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REPORT OF COMMITTEE E-5  
ON  
FIRE TESTS OF MATERIALS AND CONSTRUCTION\*

Committee E-5 on Fire Tests of Materials and Construction held one meeting since last reporting to the Society: at Lake Placid, N. Y., on Oct. 12, 1967.

The membership of the committee consists of 47 producers, 20 consumers, 28 general interest, 4 consulting, and 4 honorary members. There are 95 voting members.

The committee regrets to report the deaths of two members and one former member of Committee E-5, each of whom had been a valued and respected

contributor to the activities of the committee. Memorials to Nolan D. Mitchell, Albert J. Steiner, and Bertram L. Wood have been incorporated in the minutes of the committee.

As a result of a recent ballot, the following officers were re-elected for the upcoming two-year term:

Chairman, C. H. Yuill.

Vice-Chairman, J. B. Ryan.

Secretary, N. S. Pearce.

Membership Secretary, R. W. Bletzacker.

RECOMMENDATIONS FOR SOCIETY ACTION AT ANNUAL MEETING

Committee E-5 requests approval by the Society at the Annual Meeting of the following recommendations, recognizing that all adoptions as standard require confirmation by Society letter ballot. The results of the committee ballot on the recommendations will be reported at the Annual Meeting. The existing standards and tentatives referred to in this report appear in their present form in the 1967 Book of ASTM Standards, Part 14.

*Adoption of Tentative Revision  
as Standard*

**E 84 - 67, Standard Method of Test for Surface Burning Characteristics of Building Materials (Subcommittee IV):**

Adopt as Standard the Tentative Revision issued June, 1966.

*Revision of Standard, Immediate  
Adoption*

**E 84 - 67, Standard Method of Test for Surface Burning Characteristics of Building Materials (Subcommittee IV):**

*Appendix A1*—Add Appendix A1, as appended hereto.<sup>1</sup>

This Guide has been compiled as an aid in selecting a method for mounting various building materials in the fire test chamber.

*Tentative Continued Without Revision*

**E 286 - 65 T, Tentative Method of Test for Surface Flammability of Building Materials Using an 8-ft (2.44-m) Tunnel Furnace (Subcommittee IV).**

\* Seventy-first Annual Meeting of the Society, June 23-28, 1968.

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## ACTIVITIES OF SUBCOMMITTEES

*Subcommittee I on Fire Tests of Materials and Construction* (J. A. Bono, chairman)—The task group to study criteria for the fire resistance classification of assemblies and structural members has developed a proposed revision to Methods E 119, Fire Tests of Building Construction and Materials. This proposal is currently before the subcommittee for letter ballot and the task group anticipates further active consideration throughout the year of this proposed amendment to the standard. A further proposed revision to Methods E 119, prepared by the task group to study revision of Section 4(b), measurement of temperature near edges of assemblies, is also before the members of the subcommittee for letter ballot.

The Task Group on Correction Factors for Moisture Variation in Test Assemblies has reported good progress and a proposal will shortly be sent to the members of the subcommittee for review and comment.

A task group has been appointed to study an apparent discrepancy in the area under the standard time-temperature curve. A recommendation will be received at the next meeting of Subcommittee I.

*Subcommittee III on Fire Tests of Wall Opening Assemblies* (J. A. Wilson, chairman)—A progress report has been received from the task group concerned with (1) the measurement of heat release through fire doors intended for installation in enclosures of vertical communication through buildings and development of appropriate limitations thereof, and (2) fire-exposure side considerations when testing passenger elevator fire doors.

A further task group continues to investigate specific problem areas relating to fire tests of door assemblies.

*Subcommittee IV on Fire Tests of*

*Acoustical and Similar Finishes* (H. W. Eickner, chairman)—Task groups associated with this subcommittee are preparing further recommendations in connection with smoke density and fuel contributed measurement, toxicity of combustion products, and operating procedures for the 25-ft tunnel furnace.

A report has been received by subcommittee members concerning the work of the task group charged with the assignment of establishing the need for flammability tests of floor coverings and, if required, development of the appropriate test methods to be used. The work of the subcommittee continues.

*Subcommittee V on Nomenclature and Definitions* (I. A. Benjamin, chairman)—The Task Group on the Potential Heat Method had presented a further progress report during a recent meeting of the subcommittee. At that time, the subcommittee also received a research report by E. E. Smith on work being carried out at Ohio State University on the rate of combustibility.

*Subcommittee X, on Research* (A. F. Robertson, chairman)—Members of this subcommittee had indicated their willingness to review and comment upon detailed proposals for burnout fire tests at the requests of those planning such experiments. By such action it is hoped that the subcommittee may assist in improving upon the usefulness of these tests and in achieving a greater degree of uniformity and method of reporting. A revised draft is under preparation by the subcommittee of a report intended to suggest areas of need for new test methods and reconsideration of existing procedures.

