



UL 2079

STANDARD FOR SAFETY

Tests for Fire Resistance of Building Joint Systems

UL Standard for Safety for Tests for Fire Resistance of Building Joint Systems, UL 2079

Fifth Edition, Dated August 26, 2015

Summary of Topics

This revision of ANSI/UL 2079 dated June 28, 2024 includes the following changes in requirements:

- **Expansion Factor Test; [28.5](#)**
- **Expansion Pressure Test; [28.4.1](#)**
- **Head of Wall Joint Systems; [9.1](#)**
- **Pressure Measurement; [14.1](#), [14.1A](#), [14.1B](#), Annex [C2](#)**
- **Pressure Sensor Type; [14.2](#), [Figure 14.1](#), [Figure 14.2](#)**

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated March 15, 2024 and May 24, 2024.

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This ANSI/UL Standard for Safety consists of the Fifth Edition including revisions through June 28, 2024.

The most recent designation of ANSI/UL 2079 as an American National Standard (ANSI) occurred on June 28, 2024. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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 ULSE's Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These tests are applicable to joint systems of various materials and construction that are intended for use in linear openings between adjacent fire resistive structures.

1.2 The fire endurance ratings for joint systems are intended to register performance during the period of fire exposure and are not intended to be interpreted as having determined the acceptability of the joint systems for use before or after fire exposure. The intent of these methods is to develop data to assist others in determining the suitability of the joint systems where fire resistance is required.

1.3 These requirements are intended to evaluate the length of time that the types of joint systems specified in [1.1](#) will contain a fire during a predetermined test exposure. The test evaluates the joint system's resistance to heat and, in some instances, to a hose stream, while carrying an applied load if the assembly is load bearing. The method of testing also includes optional air leakage tests to determine the rate of air leakage through joint systems resulting from a specified air pressure difference applied across the surface of the joint systems.

1.4 Under these requirements a joint system is subjected to a standard fire exposure controlled to achieve specified temperatures throughout a specified time period. This exposure by itself is not intended to be representative of all fire conditions; conditions vary with changes in the amount, nature and distribution of fire loading, ventilation, compartment size and configuration, and heat sink characteristics of the compartment.

1.5 All joint systems are cycled through their intended range of movement prior to fire exposure to demonstrate the joint system's range of movement and the impact of the joint system during movement on the adjacent fire resistive structures. Joint systems are required to be loaded to their designed live load capacity during the fire test. For tests of wall-to-wall and head-of-wall joint systems, the fire test is followed by the application of a specified standard hose stream.

1.6 These requirements cover the measurement of the transmission through the joint system of heat and gases sufficiently hot to ignite cotton waste.

1.7 These requirements provide a relative measure of fire performance of comparable assemblies under these specified fire exposure conditions. Any variation from the construction or conditions that are tested, such as method of assembly and materials, is not within the scope of this test method.

1.8 Tests for evaluating the suitability of poured or formed-in-place materials for use in joint systems under non-fire conditions are found in the Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle), ASTM C719.

1.9 Tests for evaluating the suitability of joint systems other than those with poured or formed-in-place materials under non-fire conditions are found in the Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems, ASTM E1399/E1399M.

1.10 Tests for determining the hourly fire endurance ratings of walls and floors are found in the Standard for Fire Tests of Building Construction and Materials, UL 263. Standard UL 263 shall be permitted to be used to determine the hourly fire endurance rating of walls and floors with control joints.

1.11 Tests for determining the surface burning characteristics of building materials, based on the rate of flame spread, are found in the Standard for Test for Surface Burning Characteristics of Building Materials, UL 723.

1.12 The results of these tests represent one factor in assessing fire performance of joint systems. These requirements prescribe a standard fire exposure for comparing the performance of joint systems. Application of these test results to predict the performance of actual building construction requires careful evaluation of test data.

1.13 The method of testing also includes optional air leakage tests to determine the rate of air leakage through fire resistive joint systems resulting from a specified air pressure difference applied across the surface of the systems. The results obtained from the optional air leakage tests are expressed in cubic feet per minute (cubic meter per second) per lineal foot (lineal meter) of opening. The results are intended to develop data to assist authorities having jurisdiction, and others, in determining the acceptability of joint systems with reference to the control of air movement through the assembly.

