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Standard Consumer Safety Performance Specification for Home Playground Equipment[1]

This standard is issued under the fixed designation F1148; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This consumer safety specification provides safety requirements for various types of home playground equipment intended for use by children aged from over 18 months through 10 years. It further provides such requirements for swings intended specifically for toddlers. Different age limits for various requirements are found in this specification. These limits reflect the nature of the hazards and the expected mental or physical ability, or both, of the child to cope with the hazards.

1.2 Home playground equipment is defined as any product in which the support structure remains stationary while the activity is taking place and is intended for a child to perform any of the following activities: climbing, swinging, sliding, rocking, spinning, crawling, or creeping, or combination thereof. Fitness equipment is specifically excluded unless attached to the play equipment. This specification is not intended to apply to juvenile care products such as, but not limited to, infant swings, playpens/enclosures, beds, or furniture (including outdoor furniture, such as picnic tables, cradle rockers, activity centers being used as walker substitutes, bouncers, jumpers, infant carriers, and products specifically designed for therapeutic use). This specification is not intended to apply to equipment to be used in places of public assembly such as schools, nurseries, day-care centers, and parks. Equipment intended to be in child-care centers in private homes is not exempt from the requirements of this specification. Such centers are defined as situations in which the child-care provider does not care for more than six children under the age of ten that are not residing in the household of the caregiver, and the total number of children under the age of ten does not exceed ten, including the caregiver's own children. Electrically operated constant air inflatable devices are exempted from the requirements of this specification. Free standing play houses are exempt from this standard where the intent is that the child is standing or seated with their feet on the ground with no climbing, sliding, or swinging activities.

1.3 Methods of identifying products that comply with this consumer safety specification are given. The illustrations of home playground equipment shown in Figs. A1.1-A1.4 are for informational purposes only and are not intended to limit or endorse certain types of playground equipment or equipment features. These illustrations are not intended to limit the variety or various combinations of equipment that are covered by this consumer safety specification.

1.4 The purpose of this specification is to reduce the likelihood of life-threatening or debilitating injuries.

1.5 If toy accessories or toy chests are attached to home playground equipment, they are applicable to this consumer safety specification and to any other applicable safety standards.

NOTE 1—See Annex A1 for figures referenced throughout this consumer safety performance specification.

1.6 *General Measures, Tolerances, and Conversions:*

1.6.1 The general tolerances for this specification (unless otherwise specified) are as follows:

Dimension	Tolerance
X in.	±0.5 in.
X.X in.	±0.05 in.
X.XX in.	±0.005 in.
Angle: ± 1°	
Force in N:	±1.125 lbf (±5 N)
Weight in lbs:	<220 lb (100 kg) ±1 lb (0.45 kg)
Weight in lbs.	>220 lb (100 kg) ±2 lb (0.90 kg)

These tolerances apply to all dimensions unless otherwise stated or when listed using terms like greater than, less than, minimum, or maximum are used.

1.6.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only.

1.6.3 The metric conversion factors:

inch (in.) to millimetre (mm):	1 in. = 25.4 mm
pound (lb) to kilogram (kg):	1 lb = 0.45359 kg
pound-force (lbf) to newton (N):	1 lbf = 4.4482 N

1.6.4 See Annex A1 for figures referenced throughout this specification.

1.7 This consumer safety performance specification includes the following sections:

[1] This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.09 on Home Playground Equipment.

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1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D2240 Test Method for Rubber Property—Durometer Hardness

F1292 Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment

2.2 *Federal Standards:*

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint[3]

16 CFR 1500 Hazardous Substances Act Regulations, including sections:[3]

1500.48 Technical Requirements for Determining a Sharp Point in Toys and Other Articles Intended for Use by Children Under 8 Years of Age

1500.49 Technical Requirements for Determining a Sharp Metal or Glass Edge in Toys and Other Articles Intended for Use by Children Under 8 Years of Age

1500.52 and .53 Test Methods for Simulating Use and Abuse of Toys and Other Articles Intended for Use by Children

16 CFR 1501 Method for Identifying Toys and Other Articles Intended for Use by Children Under 3 Years of Age Which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts[3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *accessible, adj*—relating to a part or portion of the playground equipment that can be contacted by any body part.