The subcommittee is sponsoring a research review during the 1968 Annual Meeting in San Francisco and plans are also under way for the Symposium on Fire Endurance Performance to be held

during the 1969 Winter Meeting in Denver. G. W. Shorter, a former chairman of Committee E-5, has accepted the responsibility of organizing this symposium.

*Subcommittee XI, Editorial* (W. Aikman, chairman)—A number of documents which have been submitted by the various subcommittees are under review by this subcommittee.

*Subcommittee XII on ISO Liaison* (A. F. Robertson, chairman) has been recognized by USASI as the group to represent the United States of America in activities of the International Organization for Standardization relating to fire tests of building construction and

materials (ISO/TC 92). The current activities of this subcommittee include consideration as to the most desirable method of ensuring continuity of representation of Committee E-5 in the activities of the ISO working groups and an active review by members of a number of documents emanating from various levels of ISO/TC 92 activities.

Respectfully submitted on behalf of the committee,

C. H. YULL,  
*Chairman.*

N. S. PEARCE,  
*Secretary.*

PROPOSED REVISION OF STANDARD METHOD OF TEST  
FOR SURFACE BURNING CHARACTERISTICS OF  
BUILDING MATERIALS (E 84 - 67)\*

Committee E-5 recommends the following revision of the Standard Method of Test for Surface Burning Characteristics of Building Materials (E 84 - 67):

*Appendix A1*—Add as the new Appendix A1 the following:

APPENDIX

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A1. GUIDE TO MOUNTING METHODS

*A1.1 Introduction*

A1.1.1 This guide has been compiled as an aid in selecting a method for mounting various building materials in the fire test chamber. These mountings are suggested for test method uniformity and convenience; they are not meant to imply restriction in the specific details of field installation.

A1.1.2 For some building materials none of the methods described may be applicable. In such cases, other means of support may have to be devised.

A1.1.3 These suggested mounting methods are grouped according to building materials to be tested which are broadly described either by usage or by form of the material.

*A1.2 Acoustical Materials*

A1.2.1 For acoustical materials whose maximum dimension is less than 20 in. (50.8 cm), metal splines or wood furring strips and metal fasteners shall be used.

A1.2.2 Steel tee splines for mounting

kerfed-acoustical tile shall be nominal  $\frac{1}{2}$ -in. (1.3 cm) web by  $\frac{3}{4}$ -in. (1.9 cm) flange, formed No. 24 MS gage sheet metal.

A1.2.3 Wood furring frames for mounting acoustical materials shall be nominal 1 by 2-in. (2.0 by 4.1-cm) wood furring joined with corrugated-metal fasteners. Use two frames as shown in Fig. A1.

*A1.3 Adhesives, Cementitious Mixtures, and Sprayed Fiber*

A1.3.1 Adhesives, cementitious mixtures, and sprayed fibers are defined as factory prepared mixtures which may be dry and which may require only the addition of water in preparation for application.

A1.3.2 Such mixtures shall be mixed as specified in the manufacturer's instructions and shall be applied to  $\frac{1}{4}$ -in. (6.3-mm) thick asbestos-cement board in the thickness or at the coverage rate or density recommended by the manufacturer.

*A1.4 Batt or Blanket-Type Insulating Materials*

A1.4.1 Batt or blanket materials which do not have sufficient rigidity or strength to support themselves shall be supported by metal rods not more than  $\frac{1}{4}$  in. (6.3 mm) in diameter inserted through the material in such a way as to span the tunnel width and not be actually exposed to the flame.

\* 1967 Book of ASTM Standards, Part 14.

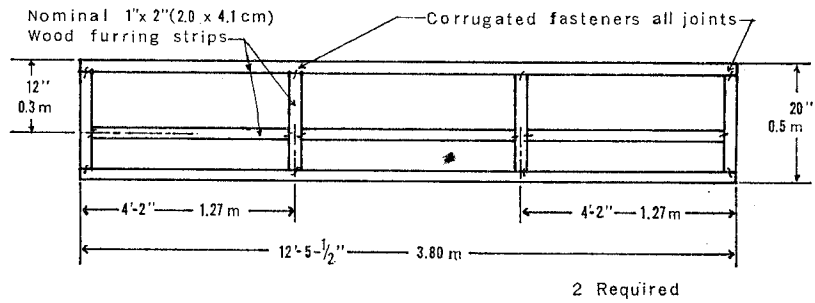


FIG. A1—Wood Frame for Acoustical Materials.

