UL 1322

STANDARD FOR SAFETY

Fabricated Scaffold Planks and Stages

UL Standard for Safety for Fabricated Scaffold Planks and Stages, UL 1322

Sixth Edition, Dated March 31, 2010

Summary of Topics

This revision of ANSI/UL 1322 dated January 6, 2023 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated May 13, 2022.

No Text on This Page

MARCH 31, 2010
(Title Page Reprinted: January 6, 2023)

ANSI/UL 1322-2017 (R2023)

UL 1322

Standard for Fabricated Scaffold Planks and Stages

First Edition – March, 1975
Second Edition – September, 1979
Third Edition – September, 1984
Fourth Edition – June, 1993
Fifth Edition – June, 1998

Sixth Edition

March 31, 2010

This ANSI/UL Standard for Safety consists of the Sixth edition including revisions through January 6, 2023.

The most recent designation of ANSI/UL 1322 as a Reaffirmed American National Standard (ANS) occurred on January 6, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

No Text on This Page

CONTENTS

INTRODUCTION

CONSTRUCTION

PERFORMANCE

MARKING

No Text on This Page

INTRODUCTION

1 Scope

1.1 These requirements cover the following;

a) Wood, metal, or a combination of wood and metal fabricated planks;

b) Fabricated platforms for use with suspended, fixed, or rolling scaffold;

c) Modular suspended platforms;

d) Scaffold decks;

e) Mobile work stands;

f) Work cages (baskets), and

g) Platforms with one, two, or multiple points.

1.2 These requirements do not cover:

a) Suspended scaffold components,

b) Accessories for use with or in the erection of fixed or rolling scaffolds,

c) *Deleted.*

d) The construction or installation of scaffolding,

e) Hoists intended for use with suspended scaffolds, or

f) Suspended platforms utilizing angled or articulating sections.

1.3 Welded frame and system scaffold assemblies are to be additionally evaluated to Testing and Rating Scaffold Assemblies and Components, ANSI/SSFI SC100-5/05.

2 General

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component.

2.1.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

2.2.1 When a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

2.3 Undated references

2.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

3 Glossary

3.1 For the purposes of this standard, the following definitions apply.

3.2 CANTILEVERED SECTION – Any platform section or portion of a platform section extending more than 12 inches (305 mm) beyond a support or stirrup. A suspended platform may be used as a cantilevered section on one end only or on both ends.

3.3 FABRICATED PLATFORM (ONE-PERSON) – A manufactured plank of either an extension or fixed length type used for supporting one worker and material. These platform units are usually used with ladder jacks, trestle, extension trestle, platforms, or stepladders (also known as a decorator plank).

3.4 FABRICATED PLATFORM (TWO-PERSON) – A manufactured plank used for supporting two workers and material. These platform units are usually employed with ladder jacks, trestle, extension trestle, platforms, or stepladders (also known as a scaffold plank).

3.5 FABRICATED PLATFORM (THREE-PERSON) – A manufactured platform used for supporting up to three workers and material (also known as a stage platform). These platform units are usually used with:

a) Stirrups as part of a suspension scaffold or as a scaffold runner board,

b) A bridge scaffold in building or bridge truss work, or

c) Freestanding scaffold tower.

3.6 FABRICATED TUBULAR FRAME SCAFFOLD – A pair of welded tubular end frames that are assembled with bracing to form a scaffold.

3.7 GUARD RAIL – A barrier secured to uprights and erected along the exposed or open side and ends of a platform.

3.8 MIDRAIL – A barrier approximately midway between the guard rail and platform decking.

3.9 MOBILE WORK STAND – A stand alone prefabricated portable scaffold unit that is used for interior work. It has end frames which are not stackable. The plank(s) may or may not be adjustable between the end frames. They also may be provided with casters.

3.10 MODULAR STAGE PLATFORM – A fabricated platform that is used as a single unit or can be assembled with two or more platform sections. When two or more sections are used, they are secured together to form a single platform used for supporting two or three workers and material. The assembly is allowed to include toe boards, guard rails, cantilevered sections and stirrups. A modular stage platform is capable of being used with:

a) Stirrups as part of a suspended scaffold;

b) A bridge scaffold in building or bridge truss work; or

c) Independent scaffold tower.

3.11 MODULAR SUSPENDED PLATFORM – A fabricated suspended platform that is used as a single unit or can be assembled with two or more platform sections. When two or more sections are used, they are secured together to form a single platform used for supporting workers and material. The assembly is allowed to include toe boards, guard rails, stirrups, and cantilevered sections.

