



Standard Specification for Core-Splice Adhesive for Honeycomb Sandwich Structural Panels¹

This standard is issued under the fixed designation E990; 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 U.S. Department of Defense.

1. Scope

1.1 This specification covers core-splice adhesive for use with nonmetallic honeycomb cores in the fabrication of honeycomb sandwich panels used in relocatable structures. The adhesive shall be used for new production or depot repair. The adhesive shall be suitable for forming bonds that can withstand long combinations of stress, temperature, and relative humidity expected to be encountered in service. The adhesive shall be used for bonding core segments and for bonding core segments to edge members and to integral members in a honeycomb sandwich panel. The adhesive shall not allow the transfer of water from one part of the panel to another either through or along the line of the adhesive.

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 The following precautionary caveat pertains only to the test method portion, Section 6, 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 Documents

2.1 ASTM Standards:²

B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate

C393/C393M Test Method for Core Shear Properties of Sandwich Constructions by Beam Flexure

¹ This specification 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.

D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

E631 Terminology of Building Constructions

E864 Practice for Surface Preparation of Aluminum Alloys to Be Adhesively Bonded in Honeycomb Shelter Panels

E865 Specification for Structural Film Adhesives for Honeycomb Sandwich Panels

E874 Practice for Adhesive Bonding of Aluminum Facings to Nonmetallic Honeycomb Core for Shelter Panels

E1091 Specification for Nonmetallic Honeycomb Core for Use in Shelter Panels

E1749 Terminology Relating to Rigid Wall Relocatable Shelters

2.2 Federal Standards:³

QQ-A-250/4 Aluminum Alloy 2024, Plate and Sheet

QQ-A-250/8d Aluminum Alloy 5052H34, Plate and Sheet

QQ-A-250/11d Aluminum Alloy 6061T6, Plate and Sheet

2.3 Military Standards:³

MIL-S-8802 Sealing Compound, Temperature-Resistant, Integral Fuel Tanks, and Fuel Cell Cavities, High-Adhesion

3. Terminology

3.1 *Definitions*—See Terminologies **E631** and **E1749** for definitions of general terms used in this specification.

4. Materials and Manufacture

4.1 The adhesive shall be free of foreign materials, be noncorrosive to the metal parts, and have the structural integrity equal to or better than that of an unspliced panel section as specified in **Table 1**, Flexural Shear.

5. Requirements

5.1 *Material*—The adhesive shall be thermosetting and when tested in accordance with Section 6, shall meet the requirements of **Table 1**. The adhesive shall not have a deleterious effect on the panel nor on its component parts over the range of temperature at which the adhesive will be used.

³ Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil/>.