

INCH-POUND

A-A-59001

March 30, 1995

COMMERCIAL ITEM DESCRIPTION**BATTERBOARD, SYNTHETIC**

The General Services Administration has authorized the use of this commercial item description, for all federal agencies.

1. SCOPE

1.1 Scope. This Commercial Item Description (CID) describes the requirements of synthetic batterboard panels made from Ultra High Molecular Weight Polyethylene and an elastomer material.

1.2 Intended use. The batterboard, a protective panel, is required in the well decks of U.S. Navy ships that carry boats, landing craft, and other equipment. Adverse sea conditions and the ability to control boats and landing craft within the well area, when open to the sea, require the use of batterboards to provide some form of protection to both the ship and the service craft.

2. CLASSIFICATION

2.1 Standard Sizes. Six standard size synthetic batterboard panels shall be available for use on amphibious ships. The corresponding estimated weight range for each standard size panel is specified in Table 1.

The following sizes of batterboard panels may be interchanged:

- Two type C panels may be substituted for a type E panel
- One type E panel may be substituted for two type C panels
- Two type D panels may be substituted for a type F panel
- One type F panel may be substituted for two type D panels.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commander, ATTN: SEA 03R42, Naval Sea Systems Command, 2531 Jefferson Davis Highway, National Center Building 3, Arlington, VA 22242-5160

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TABLE 1. BATTERBOARD STANDARD SIZES

PANEL TYPE	NOMINAL SIZE	ACTUAL SIZE	ESTIMATED WEIGHT
A	1 1/2 FT x 6 FT	432 MM x 1804MM x 89MM (17 IN x 71 IN x 3 1/2 IN)	80 - 88 KG (176 - 195 LB)
B	3 FT X 6 FT	889 MM x 1804MM x 89MM (35 IN X 71 IN X 3 1/2 IN)	126 - 160 KG (279 - 351 LB)
C	3 FT X 4 FT	889MM x 1194MM x 89MM (35 IN x 47 IN x 3 1/2 IN)	84 - 107 KG (186 - 234 LB)
D	4 FT X 4 FT	1194MM x 1194MM x 89MM (47 IN x 47 IN X 3 1/2 IN)	112 - 142 KG (248 - 312 LB)
E	3 FT X 8 FT	889MM x 2414MM x 89MM (35 IN x 95 IN x 3 1/2 IN)	169 - 212 KB (372 - 468 LB)
F	4 FT X 8 FT	1194MM x 2414MM x 89MM (47 IN x 95 IN x 3 1/2 IN)	225 - 284 KG (496 - 624 LB)

3. SALIENT CHARACTERISTICS

3.1 Material. Synthetic batterboard panels shall consist of Ultra High Molecular Weight Polyethylene (UHMWP) and an energy absorbing elastomer material. The UHMWP material shall use a base virgin resin made in accordance with ASTM D-4020 and have a nominal molecular weight of 3.1×10^6 or greater. The UHMWP and elastomer materials shall be modified using additives and fillers as necessary to achieve the required properties specified herein.

3.2 Construction. The synthetic batterboard panel shall consist of a sandwich-type construction, whereby layers of UHMWP and energy absorbing elastomer materials are combined together into a single panel. At least 50 percent of the outer UHMWP layer shall be backed by an elastomer which is between 25 and 38 millimeters (1 and 1 1/2 inches) thick, as shown on the applicable class installation drawings. The panel shall include a minimum 152 millimeters (6.0-inches) diameter of elastomer material centered at each fastener location and a minimum 76 millimeters (3.0-inches) wide strip of elastomer material around the complete panel perimeter. The remainder of the 50 percent elastomer material shall be uniformly distributed over the remaining panel area using either a honeycomb pattern or strip pattern with the strips not exceeding 76 millimeters (3.0 inches) in width. The strips are to be attached by the manufacturer using corrosion-resistant steel, grades 316 or 304, fastening hardware so that strips can be repositioned in field if necessary.

3.3 Color. The color of the UHMWP shall be black unless otherwise specified on the ordering information (See 7.1).

3.4 Panel size and weight. The synthetic batterboard panels shall be of the required type (See 7.1) with the weights and dimensions specified in 2.1. Production tolerances on the actual overall length and width of the synthetic batterboard panel shall be not greater than plus or minus 12 millimeters (0.50 inch). Production tolerance of the batterboard panel thickness shall not be greater than plus or minus 3 millimeters (0.12 inch).

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3.5 Test requirements. The synthetic batterboard panels shall meet all of the requirements specified when tested in accordance with 3.5.1 through 3.5.5. The test specimens for 3.5.1 and 3.5.2 shall be sized to consist of the complete panel thickness and shall be placed in the test fixture such that the outer UHMWP surface faces the flame source.

