

SC-1412 Specifications Ceiling Specification (GLACIER™ ACOUSTONE® Acoustical Ceilings)

R-Value

Maximum thermal performance from backloaded insulation requires minimizing the quantity and size of openings in the ceiling. To increase R-values of ceilings with backloaded insulation, surface-mounted ceiling fixtures are recommended. For ACOUSTONE® GLACIER™ ceilings, maximum allowable backloading is .75 lbs. per ft.² (3.66 kg/m²).

Roll insulation (maximum R-19) must be applied perpendicular to the cross tees with the grid supporting the weight of the insulation.

Thermal insulation should not be installed on the back of the panels in a fire-rated ceiling unless so designated in a specific design assigned to the structure.

Backloaded insulation is not recommended in ceilings with return air plenums or where plumbing in the plenum might freeze due to low temperatures. In some low temperature conditions, a vapor barrier might be required to eliminate moisture condensation in the plenum. All air ducts should be insulated in accordance with ASHRAE 90-80. A professional engineer must be consulted for plenum venting recommendations to preclude condensation in the plenum.

Color and Surface Variations

Colors are checked by spectrophotometric analysis according to the "L.a.b." chromaticity coordinates system. Color-matching of coatings is considered well within normally accepted commercial tolerance.

Apparent variations in color and surface of ceiling material can result from slight differences in: (1) texture, (2) room lighting, and (3) subjectivity of observers. In any unbroken area of ceiling, all ceiling tile/ceiling panels should be used from the same product lot (indicated by lot number on each carton) to minimize the effect.

Do not use Square Edge Standard Kerf (SESK) tile suspended in concealed systems for ceilings subjected to strong sidelighting.

To minimize apparent variations resulting from strong or critical cross-lighting conditions, avoid installations where most lighting is parallel to the ceiling plane. Initial installations viewed before lighting systems are in use might not appear completely uniform.

Cutting Panels and Tile

If panels and tile must be cut or trimmed and power equipment is used, it must be equipped with a dust collector. (Note: see Material Safety Data Sheet and package label.)

Fire Rating

UL Design fire rating requires: (1) FIRECODE formulation products, (2) fire-rated suspension system, (3) entire ceiling installation as specified in UL Design, (4) ceiling be free of overlaid material not specified in the design.

Measurements

In accordance with industry practice, all ceiling panel/tile dimensions are nominal.

System Performance

USG Interiors, Inc., will provide test certification for published fire, sound and structural data covering systems designed and constructed according to its published specifications. Tests are conducted on Company products assembled to meet performance requirements of established test procedures specified by various agencies. System performance following any substitution of materials or compromise in assembly design cannot be certified and may result in failure under critical conditions.

Do Not Mix Lots

To avoid objectionable texture/color variation, do not mix manufacturing lots in any unbroken ceiling area. The manufacturing lot is designated by a separate 3" x 5" label (i.e., Lot #55).

Opening Cartons

Using a cardboard knife, cut around carton approximately 1" above bottom and gently lift off top to reduce possibility of corner and edge damage.

Adhesive Application

Apply tile with an adhesive manufactured specifically for this purpose, in accordance with the manufacturer's directions, and/or as follows: Brush off any loose dust from tile back surfaces and prime them where adhesive is to be applied. This lays down any residual dust to insure good adhesion. Prime only a 2-3" (50-75 mm) circle near each corner by buttering a very thin coat of adhesive with trowel blade at a 45° angle. Then apply a walnut-sized dab of adhesive to each of the 4 circles and press tile firmly in place. Insert splines in kerfs at corners of units to obtain a level appearance and to minimize lipping.

Note: Foil-backed ACOUSTONE tile should not be adhesively applied.

Installation Tips

1. Install tile from a single carton at a time, working from the same pallet when possible. To avoid checkerboarding, do not intermix GLACIER tile from several cartons while installing.
2. As an installation guide, there is a directional notch along one edge of each tile.
3. Install tile so that fissure openings are facing towards you as you view the ceiling from the area that it will be most commonly viewed (i.e., entrance to room or building). To accomplish this, the directional notch of the installed tile should be on the left side as you are viewing the ceiling from

- this location.
4. Minor sorting may be necessary to obtain a more uniform appearance. Minor sorting consists of visually comparing surface textures of one tile from each carton before installing in an unbroken ceiling area. Cartons that exhibit slightly different surface textures should be utilized in less critical areas.
 5. GLACIER tile performs best when installed in ceiling heights below 12' (3600 mm). GLACIER tile is not recommended in critical light installations above 12' (3600 mm) or in sloped ceiling applications.

Note to specifier: The following specification for USG Interiors, Inc., ceiling tile/ceiling panels is a guide in the preparation of a project specification for an interior fire-rated or non-fire-rated ceiling system. Delete such items that are not related to the particular project. Where blank spaces occur, provide information incidental to the particular project for which the specification is prepared.