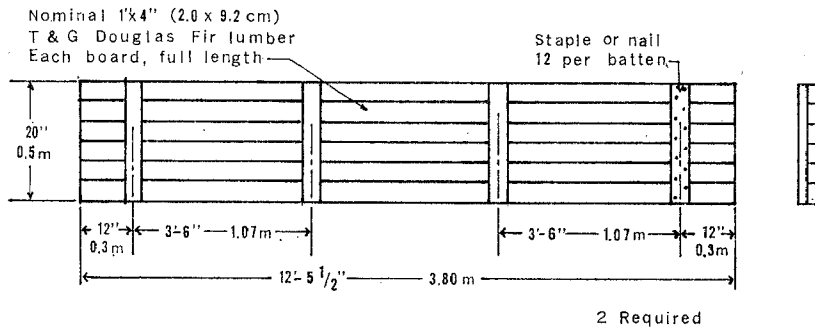


FIG. A2—Wood Deck for Coating Material.

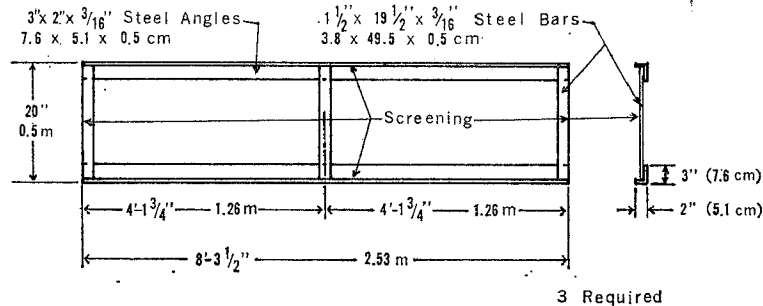


FIG. A3—Steel Frame for Loose Fill Materials.

*A1.5 Coating Materials*

A1.5.1 Coating materials intended for application to wood surfaces shall be applied to a substrate made of surfaced tongue-and-groove Douglas fir lumber. The lumber may have a limited number of small imperfections that can be easily

covered with paint. Any knots shall be tight, limited in number, and shall be not more than 1 in. (2.5 cm) in diameter.

A1.5.2 The substrate shall be made with nominal 1 by 4-in. (2.0 by 9.2-cm) Douglas fir lumber by placing six pieces side by side secured with four nailing strips spaced approx 3 1/2 ft (1.07 m)

apart holding the six pieces together. Use two decks. See Fig. A2.

A1.5.3 Coating materials intended for application to particular combustible surfaces, but not wood, shall be applied to the specific surface for which they are intended.

A1.5.4 Coating materials intended only for field application to noncombustible surfaces shall be applied to  $\frac{1}{4}$ -in. (6.3-mm) asbestos-cement board.

A1.5.5 Coating materials shall be applied in the thickness or at the coverage rate and the number of coats recommended by the manufacturer.

#### *A1.6 Loose-Fill Insulation*

A1.6.1 Loose-fill insulation shall be placed on galvanized-steel screening with approximate  $\frac{3}{64}$  in. (1.2-mm) openings supported on a test frame 20 in. (50.8 cm) wide by 2 in. (5.1 cm) deep, made from 2 by 3 by  $\frac{3}{16}$ -in. (5.1 by 7.6 by 0.5-cm) steel angles. Three frames are required. See Fig. A3. The insulation shall be packed to the density specified by the manufacturer.

#### *A1.7 Plastics*

A1.7.1 The term plastics includes

foams, reinforced panels, laminates, grids, and transparent or translucent sheets.

A1.7.2 When any plastic will remain in position in the tunnel during a fire test, no additional support will be required. Thermoplastic materials and other plastics which will not remain in place are to be supported by  $\frac{1}{4}$ -in. (6.3-mm) round-metal rods, or  $\frac{3}{16}$  by 2-in. (0.5 by 5.1-cm) wide steel bars or 2-in. (5.1-cm) galvanized hexagonal wire-mesh supported with metal bars or rods spanning the width of the tunnel.

#### *A1.8 Thin Membranes*

A1.8.1 Single-layer membranes as thin laminates consisting of a limited number of similar or dissimilar layers shall be supported by 2-in. (5.1-cm) galvanized hexagonal wire-mesh placed on  $\frac{3}{16}$  by 2-in. (0.5 by 5.1-cm) steel bars or  $\frac{1}{4}$ -in. (6.3-mm) round bars, spanning the width of the tunnel.

#### *A1.9 Wall Coverings*

A1.9.1 Wall coverings of various types shall be mounted to  $\frac{1}{4}$ -in. (6.3-mm) asbestos-cement board with the adhesive specified by the manufacturer in a manner consistent with field practice.