



Designation: E3090/E3090M – 17

Standard Test Methods for Strength Properties of Metal Ceiling Suspension Systems¹

This standard is issued under the fixed designation E3090/E3090M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

In the past mechanical properties of metal ceiling suspension systems have been buried in other standards such as Specification C635 and Practice E580. This test method is an attempt to pull all testing requirements into one document.

1. Scope

1.1 These test methods cover metal ceiling suspension systems used primarily to support acoustical tile, acoustical lay-in panels, or suspended T-bar type ceiling systems.

1.2 These test methods cover the determination of strength properties of suspended ceiling grid system components as follows:

Tests	Subsections
Load Carrying Capacity	5.1
Connection Strength in Tension	5.2.2; 5.2.4
Connection Strength in Compression	5.2.3; 5.2.5
Wire Pullout Resistance	5.3

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *The following safety hazards caveat pertains only to the test methods described in this specification. This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ These test methods are under the jurisdiction of ASTM Committee E33 on Building and Environmental Acoustics and are the direct responsibility of Subcommittee E33.04 on Application of Acoustical Materials and Systems.

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2. Referenced Documents

2.1 *ASTM Standards:*²

C634 Terminology Relating to Building and Environmental Acoustics

C635 Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

E580 Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint

E631 Terminology of Building Constructions

3. Terminology

3.1 For terminology relating to Building and Environmental Acoustics, see Terminology C634.

3.2 For terminology relating to Building Constructions, see Terminology E631.

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *carrying channel, n*—metal section that supports the entire structural grid network in some forms of mechanical ceiling suspension systems.

3.3.1.1 *Discussion*—The carrying channels are usually suspended by hanger wires from the existing structure and the main runners are then attached to the channels.

3.3.2 *ceiling suspension system, n*—the entire network or grid of structural components, as defined by the ceiling suspension system manufacturer, that provides support for acoustical ceiling tile, acoustical ceiling panels, lighting fixtures, flexible sprinkler hose fittings and air diffusers.

3.3.2.1 *Discussion*—The manufacturer of the ceiling suspension system will define/designate which elements of the system are the structural components.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.