



Designation: ~~E1793-05~~ Designation: E1793 – 11

Standard Practice for Preparation of Aluminum Alloy for Bonding in Foam and Beam Type Transportable Shelters¹

This standard is issued under the fixed designation E1793; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This practice covers the preparation of clean, uniform surfaces of aluminum alloy suitable for formation of durable adhesive bonds in “foam and beam” panels used for the manufacture of tactical rigid wall shelters.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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

2. Referenced Documents

2.1 *ASTM Standards:*²

E864 [Practice for Surface Preparation of Aluminum Alloys to Be Adhesively Bonded in Honeycomb Shelter Panels](#)

E1749 [Terminology Relating to Rigid Wall Relocatable Shelters](#)

E1794 [Specification for Adhesive for Bonding Foam Cored Sandwich Panels \(200F Elevated Humidity Service\), Type II Panels](#)

E1800 [Specification for Adhesive for Bonding Foam Cored Sandwich Panels \(160F Elevated Humidity Service\), Type I Panels](#)

3. Terminology

3.1 *Definitions*—See Terminology E1749 for definitions of other terms used in this practice.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *Type 1 panels*—panels used in the construction of foam and beam shelters designed for 71.1°C (160°F) elevated humidity service.

3.2.2 *Type 2 panels*—panels used in the construction of foam and beam shelters designed for 93.3°C (200°F) elevated humidity service.

3.2.3 *foam and beam panel*—a sandwich construction consisting of internal rigid foam core placed between structural beams (at specific distance(s) apart) and bonded to face sheets on both sides.

4. Significance and Use

4.1 Reproducible and durable adhesive bonds to aluminum alloys can be obtained reliably only through proper selection and careful control of the materials used and the steps in the bonding process. The preparation of the aluminum alloys to obtain clean, uniform surfaces with appropriate characteristics is a critical step. This practice describes how such surfaces can be obtained.

5. Apparatus

5.1 *General Processing*—Practice E864, paragraph 5-14.1, applies.

6. Materials

6.1 *Water*—Practice E864, paragraph 5-15.1, applies.

6.2 *Cleaning Solutions:*

6.2.1 *Type 1 Panels*—Parts shall be dip cleaned in a solution which is made up in accordance with the manufacturers’

¹ This practice is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.53 on Materials and Processes for Durable Rigidwall Relocatable Structures.

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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.

recommendations. The only requirement for acceptability being that the conditions of 7.2.1 be met.

6.2.2 *Type 2 Panels*—Treat aluminum using either Method 1 or Method 2 of Practice E864.

7. Test Methods

7.1 *General*—The test methods of Practice E864 apply, except as otherwise listed.

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