The International System of Units (Metric Units) is available on request.

Section 9

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Related work specified elsewhere:
 1. Insulation: Section.
 2. Mechanical equipment: Section.
 3. Electrical: Section.
 4. Gypsum board systems: Section.
 5. Ceiling suspension systems: Section.
- B. Work installed but furnished under other sections: (include applicable requirements).
- C. Work furnished but installed under other sections: (include applicable requirements).

1.02 SYSTEM DESCRIPTION

Tile: Suspended ceiling system consisting of ACOUSTONE GLACIER acoustical tile, ceiling suspension system, air diffusers and light fixtures. System shall be rated NRC () in accordance with ASTM C423 and CAC () in accordance with AMA 1-II as tested by an independent agency.

FIRECODE Tile: Suspended (non-fire-rated) (fire-rated) ceiling system consisting of ACOUSTONE GLACIER acoustical tile, ceiling suspension system, air diffusers and light fixtures. System shall be rated NRC () in accordance with ASTM C423 and CAC () in accordance with AMA 1-II as tested by an

independent agency.

Panels: Suspended ceiling system consisting of ACOUSTONE GLACIER acoustical panels, ceiling suspension system, air diffusers and light fixtures. System shall be rated NRC () in accordance with ASTM C423 and CAC () in accordance with AMA 1-II as tested by an independent agency.

FIRECODE Panels: Suspended (non-fire-rated) (fire-rated) ceiling system consisting of ACOUSTONE GLACIER acoustical panels, ceiling suspension system, air diffusers and light fixtures. System shall be rated NRC () in accordance with ASTM C423 and CAC () in accordance with AMA 1-II as tested by an independent agency.

1.03 DELIVERY AND STORAGE OF MATERIALS

- A. All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements.
- B. Storage time of ACOUSTONE ceiling material at the jobsite should be as short as possible, and environmental conditions should be as near as possible to those specified for occupancy (see no. 1.04 below). Excess humidity during storage can cause expansion of material and possible warp, sag or poor fit after installation. Chemical changes in the mat and/or coatings can be aggravated by excess humidity and cause discoloration during storage, even in unopened cartons. Cartons should be removed from pallets and stringers to prevent distortion of material. Long-term (6-12 months) storage under uncontrolled environmental conditions should be avoided.
- C. Damaged or deteriorated materials should be removed from the premises. Immediately before installation, panels and tile shall be stored for a sufficient time to stabilize them at temperature and humidity conditions ambient during installation and anticipated for occupancy.

1.04 ENVIRONMENTAL CONDITIONS

- A. Installation of ACOUSTONE acoustical tile and panels shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
- B. Do not use ACOUSTONE ceiling tile/ceiling panels in extreme or continuous high humidity, or areas exposed directly to weather or water. Ceiling tile/ceiling panels are sized and designed for use within the standard occupancy range of temperature and humidity, 65-85°F, (18-29°C) no more than 75% RH. Humidity can greatly affect product dimensional stability and sag resistance. Sag can become

noticeable during periods of high humidity lasting only a few hours.

- C. Allow time for dimensional changes in ACOUSTONE ceiling tile/ceiling panels stored at temperature/humidity conditions well outside of those recommended for service. With increases in temperature/humidity, these products expand (up to 1/64 in./ft. {4.3 mm/m} at 85°F {29°C}/90% RH) and may not fit into a fixed grid. Conversely, with decreases, these products will be undersize, but expand to normal when standard ambient conditions return.
- D. For some patterns, if perimeter panels must be cut smaller, the abutting edge must be field-rabbetted or the wall angle must be lowered 3/16" (19 mm).

1.05 QUALITY ASSURANCE

- A. Subcontractor qualifications: Installer shall have successful experience in the installation of suspended ceiling systems on projects with requirements similar to requirements specified.
- B. Requirements of regulatory agencies: Codes and regulations of authorities having jurisdiction.
- C. Source quality control:
 - 1. Test reports: Manufacturer will provide test certification for minimum requirements as tested in accordance with applicable industry standards and/or to meet performance standards specified by various agencies.
 - 2. Changes from system: System performance following any substitution of materials or change in assembly design must be certified by the manufacturer.

1.06 REFERENCES

- A. ASTM C635 and C636: Manufacturing and Installation of Suspended Ceilings.
- B. Underwriters Laboratories, Inc.: Fire Resistance Directory, Design ().
- C. ASTM E119: Fire Tests of Building Construction and Materials.
- D. ASTM C423: Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- E. CISCA Ceiling Systems Installation Handbook.

1.07 SUBMITTALS

- A. Samples: Submit representative sample of color and finish of all

exposed materials.