3.1.2 *anchors, n*—accessories used to minimize possible tipping of the equipment, or lifting of the support legs.

3.1.3 *completely bounded opening, n*—any opening in a piece of play equipment that is totally enclosed by boundaries on all sides so that the perimeter of the opening is continuous.

3.1.4 *completely bounded non-rigid opening, n*—any opening in a piece of play equipment that is completely enclosed by boundaries, part or all of which can deform or deflect during normal use (for example, the openings in a flexible net or lattice of webbing).

3.1.5 *conspicuous, adj*—describes a label that is visible, when the unit is in the manufacturer's recommended use position, to a person standing near the unit at any one position around the unit but not necessarily visible from all positions.

3.1.6 *continuous surface, n*—a surface smooth to the extent that no hazard such as a catch point for clothing or sharp edge/sharp point is created.

3.1.7 *crush and shear point, n*—juncture at which the user could suffer contusion, laceration, abrasion, amputation, or fracture during use of the playground equipment.

3.1.8 *designated playing surface, n*—any elevated surface intended for standing, walking, sitting, or climbing.

3.1.9 *edge, sharp*[4], *n*—an edge that can cut a user's skin.

3.1.9.1 *Discussion*—An edge is judged as sharp pursuant to the provisions of 16 CFR Section 1500.49.

3.1.10 *entanglement, n*—condition in which the user's clothes or something around the user's neck becomes caught or entwined on a component of playground equipment.

3.1.11 *entrapment, n*—any condition which impedes withdrawal of a body or body part that has penetrated an opening.

3.1.12 *fall height, n*—vertical distance between a designated play surface and the protective surfacing beneath it.

3.1.13 *g*—the acceleration due to Earth's gravity at sea level, having a standard value of 386.088 in./s^2 (9807 mm/s^2). The standard value may be approximated as 32.174 ft/s^2 (9.807 m/s^2). Accelerations may be expressed in units of g, where 1 g = the acceleration due to gravity.

3.1.14 *g-max*—the maximum acceleration of a missile during an impact, expressed in g units.

3.1.15 *guardrail, n*—a guardrail is a device around an elevated surface that is intended to prevent inadvertent falls from the elevated surface.

3.1.16 *hand grasping component, n*—a component intended to be grasped by the hand to steady a user (such as a handrail).

3.1.17 *hand gripping component, n*—a component intended to be gripped by the hand to support the full body weight (such as a rung of a horizontal ladder or trapeze bar).

3.1.18 *handrail, n*—the structural member that helps a child steady himself. As used in this consumer safety performance

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from Consumer Product Safety Commission, Washington, DC 20207.

[4] A sharp edge tester suitable for conducting tests in accordance with the Federal regulation at 16 CFR Section 1500.49 is available from U.S. Testing Co., Inc., 1415 Park Avenue, Hoboken, NJ 07030. Engineering drawings from which a sharp edge tester may be fabricated are available from the Office of the Secretary, Consumer Product Safety Commission, Washington, DC 20207.

specification, a handrail is the structural member at the top of a slide that helps a child steady himself while he sits down (see Fig. A1.1).

3.1.19 *head injury criteria (HIC), n*—a measure of impact severity that considers the duration over which the most critical section of the deceleration pulse persists as well as the peak level of deceleration.

3.1.20 *lawn swing, n*—a multi-user occupant enclosed swing where children sit on opposite sides facing one another with their feet resting on a platform and their back against a backrest.

3.1.21 *platform, n*—any elevated horizontal surface intended to be used by children as a place for play or as a transition between components. Slide transition areas <200 in.^{2} (1290 cm^2) are not considered platforms.

3.1.22 *point, sharp*[5], *n*—point that can puncture or lacerate a user's skin.

3.1.22.1 *Discussion*—A point is judged as sharp pursuant to the provisions of 16 CFR Section 1500.48.

