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Aluminium ladder and stepladder

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Aluminium Products Association (JAPA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS S 1121 : 2000** is replaced with this Standard.

However, **JIS S 1121 : 2000** may be applied in the **JIS** mark certification based on the relevant provisions of Article 19 Clause 1, etc. of the Industrial Standardization Law until March 20, 2014.

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Aluminium ladder and stepladder

Introduction

This Japanese Industrial Standard was established in 1976, and has been revised three times up to the present. The revision at this time is made to correspond to the change in usage of the product that has been seen in Japan since the previous revision made in 2000.

No corresponding International Standard has been established at this point.

1 Scope

This Standard specifies the aluminium alloy stepladders for general use (hereafter referred to as “stepladders”) and the portable ladders (hereafter referred to as “ladders”). It is not applicable to the following products.

- a) Multi-fold stepladders with three or more folding mechanisms
- b) Exclusive use or combined use stepladder with two or more folding mechanisms
- c) Scaffolding stepladders with three or more folding mechanisms
- d) Tripod stepladders of which the front side rails are adjustable in length, and the rear leg allows stepping on and swings laterally
- e) Stepladders and ladders whose parts of structure such as side rails, rungs, and platform are plastics.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) listed below shall be applied.

JIS G 4305 *Cold-rolled stainless steel plate, sheet and strip*

JIS H 4100 *Aluminium and aluminium alloy extruded shape*

JIS Z 8703 *Standard atmospheric conditions for testing*

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1 stepladder

self-supporting structure used for the purpose of ascending and descending and for work at high places

There are exclusive use stepladders, combined use stepladders, scaffolding stepladders, tripod stepladders and stepladders with adjustable side rails (telescoping rails).

3.2 ladder

non-self-supporting structure used by being propped against another structure for ascending to and descending from high places

There are single ladders and extending ladders, and ladders with adjustable side rails (telescoping rails).

3.3 rung

lateral bars that are stepped on for ascending and descending or for working

3.4 cross strut

lateral bar provided in a tripod stepladder for reinforcement, not to be stepped on for the purpose of ascending and descending or for working

3.5 platform

topmost plate on a stepladder

3.6 lock

device intended for open-restraining function such as a spreader or a chain spreader for a folding structure, or device intended for bracing function such as a ladder lock

3.7 upper ladder lock

locking device for connecting and fixing the extended upper ladder to the lower ladder

3.8 spike

fitting mounted on the legs of a tripod stepladder, which digs into the ground and stabilizes the stepladder

3.9 adjustable side rails (telescoping rails)

side rails each of which can be adjusted in length

3.10 ascending plane

plane used for ascending and descending, in a ladder or stepladder

3.11 tread

upper surface of the rung, when a stepladder or a ladder is positioned in the state of use

3.12 maximum (minimum) length

maximum (minimum) length including the anti-slip end fittings (lower end fittings) and the upper end fittings, when a ladder is positioned in the state of use

3.13 stepladder height

vertical distance (H) between the upper surface of the platform and the ground contact surface, when a stepladder is positioned in the state of use

3.14 maximum working height of stepladder

distance from the upper surface of the platform safe to sit/stand on or the upper surface of the highest safe standing rung to the ground contact surface (H_1), when a stepladder is positioned in the state of use

4 Classification and names of each part

4.1 Classification

Classification is as given in Table 1 and Table 2 according to the shape and the maximum working load, respectively.