3.11A MULTI-POINT SUSPENDED PLATFORM (MPSP) – A suspended platform that is supported from at least three separately spaced points and is more than 2.5 ft. (0.75 m) in width. MPSPs range from platforms used for bridge repair and restoration work to small platforms used for access and inspection applications. (Also known as a multi-point suspended scaffold or a multi-point bridge platform.)

3.12 PLANK – A wood board or fabricated component that serves as a platform unit.

3.13 PLANK (METAL) – A metal platform unit sized to support one or more workers or uniformly distributed loads. Metal planks would be of similar dimensions as wood planks.

3.14 PLANK (WOOD, LAMINATED) – A platform unit of glue-laminated wood whose method of manufacture and assigned design valves contemplate flat use in a scaffolding application. The two types of laminated wood used in scaffold applications are Laminated Veneer Lumber (LVL) and Laminated Edge Glue Lumber (LEG).

3.15 PLANK (WOOD, SAWN) – A board of sawn lumber whose grading rules and assigned design values contemplate flat use in a scaffolding application. The plank shall be sized to support one or more workers and materials.

3.16 RATED WORKING LOAD – The maximum static load imposed on a product including the weight of all workers, materials, and equipment, but excluding the weight of the plank or platform.

3.17 SCAFFOLD DECK – A platform designed and constructed to carry at least one person rated 25, 50, or 75 pounds per square foot (122, 244, or 366 kg/m^2) and used with a fixed or rolling scaffold. They are equipped with end hooks that engage onto the scaffold end frames.

3.18 SIDE RAIL – The main longitudinal structural support member of a fabricated plank or stage.

3.19 STIRRUP – A device that connects the hoist mechanism to the suspended platform.

3.20 TEST FAILURE – Visible weakening of the test unit or component or other damage in which the structure or component is buckled, twisted, sheared, torn, or fractured as a result of the test.

3.21 TOEBOARD – A barrier at platform level erected along the exposed or open sides and ends of a platform.

3.22 VISIBLE DAMAGE – Damage clearly evident to the eye without the use of an optical measuring device.

3.23 WELL-SEASONED WOOD – Wood that has been dried to a moisture content of 15 percent or less at 70°F (21°C) and 75 percent relative humidity.

3.24 WORK CAGE (BASKET) – A one or two man workstation that is connected to a hoist by a single point.

CONSTRUCTION

4 General

4.1 A product shall be constructed so that it will have the strength and durability to withstand normal usage and to comply with the performance requirements.

4.2 Fabricated platforms shall have dimensions as specified in Table 4.1. This table does not apply to modular platforms.

Exception: An assembled stage platform length that exceeds the 40 foot (12.2 m) limit, and is not provided with a single section that exceeds the 40 foot limit complies with the intent of this requirement.

Table 4.1
Dimensions and rated working loads of fabricated platforms

Fabricated platforms	Rated working load, pounds	(kg)	Maximum length, feet	(m)	Maximum width, inches	(mm)	Minimum width, inches	(mm)
One-person	250[a]	113[a]	24	7.3	20	508	12	305
Two-person	500[a]	227[a]	40	12.2	30	762	12[b]	305[b]
Three-person	750[a]	340[a]	40	12.2	36	914	20	508

[a] Based on platforms simply supported 12 inches (305 mm) from each end.

[b] Minimum platform width requirement is increased to 20 inches (508 mm) beyond 32 feet (9.7 m) of platform length.

4.3 The modular stage platform and modular suspended platform shall not be less than 20 inches or more than 36 inches wide overall. The rated working load for the modular suspended platform varies based on its length and configuration.

4.4 The evaluation of the modular stage platform and modular suspended platform shall include the individual sections as well as sections assembled as specified by the manufacturer.

4.5 A plank intended for use with ladder jacks on a 250- pound or greater duty-rated ladder shall not be less than 18 inches (457 mm) wide when a wood plank is used and 12 inches (304 mm) wide when a metal fabricated plank is used.

4.6 An exposed metal surface shall be free from sharp edges, burrs, and other features that constitute a risk of injury to persons.

4.7 Bolt and rivet holes shall be accurately made, and burrs more than 1/32 inch (0.8 mm) high shall be removed.

4.8 Each rivet shall be of proper size for the rivet hole, without major visible cracks or splits, concentric with the rivet hole, and in contact with the surface of the member so that a 0.005 inch (0.13 mm) feeler gauge cannot be fully inserted between the rivet head and the surface of the member or between two members attached together by a rivet.

