ter, 36-quater, subparagraphs 1, 3 and 4, 36-quinquies, subparagraph 1.».
2. To article 1, subparagraph 1 of the Decree of the President of the Republic n° 164 of 7th January 1956, are added, at the end, the following words: «, as well as by the provisions of Legislative Decree n° 62 of 19th September 1994, and subsequent amendments.».

Attention:

The text of the notes published here has been drafted within the meaning of article 10 subparagraphs 2 and 3 of Consolidation Act of the provisions concerning the promulgation of the laws, the enactment of Presidential Decrees and the official publications of the Italian Republic, approved by the Presidential Decree n° 1092 of 28 December 1985, with the sole aim of facilitating the reading of legal provisions which have been amended or in respect of which referral is made. The legal validity and effect of the legislative provisions transcribed herein must remain unchanged.

For EEC Directives, information on publication are included in the Official Journal of the European Communities.

Notes to the title:

- The text of Directive 2001/45/EC (Directive of the European Parliament and of the Council amending Council Directive 89/655/EEC concerning the minimum safety and health requirements for the use of work equipment by workers at work (second special Directive under Art. 16, para 1 of Directive 89/391/EEC) is published in the Official Journal of the European Community of 19th July 2001, No. L 195.
- The text of Directive 89/655/EEC (Council Directive concerning the minimum safety and health requirements for the use of work equipment by workers at work (second special Directive under Art. 16, para 1 of Directive 89/391/EEC) is published in the Official Journal of the European Community on 30th December 1989, No. L 393.

Notes to the prefaces:

- The text of art 76 of the Constitution is as follows: «Art 76. The exercise of the legislative function may not be delegated to the Government unless principles and criteria have been established and then only for a limited time period and for specified purposes.
- Art 87, subparagraph 5 of the Constitution gives the President of the Republic the power to promulgate laws and to enact legally valid decrees and Regulations.

- The text of article 1, subparagraphs 1, 3 and 5 of the Law No. 39 of 1st March 2002, (Provisions on compliance with the obligations deriving from Italy's status as a member of the European Community. Community Law 2001), is as follows:

«Art. 1 (Government delegated to incorporate community directives).

1. The Government is delegated to enact, within one year from the date of entry into force of this Law, the legislative decrees containing the rules required to give effect to the directives included in the lists referred to in appendices A and B.
2. (Omissis).
3. The drafts of the legislative decrees containing provisions to give effect to the Directives included in the list provided in appendix B and also, where recourse to penal sanctions is provided for, those relating to the implementation of the Directives listed in appendix A, must, after the opinions required by law have been sought, be passed on to the Chamber of Deputies and to the Senate of the Republic so that the opinions of the competent parliamentary bodies may be expressed in relation to them, within forty days of the date when they are so passed on. Should this time limit elapse, the decrees in question will be enacted even if such opinion is not expressed. If the time limit within which the competent parliamentary bodies must offer their opinion should expire within the thirty days preceding the expiry of the time limits provided for in subsections 1 or 4 or subsequent subparagraphs, the latter may be extended to ninety days.
4. (Omissis).
- 5 In relation to the provisions of article 117 subparagraph 5 of the Constitution, the legislative decrees adopted on the subject of regional and provincial legislative authority must come into effect, for those autonomous regions and provinces whose own enabling rules are not yet in force, at the expiry date of the time-limit fixed for incorporation of the relevant community rules and must, however, lose all legal effect from the date when the incorporating rules of each autonomous region and province finally enter into force.
 - For references of directive 2001/45/EC see comments to the title.
 - The text of legislative Decree n. 626 of 19 September 1994, (Implementation of Directives 89/391/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 90/269/EEC, 90/270/EEC, 90/394/EEC, 90/679/EEC, 93/88/EEC, 95/63/EC, 97/42, 98/24 e 99/38 concerning the improvement of worker's safety and health conditions at work), is published in the Official Journal n. 265 of 12 November 1994, ordinary supplement.