Table 1 Classification by shape

Classification	Symbol	Remarks		Reference figure
Exclusive use stepladder	A	Stepladder composed of a platform, side rails, rungs, locks, anti-slip end fittings, etc., and is less than 2 000 mm in the vertical length up to the platform safe to sit/stand on or the highest safe standing rung.	Not usable as a ladder	Figure 1
Combined use stepladder	B		Also usable as a ladder	Figure 2
Single ladder	C	Ladder composed of side rails, rungs, upper end fittings, anti-slip end fittings, etc., and having a maximum length less than 10 000 mm.	Length adjustable	Figure 3
Extending ladder	D		Having a sliding structure, which allows adjustment of length	Figure 4 and Figure 5
Scaffolding stepladder	E	Stepladder composed of a platform, four side rails, rungs, locks, anti-slip end fittings, etc., less than 1 000 mm in the vertical height up to the platform, and mainly used standing on the platform.		Figure 6
Tripod stepladder	F	Stepladder composed of the front side rails, rear leg, rungs, locks, and spikes, and less than 3 000 mm in the vertical height up to the platform safe to sit/stand on or the highest safe standing rung, and mainly used for gardening works.		Figure 7

Table 2 Classification by maximum working load

Classification	Symbol	Maximum working load kg	Remarks
Type 1000	10	100	Mainly used for light work
Type 1300	13	130	Mainly used for professional work

4.2 Names of each part

Names of each part are shown in Figure 1 to Figure 7.

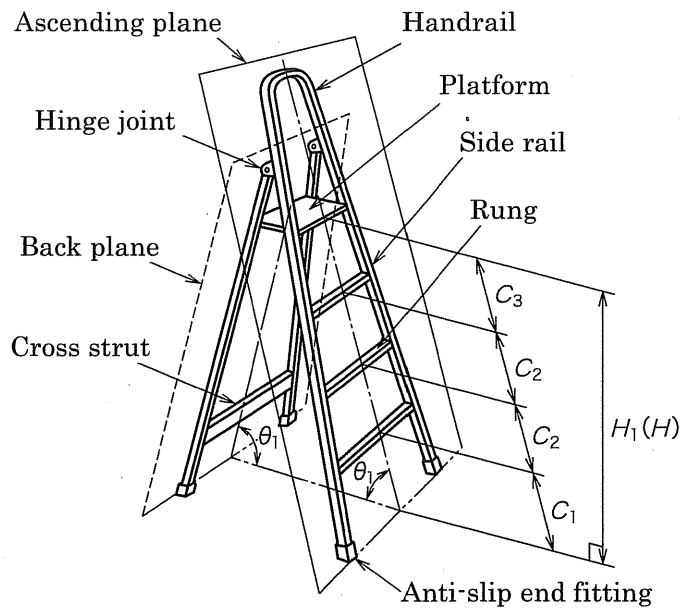
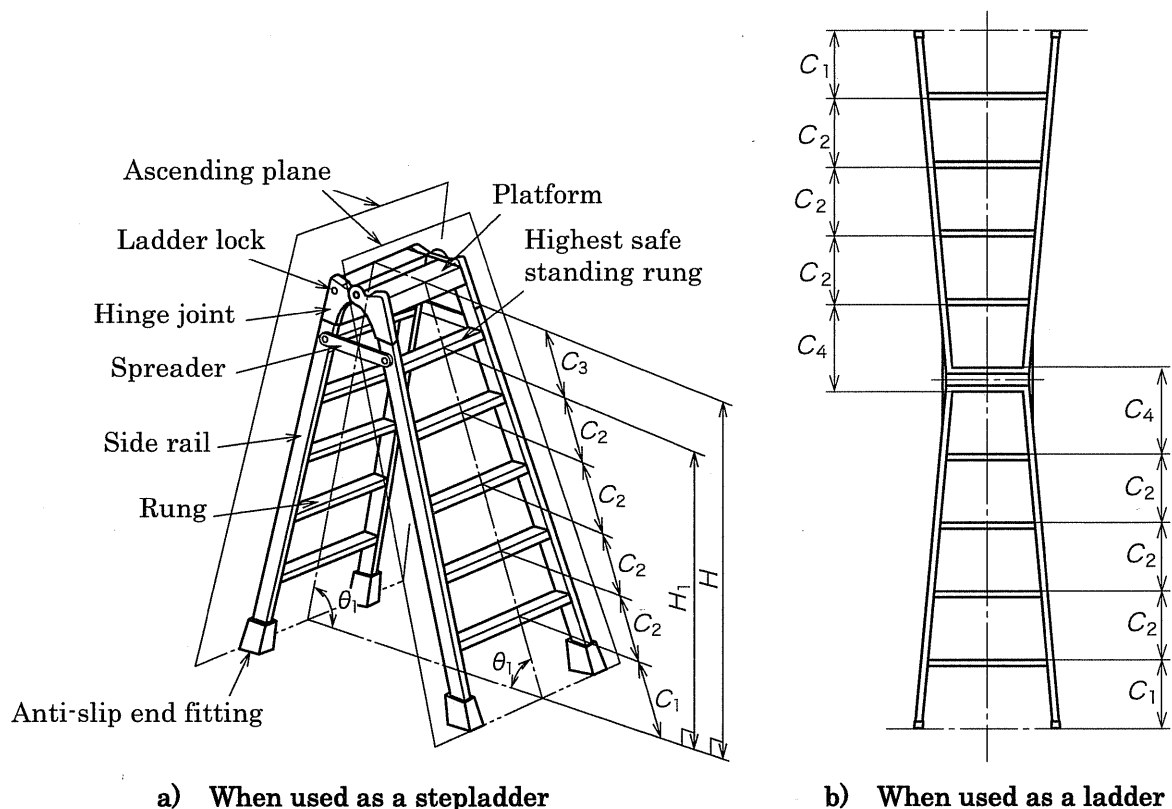