3.5.1 Flame spread. The test specimens shall be prepared and tested in accordance with ASTM E 162 and shall not exceed a 25 Is (flame spread index) value. The test specimen shall exhibit no dripping or puddling during the test and shall be self-extinguishing after the flame source has been removed. Surface coatings shall not be used to retard burning of the synthetic batterboard panel.

3.5.2 Smoke density. The test specimen shall be evaluated to determine the relative amount of smoke produced by burning or decomposition in accordance with ASTM E 662. The synthetic batterboard panel shall not exceed 450 Dm (maximum specific optical density) in either the flaming or smoldering modes.

3.5.3 Impact resistance. UHMWP test specimens shall be prepared and tested as described in ASTM D 256, Method A (except that the Izod specimens shall be unnotched) and shall be formulated to withstand impacts of 200 millimeter - Newtons/millimeters (45 inch-pounds/inch). No breakage or cracking of the test specimen is permitted.

3.5.4 Coefficient of friction. The test specimen shall be prepared and tested in accordance with ASTM D 1894. The dynamic coefficient of friction of the UHMWP surface facing into the well deck shall not exceed a 0.2 value.

3.5.5 Resilience. The test specimen shall be prepared and tested in accordance with ASTM D 2632. The energy absorbing elastomer shall be formulated so that the resilience does not exceed a 25 percent rebound value.

3.6 Service temperature. The synthetic batterboard material(s) shall meet all of the requirements specified herein over a normal operating temperature range of -28.9 to + 51.7 degrees C (-20 to + 125 degrees F). The UHMWP surface facing into the well deck shall also be capable of withstanding brief excursions, not to exceed 2.0 minutes, at a +104.4 degrees C (+220 degrees F) surface temperature.

3.7 Installation requirements. When installation is required (See 7.1), the synthetic batterboard panel shall be installed in accordance with the applicable class installation drawing (see 7.2.2) and shall be capable of being cut, machined or drilled as needed to meet these installation requirements. Unless otherwise specified, panels shall be provided without mounting holes. Mounting holes are to be drilled at time of installation as specified on the installation drawing (See 7.1).

3.7.1 Spacing. Batterboard panels shall be installed with a maximum 25 millimeter (1.0-inch) gap between each panel to allow for water drainage and any panel thermal expansion that may occur when subjected to the temperature range specified in 3.6.

3.7.2 Frames. For installations on LSD 41 and LSD 49 class ships where batterboard panels are mounted on steel frame support structures, that portion of the panel that is in contact with the frame support shall have a layer of energy absorbing elastomer as part of its overall thickness (see NAVSEA drawings 634-6734323 or 634-6734325).

3.7.3 Hardware. Fastener hardware used for batterboard panel installation shall be of corrosion-resistant steel grades 316 or 304. English unit or metric unit commercial hardware as specified in either Tables 2a and 2b shall be used for installation (See 7.1).

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TABLE 2a. Commercial Hardware Description
English Units

<u>Item</u>	<u>Material</u>	<u>Dimensions</u>	<u>Features</u>
<u>Nut</u> <u>Self Locking</u>	CRES 304 or 316 (ASTM A194 Grade B8 or B8M)	ANSI B18.2.2 .625 - 11 UNC - 3B	Regular hex with non-metallic ring or collar self-locking insert (Navy Part No. MS17830-10C)
<u>Washer</u>	CRES 304 or 316	ANSI B18.22.1 .81 ID x 2.00 OD x .149 thk	Flat (Navy Part No. MS15795-823)
<u>Welding Stud</u>	CRES 316 annealed	ANSI B 1.1 .625 - 11 UNC - 2A 2.75" after-weld length	Solid flux weld end Pitch diameter base (Navy Part No. M24149/3-91)

TABLE 2b. Commercial Hardware Description
Metric Units

<u>Item</u>	<u>Material</u>	<u>Dimensions</u>	<u>Features</u>
<u>Nut</u> <u>Self Locking</u>	CRES 304 or 316 (ASTM A194 Grade B8 or B8M)	ANSI B18.2.4.1 M16 x 2-6H	Regular hex with non-metallic ring or collar self-locking insert
<u>Washer</u>	CRES 304 or 316	ANSI B18.22 M16 Regular	Flat
<u>Welding Stud</u>	CRES 316 annealed	ANSI B1.13M M16 x 2-6g 70 mm after-weld length	Solid flux weld end Pitch diameter base

3.8 **Maintenance**. Maintenance of the synthetic batterboard panels shall be limited to a washdown procedure using a mild cleaning solution followed by a water rinse. Any marine growth or other contaminants shall be capable of being removed using this procedure. The cleaning solution shall have no adverse effect on the batterboards.

3.9 **Paintability**. The UHMWP surface facing into the well deck shall be capable of being painted for marking and coding using the paint specified in TT-E-489, yellow, color number 13538.