Notes to art. 1:

- The text of art 89 subparagraph 2 of Legislative Decree No. 626 of 1994 as amended by the present decree, is as follows:

«Art 89 (Infringements by employers and managers).

1. (Omissis).

2. The employer and the manager will be penalized:

a) by imprisonment of between three and six months or by a fine of between three and eight million liras for infringement of articles 4 subparagraphs 5, letters b, d), e), h), l), n) e q); 7, subparagraph 2; 12, subparagraphs 1, letters d) and e) and 4; 15, subparagraph 1; 22, subparagraphs from 1 to 5; 30, subparagraphs 3, 4, 5 e 6; 31, subparagraphs 3 and 4; 32; 35, subparagraphs 1, 2, 4, 4-bis, 4-ter, 4-quater e 5; 36, subparagraph 8-ter, 36-bis, subparagraphs 5, 6; 36-ter; 36-quater, subparagraphs 5 e 6; 36-quinquies, subparagraph 2; 38; 41; 43, subparagraphs 3, 4, letters a), b), d) e g) e 5; 48; 49, subparagraph 2; 52, subparagraph 2; 54; 55, subparagraphs 1, 3 e 4; 56, subparagraph 2; 58; 72-quater, subparagraphs from 1 to 3, 6 e 7; 72-sexies; 72-septies; 72-novies, subparagraphs 1, 3, 4 e 5; 72-decies, subparagraph 7; 62; 63, subparagraph 3; 64; 65, subparagraph 1; 66, subparagraph 2; 67, subparagraphs 1 e 2; 68; 69, subparagraphs 1, 2 e 5, letter b); 77, subparagraph 1; 78, subparagraph 2; 79; 80, subparagraph 1; 81, subparagraphs 2 e 3; 82; 83; 85, subparagraph 2; 86, subparagraphs 1 e 2;

b) and by imprisonment of between two and four months or by a fine of between one million and five million liras for infringement of articles 4, subparagraphs 4, letters b) e c), 5, letters c), f), g), i), m) e p); 7, subparagraphs 1 e 3; 9, subparagraph 2; 10; 12, subparagraph 1, letters a), b) e c); 21; 37; 43, subparagraph 4, letters c), e) ed f); 49, subparagraph 1; 56, subparagraph 1; 57; 72-octies, subparagraphs 1, 2 e 3, 72-decies, subparagraphs 1, 2, 3, e 5; 66, subparagraphs 1 e 4; 67, subparagraph 3; 70, subparagraph 1; 76, subparagraphs 1, 2 e 3; 77, subparagraph 4; 84, subparagraph 2; 85, subparagraphs 1 e 4; 87, subparagraphs 1 e 2; b-bis and by imprisonment of up to three months or by a fine of between euro 258 to euro 1032 for infringement of articles 36 bis, subparagraphs 1, 2, 3, 4, 7; 36-ter; 36-quater, subparagraphs 1, 3, 4; 36-quinquies, subparagraph 1».

- The text of art. 1, first subparagraph, of the Presidential Decree of 7 January 1956, n° 164 (Rules for the prevention of industrial accidents in the construction sector) as amended by the present decree is as follows: «art. 1 (Activity). - Prevention of accidents at work in the construction field is regulated by the rules of the present decree and, for areas not expressly regulated, by those of the Presidential Decree of 27th April 1955, No. 547, as well as by the provisions of Legislative Decree of 19th September 1994, No. 626, and subsequent amendments».

Art 2.

1. To the title of the Legislative Decree after the words: «99/38/EC» are added the following: «2001/45/EC».

Notes to art. 2.

- The text of the title of the aforementioned Legislative Decree No. 626 of 1994, as amended by this decree, is as follows:
«Implementation of Directives 89/391/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 90/269/EEC, 90/270/EEC, 90/394/EEC, 90/679/EEC, 93/88/EEC, 95/63/CE, 97/42, 98/24, 99/38 e 2001/45/EC concerning the improvement of workers' safety and health conditions at work».

