



Designation: F 1858 – 98

Standard Performance Requirements for Multipositional Plastic Chairs with Adjustable Backs or Reclining Mechanisms for Outdoor Use¹

This standard is issued under the fixed designation F 1858; 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 These performance requirements cover nationally recognized performance requirements for multipositional plastic chairs, with adjustable backs or reclining mechanisms, intended for outdoor use.

1.2 These performance requirements are not applicable to chaise lounges, upholstered chairs, or other types of furniture.

1.3 These performance requirements cover the performance of the product regarding aspects of outdoor weathering, impact, static load for seat and back, and arm testing.

1.4 *Products Manufactured from Recycled Plastics*—Products may be manufactured from recycled plastics as long as the performance requirements are met.

1.5 The values stated in inch-pound units are to be regarded as the standard. The SI units given in parentheses are for information only.

1.6 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 638 Test Method for Tensile Properties of Plastics²
- D 2565 Practice for Operating Xenon Arc-Type Light-Exposure Apparatus With and Without Water for Exposure of Plastics³
- D 4329 Practice for Operating Light and Water Apparatus (Fluorescent UV Condensation Type) for Exposure of Plastics⁴
- D 5033 Guide for the Development of Standards Relating to the Proper Use of Recycled Plastics⁴

¹ These performance requirements are under the jurisdiction of ASTM Committee F-15 on Consumer Products and are the direct responsibility of Subcommittee F15.33 on Outdoor Plastic Lawn Furniture.

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² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 08.02.

⁴ *Annual Book of ASTM Standards*, Vol 08.03

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials⁵

3. Terminology

3.1 Definitions:

3.1.1 *multipositional plastic chair with adjustable back or reclining mechanisms, n*—for the purposes of these provisional performance requirements, a molded, upright piece of furniture with arms, intended for seating one person, having a seat height not less than 15 in. (381 mm) and not greater than 19 in. (483 mm) with the seat and back in the most upright position, and having a seat width not less than 16 in. (406 mm) and not greater than 30 in. (762 mm) (as shown in Fig. 1).

3.1.1.1 *Discussion*—These requirements are applicable to folding chairs with adjustable backs (see Fig. 2), non-folding chairs with adjustable backs (see Fig. 3), and folding chairs with reclining mechanisms (see Fig. 4).

4. Significance and Use

4.1 Tests and criteria as outlined determine the overall usability and stability of chairs in an environment simulating the conditions of use.

4.2 Tests simulate two types of surfaces:

4.2.1 Smooth surfaces, such as linoleum, wet pool decks, etc. The glass testing base (see Fig. 5) is used to simulate this surface.

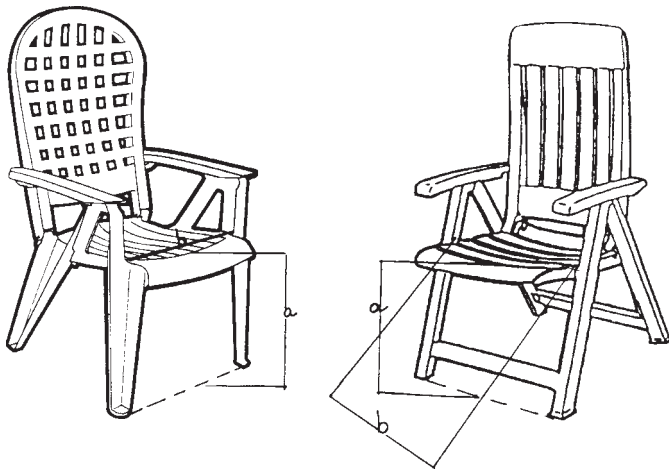
4.2.2 Rough surfaces, such as wooden decks, outdoor natural surfaces, etc. the plywood testing base (see Fig. 6) is used to simulate this surface.

5. Apparatus

5.1 *Multipositional Plastic Chairs with Adjustable Backs or Reclining Mechanisms*, which have been inspected and met a manufacturer's internal quality standards.

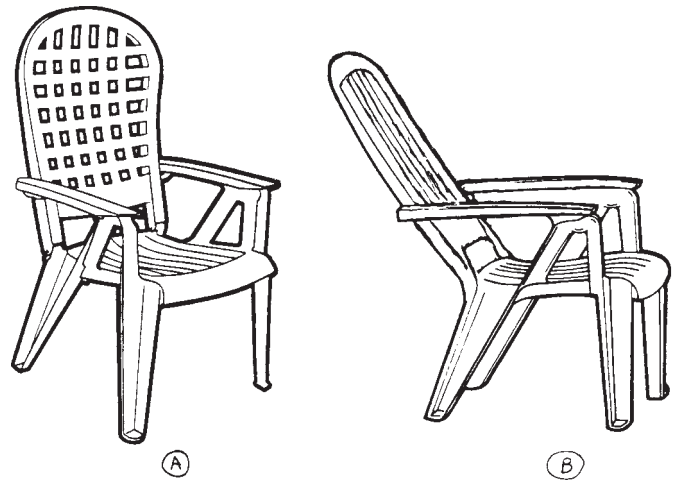
5.2 *One Heavy-Weight Canvas or Leather Bag*, 16 \pm 0.2 in. (406 \pm 4 mm) in diameter, which shall be measured prior to testing to determine stretching, having a total measurement not to exceed 17.5 in. (445 mm) in diameter when filled with steel

⁵ *Annual Book of ASTM Standards*, Vol 14.02.



