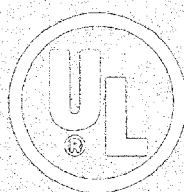


Standard for Safety

UL 790

ISBN 1-55969-914-X

Tests for Fire Resistance of Roof Covering Materials



Underwriters Laboratories Inc.®

Standard

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October 27, 1995

Standard for

Tests for Fire Resistance of Roof Covering Materials

UL 790, Sixth Edition

Accompanying this transmittal notice is a copy of the Sixth edition of UL 790.

THIS EDITION OF THE STANDARD IS NOW IN EFFECT.

Revised and/or additional pages may be issued from time to time.

OCTOBER 27, 1995

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UL 790

Standard for

Tests for Fire Resistance of Roof Covering Materials

First Edition – September, 1958

Second Edition – April, 1969

Third Edition – May, 1973

Fourth Edition – December, 1978

Fifth Edition – October, 1983

Sixth Edition

October 27, 1995

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

The Department of Defense (DoD) has adopted UL 790 on March 21, 1984. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

ISBN 1-55989-914-X

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FOREWORD

A. This Standard contains a description of the basic test method(s) for evaluating products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. This test method(s) is based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. It is subject to revision as further experience and investigation may show is necessary or desirable.

B. The consistent and uniform production of the product so that it will perform in the manner indicated by the coverage is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which performs in a specified manner will not necessarily be judged to be eligible for coverage if, when examined and tested, it is found to have other features which impair the significance associated with such performance.

D. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

E. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

1.1 These requirements cover the performance of roof covering materials exposed to fire conditions, and are intended to indicate the fire-resistance characteristics of roof coverings when exposed to fire originating from sources outside a building on which the coverings are installed. They are applicable to roof coverings intended for installation on either combustible or noncombustible decks (see 1.7) when the roof coverings are applied as intended.

1.2 Class A roof coverings are effective against severe fire test exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

1.3 Class B roof coverings are effective against moderate fire test exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

1.4 Class C roof coverings are effective against light fire test exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a measurable degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

1.5 Tests conducted in accordance with these requirements are intended to demonstrate the performance of roof coverings during the types and periods of exposure involved, but are not intended to determine the acceptability of roof coverings for use after exposure to fire.

1.6 Roof covering materials are required to comply also with the requirements for construction, material specifications, and performance as applicable to specific types, designs, sizes, and arrangements. All such applicable additional requirements are not considered to be within the scope of these requirements for fire tests, but are included in the applicable standards covering the material in question.

1.7 A combustible deck is formed of wood (sheathing boards or plywood). A noncombustible deck is formed of metal, concrete, or poured gypsum.

2 Units of Measurement

2.1 If a value for measurement is followed by a value in other units in parentheses, the first stated value is the requirement.

PERFORMANCE

3 General

3.1 Representative samples of a roof covering material, assembled to test decks as described in Section 4, are to be subjected to the applicable tests described in Sections 6 – 11 as specified in Table 3.1.

Table 3.1
Required tests and test assemblies

Material to be tested	Required number of test assemblies ^a					
	Intermittent-Flame Test, Section 6	Spread-of-Flame Test, Section 7	Burning-Brand Test, Section 8	Flying-Brand Test, Section 9	Rain Test, Section 10	Weathering Test, Section 11
Other than wood shakes or shingles, for installation on:						
A. Combustible decks:						
1. Class A	2	2	4	NA	NA	NA
2. Class B or C	2	2	2	NA	NA	NA
B. Noncombustible decks only	NA	2	NA	NA	NA	NA
Wood shakes and shingles ^b :						
A. Class A	3 (2) [5]	3	6 (2) [6]	3 (2) [6]	6	18
B. Class B or C	3 (2) [5]	3	3 (2) [6]	3 (2) [6]	6	18
a NA — Test is not required.						
b Number in parentheses is number of samples from Rain Test, Section 10, to be tested. Number in brackets is number of samples from Weathering Test, Section 11, to be tested.						