4.9 All welds shall be free from undercuts, cracks, and closely spaced in-line surface porosity.

4.10 Mobile work stands shall have a platform height not greater than 48 inches above the floor.

4.11 The platforms of a mobile work stand may be used at two different standing levels, provided the difference in the heights between platforms does not exceed 16-1/2 inches. The difference in heights between the platforms may be greater than 16-1/2 inches provided that the upper platform unit not be used as a standing level.

4.12 A minimum of two platforms shall be used at all times on mobile work stands. The minimum platform width of a single platform unit shall be at least 8 inches measured perpendicular to the length. If more than one platform is used at the same standing level, the space between the platforms shall not exceed 1 inch.

4.13 A multipoint suspended platform (MPSP), independent of shape, shall be designed, constructed, and maintained in such a way that a failure of the support means shall not cause any part of the platform to collapse or fail under the most adverse loading condition as determined by the design of the platform. Testing shall be performed in the most adverse position.

5 Materials and Assembly

5.1 All metal parts and fittings shall be made of aluminum or steel alloys, wrought iron, malleable iron, or other metal that is of equivalent strength for the intended purpose and shall be securely attached by means of rivets, bolts, screws, or other means determined to be the equivalent.

5.2 Nuts shall be lock nuts or they shall be used with lock washers.

5.3 Metal decking shall be corrugated, serrated, knurled, dimpled, grated, or coated with slip-resistant material.

5.4 All solid sawn wood planks shall be rated as "scaffold plank" grade and shall be certified by, or bear the grade stamp of, a grading agency approved by the American Lumber Standards Committee.

5.5 Plywood shall be:

a) Either exterior or marine grade and

b) Smoothly machined and free from exposed sharp edges and splinters.

5.6 The general slope of grain in wooden rails shall not be steeper than 1 in 12, except that for rails less than 10 feet (3 m) long, the general slope of grain shall not be steeper than 1 in 10. The slope of grain is to be measured over a distance that will allow the determination of the general slope of the grain not be influenced by short, local deviations.

5.7 Knots shall not appear in narrow faces of wooden rails. Knots, if tight, and less than 1/2 inch (12.7 mm) in diameter, are able to appear on the wide face when they are at least 1/2 inch back from either edge and not more frequent than 1 in any 3 feet (914 mm) of rail length.

5.8 Pitch and bark pockets (these pockets are openings extending parallel to the annual growth rings that contain or did contain pitch or bark) are able to appear when they are:

a) Not more than 1/8 inch (3.2 mm) wide, 2 inches (508 mm) long, or 1/2 inch (12.7 mm) deep and

b) Not more frequent than 1 to any 3 feet (914 mm) of wooden rail length.

5.9 Wood platforms shall not be covered with opaque finishes. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

Exception: Platform edges may be covered or marked for identification.

5.10 Decking shall be secured to the plank or stage in a manner to reduce the likelihood of shifting or loosening during use.

5.11 A guard rail shall be a minimum of nominal 2- by 4-inch wood, installed no less than 36 inches (914 mm) or more than 45 inches (1143 mm) above the platform, and supported at intervals not exceeding 10 feet (3 m).

Exception: A guard rail construction may be other than as specified in 5.11 when the assembly complies with the Guard-Rail-Strength Test, Section 11.

5.12 A midrail shall be used in conjunction with a guard rail. If made of wood, it shall be of nominal 1- by 4-inch wood. A midrail shall be installed approximately halfway between the top surface of the side rail or decking and the guard rail.

5.13 A toeboard shall not be less than 4 inches (102 mm) high. The maximum clearance between the bottom of the toeboard and the top of the side rail or decking of the platform shall not be more than 1 inch (25.4 mm).

6 Protection Against Corrosion

6.1 All hardware and materials shall be of a grade or alloy known to be resistant to atmospheric corrosion or shall be additionally protected against corrosion.

6.2 Metal shall not be used in combinations such as to cause galvanic action that will adversely affect the strength of the product.

PERFORMANCE

7 Bending Test

7.1 Horizontal

7.1.1 A product shall withstand, without failure or visible damage to the structure, a load equal to four times the rated working.

a) For fabricated and modular platforms, the load is applied as described in 7.1.2 – 7.1.4.

b) For cantilevered sections used with the modular stage platform and modular suspended platform, the load is applied as described in 7.1.5 and 7.1.6.

c) For scaffold decks with a pounds per square foot (psf) rating, a load equal to four times the [width (ft) times length (ft) times load rating (psf)] shall be applied as described in 7.1.7.

