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Standard Classification for Acoustical Ceiling Products¹

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This standard has been approved for use by agencies of the Department of Defense.

^ε1 NOTE—1.4, units of measure statement, was editorially inserted and 3.2.10 and 8.1.2.3 were editorially updated in May 2010.

1. Scope

1.1 This classification covers ceiling products that provide acoustical performance and interior finish in buildings. Products used in performance spaces and other special applications may require more detailed specification than provided by this classification.

1.2 This classification classifies acoustical ceilings by type, pattern, and certain ratings for acoustical performance, light reflectance, and fire safety. It does not cover the aspects of acoustical ceilings when used as a component of a system or assembly tested for fire endurance or floor/ceiling sound transmission.

1.3 This classification does not include physical properties, such as structural hardness, friability, sag, linear expansion and contraction, and transverse strength, which may affect the handling, installation, and use of acoustical ceiling products (see Test Methods C367).

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 ASTM Standards:²

- C367 Test Methods for Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-In Ceiling Panels
- C423 Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- C634 Terminology Relating to Building and Environmental Acoustics

¹ This classification is under the jurisdiction of ASTM Committee E33 on Building and Environmental Acoustics and is 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.

- E84 Test Method for Surface Burning Characteristics of Building Materials
- E413 Classification for Rating Sound Insulation
- E795 Practices for Mounting Test Specimens During Sound Absorption Tests
- E1110 Classification for Determination of Articulation Class
- E1111 Test Method for Measuring the Interzone Attenuation of Open Office Components
- E1414 Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
- E1477 Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers

3. Terminology

3.1 *Definitions*—For definitions of terms used in this classification, see Terminology C634.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *acoustical panel*—a form of a prefabricated sound absorbing ceiling element used with exposed suspension systems.

3.2.2 *acoustical tile*—a form of a prefabricated sound absorbing ceiling element used with concealed or semi-exposed suspension systems, stapling, or adhesive bonding.

3.2.3 *butt*—a joint detail for acoustical tile, butt bevel, or butt square edge, without kerfing of the edges, intended for adhesive bonding to solid backing.

3.2.4 *edge and joint detail*—various edge and joint details are available in accordance with Table 1 and Fig. 1 for acoustical ceiling products.

3.2.5 *excelsior*—long, thin wood shavings.

3.2.6 *fissured pattern*—a surface with irregular depressions of varying lengths, widths, and depths extending below the basic product face.

3.2.7 *flush reveal edge*—acoustical lay-in panels are intended for use in direct hung exposed suspension systems with a narrow exposed edge that is flush with the panel face.

TABLE 1 Edge and Joint Detail, Types I, II, III, IV, VIII, IX, X, XI, and XII

Acoustical Unit	Edge Detail	Joint Detail
Tile	Beveled	Kerfed and Rabbeted or Tongue and Groove or Butt
	Square	Kerfed and Rabbeted or Tongue and Groove or Butt
	Beveled Long Edges, Square Edge Trimmed on Ends	Kerfed and Rabbeted Long Edges Only, Ends Trimmed. (For Semi-concealed System)
Panels	Square	
	Reveal	
	Flush Reveal	
	Narrow Reveal	
	Narrow Flush Reveal	
Metal Pan	Square	
	Reveal	
	Flush Reveal	
	Narrow Reveal	
	Narrow Flush Reveal	
Metal Strip	Varies with Manufacturer	

