

INCH POUND

A-A-59001A(SH)

November 20, 2012

SUPERSEDING

A-A-59001(SH)

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.** This Commercial Item Description (CID) describes the requirements of synthetic batterboard panels including planks made from Ultra High Molecular Weight Polyethylene (UHMWPE) which is partially backed up with an elastomeric material for improved impact resistance.

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.** Synthetic batterboards shall conform to the following types, sizes, and weight ranges:

2.1 **Types.** Unless otherwise specified (see 7.1 and 7.2.1), synthetic batterboards shall be provided in either standard type 3.5-inch thick panels (preferred 2-ply for new ship construction and replacement of 3-ply construction or 3-ply construction for like replacements) or lightweight type 2.5-inch thick (for areas of well deck experiencing low impact forces) and in types and sizes as specified on installation drawings. [Figures 1, 2, and 3](#) show the 2- and 3-ply configurations.

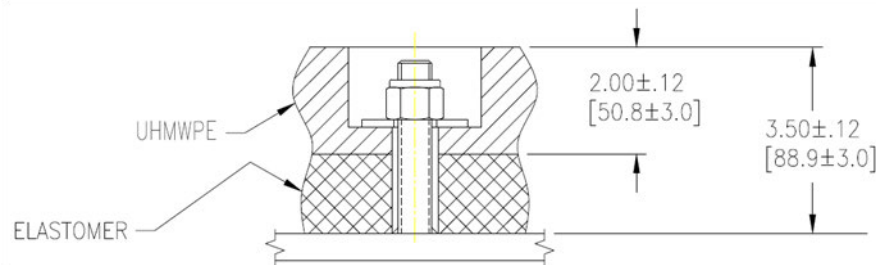
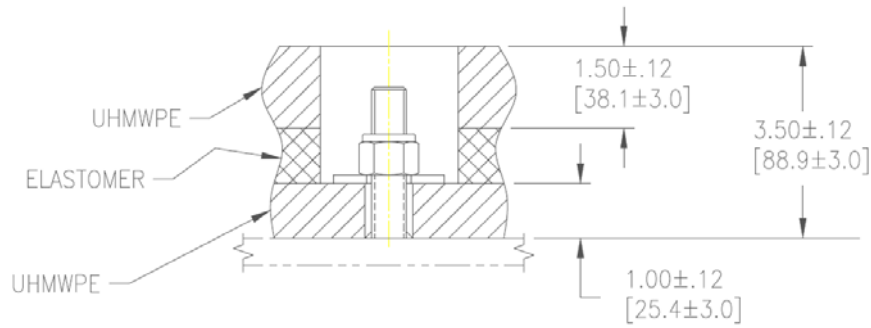
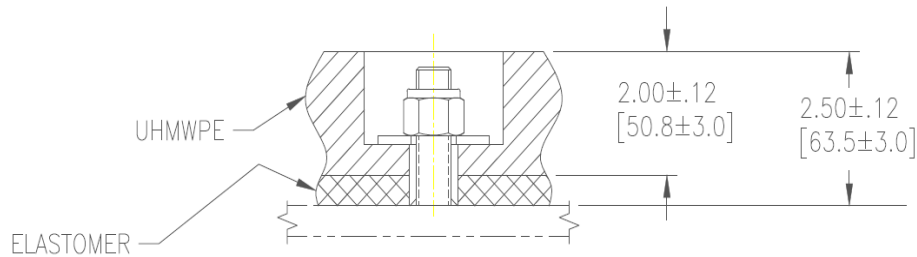


FIGURE 1. Two-ply panel configuration including planks.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy.mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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FIGURE 2. Three-ply panel configuration.FIGURE 3. Lightweight panel configuration.

2.2 Standard sizes. Six standard size synthetic batterboard panels (Types A through F) (see [tables I, II, or III](#)) shall be available for use on amphibious ships in either the standard type or lightweight type batterboard designs.

The following sizes of batterboard panels may be interchanged:

- a. Two Type C panels may be substituted for a Type E panel.
- b. One Type E panel may be substituted for two Type C panels.
- c. Two Type D panels may be substituted for a Type F panel.
- d. One Type F panel may be substituted for two Type D panels.
- e. Two-ply panel construction may be substituted for 3-ply construction, where applicable.

