



Designation: F 1169 – 99

## Standard Specification for Full-Size Baby Crib<sup>1</sup>

This standard is issued under the fixed designation F 1169; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### INTRODUCTION

This consumer safety specification addresses crib accidents that were identified by the U.S. Consumer Product Safety Commission (CPSC).

For the period Jan. 1, 1980 through Dec. 31, 1983, 167 incidents concerning failure of crib hardware and other structural components of cribs were reported to the CPSC. These incidents accounted for 34 deaths, 22 potentially fatal entrapments, 7 medically treated injuries, 47 minor injuries such as bumps and bruises and 57 incidents without injury. Additional incidents of a similar nature have been reported subsequent to this period.

In response to the accident data collected by the CPSC, this consumer safety specification attempts to minimize the risk of injury or death due to: failure of mattress support hardware, failure of glued or bolted connections, dropside latch failure, and dislodgment of teething rails. This safety specification also addresses incidents associated with poor maintenance or assembly by means of requirements for the contents of instructional literature that must accompany a crib.

### 1. Scope

1.1 This consumer safety specification establishes testing requirements for structural integrity of cribs. It also provides requirements for labelling and instructional material.

1.2 The issue of mattress support system is addressed to reduce or eliminate the likelihood of the support system becoming inadvertently disengaged.

1.3 No crib produced after the approval date of this consumer safety specification shall, either by label or other means, indicate compliance with this specification unless it conforms to all requirements contained herein.

1.4 The following safety hazards caveat pertains only to the test methods portion, Sections 5-9, of this specification: *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 Document

- 2.1 *Federal Standard:*  
**CFR 1508** Requirements for Full-Size Baby Cribs<sup>2</sup>

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F-15 on Consumer Products and is the direct responsibility of Subcommittee F 15.18 Cribs, Toddler Beds, and Play Yards.

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<sup>2</sup> Available from the Consumer Product Safety Commission, Washington, DC 20207.

### 3. Calibration and Standardization

3.1 All testing shall be conducted on a concrete floor which may be covered with 1/8-in. (3-mm) thick vinyl floor covering.

3.2 The crib shall be completely assembled, unless otherwise noted, in accordance with the manufacturer's instructions.

### 4. Conditioning

4.1 No testing shall be conducted within 48 h of gluing.

4.2 The item to be tested shall be in a room with ambient temperature of  $73.4 \pm 9^\circ\text{F}$  ( $23 \pm 5^\circ\text{C}$ ) for at least 24 h prior to testing. Testing shall then be conducted within this temperature range.

### TEST METHODS

#### 5. Vertical Impact Testing

5.1 *General*—This test consists of dropping a specified weight repeatedly onto a foam pad supported by the crib mattress support system.

5.2 *Significance and Use*—This test assists in evaluating the structural integrity of the crib assembly. Glue joints and other means of fastening are subjected to abusive loads and stresses.

5.3 *Apparatus for Vertical Impact Testing:*

5.3.1 The weight used in conducting this test shall have a circular contact area of 1 ft<sup>2</sup> (930 cm<sup>2</sup>) (13.5-in. diameter) (343 mm) with a 0.125-in. (3-mm) radius to ease the edge between the circular contact surface and the vertical cylindrical surface.

5.3.1.1 The total weight shall be 45 lb (20.4 kg).

5.3.1.2 The weight shall pivot freely.

5.3.2 A 4-in. (100-mm) thick open cell polyurethane foam pad having a density of 1 lb/ft<sup>3</sup> (16 kg/m<sup>3</sup>) covered with a 5 to 15 gage vinyl material (tick) shall be used to represent a mattress.

5.4 Procedure for Vertical Impact Testing of Full Size Cribs:

5.4.1 Casters shall not be installed on crib (See Fig. 1).

5.4.2 The crib shall be prevented from sliding in a manner that does not prevent changes of angle that may take place in the crib structure (see Fig. 2).

5.4.3 All testing shall be conducted with the mattress support in the lowest position.

5.4.4 Allow the weight to free fall 6 in. (152 mm) on to the upper surface of the foam pad at a rate of  $4 \pm 1$  seconds per cycle for the following number of cycles:

5.4.4.1 500 cycles within 1/4 in. (6.4 mm) of the geometric center of the mattress area.

5.4.4.2 100 cycles at each of two diagonally opposite corners, centered 9 in. (230 mm) from the crib sides forming the corner.