3.1.23 *projection, n*—a condition that due to its physical nature must be tested to the requirements of this standard to determine whether it is a protrusion or entanglement hazard, or both.

3.1.24 *protective barrier, n*—enclosing device around an elevated surface that prevents both inadvertent and deliberate attempts to pass through the device.

3.1.25 *protrusion, n*—a projection which, when tested in accordance with requirements of this standard, is found to be a hazard having the potential to cause serious bodily injury to a user who impacts it.

3.1.26 *rung, n*—a cross-piece in a ladder or other climbing equipment used for supporting the user's feet or grasping by the user's hands, or both. A rung must comply with 6.10 for hand-gripping components.

3.1.27 *small part, n*—a component that may become detached during use of the playground equipment and presents a choking, aspiration, or ingestion hazard to a child. Such a component is determined to be a hazard pursuant to the provisions of 16 CFR 1501.

3.1.28 *swing, n*—an element or seat suspended from an elevated support structure so as to allow users to move freely in one or more planes and possesses a pivot arm greater than 24 in. (610 mm) when measured vertically from the top of the suspended element to the pivot point.

3.1.28.1 *Discussion*—Swings include the following types: single axis (to-fro), multiple axis (rotating), or swings with multiple motions consisting of a combination of single axis and multiple axis (combination swings).

3.1.29 *toddler swing, n*—a fully enclosed single occupant swing intended for young children who can sit upright unaided. A seat is considered fully enclosed when a containment system is employed that supports the child on all sides and in between the legs (see Fig. A1.5).

3.1.30 *toy accessory, n*—an article that provides certain play value separate from, but attached to or sold with, home playground equipment intended for play-time use by a child. Such articles include miniature imitations for play use of objects intended primarily for a specific purpose (for example, a toy telephone or a toy gas pump).

3.1.31 *turnbar, n*—the horizontal bar between the supporting legs of a swing set, such as the one shown in Fig. A1.1.

3.1.32 *use zone, n*—the area beneath and immediately adjacent to a play structure or equipment that is designated for unrestricted circulation around the equipment, and on whose surface it is predicted that a user would land when falling or exiting the equipment.

4. Materials and Manufacture

4.1 *General*—Home playground equipment shall be manufactured and constructed only of materials that have a demonstrated durability in an outdoor setting. Any new materials shall be documented or tested accordingly for durability by the playground equipment manufacturer or their agent.

4.1.1 Metals subject to structural degradation such as by rust or corrosion shall be painted, galvanized, or otherwise treated. Woods shall be naturally rot- and insect-resistant or treated to avoid such deterioration. Creosote, pentachlorophenol, tributyl tin oxide, chromated copper arsenate (CCA), and surface coatings that contain pesticides shall not be used for playground equipment. Wood treaters and playground equipment manufacturers shall practice technologies and procedures that minimize the level of dislodgeable toxin. Plastics and other materials that experience ultraviolet (UV) degradation shall be stabilized against ultraviolet light.

4.1.2 Regardless of the material or the treatment process, the manufacturer shall ensure that the users of the playground equipment cannot ingest, inhale, or absorb any potential hazardous amounts of substances through body surfaces as a result of contact with the equipment.

4.1.3 *Lead in Paint*—All paints and finishes used on playground equipment shall be in accordance with 16 CFR 1303.

5. General Requirements

5.1 *Applicable to All Home Playground Equipment*—Playground equipment represented as complying with this voluntary consumer safety performance specification shall meet all applicable requirements specified herein. Anyone representing compliance with this consumer safety performance specification shall keep such essential records as are necessary to document his claim that the requirements within this consumer safety specification have been met.

5.1.1 No item of playground equipment shall indicate, by label or other means, conformance with this specification unless it conforms to all requirements contained herein. The following statement is suggested for use in identifying a product that conforms to all requirements in this specification:

5.1.2 "This conforms to ASTM F1148, Consumer Safety Performance Specification for Home Playground Equipment."