1.14 The method of testing also includes optional water leakage tests to determine the ability of fire resistive joint systems to resist the passage of water under a three foot pressure head. This method does not evaluate the ability of uncured joint systems to resist such exposure.

1.15 An L rating may also be established for a fire resistive joint system. The L rating is based on the amount of air leakage through the test sample.

1.16 A W rating may also be established for a fire resistive joint system. The W rating is based on the water resistance of the test sample.

2 Units of Measurement

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

3 Undated References

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.

4 Glossary

4.1 For the purpose of this standard the following definitions apply.

4.2 **CONTROL JOINT** – A device or designed feature that provides a continuous transition in linear openings within a fire resistive structure and that does not exceed a maximum joint width of 5/8 in (16 mm). A control joint system consists of the device or designed construction feature but does not include the fire resistive structure in which it is installed.

4.3 **FIELD SPLICE** – The technique utilized at the point of installation to join two or more lengths of a joint system or a joint system component material.

4.4 **JOINT SYSTEM** – A device or designed construction feature that provides a continuous transition in linear openings between adjacent fire resistive structures. A joint system consists of the device or designed construction feature but does not include the fire resistive structure in which it is installed.

4.5 **LINEAR OPENING** – A discontinuity between or within fire resistive structures.

4.6 **MANUFACTURED SPLICE** – The technique utilized at the point of manufacture to join two or more lengths of a joint system component material.

4.7 MAXIMUM JOINT WIDTH – The greatest width to which the joint system is designed to extend taking into consideration all axes of movement.

4.8 MINIMUM JOINT WIDTH – The narrowest width the joint system is designed to accommodate.

4.9 MOVEMENT CAPABILITY– The range of movement that a joint system is designed to accommodate without diminishing its fire resistive performance.

4.10 NOMINAL JOINT WIDTH – The width of the linear opening specified in practice and in which the joint system is installed.

4.11 STRUCTURE – The fire resistive floor and/or wall segments between which the joint system is installed.

4.12 TEST ASSEMBLY– The complete assembly of the joint system and the structure in which it is installed.

TEST ASSEMBLY

5 General

5.1 The structure and joint system are to be representative of the construction for which fire endurance rating is desired with respect to materials, workmanship, and details such as dimensions of parts. The joint system is to be installed in accordance with the manufacturer's specified fabrication procedure for conditions representative of those found in building construction.

5.2 Multiple joint systems shall not be installed and tested simultaneously in a test assembly unless adequate separation is maintained between adjacent joint systems to prevent the influence of one joint system on another. For horizontal assemblies, the minimum separation between adjacent joint opening edges is to be 24 in (610 mm). For vertical assemblies, the minimum separation between adjacent joint opening edges is to be 18 in (457 mm). Reduction of the minimum separation distances is acceptable when it is demonstrated the reduced separation distance does not affect test results.

5.3 A joint system shall have a manufactured splice and a field splice tested. When the technique of the manufactured splice is the same as the field splice, only the field splice need be tested. The minimum distance that a splice has to the nearest furnace wall is to be 12 in (305 mm). The minimum separation between splices in a joint system shall be 36 in (914 mm). Reduction of the minimum separation distances is acceptable when it is demonstrated the reduced separation distance does not affect test results.

5.4 A joint system is to be tested at the maximum joint width.

5.5 Joint systems that are designed to be load bearing are to have a superimposed load applied to the joint system throughout the fire test. The superimposed load is to simulate the maximum design load for the joint system.

6 Floor-to-Floor Joint Systems

6.1 Floor-to-floor joint systems are designed for installation in linear openings between adjacent floor structures. The minimum distance that a joint system has to be the nearest furnace wall parallel with its length shall be 1-1/2 times the thickness of the floor or 12 in (305 mm), whichever is greater.

6.2 The minimum length of the joint system exposed to fire is to be 36 in (914 mm) if the length of the joint system exposed to fire is at least ten times greater than the maximum joint width. For joint systems