THIS SECTION IS BASED ON **ROCKFON TROPIC®** STONE WOOL CEILING PANELS.

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

B. Related Requirements:
1. Section 095113 "Acoustical Panel Ceilings" for ceilings consisting of acoustical panels and exposed suspension systems for interior ceilings.

1.2 SUMMARY

A. Section Includes: Provide suspended ceiling acoustical ceiling panels including but not limited to:
1. Acoustical Ceiling Panel.

B. Related Sections:
1. Section 09 21 16, Gypsum Board Ceilings.
2. Section 09 52 23, Metal Acoustical Ceiling Suspension Assemblies.
3. Section 09 53 00, Acoustical Ceiling Suspension Assemblies
4. Section 09 54 00, Specialty Ceilings.
5. Section 09 58 00, Integrated Ceiling Assemblies.
6. Section 13 48 00, Sound, Vibration, and Seismic Control.
7. Section 23 50 00, Central Heating Equipment.
8. Section 26 50 00, Lighting.

1.3 REFERENCE

A. Abbreviations and Acronyms:

1. ASCE: The American Society of Civil Engineers
2. ASTM: American Society for Testing and Materials
3. CISCA: Ceilings & Interior Systems Construction Association; www.cisca.org.
4. IBC: International Building Code
5. International WELL Building Standard
6. LEED: Leadership in Energy and Environmental Design (set of rating systems for the design, construction, operation, and maintenance of green buildings)
7. LBC: Living Building Challenge

B. Reference Standards:

1. ASTM C367	Standard Test Methods for Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-In Ceiling Panels
2. ASTM C423	Standard Test Method for Soud Absorption and Sound Absorption Coefficients by the Reverberation Room Method
3. ASTM C635	Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

4. ASTM C636	Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
5. ASTM C1338	Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
6. ASTM D1308	Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems
7. ASTM D3273	Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
8. ASTM D4828	Standard Test Methods for Practical Washability of Organic Coatings
9. ASTM D6329	Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers
10. ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials
11. ASTM E119	Standard Test Methods for Fire Tests of Building Construction and Materials
12. ASTM E580/E580M	Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions
13. ASTM E795	Practice for Mounting Specimens During Sound Absorption Tests
14. ASTM E1111	Standard Test Method for Measuring the Interzone Attenuation of Open Office Components
15. ASTM E1264	Standard Classification for Acoustical Ceiling Products
16. ASTM E1414/E1414M	Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
17. ASTM E1477	Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers
18. ICC-ES / ESR 2631	International Code Council-Evaluation Services -ESR 2631 Rockfon Chicago Metallic Corporation Suspended Ceiling Framing Systems and Suspension Ceiling Systems
19. ICC ES AC 156	Acceptance Criteria for Seismic Certification by Shake-Table Testing of Non-structural Components
20. UL 2818	GREENGUARD Certification Program for Chemical Emissions for Building Materials, Finishes and Furnishings

21. Health Product Declaration Standards
22. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.2 2017

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Conference: Conduct conference at [Project site]. Agenda includes Project conditions, coordination with work of other trades, and layout of items which penetrate ceilings.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's Product Data, including maintenance data

Sustainable Design Requirements

1. Environmental Product Declaration
2. Health Product Declarations – 1000 ppm
3. UL GREENGUARD Gold – CDPH Standard Method v1.2 (2017)
4. Declare Label: The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Approved (less than 1 percent proprietary ingredients
5. Extended Producer Responsibility Program – Rockcycle
6. Mold and mildew resistance per ASTM D3273 [Level 10 – No Mold Growth] and ASTM C1338 [Pass – No Fungal Growth].

B. Samples for Initial Selection: For components with factory-applied finishes.

C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:

1. Acoustical Panels: Set of [full-size] [6 by 6 inches] Inches Samples of each type, color, pattern, and texture.
2. Exposed Suspension-System Members, Moldings, and Trim: Submit samples of main tee and cross tee with couplings.
3. Clips: Full-size [hold-down] [impact] [and] [seismic] clips.

D. Delegated Design Submittals: For seismic restraints for suspended ceiling systems.

1. Include design calculations for seismic restraints including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension-system members.
2. Structural members to which suspension systems will be attached.
3. Method of attaching hangers to building structure.
4. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
5. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
6. Size and location of initial access modules for acoustical panels.
7. Items penetrating finished ceiling and ceiling-mounted items including the following:
    a. Lighting fixtures.
    b. Diffusers.
    c. Grilles.
    d. Speakers.
    e. Sprinklers.
    f. Access panels.
    g. Perimeter moldings.
    h. other items as required

8. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
9. Minimum Drawing Scale: [1/4 inch = 1 foot (1:48)] [1/8 inch = 1 foot (1:96)] [1:50] [1:100].

B. Qualification Data: For testing agency.
C. Product Test Reports: For each acoustical panel ceiling, for tests performed by [manufacturer and witnessed by a qualified testing agency] [a qualified testing agency].
D. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type], from ICC-ES.
E. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Single-source responsibility: Provide acoustical panel units and grid components by a single manufacturer.
B. Mock-ups: Build mock-ups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
1. Build mock-up of typical ceiling area as indicated on Drawings.
C. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless Architect specifically approves such deviations in writing.
D. Subject to compliance with requirements, approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion

1.8 DELIVERY, STORAGE, AND HANDLING

Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

1.9 CLOSEOUT SUBMITTALS

Operational and Maintenance Data: Submit maintenance instructions to Owner for recommended cleaning materials and methods for panels and trim. Include precautions for use of and composition of cleaning materials detrimental to acoustic panels and trim.