Art. 3.

1. The present decree establishes the minimum health and safety requirements for use of working equipment for temporary works at height.

Art. 4.

1. To Article 34, subparagraph 1, of the Legislative Decree, after letter c) the following is to be added:
«c-bis) work at height: working activity which exposes the worker to the risk of fall from an elevation higher than 2m in relation to a level surface».

Notes to art. 4.

- The text of Art 4 subparagraph 1 of the aforementioned Legislative Decree No. n 626 of 1994, as amended by this decree, is as follows:
«Art 34 (Definitions). - 1. For the purposes of the provisions of the present title herein, the following definitions are to apply:
a) work equipment: any machine, appliance, tool or installation intended to be used during a working operation;
b) use of work equipment: any working operation that requires the use of work equipment, activation and deactivation use, transport, repair, alteration, maintenance, cleaning, dismantling;
c) danger zone: any area inside or in proximity to working machinery which carries a risk to a worker's own health or safety;
«c-bis) work at height: working activity which exposes a worker to the risk of fall from an elevation higher than 2m in relation to a level surface.».

Art. 5.

1. After Article 36 of the Legislative Decree, are added the following:

«Art. 36-bis (Obligations on the employer in relation to the use of equipment for work at height).

1. "Where temporary works at a height cannot be undertaken safely and in proper ergonomic conditions, the employer must select work equipment which is best suited to ensuring and maintaining safe working conditions, in keeping with the following criteria:

a) priority must be given to collective protection equipment over personal protective equipment;

b) the scale of the work equipment must be appropriate to the nature of the work to be carried out, to any foreseeable stress and to the free and safe circulation of the worker.

2. The employer must select the most appropriate means of access to temporary workplaces at a height according to the frequency of passage, the height to be negotiated and the duration of use.

The choice made must permit evacuation in the event of imminent danger.

Passage in either direction between a means of access and platforms, decks or gangways must not give rise to any additional risks of falling.

3. The employer must make available for use a rung ladder at the workplace at height only in those cases where the use of other working equipment considered safer is not justified due to the limited risk factor and the short duration of use or due to existing features of the sites which he is unable to alter.

4. The employer must make available for use rope access and positioning techniques to which the worker may be directly connected, only in circumstances where, having made a risk assessment, it turns out that the work may be carried out safely and that the use of other working equipment considered safer is not justified due to the short duration of use and the existing features of the sites which he is unable to alter. The employer himself is to provide for the use of a seat equipped with accessories depending on the outcome of risk assessment and, in particular, on the duration of the works and on necessities of an ergonomic kind.

5. The employer, depending on the type of work equipment selected on the basis of the foregoing, must determine the appropriate measures for minimising the risks to workers inherent in this type of equipment by providing, where necessary, for the installation of safeguards to prevent fall. These must be of suitable configuration and sufficient strength to prevent or arrest falls from a height and, as far as possible, to preclude injury to workers. Collective safeguards to prevent falls may be interrupted only at points of ladders or stairways access.

6. Where the carrying out of a particular type of work requires temporary removal of collective protection equipment against falls, the employer must adopt suitably effective equivalent safety measures. The work must only be carried out subject to the adoption of such measures. As soon as this special work is over, permanently or temporarily, collective protection equipment against falls must be set up again in full working order.
7. The employer may carry out temporary works at height only if the weather conditions pose no risk to the health and safety of workers.

Art. 36-ter (Obligations of the employer relating to the use of rung ladders).

