



UL 1256

STANDARD FOR SAFETY

Fire Test of Roof Deck Constructions

UL Standard for Safety for Fire Test of Roof Deck Constructions, UL 1256

Fifth Edition, Dated October 11, 2023

Summary of Topics

This new Fifth Edition of ANSI/UL 1256 dated October 11, 2023 incorporates editorial changes including renumbering and reformatting to align with current style.

The requirements are substantially in accordance with Proposal(s) on this subject dated July 28, 2023.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of ULSE Inc. (ULSE).

ULSE provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will ULSE be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if ULSE or an authorized ULSE representative has been advised of the possibility of such damage. In no event shall ULSE's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold ULSE harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

No Text on This Page

OCTOBER 11, 2023



ANSI/UL 1256-2023

1

UL 1256

Standard for Fire Test of Roof Deck Constructions

First Edition – January, 1985
Second Edition – August, 1993
Third Edition – March, 1998
Fourth Edition – October, 2002

Fifth Edition

October 11, 2023

This ANSI/UL Standard for Safety consists of the Fifth Edition.

The most recent designation of ANSI/UL 1256 as an American National Standard (ANSI) occurred on October 11, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page. Any other portions of this ANSI/UL standard that were not processed in accordance with ANSI/UL requirements are noted at the beginning of the impacted sections.

The Department of Defense (DoD) has adopted UL 1256 on August 19, 1989. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to ULSE at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

Our Standards for Safety are copyrighted by ULSE Inc. Neither a printed nor electronic copy of a Standard should be altered in any way. All of our Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of ULSE Inc.

COPYRIGHT © 2023 ULSE INC.

No Text on This Page

CONTENTS

INTRODUCTION

1	Scope	5
2	Units of Measurement	5
3	Referenced Publications	5

PART I – LARGE-SCALE FIRE TEST METHOD FOR EVALUATION OF ROOF DECK CONSTRUCTIONS UNDER INTERIOR FIRE EXPOSURE

4	Test Method	6
5	Fire Test Structure	6
6	Fire Control Equipment	7
7	Instrumentation	10
8	Documentation	11
9	Test Procedure	11
10	Conditions of Acceptance	12
11	Test Report	12

PART II – SMALL-SCALE FIRE TEST METHOD UTILIZING STEINER FIRE TEST CHAMBER

12	Fire Test Chamber	13
13	Calibration of Test Equipment	16
14	Test Method	21
15	Test Assembly	21
16	Conditions of Acceptance	25
17	Test Report	25

ANNEX A (informative) – HISTORICAL NOTE

No Text on This Page

INTRODUCTION

1 Scope

1.1 These requirements cover fire test methods to evaluate the performance of metallic and nonmetallic roof deck constructions subjected to internal (under deck) fire exposures for the purpose of determining the contribution of the roof covering material, insulation, and other components of the roofing system to the spread of fire within a building. As the extent of flame propagation, thermal degradation, and combustive damage are determined after roof deck constructions are exposed to controlled fire conditions, these requirements are not intended for use in describing or defining the fire hazard or risk of fire under actual fire conditions.

1.2 These requirements do not include tests to evaluate other potential hazards to roof deck constructions, such as structural integrity under fire exposure or wind uplift.

1.3 Two fire test methods are described in Parts I and II of this Standard. One of these test methods shall be selected based on assessment of fire test experience, as outlined in [1.4](#), [1.5](#) and [1.6](#).

1.4 Part I describes the large-scale fire test method used to evaluate roof deck constructions which by experience in actual installations were known to have contributed extensively to underdeck fire spread or, conversely, were regarded as being eligible for classification from this standpoint.

1.5 Part II describes the small-scale fire test method whereby the Steiner fire test chamber is used to evaluate roof deck constructions for resistance to underdeck fire spread. The conditions of acceptance under this test method were initially established by analysis of correlative data developed on a specific construction which exhibited adequate performance in the large scale fire test method described in Part I. This construction consisted of a steel roof deck, without vapor retarder or adhesives, insulated with one-inch-thick plain vegetable fiberboard roof insulation mechanically attached and covered with a three ply bitumen built-up roof covering with gravel surface. Subsequent Part I large scale tests were conducted with other steel deck constructions. These results continued to support the conditions of acceptance established for the Part II small scale tests.