5.5 Vertical Impact Testing Requirements:

5.5.1 After testing, the crib shall comply with Title 16 CFR Part 1508.

5.5.2 Components attached by screws shall not have separated by more than 0.04 in. (1 mm) upon completion of testing.

6. Crib Side Testing

6.1 General:

6.1.1 This test consists of repeatedly impacting a crib side bottom rail with a specified weight.

6.1.2 After completing the cyclic testing, structural integrity is tested by applying a static pull to the side assembly followed by a torque test of each spindle or slat.

6.2 Significance and Use—See 5.2.

6.3 Apparatus for Crib Side Testing—The apparatus for the cyclic test (see Fig. 3) includes the following:

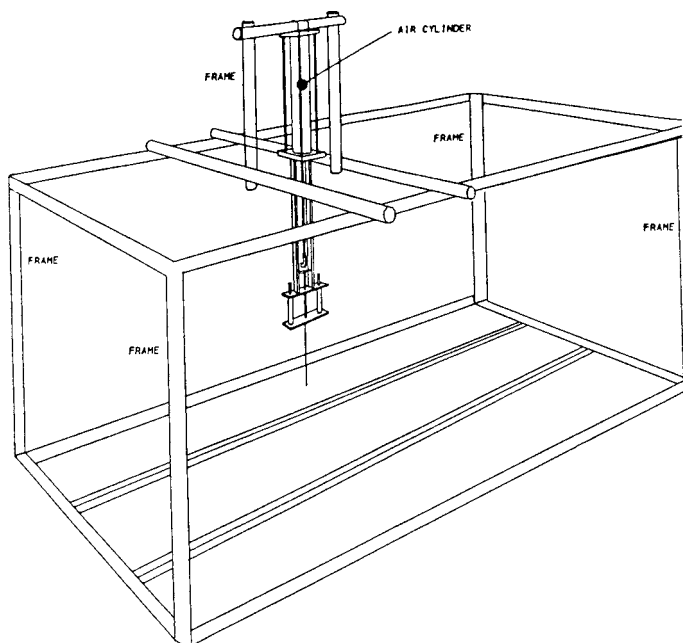


FIG. 1 Typical Test Frame

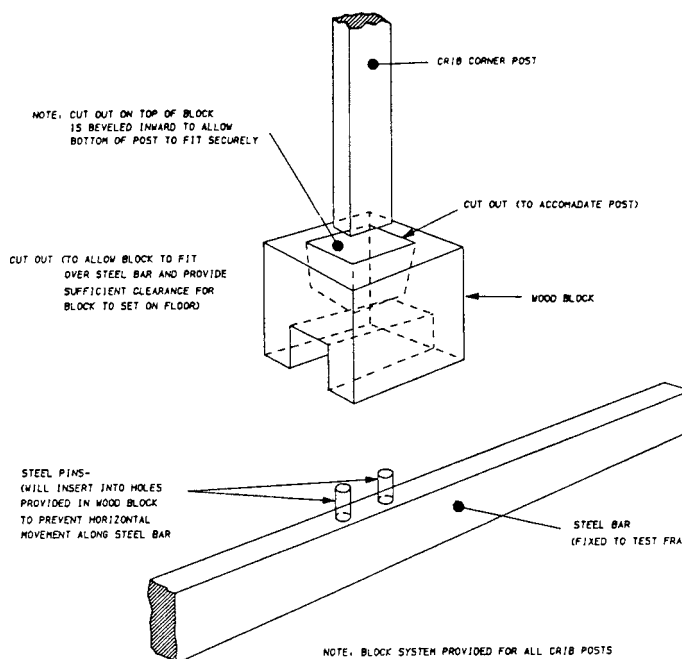


FIG. 2 Typical Crib Corner Post Positioning Block

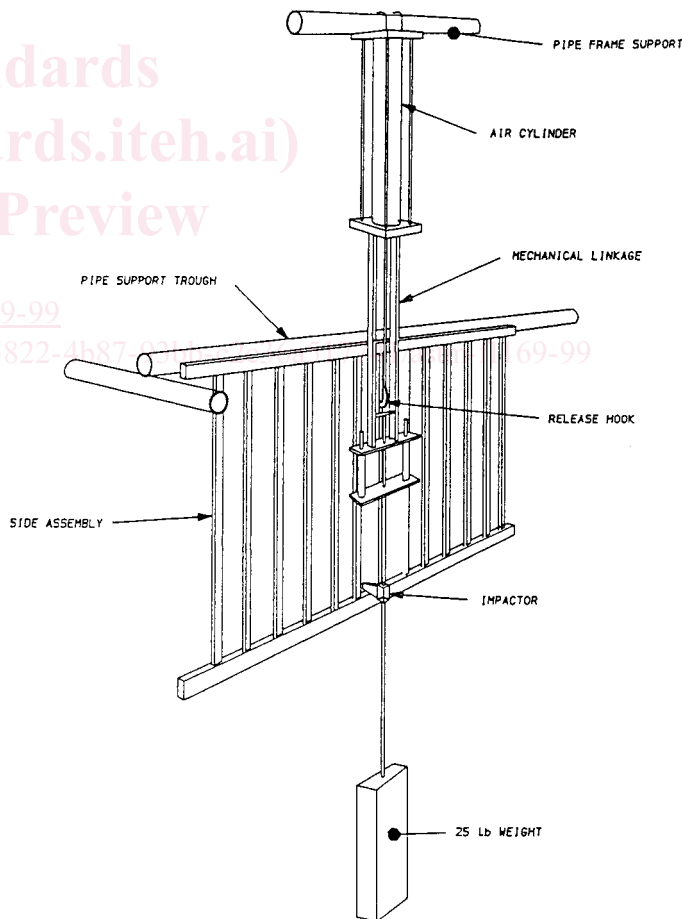


FIG. 3 Typical Side Assembly Test Fixture

6.3.1 A 30-lb (13.6-kg) weight.

6.3.2 A 0.375-in. (9-mm) 30 Type A durometer rubber pad large enough to cover the impact area.

6.3.3 Support trough (see Fig. 4) for drop side only.

NOTE 1—For tests of metal cribs, an additional support trough may be used to support the center of the top rail if necessary to avoid deformation.

6.3.4 Two vertical stops (see Fig. 5) for drop side only.