1. The employer is to ensure that rung ladders are set up so as to guarantee stability during use and in accordance with the following criteria:
 - a) portable rung ladders must lean on a support which is stable, strong, of a scale that is suitable, and immobile, so that the horizontal position of the rungs is ensured;
 - b) suspended rung ladders must be anchored safely and, with the exception of rope ladders, in such a manner as to avoid any displacement and oscillation whatever;
 - c) slippage of feet from portable rung ladders during use must be prevented by securing the upper or lower part of the side rails, or using an anti-slide device, or using any other equivalently effective solution;
 - d) rung ladders used for access must protrude sufficiently beyond the level to be accessed, if other devices fail to ensure a secure grip;
 - e) rung ladders consisting of one or more adjustable sections or extension ladders must be used so as to ensure reciprocal locking of the various sections;
 - f) mobile rung ladders must be securely fixed before being accessed.
2. The employer is to ensure that rung ladders must be used that ensure a secure support and handhold at all times. Workers should avoid manual carrying of objects while ascending/descending ladders if such operation might compromise his secure grip.

Art 36-quater (Obligations of the employer relating to the utilization of scaffoldings).

1. The employer must carry out strength and stability calculations and the corresponding use configurations, if no specific structural arrangements are available in the note for the scaffold selected along with the relevant schemes of use.
2. The employer must be exempt from the above obligation if he makes provision for assembly of the scaffolding in conformity with Sections IV, V and VI of the Presidential Decree 7th January 1956, No. 164.
3. The employer must see to it that, depending on the complexity of the scaffold chosen, an assembly, use and dismantling plan is drawn up by a competent person. This may be in the form of a standard plan, supplemented by items

relating to specific details of the scaffolding in question, and is to be placed at the disposal of the supervisor and of the workers concerned.

4. The employer must ensure that:
 - a) the bearing components of scaffolding must be prevented from slipping, whether by attachment to the bearing surface, provision of an anti-slip device or any other means of equivalent effectiveness;
 - b) the bed surfaces of these bearing components must have a sufficient load-bearing capacity;
 - c) the scaffolding must be stable;
 - d) wheeled scaffolding must be prevented by appropriate devices from moving accidentally during work at a height;
 - e) the dimensions, form and layout of scaffolding decks must be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety;
 - f) scaffolding decks must be assembled in such a way that their components cannot move in normal use and there must be no dangerous gap between the deck components and the vertical collective safeguards to prevent falls.
5. The employer must ensure that those parts of a scaffolding not ready for use are marked, especially during assembly, dismantling or alteration, with general warning signs in accordance with the Legislative Decree 14th August 1996, No. 493, and by delimiting them by physical means preventing access to the danger zone.
6. The employer must ensure that the scaffolding is assembled, dismantled or significantly altered only under the supervision of a competent person and by workers who must have received appropriate and specific training in the operations envisaged.
7. The training referred to in the subsection must be of a theoretical-practical kind and relate to:
 - a) understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;
 - b) safety during the assembly, dismantling or alteration of the scaffolding concerned;
 - c) measures to prevent risk of persons or objects falling;
 - d) safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;
 - e) permissible loads;
 - f) any other risks which the abovementioned assembly, dismantling or alteration operations may entail.
8. The training subject-areas, the duration, the addresses and the minimum requirements for validity of the courses will be determined at the offices of the State-Regions and independent provinces.

9. Those workers who by the 19th July 2005 - the date of entry into force of Legislative Decree 235/2003 - have for at least two years carried out operations of assembly, dismantling or alteration of scaffolding are required to participate in training courses within the two years following this date.
10. The competent person who, at the date of entry into force of this Decree, have for at least three years carried out operations of assembly, dismantling or alteration of scaffolding are required to participate in training courses referred to in subsection 8 within the two years following entry into force of this Decree.

Art 36-quinquies (Obligations on employers in relation to the utilization of rope access).

1. The employer must utilize rope access and positioning techniques in accordance with the following requirements:
 - a) system comprising at least two ropes separately anchored, one used for access, descent and support (working rope) and the other for use as an auxiliary device (safety rope).