[5] A sharp point tester for conducting tests in accordance with the Federal regulation at 16 CFR Section 1500.48 is available from U.S. Testing Co., Inc., 1415 Park Avenue, Hoboken, NJ 07030. An engineering drawing from which a sharp point tester may be fabricated is available from the Office of the Secretary, Consumer Products Safety Commission, Washington, DC 20207.

5.2 *Small Parts*—When installed in accordance with the manufacturer's instructions, equipment for children under 3 years of age shall meet the requirements of 16 CFR 1501.

NOTE 2—A rationale for provisions in this consumer safety performance specification is given in Appendix X1.

6. Performance Requirements

6.1 *Head and Neck Entrapment*—Home playground equipment shall be designed and constructed so that when assembled any accessible opening shall meet the following performance requirements to reduce the risk of accidental head or neck entrapment by either a head first or feet first entry into the opening. Openings between the ground and the bottom edge of the equipment (such as rails, platforms, steps, etc.) are exempt from this requirement as illustrated in Fig. A1.6.

6.1.1 *Accessible Openings*—Any completely bounded opening that completely accepts the torso test probe. A completely bounded opening is accessible when a torso test probe may be inserted into the opening to a depth greater than or equal to 4 in. (100 mm) using the following test method (see Fig. A1.7).

(1) Test Procedure and Performance Criteria for Completely Bounded Openings—Place the torso probe in the opening, tapered end first, with the plane of its base parallel to the plane of the opening; rotate the probe while keeping its base parallel to the plane of the opening. If the base of the probe passes through the opening when it is rotated about its own axis in any orientation, place the head probe (see Fig. A1.8) in the opening, tapered end first, while its plane is parallel to the plane of the opening.

(2) An opening can pass this test when tested in accordance with 6.1.1(*1*) in one of two ways: (*1*) the opening does not admit the torso probe when it is rotated to any orientation about its own axis, or (*2*) the opening admits the torso probe and also admits the head probe.

(3) An opening fails the test under the following conditions: The opening admits the torso probe but does not admit the head probe.

6.1.2 Completely bounded openings that are accessible must also meet requirements for angles as outlined in 6.2.

6.1.3 *Nonrigid Completely Bounded Openings*—A nonrigid opening such as, but not limited to, flexible nets, tarps, and plastic enclosures is considered accessible if a torso probe will penetrate the opening to a depth greater than or equal to 4 in. (100 mm) when tested in accordance with 6.1.1(*1*) (see Fig. A1.7). Flexible restraining systems on toddler swings are exempt from this requirement unless they form leg openings.

(1) Test Procedure for Entrapment in Nonrigid Openings—Place the torso probe in the opening, tapered end first, with the plane of its base parallel to the plane of the opening; rotate the probe while keeping its base parallel to the plane of the opening; apply 50 lbf (222 N) ± 1.125 lbf (5 N) while attempting to push the probe through the opening. If the base of the probe passes through the opening when it is rotated about its own axis in any orientation and 50 lbf (222 N) is applied, place the head probe in the opening, tapered end first, while its plane is parallel to the plane of the opening and 50 lbf (222 N) is applied.

(2) A nonrigid opening can pass the test when tested in accordance with 6.1.3(*1*) in one of two ways: (*1*) the opening does not allow the torso probe to be inserted so deep that the opening admits the base of the probe when it is rotated to any orientation about its own axis, or (*2*) the opening allows full passage of the torso probe and also allows the head probe to pass completely through.

(3) A nonrigid opening fails the test under the following conditions: the opening allows full passage of the torso probe but does not admit the head probe.

6.2 *Acute Angles*—There shall be no acute angles, or group of acute angles, formed by two or more members in which the legs point upward from the apex so that the configuration approximates a "V" with an interior angle less than 55° (0.96 rad).

6.2.1 *Exemptions to 6.2:*

(1) Inverted Angle or "V" Condition—Those "Vs" that are inverted. A "V" is considered inverted if the lower adjacent leg forming the "V" is horizontal or slopes downward from the apex (see Fig. A1.9).

