



Designation: F3545 – 22

Standard Test Method for Static Loading of Treestands, Climbing Sticks, and Tripod or Tower Stands¹

This standard is issued under the fixed designation F3545; 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 test method covers procedures for static loading of various components of treestands, climbing sticks, and tripod/tower stands that are used for hunting, photographing, or general observation. This test method does not specify actual rated load capacities and corresponding factors of safety that each component should be evaluated to. For actual physical test requirements (rated load capacities) pertaining to each stand type please refer to Specification F3249.

1.2 The values stated are in inch-pound units and are to be regarded as the standard.

1.3 *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.*

1.4 *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

E4 Practices for Force Calibration and Verification of Testing Machines

F3249 Specification for Treestands, Climbing Sticks, and Tripod or Tower Stands

3. Terminology

3.1 *backbar, n*—adjustable component of a climbing treestand that engages the tree to provide support. The backbar may be rigid or flexible.

¹ This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.18 on Treestands.

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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.

3.2 *corner stability, n*—the ability of a treestand to resist eccentricity, twisting, or sudden movement when load is applied separately to each of the four corners of a foot platform.

3.3 *foot platform, n*—horizontal structural area of a treestand on which the user stands or places his feet, or both.

3.4 *integral seat, n*—a seat which is attached to the foot platform and is necessary to the completeness of the product.

3.5 *multiple user rated capacity (MUR), n*—the maximum load capacity, not to be exceeded, of a treestand, tripod or tower stand as determined by the manufacturer for simultaneous multiple users.

3.6 *non-integral seat, n*—a seat which is independent of the foot platform and can be slid forward or backwards during normal use. An example would be a mesh, sling, or similar material.

3.7 *permanent deformation, n*—a condition when metal is deformed to an extent that it cannot fully recover its original dimensions or to its original shape.

3.8 *side stability, n*—the ability of a climbing treestand (top section) to resist eccentricity, twisting, or sudden movement when load is applied to the left and right side of the section. In terms of tripod and tower stands the ability to resist toppling when the center edge spanning each of the supports is loaded.

3.9 *single user rated capacity (SUR), n*—the maximum load capacity, not to be exceeded, of a treestand, climbing stick, tripod, or tower stand as determined by the manufacturer for a single user.

3.10 *treestand, n*—device designed to be affixed to a tree so as to permit an individual to sit or stand thereon for the purpose of attaining an elevated position from which to observe, photograph or hunt.

3.11 *two person treestand, n*—a ladder or hang-on treestand that is designed and marketed for use by two persons simultaneously.

3.12 *two person tower or tripod, n*—a tower or tripod that is designed and marketed for use by two persons simultaneously.

3.13 *user, n*—the consumer or end user of the manufactured product.

4. Classification

4.1 *Ladder treestand*—A treestand that is secured to the tree at the elevation where the platform is located. The ladder treestand has steps that are used to reach the platform or hunting position. The ladder or steps are an integral part of the product.

4.2 *Non-climbing, fixed position or hang-on treestand*—A treestand that is secured to the tree at the elevation where it is used. (The user usually ascends the tree by some means and then lifts the treestand to the desired position and secures it for use.)

4.3 *Climbing stick – continuous*—A device or aide to assist climbing a tree primarily to a fixed position treestand. A continuous interconnected ladder that is secured to the tree and allows the user to support his weight and climb to the desired height on the tree.

4.4 *Climbing stick – sectional*—A device or aide to assist climbing a tree primarily to a fixed position treestand. Consists of multiple independent ladder sections that are secured to the tree and allow the user to support his weight and climb to the desired height on the tree.

4.5 *Tripod or tower stand*—Tripod or tower stand is designed to be self-supporting and is not required to be secured to a tree.

4.6 *Climbing treestand – (hand climber) – Type I*—A treestand that provides both the means to ascend and descend the tree and allow the user to remain at a desired elevation. It consists of a top section and a foot platform, which are independent of one another. The user's arms are used to support and transfer their weight to the top section when ascending or descending.

4.7 *Climbing treestand – (sit/stand) – Type II*—A treestand that provides both the means to ascend and descend the tree and allow the user to remain at a desired elevation. It consists of a top section and a foot platform, which are independent of one another. The user sits on the extended structure of the top section, opposite the seat, when ascending or descending.

4.8 *Climbing treestand – (sit/stand) – Type III*—A treestand that provides both the means to ascend and descend the tree and allow the user to remain at a desired elevation. It consists of a top section and a foot platform, which are independent of one another. The user sits on the seat of the top section when ascending or descending.

5. Test Equipment

5.1 *Wooden Pole*—The diameter of the pole shall be 10 ± 1 in. The length of the pole should be sufficient to accommodate proper mounting of the product being evaluated. The pole shall be mounted vertically and in a fashion to minimize the deflection and movement of the pole during testing.

5.2 *Steel Plates*—5 in. by 5 in. by 0.5 in. | 10 in. by 10 in. by 0.5 in. | 5 in. by 10 in. by 0.5 in. | 3 in. by 5 in. by 0.5 in. – The steel plates may have holes drilled in various locations to enable attachment to load application devices and mounting to

the various components being tested. Variation on width or length should be ± 0.25 in. and ± 0.125 in. for thickness.

5.3 *Steel Strut or Channel*, of sufficient length and rigidity to span the distance over which load is being applied without yielding. Common 1-⁵/₈ in. by 1-⁵/₈ in. 12 gauge strut channel is acceptable.

5.4 *Load Application Devices*—Load may be applied by means of actuators, hydraulics, pulleys, cantilever arms, winches, dead load weight stacks or other mechanical means. Load cells or other force indicating transducers shall be used to verify the applied load when using mechanical devices for load application. The load cell or transducer shall be readable to the nearest 1 lb and an accuracy of 1 % of the applied load. Load cells and transducers shall be verified at least yearly in accordance with Practices E4.

5.5 *Various Connecting Hardware*—Eyebolts, chain, quick links, cable, clamps, carabiners, etc.

5.6 *Digital Level*, with a minimum 12 in. span, readable to 0.1°, and accurate to $\pm 1.0^\circ$.

6. Product Installation and Mounting

6.1 Assemble the product in accordance with the manufacturer's written instructions using the provided hardware. Install the stand on the wooden test pole in accordance with the manufacturer's written instructions as well as using any necessary auxiliary safety devices that would be needed for installation under field conditions. Ensure that the foot platform for each product, if applicable, is perpendicular to the mounting pole and level relative to the ground. Foot platforms for fixed position and climbing treestands may be mounted with a slight upward initial angle to allow proper seating of the product on the wooden pole once the load has been applied. For sectional climbing sticks only a single section should be mounted to the pole. Tripods and towers should be placed on a level rigid surface.

6.2 Any aesthetic parts such as rail pad covers, hunting blinds or covers, shooting rails, interconnecting devices for the climbing treestands, or any other non-structural components are not required to be present during testing.

7. Load Application

7.1 Load application for test of components shall be applied perpendicular to the component being tested and parallel relative to the test pole. For static loading of steps, foot platforms, upper climber sections, or seats, the load shall be applied at 100 % of either the single or multiple user rated capacity. This load should be maintained for a period of 2 min. The stand shall then be unloaded. This initial loading sequence is deemed as a seating or shake down load. Following the initial seating process the load should then be increased in increments of 25 % and this process repeated until reaching the prescribed load rating for the test being evaluated or until the product can no longer support the applied load. All loading points should be maintained for a period of 2 min. When testing steps, it may be necessary to affix the loading plate to the step by means of clamping or other method to avoid shifting or movement of the plate.