6.3.5 Impactor with a width of 1 in. (25 mm) and sufficient length to extend across the full width of the bottom rail.

6.4 Static Test (see Fig. 6).

6.4.1 A 100-lb (45.4-kg) weight.

6.4.2 A rigid frame (see Fig. 7) for drop side only.

6.5 Procedure for Crib Side Testing:

6.5.1 Dropside Cyclic Test:

6.5.1.1 Remove the side from the crib assembly.

6.5.1.2 The side shall be mounted in a rigid test fixture so that it will hang vertically as it would when assembled to a crib.

6.5.1.3 The side shall be supported within 2 in. (50 mm) of each end of the top rail by placing the top rail in a trough-like support fixture (see Fig. 4).

6.5.1.4 To prevent “pendulum swing” of the side during testing, the side bottom rail may be loosely constrained between two vertical stops (see Fig. 5).

6.5.1.5 Allow the 30-lb (13.6-kg) weight to free-fall 3 in. (76 mm) 250 times at a rate of  $4 \pm 1$  s/cycle such that it impacts directly upon the 0.375-in. (9-mm) thick rubber pad located on the top surface of the bottom rail between two adjacent spindles or slats as near the center of the rail as possible.

6.6 Drop Side Static Test:

6.6.1 Upon completion of the cyclic test, apply a static load of 100 lb (45.4 kg) at the point of impact testing while the side is supported by the top rail at a point vertically in line with the point of load application.