(2) Filled Apex Condition—"V" angles less than 55° (0.95 rad) where the apex of the angle is filled to the point that will not allow the head probe to contact both surfaces of the angle simultaneously (see Fig. A1.9). The angle shall be covered with a shield that is made of a rigid material. The shield shall be capable of withstanding impact of at least 20 ft·lbf (27 J) imparted to a spot within 1 in. (25 mm) of the geometric center of the shield by a 5 in. (127 mm) diameter steel ball. The shield shall be tested while secured to the members of the playground equipment by the hardware provided. During the test, the equipment or portions thereof, if required, shall be oriented so that the surface of the shield is horizontal.

(3) Rope, Chain, and Cable—"V" angles less than 55° (0.95 rad) where the apex of the angle is formed by an inclined or vertical climbing surface and a rope, chain, or cable. To be exempt, the point of the formed "V" angle must be no greater than 1.5 in. (38 mm) above the protective surfacing. See Fig. A1.10.

(4) Inaccessible Acute Angles—Completely bound openings that do not accept the torso test probe inserted into the opening to a depth greater than or equal to 4 in. (100 mm) using the test method as defined in 6.1.1 (see Fig. A1.7) are considered inaccessible.

6.3 *Protrusions*—When tested in accordance with 6.3.1 – 6.3.6.1, no protrusion shall extend beyond the face of the appropriate test gauge as defined in 6.3 and shown in Fig. A1.11 and Fig. A1.12.

6.3.1 Perform protrusion tests by successively placing each test gauge shown in Fig. A1.11 to determine if the protrusion extends beyond the face of the smallest gauge that can be successfully placed over the protrusion (for example of test gauge use, see Fig. A1.13).

6.3.2 *Upright Protrusions*—Protrusions that fit within any of the gauges and that project upwards from a horizontal plane shall have no projection extending greater than 0.125 in. (3 mm) perpendicular to the plane of the initial surface (see Fig. A1.14).

6.3.3 *Motion Rides*—Protrusions on the front and rear surfaces of suspended members of swinging elements and those

on the interior surface of slides shall not protrude beyond the face of the test gauge shown in Fig. A1.12. Conduct the test with the suspended member in its rest position. Place the gauge shown in Fig. A1.12 over any protrusions on the front and rear surfaces of the suspended member such that the axis of the hole is parallel to both the intended path of the suspended member and a horizontal plane.

6.3.4 *Slides*—Slides, including protective barriers and their method of attachment and transition areas, pose a greater risk of entanglement than other areas of play equipment. Therefore, the following requirements apply to slides and sliding devices:

6.3.4.1 Any accessible protrusion that allows the 3.00 in. (76 mm) protrusion gauge (see Fig. A1.11) to pass over it shall have no projection extending perpendicular from the initial surface greater than 0.125 in. (3 mm). The area that is subject to this requirement is outlined in Fig. A1.16. The outside surface of tunnel slides that are completely enclosed are not subject to the requirements of this section.

6.3.4.2 Slides shall be constructed in such a manner as to provide a smooth continuous sliding surface with no gaps or spaces that might create an entanglement hazard such as, but not limited to, the space created between sidewalls when two single slides are combined to create a double wide slide or the point where a hood attaches to the sidewalls of a slide. Roller slides are exempt from the requirements of this section.

6.3.5 No protrusion may terminate in a dimension greater than that of the base dimension (see Fig. A1.17). In the case of hardware as defined in 6.8, the base dimension shall be defined as the major dimension of the attachment nut or bolt head.

6.3.6 *Exclusions*—Protrusions are exempt from the requirements of 6.3.2 and may be considered inaccessible if the protrusion cannot be placed within the 3.0 in. diameter test gauge (see Fig. A1.18).

6.3.6.1 Rope protrusions are specifically exempted from the requirements of 6.3.

6.4 *Edges, Points, and Surfaces*—Following assembly of the unit in accordance with the instructions to be provided to the consumer, there shall be no sharp edges, points, or surfaces on any portion of the home playground equipment capable of inflicting a cut on a child.

6.4.1 All equipment shall be packaged in a manner that will preclude any sharp edges from being exposed during transit or storage.