2.3 Weight ranges. The corresponding estimated weight range for each standard size panel, standard type or lightweight type, is specified in [tables I, II, or III](#).

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TABLE I. Two-ply batterboard standard sizes and estimated weights.

Panel Type	Nominal Size	Actual Size ^{1/}	Two-Ply Estimated Weight
A	1½ ft × 6 ft	17 in × 71 in × 3½ in (432 mm × 1804 mm × 89 mm)	111.3 lb (50.5 kg)
B	3 ft × 6 ft	35 in × 71 in × 3½ in (889 mm × 1804 mm × 89 mm)	229.9 lb (104.2 kg)
C	3 ft × 4 ft	35 in × 47 in × 3½ in (889 mm × 1194 mm × 89 mm)	152.4 lb (69.1 kg)
D	4 ft × 4 ft	47 in × 47 in × 3½ in (1194 mm × 1194 mm × 89 mm)	208.3 lb (94.5 kg)
E	3 ft × 8 ft	35 in × 95 in × 3½ in (889 mm × 2414 mm × 89 mm)	307.2 lb (139.3 kg)
F	4 ft × 8 ft	47 in × 95 in × 3½ in (1194 mm × 2414 mm × 89 mm)	420.1 lb (190.6 kg)
<p>FOOTNOTES:</p> <p>^{1/} Panels are to be manufactured to tolerances shown in the manufacturing detail on the fabrication drawings.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Other non-standard sizes are permitted if they are needed to replace missing or damaged panels on earlier ships which may have preceded this CID or standardization of the batterboard panel sizes. 2. Three-ply panels shall not be used for new ship construction and are only intended for replacement of existing like panels. 3. Two-ply construction is the preferred panel design and is an acceptable alternative replacement for 3-ply provided that the proper length of attachment stud is being used or can be replaced. 4. Panel weights shown in tables are estimated. Actual panel weights may vary. 			

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TABLE II. Three-ply batterboard standard sizes and estimated weights.

Panel Type	Nominal Size	Actual Size ^{1/}	Three-Ply Estimated Weight
A	1½ ft × 6 ft	17 in × 71 in × 3½ in (432 mm × 1804 mm × 89 mm)	121.0 lb (54.9 kg)
B	3 ft × 6 ft	35 in × 71 in × 3½ in (889 mm × 1804 mm × 89 mm)	250.7 lb (113.7 kg)
C	3 ft × 4 ft	35 in × 47 in × 3½ in (889 mm × 1194 mm × 89 mm)	166.1 lb (75.3 kg)
D	4 ft × 4 ft	47 in × 47 in × 3½ in (1194 mm × 1194 mm × 89 mm)	225.8 lb (102.4 kg)
E	3 ft × 8 ft	35 in × 95 in × 3½ in (889 mm × 2414 mm × 89 mm)	335.3 lb (152.1 kg)
F	4 ft × 8 ft	47 in × 95 in × 3½ in (1194 mm × 2414 mm × 89 mm)	455.7 lb (206.7 kg)
<p>FOOTNOTES:</p> <p>^{1/} Panels are to be manufactured to tolerances shown in the manufacturing detail on the fabrication drawings.</p> <p>NOTES:</p> <ol style="list-style-type: none"> Other non-standard sizes are permitted if they are needed to replace missing or damaged panels on earlier ships which may have preceded this CID or standardization of the batterboard panel sizes. Three-ply panels shall not be used for new ship construction and are only intended for replacement of existing like panels. Two-ply construction is the preferred panel design and is an acceptable alternative replacement for 3-ply provided that the proper length of attachment stud is being used or can be replaced. Panel weights shown in tables are estimated. Actual panel weights may vary. 			

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TABLE III. Lightweight batterboard sizes and estimated weights.