7.1.2 The product is to be placed in a flat, horizontal position and supported 12 inches (305 mm) from the ends of the side rails, or at the stirrups attachment point in the case of modular stage platforms and of modular suspended platforms with cantilevered sections. The load is then to be applied equally to the side rails by means of nominal 4-inch (102-mm) wide blocks.

7.1.3 The load applied to a fabricated platform (one-person) is to be by means of one block at the center of the plank.

7.1.4 The load applied to a two-or-more person fabricated platform is to be equally applied by means of two blocks each located 18 inches (457 mm) from the center line of the platform to the center of the block. One block is to be located on each side of the center line of the product being tested.

7.1.5 The product is to be placed in a flat, horizontal position and supported so that the cantilevered section is unsupported and is located outside the plane of the supports.

7.1.6 The load is to be equally applied to both side rails by means of two 4-inch (102-mm) wide blocks, each extending across the cantilevered section so as to rest on the side rails. One block is to be located at the outside edge of the cantilevered section perpendicular to the longitudinal centerline of the platform. The other block is to be located 32 inches (813 mm) from the first block and parallel to it. When the cantilevered section is less than 40 inches (1.02 m) long, the inner block is to be placed adjacent to and outside of the platform support. The opposite end of the platform is to be fixed, loaded, or otherwise secured for the test.

7.1.7 The scaffold deck is to be placed in a flat, horizontal position and supported as intended under normal use conditions. The load is then to be applied equally by means of two nominal 4-inch (102-mm) wide blocks to the side rails by means located 18 inches (457 mm) from the center of the platform to the center of the block. One block is to be located on each side of the center of the product being tested.

7.2 Inclined horizontal

7.2.1 A stage and modular platform shall withstand, without failure or visible damage of the structure, a load equal to three times the rated working load applied as described in 7.2.2 and 7.2.3.

7.2.2 The product is to be placed in a horizontal position and supported 12 inches (305 mm) from the ends of the side rail, or the stirrups in the case of modular stage platforms and modular suspended platforms with cantilevered sections. The supports on one end are to be raised so that one end of the product is 6 inches (152 mm) higher than the other end, and one side rail is to be raised so that the decking is at an angle of 15 degrees to the horizontal.

7.2.3 The load is to be applied equally to the side rails by means of two nominal 4-inch-wide (102-mm-wide) blocks, located 18 inches (457 mm) from the center of the product to the center of the block. One block is to be located on each side of the center of the product being tested.

8 Maximum Deflection Test

8.1 The maximum deflection, measured from the horizontal at the center of a product, shall not exceed the values in Table 8.1 when a load equal to the rated working load is applied. For scaffold decks with a pounds per square foot (psf) rating, a load equal to the width (ft) times length (ft) times load rating (psf) shall be applied. Where the length of the modular stage platform or modular suspended platform exceeds 40 feet (12.2 m), the deflection limits are to be determined by extrapolating the deflection values given in Table 8.1 to match the platform length. For modular stage platforms or modular suspended platforms used with cantilevered sections, the platform length used for this calculation is to be measured between the stirrups.

Table 8.1
Maximum deflection and side rail deflection limits

Product size,		Maximum deflection test		Side rail deflection test		
		Maximum deflection,		Maximum deflection of loaded rail,		Maximum difference in deflection between loaded and unloaded side rails – degrees from the horizontal
feet	(m)	inches	(mm)	inches	(mm)	
10 or less	3 or less	1.5	38	2.5	64	12
12	3.7	1.8	46	2.8	71	12
14	4.3	2.1	53	3.1	79	12
16	4.9	2.4	61	3.4	86	12
18	5.5	2.7	69	3.7	94	12
20	6.1	3.0	76	4.0	102	12
22	6.7	3.3	84	4.3	109	12
24	7.3	3.6	91	4.6	117	12
26	7.9	3.9	99	4.9	124	12
28	8.5	4.2	107	5.2	132	12
30	9.1	4.5	114	5.5	140	12
32	9.8	4.8	122	5.8	147	12
34	10.4	5.1	130	6.1	155	12
36	11.0	5.4	137	6.4	163	12
38	11.6	5.7	145	6.7	170	12
40	12.2	6.0	152	7.0	178	12

8.2 The maximum deflection of the side rails is to be measured with the test unit in a flat, horizontal position, supported 12 inches (305 mm) from the ends of the side rails, at the stirrups attachment point in the case of modular stage platforms and modular suspended platforms with cantilevered sections or by the end hooks for scaffold decks.