Use of a single rope is permitted in exceptional circumstances where the use of a second rope renders the work more dangerous and provided suitable measures are adopted to ensure safety;
 - b) workers equipped with a suitable support harness connected to the safety rope;
 - c) working rope furnished with safe ascent and descent mechanisms and equipped with a self-locking system aimed at preventing fall where its user loses control of his movements.

The safety rope must be equipped with a mobile fall arrester which follows the movements of the worker;
 - d) tool and other accessories used by the workers, hooked to their support harness or to the seat or other suitable means;
 - e) properly planned and supervised works, aimed also at facilitating, where necessary, coming to the worker's assistance. The work plan must provide for an emergency plan, operative typologies, personal protective equipment, the operational techniques and procedures, the anchorages, the positioning of workers, access techniques, work teams and working implements;
 - f) the work plan must be made available at the workplace so that the supervisory body which is competent for the territory for the territory may verify the extent to which it has complied with the criteria referred to in Article 36-bis, subparagraphs 1 and 2.
2. The employer must provide the workers concerned with a suitable training geared to the operations in question, especially in the field of rescue procedures.

3. The training referred to in subparagraph 2 must be of a theoretical-practical kind and relate to:
 - a) familiarization with operational techniques and use of the necessary equipment;
 - b) specific training on natural structures as well as on artificial structures;
 - c) the use of personal protective equipment, its technical characteristics, maintenance, duration and preservation;
 - d) first aid;
 - e) objective risks and prevention and protection measures;
 - f) rescue procedures.
4. The bodies in charge of training, the duration, the addresses and the minimum requirements for validity of the courses will be determined at the State-Regions and autonomous provinces Conference.
5. The workers who, at the date of entry into force of this Decree, have carried out for at least two years assembly, dismantling or alteration operations for scaffolding are required to participate in training courses referred to in subparagraph 4 within two years of the entry into force of this Decree».

Art. 6

1. In relation to the provisions of article 117 subparagraph 5 of the Constitution, the rules of the present decree relating to issues being within the exclusive competence of the regions and the autonomous provinces of Trento e Bolzano, which have not yet made provision for the incorporation of Directive 2001/45 of the European Parliament and of the Council, of 27th June 2001, are applicable until the date when the incorporating rules of each region and autonomous province finally enter into force, in compliance with the obligations deriving from Community Law and the fundamental principles contained in the present Decree.

Notes to Art. 6:

- The text of Art. 117, subparagraph five, of the Constitution, is as follows:
 - « The regions and autonomous provinces of Trento and of Bolzano, must take part - for those areas within their competence - in those decisions aimed at the formulation of community rules and must provide for the implementation of the international agreements and acts of the European Union, in keeping with the procedural rules established by the State law regulating the methods of exercise of substitutable power in the event of default».
- For references in relation to the aforementioned Directive 2001/45 see notes to the title.

Art. 7

1. The provisions of the present Decree must enter into force on 19th July 2005.

The present decree, stamped with the State seal, will be included in the Official Collection of the normative acts of the Italian Republic. The obligation rests on persons in charge to ensure compliance therewith.

Rome, 8th July 2003

CIAMPI

Berlusconi,	<i>Prime Minister</i>
Buttiglione,	<i>Minister of Community Policies</i>
Maroni,	<i>Minister of Labour</i>
Frattoni,	<i>Minister of Foreign Affairs</i>
Castelli,	<i>Minister of Justice</i>
Tremonti,	<i>Minister of Finance and Economy</i>
Sirchia,	<i>Minister of Health</i>
Marzano,	<i>Minister of Production Activities</i>
La Loggia,	<i>Minister for Regional Affairs</i>

Seen, the Minister of Justice: **Castelli**

Have collaborated:

Michele **Candrea,** Ministry of Labour and Social Policy

Luigi **Cortis,** I.S.P.E.S.L

Enrico **Gori,** I.S.P.E.S.L

Michele **Tritto,** A.N.C.E.

Paolo **Casarini** A.C.A.L.