- B. Shop drawings:
 - 1. Ceiling plans: Indicate layout arrangement of ceiling design, dimensions and locations of related integrated lighting and air distribution components.
 - 2. Installation drawings: Detail complete installation including suspension system, installation of related lighting and air distribution components, access requirements, sound absorption requirements, and fire rating requirements when applicable.
 - 3. Manufacturer's data: Submit manufacturer's catalog cuts or standard drawings showing details of system with project conditions clearly identified and manufacturer's recommended installation instructions.
 - 4. Maintenance materials: Submit one percent of amount of ceiling components installed.

1.08 PROJECT CONDITIONS

- A. Existing conditions: (include specific alteration work requirements for project).
- B. Environmental requirements for interior installation: Building shall be enclosed with windows and exterior doors in place and glazed, and roof watertight before installation of ceiling system and related ceiling components. Climatic condition range of 60-85°F (16-29°C).
- C. Coordination with other work:
 - 1. Mechanical work: Ductwork above ceiling shall be complete, and permanent heating and cooling systems operating to climate conditions prior to installation of ceiling components.
 - 2. Electrical work: Installation of conduit above ceiling shall be complete before installation of ceiling components.
 - 3. Fire protection work: Fire protection lines and/or equipment occurring above ceiling shall be completed and tested before ceiling components are installed.
- D. Protection: Protect completed work above ceiling system from damage during installation of ceiling components.

PART 2 PRODUCTS

2.01 MANUFACTURER

Ceiling (tile) (panels) as manufactured by USG Interiors, Inc., Chicago, Illinois, U.S.A.

2.02 MATERIALS

*ACOUSTONE GLACIER mineral fiber ceiling tile having distinctive rough textured surface, White, (with optional plastic coating).

- A. Tile
 - 1. Item 701, 3/4" x 12" x 12", Square edge standard kerf, NRC .70-.80, CAC 25-29.
- B. FIRECODE Tile, approved for UL Design No. ()
 - 1. Item 713, 3/4" x 12" x 12", Square edge standard kerf, NRC .75-.85, CAC 35-39.

ACOUSTONE GLACIER mineral fiber ceiling panels having distinctive rough textured surface, ([] color) (White, [with optional plastic coating]). Panels shall be manufactured to resist scratches and nicks. Panels shall be foil-backed.

- A. Panels,
 - 1. Item 706, 3/4" x 2' x 2', Square edge, NRC .65-.75, CAC 35-39.
 - 2. Item 764, 3/4" x 2' x 4', Square edge, NRC .65-.75, CAC 35-39.
 - 3. Item 707, 3/4" x 2' x 2', Shadowline edge, NRC .65-.75, CAC 40-44.
 - 4. Item 711, 3/4" x 2' x 4', Shadowline edge, NRC .65-.75 CAC 40-44.
 - 5. Item 708, 3/4" x 2' x 2', Fineline edge, NRC .65-.75, CAC 40-44, (CAC 45-49 available on request).
 - 6. Item 789, 3/4" x 2' x 2', Fineline edge, NRC .65-.75, CAC 45-49.
- B. FIRECODE Panels, approved for UL Design No. (),
 - 1. Item 714, 3/4" x 2' x 2', Square edge, NRC .65-.75, CAC 35-39.
 - 2. Item 715, 3/4" x 2' x 2', Shadowline edge, NRC .65-.75, CAC 35-39.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine areas to receive ceiling tile/ceiling panels for conditions that will adversely affect installation. Provide written report of discrepancies.
- B. Do not start work until unsatisfactory conditions are corrected.
- C. Work to be concealed: Verify work above ceiling is complete and installed in manner that will not affect layout and installation of ceiling tile/ceiling panels.
- D. Beginning of installation shall signify acceptance of conditions in areas to receive ceiling tile/ceiling panels.
- E. Fire-rating requirements: Construction above fire-rated assembly shall meet requirements of UL Design specified in PART 2 PRODUCTS.

3.02 PREPARATION

- A. Field dimensions must be verified prior to installation.

3.03 INSTALLATION

- A. Standard reference: Install ceiling tile/ceiling panels and suspension system, including necessary hangers, grillage, splines and other supporting hardware, in accordance with ASTM C636.
- B. Manufacturer's reference: Install ceiling panels in exposed grid systems, supported on all edges, in accordance with manufacturer's current printed recommendations.
- C. Drawing reference: Install ceiling tile/ceiling panels in accordance with approved shop drawings.

3.04 CLEANING

- A. Maintenance: Panels can be cleaned with soft brush or vacuum.
- B. Repainting: Spray a thinned, nonbridging vinyl-acrylic flat wall paint. The type of paint selected and the method of application can alter the acoustical performance and fire ratings of any acoustical product. Therefore, USG Interiors cannot guarantee that the modified panels or tile will match the published performance.

Find additional architectural specifications in current Ceiling Systems catalog, SA-905, available from USG Interiors, Inc., and included in Section 09500 of two Sweet's Catalog Files: General Building and Renovation, and Contract Interiors.

*Similar-sized metric products are available and can be ordered by adding "ME" before the item number.