Panel Type	Nominal Size	Actual Size ^{1/}	Light Weight (2.5-inch thick) Estimated Weight
A	1½ ft × 6 ft	17 in × 71 in × 2½ in (432 mm × 1804 mm × 64 mm)	69.8 lb (31.7 kg)
B	3 ft × 6 ft	35 in × 71 in × 2½ in (889 mm × 1804 mm × 64 mm)	145.5 lb (66.0 kg)
C	3 ft × 4 ft	35 in × 47 in × 2½ in (889 mm × 1194 mm × 64 mm)	96.5 lb (43.8 kg)
D	4 ft × 4 ft	47 in × 47 in × 2½ in (1194 mm × 1194 mm × 64 mm)	131.1 lb (59.5 kg)
E	3 ft × 8 ft	35 in × 95 in × 2½ in (889 mm × 2414 mm × 64 mm)	194.7 lb (88.3 kg)
F	4 ft × 8 ft	47 in × 95 in × 2½ in (1194 mm × 2414 mm × 64 mm)	264.6 lb (120.0 kg)
<p>FOOTNOTES:</p> <p>^{1/} Panels are to be manufactured to tolerances shown in the manufacturing detail on the fabrication drawings.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Other non-standard sizes are permitted if they are needed to replace missing or damaged panels on earlier ships which may have preceded this CID or standardization of the batterboard panel sizes. 2. Three-ply panels shall not be used for new ship construction and are only intended for replacement of existing like panels. 3. Two-ply construction is the preferred panel design and is an acceptable alternative replacement for 3-ply provided that the proper length of attachment stud is being used or can be replaced. 4. Panel weights shown in tables are estimated. Actual panel weights may vary. 			

2.4 Batterboard planks. Synthetic batterboard planks are 2-ply constructed and partially backed up with elastomeric (similar to batterboards) (see [figure 1](#)) and shall be provided in standard plank size 7.5- by 189.5- by 3.5-inch long planks, or other lengths as required, in order to replace the standard size wood batterboard planks or as specified on installation drawings. There is one standard cross-sectional size synthetic batterboard plank available for use on amphibious ships but the overall length may vary with each ship class. The corresponding estimated weight range for the standard size synthetic batterboard plank is specified in [table IV](#).

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TABLE IV. Batterboard plank size and estimated weight.

Panel Type	Nominal Size	Actual Size ^{1/}	Plank Estimated Weight
Plank	8 in × 190 in	7½ in × 189½ in × 3½ in (190 mm × 4813 mm × 89 mm)	129.3 lb (58.6 kg)
<p>FOOTNOTES:</p> <p>^{1/} Planks are to be manufactured to tolerances shown in the manufacturing detail on the fabrication drawings.</p> <p>NOTES:</p> <p>1. Plank weights shown in tables are estimated. Actual panel weights may vary.</p>			

3. SALIENT CHARACTERISTICS.

3.1 Material. Synthetic batterboard panels shall consist of UHMWPE facing the well deck and shall be backed up by an energy absorbing elastomer material. The UHMWPE material shall use a base virgin resin made in accordance with ASTM D4020 and have a nominal molecular weight of 3.1 by 10⁶ or greater. The UHMWPE and elastomer materials shall be modified using additives and fillers as necessary to achieve the required properties specified herein.

3.2 Material properties. The synthetic batterboard material(s) shall meet all of the requirements specified herein when tested over a normal operating temperature range of -20 to +125 °F (-28.9 to +51.7 °C). The UHMWPE surface facing into the well deck shall also be capable of withstanding brief excursions, not to exceed 2.0 minutes, at a surface temperature of 220 °F (104.4 °C). Where applicable, test specimens shall be the full panel thickness.

3.2.1 Flame spread. The test specimens shall be prepared and tested in accordance with ASTM E162 and shall not exceed a 25 Is (flame spread index) value. The test specimens shall be placed in the test fixture so that the impact surface faces the flame source. 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 or supplementary materials such as long strand fiberglass shall not be used to retard burning of the synthetic batterboard panel.

3.2.2 Smoke density. The test specimen shall be evaluated to determine the relative amount of smoke produced by burning or decomposition in accordance with ASTM E662. The test specimens shall be placed in the test fixture so that the impact surface faces the flame source. The smoke generated during the flaming and nonflaming modes shall not exceed 450 Dm (maximum specific optical density).

3.2.3 Impact resistance. UHMWPE test specimens shall be prepared and tested as described in ASTM D256, Method A (except that the Izod specimens shall be unnotched). These unnotched test specimens shall be capable of absorbing an Izod condition of 45 inch-pounds/inch (202 Joules/meter). No breakage or cracking of the test specimen is permitted under any circumstances.

3.2.4 Coefficient of friction. The test specimen shall be prepared and tested in accordance with ASTM D1894. The dynamic coefficient of friction of the UHMWPE surface facing into the well deck shall not exceed a 0.2 value against steel (dry).