Figure 1 Example of exclusive use stepladder



a) When used as a stepladder

b) When used as a ladder

Figure 2 Example of combined use stepladder

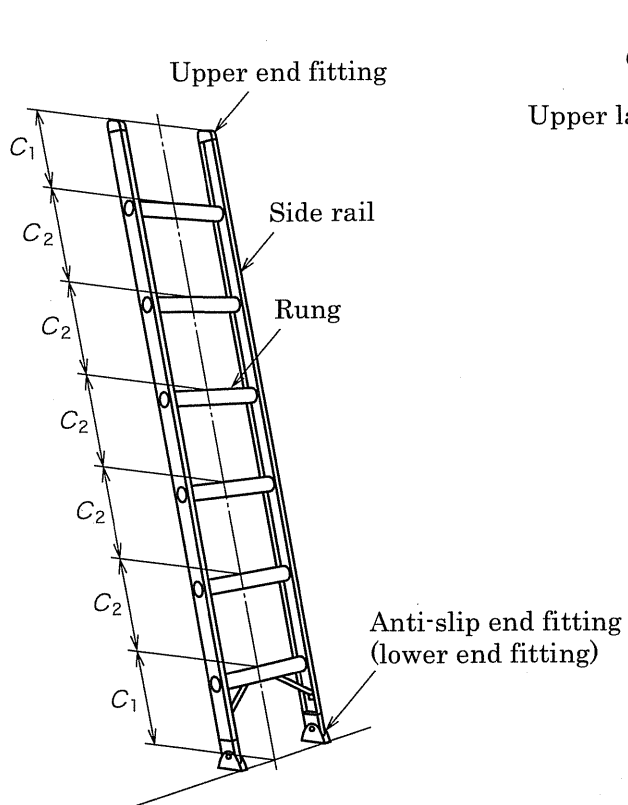


Figure 3 Example of single ladder

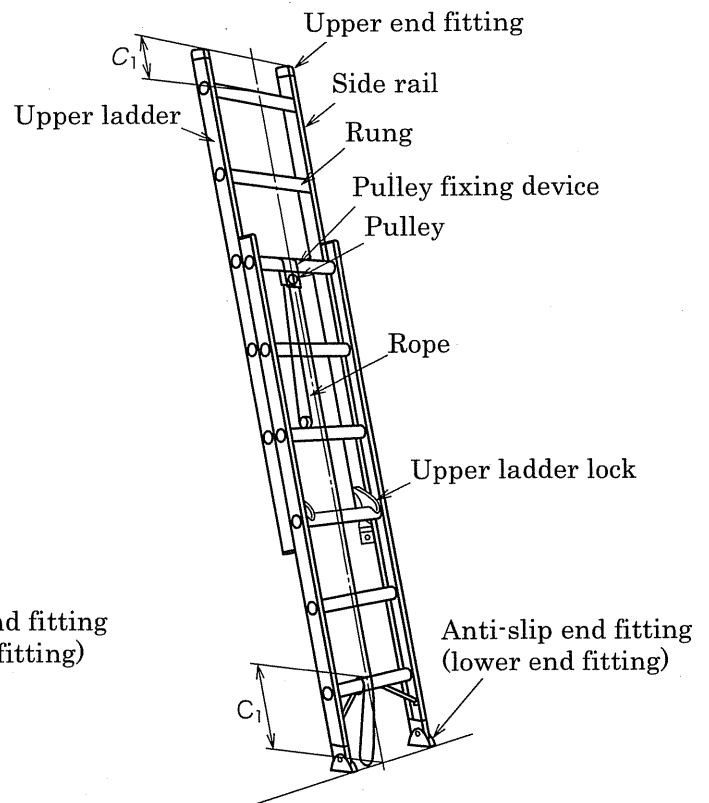


Figure 4 Example of extending ladder (two-part)

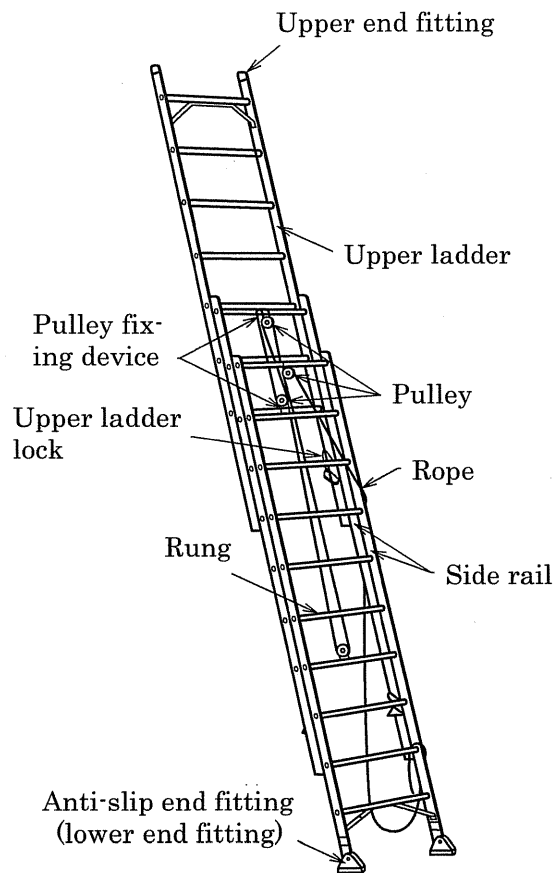


Figure 5 Example of extending ladder (three-part)