8.3 A pre-load of 250 lbs. (113 kg) is to be applied equally to the side rails for one minute by means of nominal 4-inch (102-mm) wide blocks of a length equal to the inside clear width between side rails of the product and spaced as specified in 7.1.3 and 7.1.4. After one minute the load is to be removed, measurements are to be taken, and the rated working load is to be applied.

8.4 For cantilevered sections used with the modular stage platform and modular suspended platform or multiple suspended platforms with a cantilever section, the load is to be applied as described in 7.1.5 and 7.1.6. The maximum deflection, measured at the outside edge of the cantilevered section, shall not exceed the values in Table 8.1.

9 Side-Rail-Deflection Test

9.1 The maximum side rail deflection of a product, measured from the horizontal, shall not exceed the values specified in Table 8.1 when tested as described in 9.2 – 9.4. Where the length of the modular stage platform or modular suspended platform exceeds 40 feet (12.2 m), the deflection limits are to be determined by extrapolating the deflection values given in Table 8.1 to match the platform length. For modular stage platforms or modular suspended platforms used with cantilevered sections, the platform length used for this calculation is to be measured between the stirrups.

9.2 The side rail deflection is to be measured with the product in a flat, horizontal position, supported 12 inches (305 mm) from each end, at the stirrups attachment point in the case of modular stage platforms or multiple suspended platforms and modular suspended platforms with cantilevered sections or by the end hooks for scaffold decks.

9.3 A pre-load of 250 lbs. (113 kg) is to be suspended from one of the side rails for one minute and spaced as indicated in 7.1.3 and 7.1.4. After one minute the load is to be removed, measurements are to be taken, and the rated working load is to be applied.

9.4 Deflection is to be determined by measuring at the midpoint between supports the distance from the outside edges of both rails to the floor or other reference surface, both before and after the test load is applied to one rail of the product. The test is to be repeated on the other rail. The angle α between the loaded and unloaded rails and the horizontal is to be calculated from the equation:

$$Sine\ \alpha = \frac{Difference\ in\ Deflection}{Outside\ Width}$$

10 Decking-Strength Test

10.1 A product shall withstand, without failure or visible damage to the structure, a load of 1000 pounds (454 kg) when tested as described in 10.2.

10.2 The decking strength is to be determined with the test unit in a flat, horizontal position, supported 12 inches (305 mm) from each end at the stirrups attachment point in the case of modular stage platforms and modular suspended platforms with cantilevered sections or by the end hooks for scaffold decks. The test load is to be applied to the decking as specified in Table 10.1. If decking is provided with trapdoors the test is also conducted on the center of the trapdoor.

Table 10.1
Decking-strength test

Decking text	Location of the test load	Test beam size and orientation
Load at the midspan and perpendicular to the platform length.	At the center of the span and midway between crossings.	Nominally 4 inches (102 mm) wide and equal to the inside clear width between side rails, but not more than 12 inches (305 mm); the test beam is not to bear on the side rails, but is to be perpendicular to the length of the platform.
Load at the midspan and parallel to the platform length.	At the center of the span and midway between side rails.	Nominally 4 inches wide and 9 inches (229 mm) long; approximately at the transverse center of the platform width for solid decking or on the nearest slat to the center for slat-type decking.
Load at the end of the span and perpendicular to the platform length.	At the end of the span, one edge of the test beam located along the edge of the decking running across the width of the platform.	Nominally 4 inches wide and equal to the inside clear width between side rails, but not more than 12 inches; the test beam is not to bear on the side rails, but is to be perpendicular to the length of the platform.
Load at the end of the span and parallel to the platform length.	At the end of the span, the test beam located midway between side rails and parallel to the length of the span.	Nominally 4 inches wide and 9 inches long; at the transverse center of the platform width for solid decking or the nearest slat to the center for slat-type decking.

11 Guard-Rail-Strength Test

11.1 A guard rail, as mentioned in 5.11, and its supporting means shall support without failure or visible damage a load of 200 pounds (91 kg) between the greatest unsupported distance of the uprights which secure the guard rail to the platform when tested as described in 11.2.

11.2 The guard rail assembly strength is to be determined with the guard rails secured to the platform or plank as intended in service. The test load is to be applied in the vertical and then in the horizontal plane.