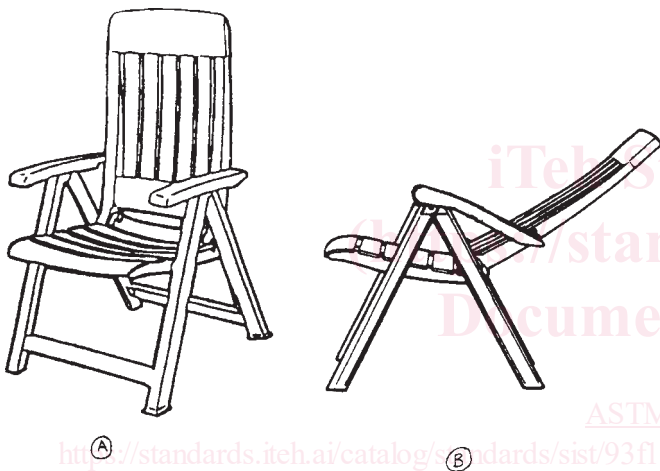
NOTE 1—(a) Seat height with the seat and back in the most upright position; and (b) seat width.

FIG. 1 Measurements of a Chair



NOTE 1—(A) Chair with the seat and back in the most upright position; and (B) chair with the back resting the furthest reclining position and arms locked in the furthest reclining position.

FIG. 3 Non-Folding Chair with Adjustable Back



NOTE 1—(A) Chair with the seat and back in the most upright position; and (B) chair with the back resting in the furthest reclining position and arms locked in the furthest reclining position.

FIG. 2 Folding Chair with Adjustable Back



NOTE 1—(A) Chair with the seat and back in the most upright position; and (B) chair with the back resting in the furthest reclining position and arms locked in the furthest reclining position.

FIG. 4 Folding Chair with Reclining Mechanism

or lead shot (0.09 to 0.12 in (2.3 to 3.0 mm) in diameter), to a total weight of 150 ± 1.5 lb (68 ± 0.7 kg). The bag shall be fitted with a safety cable or other means to prevent it from hitting the glass testing base but should not interfere with the test.

5.3 *One Heavy-Weight Canvas or Leather Bag*, identical to the bag in 5.2; however, the weight is increased by addition to the bag of 250 ± 2.5 lb (114 ± 1.1 kg) of either (1) additional steel or lead shot or (2) barbell weights distributed evenly on top of the steel or lead shot, for a total weight of 400 ± 4 lb (182 ± 1.8 kg).

5.4 *Glass Testing Base*, as shown in Fig. 5.

5.5 *Plywood Testing Base*, as shown in Fig. 6.

5.6 *Back Weight Apron*—One heavy-weight canvas or leather apron, 19 ± 0.2 in. (483 ± 4.8 mm) in width and 28 ± 0.3 in. (711 ± 7.1 mm) in length, having six pockets, 6 ± 0.6 in. (152 ± 1.5 mm) in width and 10 ± 0.1 in. (254 ± 2.5 mm)

in height, and having appropriate straps, clips, or clamps to hold the apron in place (see Fig. 7).

5.7 *250-lb (114-kg) Arm Testing Block*—One block of suitable material such as wood or metal, 42 ± 0.4 in. (1067 ± 10.7 mm) in length and 7.0 ± 0.7 in. (178 ± 1.8 mm) in height and 4.0 ± 0.4 in. (102 ± 1.0 mm) in width, having additional weights or supporting structure, or both, to obtain a total weight of 250 ± 2.5 lb (114 ± 1.1 kg). The base of the block shall be 12 ± 0.1 in. (305 ± 3.1 mm) at the center, with the sides at a 15° angle (see Fig. 8).

NOTE 1—The 250-lb (114-kg) weight of the arm block may also be achieved by the use of a combination of a block of the dimensions given above and the use of a of the force of an air cylinder to achieve a total applied weight of 250 lb (114 kg).

5.8 *Steel or Lead Shot*⁶—Six 25 ± 0.3 -lb (11 ± 0.1 -kg) bags.

⁶ No. 2 to No. 8 shot, as normally purchased at a sporting goods store.