3.2.5 Resilience. The test specimen shall be prepared and tested in accordance with ASTM D2632. The energy absorbing elastomer shall be formulated so that the resilience does not exceed a 25 percent rebound value.

3.2.6 Paintability. The low-coefficient of friction slippery surface facing into the well deck of the batterboard panels or planks shall be capable of being painted for marking and coding. Paints meeting the requirements of the Master Painters Institute, MPI #9, Alkyd, Exterior, (MPI Gloss Level 6) and MPI # 94, Alkyd, Exterior, Semi-Gloss, (MPI Gloss Level 5) shall be used to ensure compliance.

3.2.7 Color. The color of the UHMWPE material shall be black unless otherwise specified (see 7.1).

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3.3 Test requirements. The synthetic batterboard panels shall meet all of the requirements specified herein when tested in accordance with the standard tests identified in 3.2. The test specimens for 3.2 shall be sized to consist of the complete panel thickness (e.g., 2-ply, 3-ply, or lightweight construction panels or 2-ply batterboard planks).

3.4 Construction. The synthetic batterboard panel shall consist of a sandwich-type construction, whereby layers of UHMWPE and energy absorbing elastomer materials are combined together into a single panel, whether it is the 2-ply, 3-ply, or lightweight design. For direct attachment to the bulkhead steel installations, at least 50 percent of the backside of the UHMWPE layer shall be backed by an elastomer which is 1½ inches (38.1 millimeters) thick for 2-ply, 1 inch (25.4 millimeters) thick for 3-ply, and 0.5 inch (12.7 millimeters) thick for lightweight designs, or as shown on the applicable ship class installation drawings. The panel shall include approximately a 6- by 6-inch (152.4- by 152.4-millimeter) square of elastomer material centered at each fastener location and a minimum 3-inch (76.2-millimeter) to a maximum of 6-inch (152.4-millimeter) wide strips 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 a strip pattern with the strips not less than 3 inches (76.2 millimeters) or more than 6 inches (152.4 millimeters) in width unless otherwise specified on installation drawings. The strips are to be attached by the manufacturer using corrosion-resistant steel, Grades 304 or 316, fastener hardware so that strips can be repositioned in field if necessary. Refer to 611-6917107 for further guidance on the construction of the various batterboard panels.

3.5 Frame mounting. For installations where batterboard panels are mounted to frames, and including plank-type construction panels, the complete surface of the panel that comes into contact with the frame shall have a layer of energy absorbing elastomer material as part of its overall thickness. This shall supersede meeting the 50 percent requirement. In this case, the details on the ship class drawings need to be followed in manufacturing the batterboard panels.

3.6 Panel size and weight. The synthetic batterboard panels shall be of the required type (see 7.1) with the weights and dimensions as specified (see 2.1 through 2.3) or planks as specified (see 2.4). Production tolerances on the actual overall length and width of the synthetic batterboard panel or planks shall be not greater than ± 0.125 inch (3.2 millimeters). Production tolerance of the batterboard panel or plank thickness shall be not greater than ± 0.125 inch (3.2 millimeters).

3.7 Installation requirements. When installation is required (see 7.1), the synthetic batterboard panel shall be installed in accordance with the applicable ship class installation drawing (see 7.2.1) and shall be capable of being cut, machined, or drilled as needed to meet these installation requirements. Unless otherwise specified in the ordering information (see 7.1) or drawings (see 7.2.1), standard size panels shall be provided complete with all mounting holes. Mounting holes shall only be drilled at the time of installation on panels requiring modification at installation, as specified on the installation drawings (see 7.1).

3.7.1 Spacing. Batterboard panels shall be installed with a maximum 1-inch (25-millimeter) [or as shown on the installation drawing (see 7.1)] 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 3.2.

3.7.2 Frames. For installations on LSD 41 and LSD 49 Class ships where batterboard panels are mounted on steel frame support structures, the 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 634-6734323 or 634-6734325). This also applies to batterboard planks which should have elastomer backing in contact areas also mounted to the steel frame support structures.

3.7.3 Hardware. Fastener hardware used for batterboard panel installation shall be of corrosion-resistant steel grades. English unit commercial hardware, as specified in 611-6917107, shall be used as a guide for the installation (see 7.1). 316 SS studs shall not be used due to the reduced yield strength that results in the annealed condition.

