



Standard Test Methods for Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-In Ceiling Panels¹

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INTRODUCTION

Materials used for absorbing sound generally have a porous, low-density structure. In comparison with many building materials they are relatively fragile. Materials are available that possess adequate strength and stability and at the same time provide good sound absorption. The test methods described here cover procedures for evaluating those physical properties related to strength. The methods are of use in developing, manufacturing, and selecting acoustical tile or lay-in panels.

Keep in mind that a property related to strength is only one of several considerations important in judging the usefulness of an acoustical material. For example, a material judged to be quite weak by one of these tests is still desired for other reasons, and with adequate precautions, is shipped and installed successfully.

1. Scope

1.1 These test methods cover the determination of the strength properties of prefabricated architectural acoustical tile or lay-in ceiling panels as follows:

Tests	Sections
Hardness	4 to 9
Friability	10 to 16
Sag	17 to 23
Transverse strength	24 to 30

1.2 Not all of the tests described in these test methods are necessary to evaluate any particular product for a specific use. In each instance, it is necessary to determine which properties are required.

1.3 These test methods specify procedures that are used in product development, manufacturing control, specification acceptance, and service evaluation.

1.4 Properties determined by these test methods reflect the performance of the materials under the specific conditions of the test, and do not necessarily indicate performance under conditions other than those specified herein.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system

shall be used independently of the other. Combining values from the two systems will result in non-conformance with the standard.

1.6 *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.*

2. Referenced Documents

- 2.1 *ASTM Standards*²
C634 Terminology Relating to Building and Environmental Acoustics

3. Terminology

- 3.1 Terms defined in Terminology **C634**.

- 3.1.1 *acoustical material*
3.1.2 *sound absorption*

- 3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *fissures*—irregular depressions of varying lengths widths, and depths extending below the basic product face.

3.2.2 *friable*—easily crumbled.

3.2.3 *sag*—deviation of the acoustical tile or panel at its geometric center from the plane formed by the edges.

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 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.