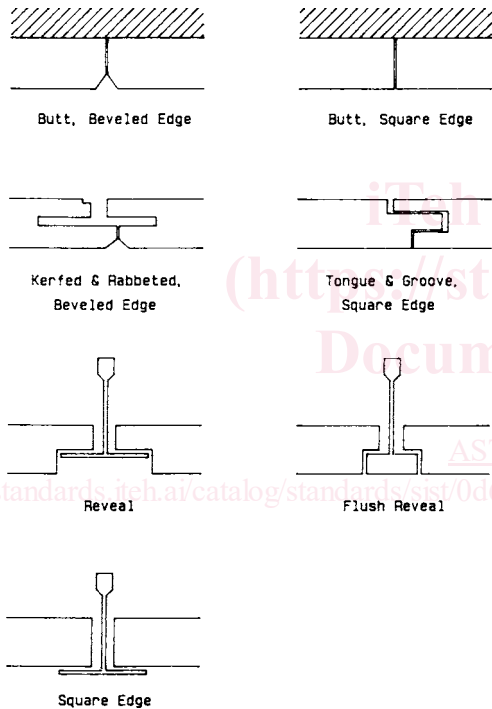


FIG. 1 Edge and Joint Details

3.2.8 *glass fiber base*—ceilings composed principally of glass in fiber form with appropriate binders.

3.2.9 *kerfed and rabbeted*—joint detail for acoustical tile. Tile with kerfed and rabbeted edges on all four sides, with or without beveled edges, are intended for concealed suspension system or adhesive bonding.

3.2.10 *kerfed and rabbeted long edges, ends trimmed*—acoustical tile, 2 ft (609.6 mm) or longer, is intended for installation in semi-exposed, or semi-exposed direct hung suspension systems.

3.2.11 *metal facings (pans)*—metal facing (pan) ceiling systems with mineral or glass fiber base backings are intended

for use where sound absorption is needed and where durable and easily maintainable surfaces are a necessity.

3.2.12 *mineral base*—ceilings composed principally of mineral materials such as fibers manufactured from rock or slag, with or without binders.

3.2.13 *reveal edge*—acoustical lay-in panels with step-down edge are intended for use in direct hung exposed suspension systems.

3.2.14 *square edge*—acoustical lay-in panels with square edges are intended for use in direct hung exposed suspension systems.

3.2.15 *Discussion*—Reveal, flush reveal, and square edged panels are laid in place and can easily be pushed upward for removal or access to the plenum above.

3.2.16 *textured pattern*—granular or raised (fine, coarse, or a blend), felted or matted surface as an integral part of the basic product or superimposed on the product surface.

3.2.17 *tongue and groove*—joint detail for acoustical tile. Tile with tongue and groove edges are intended for stapling, concealed suspension system, or adhesive bonding.

4. Significance and Use

4.1 This classification is used to classify and aid in the selection of acoustical ceiling products.

5. Basis of Classification

5.1 Acoustical ceiling products described using this classification may be of one or more of the following types, forms, patterns, acoustical ratings, light reflectance values, and fire classes, as specified.

5.2 Ceiling Types:

5.2.1 *Type I*—Cellulose base with painted finish.

5.2.2 *Type II*—Cellulose base with membrane-faced overlay.

5.2.3 *Type III*—Mineral base with painted finish.

5.2.3.1 *Form 1*—Nodular.

5.2.3.2 *Form 2*—Water felted.

5.2.3.3 *Form 3*—Dry felted.

5.2.3.4 *Form 4*—Cast or molded.

5.2.4 *Type IV*—Mineral base with membrane-faced overlay.

5.2.4.1 *Form 1*—Nodular.

5.2.4.2 *Form 2*—Water felted.

5.2.4.3 *Form 3*—Dry felted.

5.2.4.4 *Form 4*—Cast or molded.

5.2.5 *Type V*—Perforated steel facing (pan) with mineral or glass fiber base backing.

5.2.6 *Type VI*—Perforated stainless steel facing (pan) with mineral or glass fiber base backing.

5.2.7 *Type VII*—Perforated aluminum facing (pan) with mineral or glass fiber base backing.

5.2.8 *Type VIII*—Cellulose base with scrubbable pigmented or clear finish.

5.2.9 *Type IX*—Mineral base with scrubbable pigmented or clear finish.

5.2.9.1 *Form 1*—Nodular.

5.2.9.2 *Form 2*—Water felted.

5.2.9.3 *Form 3*—Dry felted.