6.5 *Open Tubing*—All open tubing ends that are not resting on the ground, or otherwise covered, shall be provided with caps or plugs that have a smooth finish and are tight-fitting. They shall be subjected to a torque of 4 lbf-in. (0.45 N-m) ± 5 lbf-in. (0.056 N-m) and a force of 15 lbf (67 N) ± 1.125 lbf (5 N) when tested in accordance with Title 16 CFR Section 1500.53(e and f).

6.6 *Crush and Shear Points*—There shall be no crush or shear points caused by junctures of two components moving relative to each other that could cause a contusion, laceration, abrasion, amputation, or fracture. A crush or shear point is any point that allows a 0.187 in. (5 mm) diameter neoprene rod to enter at one or more positions and entraps at one or more positions a 0.50 in. (13 mm) diameter neoprene rod. Entrapment shall mean that a force greater than 2 lbf (9 N) is required to pull out the rod. The neoprene rods shall have a hardness reading between 50 and 60 as determined by a Type A durometer in accordance with Test Method D2240.

6.7 *Holes and Slots*—If a circular hole or slot in any rigid material with a thickness less than 0.375 in. (10 mm) is accessible and can admit a 0.25 in. (6 mm) +0.005 in./–0 (+0/–0.127 mm) diameter rod to a depth of 0.375 in. (10 mm) or greater, it shall also admit a 0.50 in. (13 mm) +0/–0.005 in. (+0/–0.127 mm) diameter rod. Chains and their method of attachment are exempt except as described in 8.1.7.2.

6.8 *Hardware:*

6.8.1 Upon final assembly, bolt ends shall not protrude beyond the nuts greater than the diameter of the bolt when the nuts are tightened to a torque between 20 lbf·in. and 25 lbf·in. (2.3 N·m and 2.8 N·m).

6.8.2 Threaded bolt ends that are recessed such that the end of the bolt lies at or below a surrounding surface located within 1.0 in. (25 mm) +0/–0.05 in. (+0/–1.3 mm) of the centerline of the bolt are exempt from the requirements of 6.8.1 (see Fig. A1.19). Recessed threaded bolt ends that are free from hazardous sharp edges and burrs are exempt from the requirements of 6.8.3.

NOTE 3—The surrounding surface shall be blended wherever possible to create smooth contours without abrupt changes in shape that could pose a potential impact hazard.

6.8.3 If the threaded ends of exposed bolts or rods protrude from adjacent surfaces in areas of normally expected play, or if the thread is not free of exposed hazardous sharp edges or burrs, or both, then the threaded ends shall be covered by smooth finish caps.

6.8.4 Any caps that are used shall be tight-fitting when installed in accordance with the manufacturer's instructions. They shall be subjected to a torque of 4 lbf·in. (0.45 N·m) ± 0.5 lbf-in. (0.056 N-m) and a tensile force of 15 lbf (67 N) ± 1.125 lbf (5 N). These components shall comply with the requirements of 16 CFR 1500.48, 1500.49, 1500.53 (e and f), and 1501.

6.8.5 Lock washers, self-locking nuts, or other locking means shall be provided for all bolts.

6.9 *Hooks*—Open-ended hooks may be used for the uppermost suspension point of suspended elements provided that they have openings, or entry to an opening, in the area inside the boundaries represented by a line that is adjacent to the outer extremity of the uppermost portion of the hook, and parallel to the normal plane of suspension. Some examples of hooks that are acceptable and unacceptable are shown in Fig. A1.20.

6.9.1 Hooks used for attachment of rides, or swing elements at any point other than at the uppermost suspension point, shall be designed to allow full closure, or be otherwise protected (for example, protective coverings). A hook is considered closed when the gap or space cannot admit a 0.04 in. (1 mm) +0/–0.005 in. (+0/–0.125 mm) feeler gauge.

6.10 *Hand Support: Hand Gripping/Grasping Components:*

6.10.1 *Hand Gripping Components* intended to be gripped by the hands to support body weight, such as rungs of horizontal ladders, climbing bars, handles, and the like, shall