4 Preparation of Samples

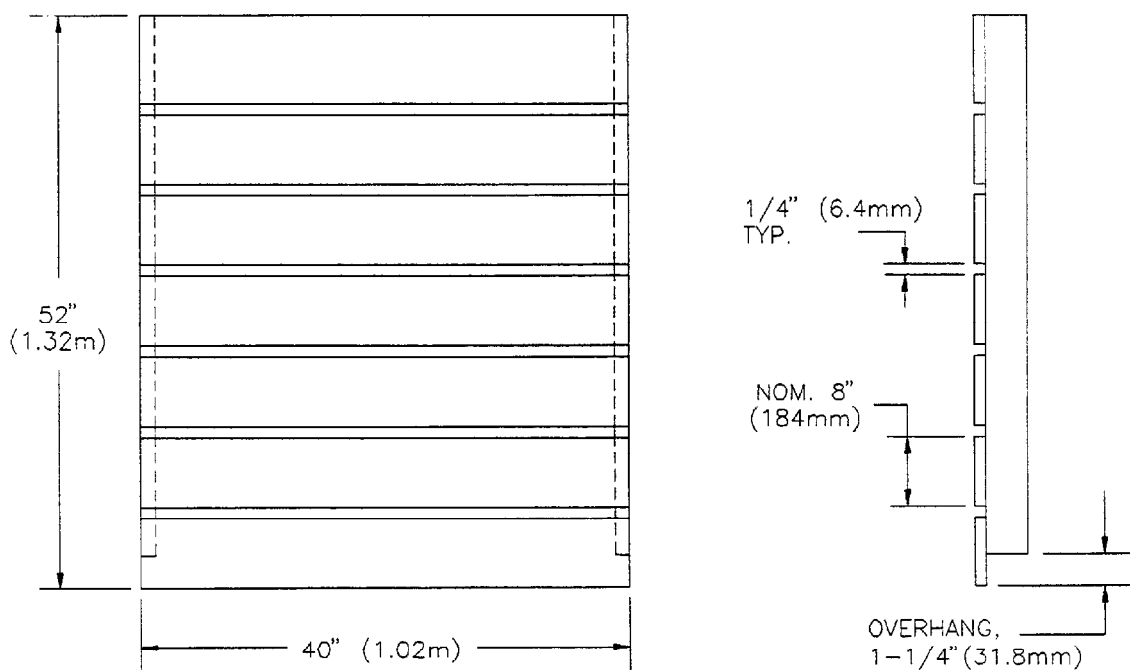
4.1 General

4.1.1 Representative samples of a roof covering material are to be applied, as described in 4.4.1, to test decks constructed in accordance with the applicable requirements of 4.2.1 – 4.3.2. The assemblies are to be conditioned in accordance with 4.5.1 prior to testing.

4.2 Intermittent-flame, burning-brand, and flying-brand test decks

4.2.1 Except as indicated in 4.2.2 and 4.2.3, the test deck for the Intermittent-Flame Test, Section 6, and the Burning-Brand Test, Section 8, is to be 3-1/3 feet (1 m) wide by 4-1/3 feet (1.3 m) long and is to be made of kiln-dried No. 1 white pine or Ponderosa pine lumber with not less than 8 nor more than 12 percent moisture content. The lumber is to be free from large or loose knots, sapwood, rot, or pitch pockets, and is to contain no edge knots. Individual deck boards are to be of nominal 1 by 8 inch (19.1 by 184 mm) lumber (dressed on four sides). If used for the Class C burning brand test, see 8.4.3.1 – 8.4.5.1, the width of the deck board is to be such that the brands will be located directly over the spaces between the boards. The deck boards are to be laid across the shorter dimension of the test deck, spaced 1/4 inch (6.4 mm) apart, and securely nailed to two nominal 2 by 4 inch (38 by 89 mm) wood battens located under and flush with the outer edges of the deck. Decks so constructed are to be even and uniform. Figures 4.1 and 4.2 illustrate the construction details of these decks.

Figure 4.1
Intermittent-flame and burning-brand pine board deck



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