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4. REGULATORY REQUIREMENTS

4.1 Toxic products and formulations. The synthetic batterboard panel material(s) and associated hardware shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an advisor to the contracting activity. Regardless of any other requirements, materials and parts containing asbestos, mercury, lead, cadmium, chlorofluorocarbons (CFCs), vinyl chlorides, antimony trioxide, red phosphorus, and halogenated compounds (materials that contain iodine, bromine, chlorine, and fluorine) shall not be used. The contractor shall have the toxicological product formulations and associated information of the UHMWP and elastomer materials available for review by the contracting activity to evaluate the safety of the material for the proposed use.

5. QUALITY ASSURANCE PROVISIONS

5.1 Contractor certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this CID and that the product conforms to the producers own drawings, specifications, standards, and quality assurance practices. The government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract. (See 7.1)

5.2 Quality assurance requirements. The quality assurance requirements specified herein are classified as follows:

- (a) First article testing (see 5.3).
- (b) Quality conformance inspection (see 5.4).

5.3 First article testing. Unless otherwise waived (see 5.3.2 and 7.1), first article testing shall be performed in accordance with the tests of 3.5 on samples obtained from the first manufactured synthetic batterboard panel in a lot.

5.3.1 Lot definition. A lot shall consist of material from one production run offered for delivery. A new lot shall be declared when production methods, materials, or designs change.

5.3.2 Waiver of first article testing. At the Government's discretion, the Government may waive the requirement for first article testing to those bidders offering a product which has been previously acquired by the Government. Bidders offering such products, who wish to rely on such production or test data previously approved by the Government, must furnish test data with the bid that prior Government approval is presently appropriate for the pending contract. (See 7.1)

5.4 Quality conformance inspection. All synthetic batterboard panels shall be visually examined for the requirements of 3.2, 3.3 and 3.4 and to insure that the panels show no evidence of delamination, splintering, cracking, peeling, or spalling. This visual inspection shall be conducted on all panels at the time of Government receipt.

6. PACKAGING

6.1 Packaging. Commercial preservation, packing, and marking practices shall be acceptable for the batterboard panels unless otherwise specified in the contract or order (See 7.1).

7. NOTES

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7.1 Ordering Information. Procurement documents should specify the following:

- (a) Title, number, and date of this CID.
- (b) Color, if other than black (See 3.3)
- (c) Synthetic batterboard panel type(s) (See 3.4)
- (d) Contractor certification, when required. (See 5.1)
- (e) First article testing requirements (See 5.3)
- (f) Lot size (See 5.3.1)
- (g) Waiver of first article testing, if applicable (See 5.3.2)
- (h) Packaging requirements (See 6.1)
- (i) Applicable drawings (See 7.2.2)
- (j) If installation is required (See 3.7)
- (k) If predrilled mounting holes are required (See 3.7)
- (l) Either English or metric installation hardware (See 3.7.3)

7.2 Applicable documents. The documents referenced in this CID shall be the issues in effect on the date of the invitation for bids or request for proposal unless otherwise specified. These documents form a part of this CID to the extent specified. In the event that there is a conflict between this CID and a document referenced herein, this CID shall take precedence.

7.2.1 Government documents.**FEDERAL SPECIFICATIONS**

TT-E-489 - Enamel, Alkyd, Gloss, Low VOC Content

A copy of the federal specification is available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

7.2.2 Government drawings.**NAVSEA DRAWINGS**

611-6917107	- Synthetic Batterboard Standard Size Panels
600-6734322	- S/A LHA-775D LHA Class Fendering, Synthetic Batterboard Installation Arrangement and Detail
634-6734323	- S/A LSD 49-5025D LSD 49 Class Fendering, Synthetic Batterboard Installation Arrangement and Detail
637-6734324	- S/A LHD-115D LHD Class Fendering, Synthetic Batterboard Installation Arrangement and Detail
634-6734325	- S/A LSD 41-1167D LSD 41 Class Fendering, Synthetic Batterboard Installation Arrangement and Detail
634-6734326	- S/A LSD 36-499D LSD 36 Class Fendering, Synthetic Batterboard Installation Arrangement and Detail
601-6734327	- S/A LPD-1115D LPD Class Fendering, Synthetic Batterboard Installation Arrangement and Detail

Copies of the drawings are available from Puget Sound Naval Shipyard, Detachment Boston, Code 252, Boston, MA 02210-2181.

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7.2.3 Commercial documents.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

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| D 256 | - Standard Test Methods for Impact Resistance of Plastics and Electrical Insulating Materials |
| D 1894 | - Standard Test Method for Static and Kinetic Coefficients of Friction of Plastic Film and Sheet |
| D 2632 | - Standard Test Method for Rubber Property - Resilience by Vertical Rebound |
| D 4020 | - Standard Specification for Ultra-High-Molecular-Weight-Polyethylene Molding and Extrusion Materials |
| E 162 | - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source |
| E 662 | - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials |

Application for copies of ASTM specifications should be addressed to: ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

PREPARING ACTIVITY
NAVY - SH
(Project 2040-N211)