1.10 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials [from the same product run] that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Panels: Full-size panels equal to percent of quantity installed.
2. Suspension-System Components: Quantity of each exposed component equal to percent of quantity installed.
3. Hold-Down Clips: Equal to percent of quantity installed.
4. Impact Clips: Equal to percent of quantity installed.

1.11 WARRANTY

A. **Warranty Period:**
Acoustical Panels Manufacturer Warranty: Submit a written warranty executed by manufacturer for a period of **30 years** from date of Substantial Completion, agreeing to repair or replace acoustical tile that fails or is compromised within the specified warranty period. The warranty does not cover any damage or change to the Products resulting from improper material handling or

storage, water, moisture, fire, chemical fumes, bacteria, mold, fungi, wind, accident, disaster, non-intended use, improper installation, abuse, or failure of other system components or modification.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Source Limitations for Ceiling System: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Acoustical panels to comply with the requirements of UL GREENGUARD GOLD Certification for both school and office scenarios and the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers
B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design seismic restraints for suspended ceiling systems.
C. Seismic Performance: Suspended ceiling systems to withstand the effects of earthquake motions determined in accordance with [ASTM E580/E580M-22].
D. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: [Zero] Class A in accordance with ASTM E84.
2. Smoke-Developed Index: [5] Class A in accordance with ASTM E84.

E. Humidity Resistance: Ensure that acoustical panels are dimensionally stable at up to 100 percent relative humidity at temperatures ranging from 32 to 104 deg. F (0 to 40 deg. C) without having to acclimatize panels and tested to ASTM C367.
F. Chemical avoidance – no added antimicrobials to the stone wool substrate.
G. Stone wool is inherently resistant to mold and mildew without added antimicrobials. Both the surface and substrate were tested to:
    a. ASTM D3273 (Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings)
    b. ASTM C1338 (Standard Test Method for Determining Fungi Growth Resistance of Insulation Materials and Facings)
H. Closed loop recycling at end of life

2.3 ACOUSTICAL PANELS

A. Manufacturer**:** Rockfon® 4849 South Austin Avenue, Chicago, IL 60638. 1-800-323-7164; www.rockfon.com.

B. Basis-of-Design Product: Subject to compliance with requirements, provide **Rockfon Tropic®** Stone Wool ceiling tiles.

1. Material: Stone Wool
2. ASTM E1264 Classification: ASTM E1264 (2022) : Type IV, Form 3, Pattern E
   ASTM E1264 (2023): Type A, Form A2.3, Pattern E
3. Panel Size: [24 by 24 inches], [24 by 48 inches], [20 by 60 inches],
4. Module Panel Size (For fixture installation): [4 by 24 inches], [4 by 48 inches]
5. Edge/Joint Detail: [Square Lay In SQ] [Square Tegular SL] [Square Narrow Tegular SLN]
6. Thickness: [5/8 inch] [3/4 inch]
7. Color: White
8. Light Reflectance (LR): 0.85
9. Noise Reduction Coefficient (NRC) : [0.85] [0.90]
10. Fire Class: Class A in accordance with [UL 723 ASTM E84]:
    Flame Spread Index: [zero]
    Smoke Developed Index: [5]
11. Sag and warp resistant in 100% relative humidity and tested to ASTM C367.
12. Thermal Resistance: R 2.17 hr.ft².°F/Btu per 5/8 inch (I-P)
    R 0.38 m².K/W per 15.9 mm (SI)

2.4 CEILING SUSPENSION SYSTEMS

A. Install ceiling panels using the appropriate Chicago Metallic Brand Ceiling Suspension System, based upon the panel edge type
   1. Square Lay-In (SQ):
      a. Products (15/16"): Chicago Metallic® 15/16” [200], [1200], [250], [260/280], [1260/1280], [G90], [830 All Aluminum], [730 Stainless Steel], [Barrier Grid]
      b. Products (9/16”): Chicago Metallic® 9/16” Tempra [4000] series.
   2. Square Tegular (SL):
      a. Products (15/16”): Chicago Metallic® 15/16” [200], [1200], [250], [260/280], [1260/1280], [G90], [830 All Aluminum], [730 Stainless Steel], [Barrier Grid]
   3. Square Narrow Tegular (SLN):
      a. Products (9/16”): Chicago Metallic® 9/16” Tempra [4000] series, Ultraline 9/16” [4500, 4600], Integrity 9/16” [4200]

B. Structural Class: ASTM C635 Heavy Duty, Intermediate Duty, or Light Duty
C. Material: G30 HDG Steel with baked enamel finish (Unless otherwise noted)
D. Color: White
E. Perimeter Trim: Angles, shadow moldings, and channels by Chicago Metallic®. Rockfon Infinity™ extruded aluminum trim for cloud suspension.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
C. Proceed with installation only after unsatisfactory conditions have been corrected

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated and comply with layout shown on reflected ceiling plans.
B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION OF ACOUSTICAL PANEL CEILINGS

A. Install acoustical panel ceilings and Suspended Grid System in accordance with ASTM 6/C636M, ASTM E580 [seismic design requirements], manufacturer’s written instructions and CISCA’s “Ceiling System Handbook”
B. Coordinate panel installation and panel type with grid suspension. Tegular edge panels should be field cut and revealed at perimeter walls.

3.4 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touch up of minor finish damage.
B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.