1.6 For roof deck constructions dissimilar to any constructions previously evaluated under Part I, the large-scale fire test method is to be conducted.

2 Units of Measurement

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3 Referenced Publications

3.1 Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

3.2 The following publications are referenced in this Standard:

ASTM D4442, *Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials*

UL 263, *Fire Tests of Building Construction and Materials*

PART I – LARGE-SCALE FIRE TEST METHOD FOR EVALUATION OF ROOF DECK CONSTRUCTIONS UNDER INTERIOR FIRE EXPOSURE

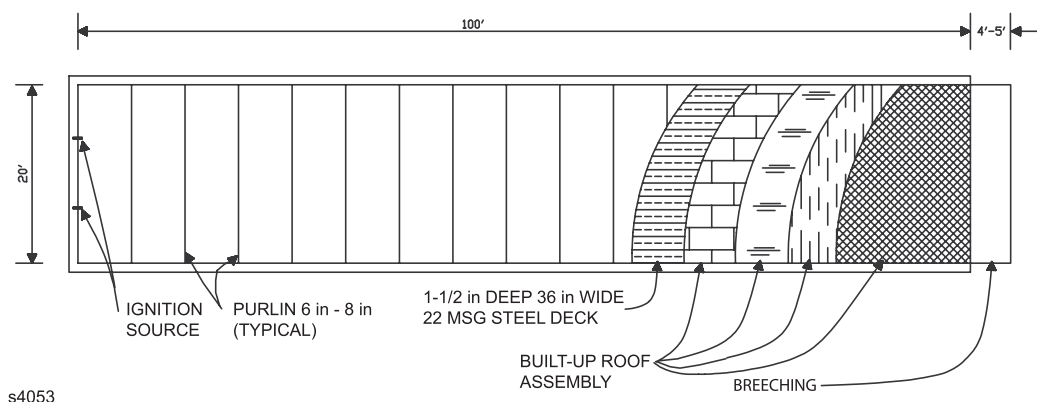
4 Test Method

4.1 The test method utilizes a 10 foot (3.1 m) high by 20 foot (6.1 m) wide by 100 foot (30.5 m) long structure which is open at one 20 foot (6.1 m) wide end (flue-end). At the opposite end (fire end) is located an ignition source burner assembly consisting of atomized heptane pumped through two nozzles. An air supply to support combustion is produced by a blower and discharged into the structure at the fire end. The fuel flow rate for this test was developed through preliminary trials to produce a fire exposure condition within the first 20 feet (6.1 m) of structure that is representative of the standard time-temperature curve in UL 263. Observations are recorded with respect to maximum underdeck flame spread within the structure, and with respect to the maximum flame spread on the top surface of the structure. Temperature data is recorded at specified locations at intervals not to exceed 30 seconds throughout the entire test. Post-test observations are also recorded with respect to the conditions of the structure and roof covering materials. The test is terminated after 30 minutes elapsed time.

5 Fire Test Structure

5.1 The fire test structure is to consist of a rectangular building 10 feet (3.1 m) high by 20 feet (6.1 m) wide by 100 feet (30.5 m) long with one 20 foot (6.1 m) long side left opened (flue-end). The walls are to be constructed from nominal 8 by 8 by 16-inch (203 by 203 by 406 mm) concrete blocks. The space between the parapet wall, support wall and roof deck is to be tightly-packed with mineral wool insulation. The fire end wall and first 40 feet of each sidewall are to be protected from the floor to the underside of the roof deck on the interior by a nominal 1-inch (25 mm) thickness of spray or trowel applied cementitious mixture. The floor of the structure is to consist of concrete, crushed stone, or packed-soil covered with a 2-inch (50.8 mm) thickness of sand. The roof covering system is to have perimeter terminations and flashing construction that are representative of standard practice as specified by the roof covering material manufacturer. See [Figure 5.1](#).

Figure 5.1
Large Scale Test Structure



Note: Conversion Factors:

1 inch = 25.4 mm

1 foot = 0.3048 m