6.6.2 The contact area for the load and reaction support shall be the same as the impact area previously defined.

6.6.3 Apply this load gradually within a period of 5 s and maintain it for an additional 30 s.

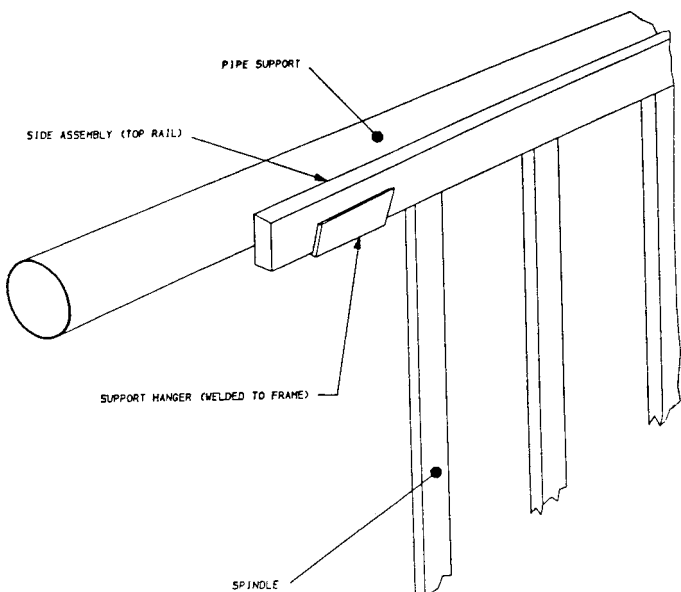


FIG. 4 Typical Support Trough

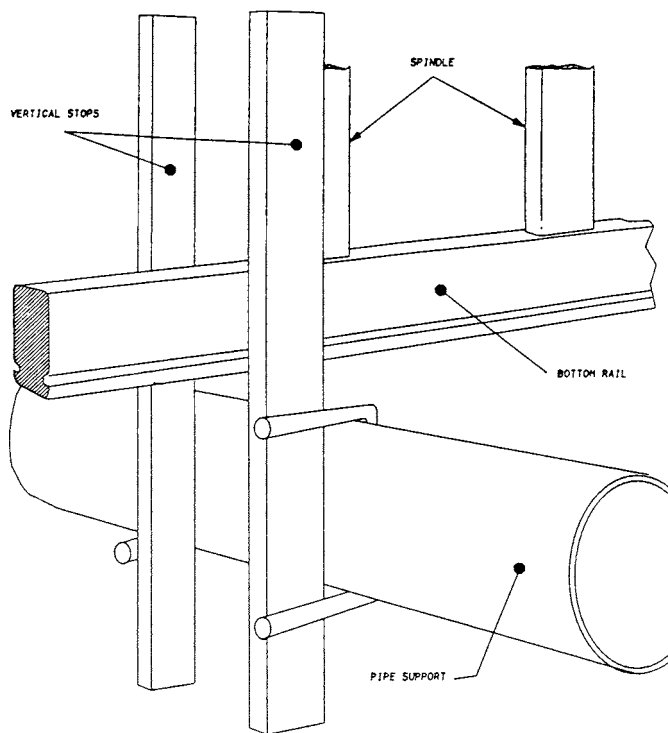


FIG. 5 Typical Side Test Vertical Stop Detail

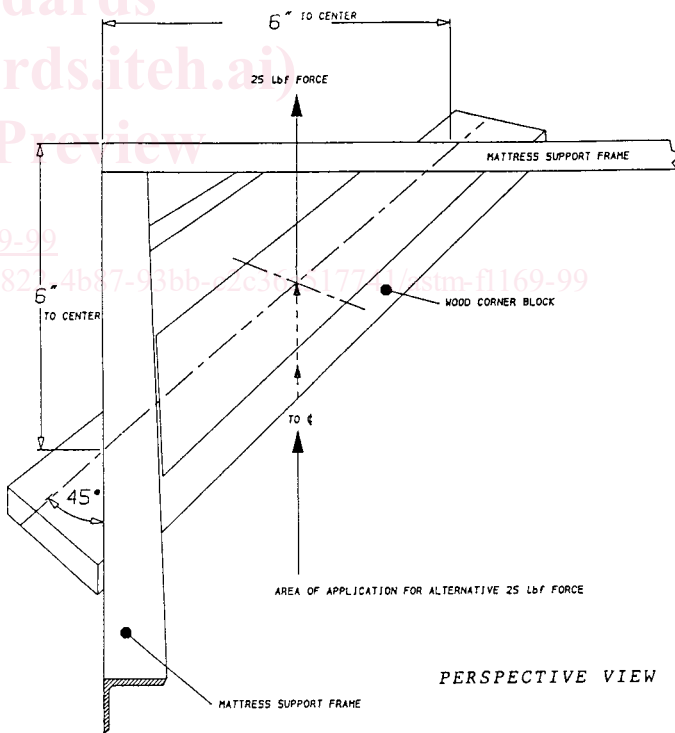


FIG. 6 Typical Mattress Support Detail

6.7 Stationary Side Cyclic Test:

6.7.1 Assemble the stationary side to the crib in accordance with manufacturer’s instructions.

6.7.2 Secure the bottom ends of the crib to eliminate horizontal motion at the base.

6.7.3 Allow the 30-lb (13.6-kg) weight to free-fall 3 in. (76 mm) 250 times at a rate of  $4 \pm 1$  s/cycle such that it impacts