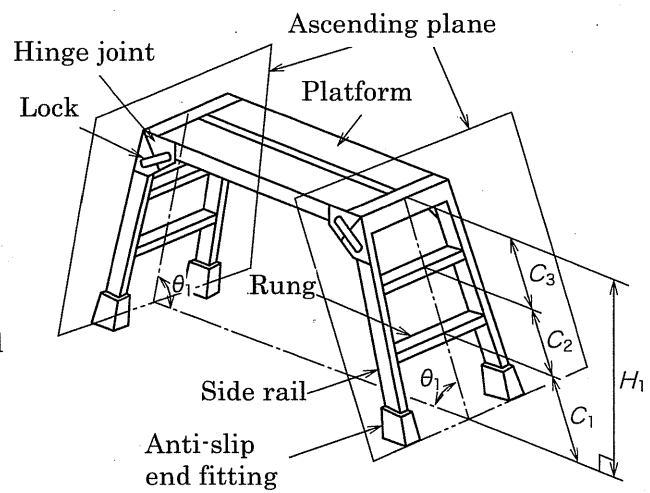


Figure 6 Example of scaffolding stepladder

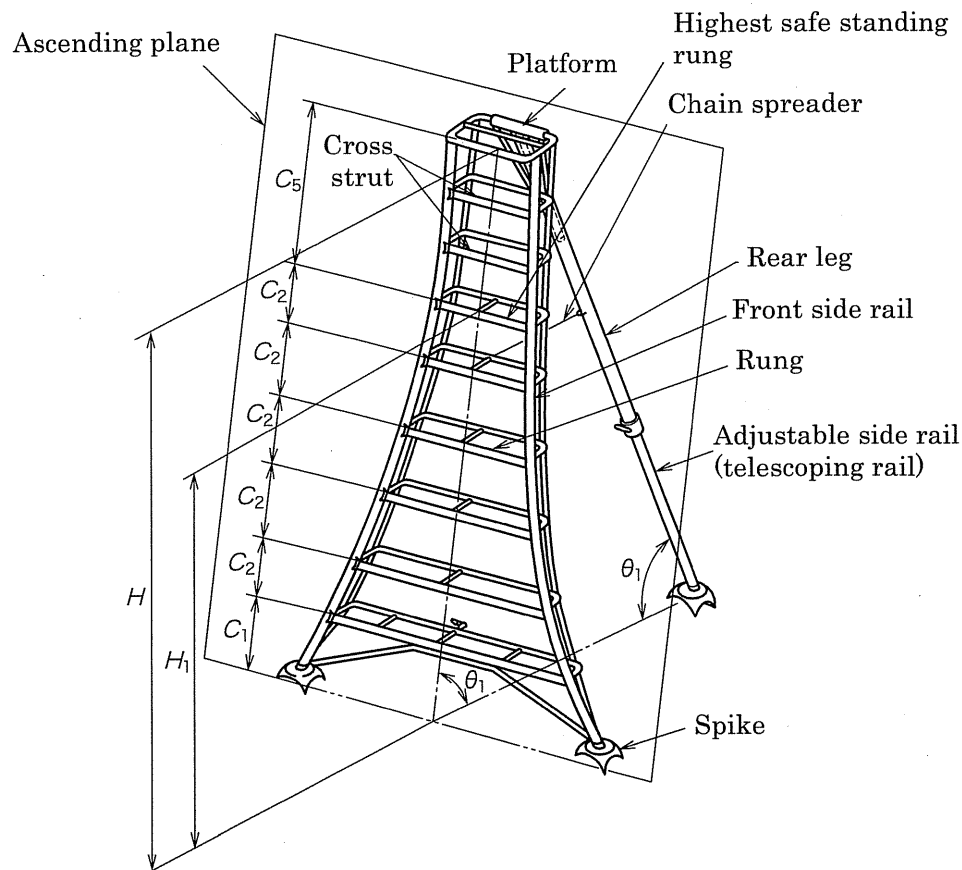


Figure 7 Example of tripod stepladder

5 Quality

5.1 Appearance

The appearance, when tested by the method described in 9.2, shall satisfy the following.

- Finish shall be excellent and free from serious defects such as disengagement of connecting parts.
- Parts to be in contact with human body or clothes shall be free from serious defects such as sharp projections, burrs and flash.
- Parts liable to rusting shall receive rust-proof treatment, and junctions between members shall be treated so as to be free from contact corrosion.

5.2 Performance

5.2.1 Strength of stepladder and ladder

The strength of stepladder and ladder shall be as follows.

- Strength of stepladder** When the test by the method described in 9.3.1 is carried out, the stepladder shall be free from abnormalities detrimental to use such as