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.

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4. **REGULATORY REQUIREMENTS.** The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

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 UHMWPE and elastomer materials available for review by the contracting activity to evaluate the safety of the material for the proposed use.

5. **PRODUCT CONFORMANCE PROVISIONS.**

5.1 Contractor certification. The contractor shall certify and maintain substantiating evidence, including recent test data, that the product offered meets the salient characteristics and quality assurance requirements 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 standard tests identified in 3.2 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 still furnish appropriate test data with the bid to show that prior Government approval is presently appropriate for the pending contract. However, the test data furnished as proof that the product is in compliance with this CID must be fairly recent and within the last 2 years. Test data shall clearly indicate that the material passed all of the test requirements with no exceptions (see 7.1).

5.4 Quality conformance inspection. All synthetic batterboard panels, including planks, shall be visually examined for the requirements of 3.2.7, 3.4, and 3.6 to ensure that the panels show no evidence of delaminating, splintering, cracking, peeling, or spalling. This visual inspection shall be conducted on all panels at the time of Government receipt.

6. **PACKAGING.** Preservation, packing, and marking shall be as specified in the contract or order (see 7.1).

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7. NOTES.

7.1 Ordering information. Procurement documents should specify the following:

- a. Title, number, and date of this CID.
- b. Synthetic batterboard panel type(s) (see 2.1, 2.2, and 2.3 or 2.4).
- c. Color, if other than black (see 3.2.7).
- d. If installation is required (see 3.7).
- e. If predrilled mounting holes are required (see 3.7).
- f. Contractor certification required (see 5.1).
- g. First article testing requirements (see 5.3).
- h. Lot size (see 5.3.1).
- i. Waiver of first article testing (bidders must furnish test records, if applicable) (see 5.3.2).
- j. Packaging requirements (see 6).
- k. Applicable drawings or installation manufacturing drawings to be followed (see 7.2.1).

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 (see 7.1). 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 drawings.

NAVAL SEA SYSTEMS COMMAND (NAVSEA) DRAWINGS

600-6734322	- LHA Class Drawing, Fendering, Synthetic Batterboard Instl, Arrangement and Detail
600-7664015	- LHA-5 Drawing, Well Deck, Synthetic Batterboard Instl, FR 89-130 P & S Dets & Arr
611-6917107	- Synthetic Batterboard Standard Size Panels
634-6734323	- LSD-49 Class Drawing, Fendering, Synthetic Batterboard Instl, Arrangement and Detail
634-6734325	- LSD-41 Class Drawing, Fendering, Synthetic Batterboard Instl, Arrangement and Detail
634-6734327	- LPD Class Drawing, Fendering, Synthetic Batterboard Instl, Arrangement and Detail
637-6734324	- LHD Class Drawing, Fendering, Synthetic Batterboard Instl, Arrangement and Detail

Copies of these drawings are available from the applicable repositories listed in S0005-AE-PRO-010/EDM. Copies of S0005-AE-PRO-010/EDM are available from the Naval Logistics Library, 5450 Carlisle Pike, Mechanicsburg, PA 17055 or online at <https://nll1.ahf.nmci.navy.mil>.

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7.2.2 Commercial documents.

ASTM INTERNATIONAL

- ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
- ASTM D1894 - Standard Test Methods for Static and Kinetic Coefficients of Friction of Plastic Film and Sheeting
- ASTM D2632 - Standard Test Method for Rubber Property – Resilience by Vertical Rebound
- ASTM D4020 - Standard Specification for Ultra-High-Molecular-Weight Polyethylene Molding and Extrusion Materials
- ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source
- ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

Copies of these documents are available from ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428-2959 or online at www.astm.org.

MASTER PAINTERS INSTITUTE

- MPI #9 - Alkyd, Exterior, (MPI Gloss Level 6)
- MPI #94 - Alkyd, Exterior, Semi-Gloss, (MPI Gloss Level 5)

Copies of MPI specifications may be obtained from Master Painters Institute, Inc., 2800 Ingleton Ave., Barnaby, British Columbia, V5C 6G7 or online at <http://www.mpi.net>.

Preparing Activity:
Navy – SH
(Project 2040-2012-001)

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