SECTION 09.51.00
SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Suspended metal grid ceiling system.
B. Acoustical units.

1.02 RELATED REQUIREMENTS
A. Section 07.21.00 - Thermal Insulation: Acoustical insulation.
B. Section 07.92.00 - Joint Sealants: Acoustical sealant.

1.03 REFERENCE STANDARDS
D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS
A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Shop Drawings: Indicate grid layout and related dimensioning.
C. Product Data: Provide data on suspension system components.
D. Samples: Submit two samples 5 by 5 inch in size illustrating material and finish of acoustical units.
E. Samples: Submit two samples each, 6 inches long, of suspension system main runner.
F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01.60.00 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 TENNESSEE SUSTAINABLE DESIGN GUIDELINES COMPLIANCE DOCUMENTATION
B. Provide documentation of construction waste diverted from landfills:
   1. Compliance with Credit 1.02-D-2: Construction Waste Management.
C. Submit shop drawing documentation demonstrating SDG compliance for the following:
   1. Compliance with Credit 1.02-D-3-a: Sustainable Materials - Recycled content 10%
   2. Compliance with Credit 1.02-D-3-b: Sustainable Materials - Rapidly renewables
   3. Compliance with Credit 1.02-D-3-c: Sustainable Materials - Certified wood
   4. Compliance with Credit 1.02-D-3-d: Sustainable Materials - Material reuse
   5. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Adhesive and Sealants
   6. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Paints
   7. Compliance with Credit 1.02-E-6-b: Material VOC Limits - Coatings and Anti-corrosive paints
   8. Compliance with Credit 1.02-E-6-c: Material VOC Limits - Flooring systems
   9. Compliance with Credit 1.02-E-6-d: Material VOC Limits - Composite wood and agrifiber

D. Submit documentation of quantity and material cost with monthly Application for Payment to the Contractor.

1.07 QUALITY ASSURANCE
   A. Fire-Resistive Assemblies: Complete assembly listed and classified by UL (FRD) for the fire resistance indicated.
   B. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
   C. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.08 FIELD CONDITIONS
   A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Acoustic Panels:
      4. Substitutions: See Section 01.60.00 - Product Requirements.
   B. Suspension Systems:
      1. Same as for acoustical units.
      2. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 ACOUSTICAL UNITS
   A. Acoustical Units - General: ASTM E1264, Class A.
   B. Basis of Design - See Acoustical Tile Schedule Below.

2.03 SUSPENSION SYSTEM(S)
   A. Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.
   B. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.
      1. Profile: Tee; 9/16 inch wide face.

CONSTRUCTION DOCUMENTS PACKAGE
REVISED: 30-DEC-15
C. Exposed Steel Suspension System Type: Formed steel, commercial quality cold rolled; intermediate-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Finish: White painted for white ceiling tiles and black for black ceiling tiles.

2.04 ACCESSORIES
A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
B. Perimeter Moldings: Same material and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
C. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.
D. Gasket For Perimeter Moldings: Closed cell rubber sponge tape.
E. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify existing conditions before starting work.
B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM
A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
C. Locate system on room axis according to reflected ceiling plan.
D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
E. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.
F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
I. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
J. Do not eccentrically load system or induce rotation of runners.
K. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Install in bed of acoustical sealant.
   2. Use longest practical lengths.
   3. Miter corners.

3.03 INSTALLATION - ACOUSTICAL UNITS
A. Install acoustical units in accordance with manufacturer's instructions.

CONSTRUCTION DOCUMENTS PACKAGE
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B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
C. Fit border trim neatly against abutting surfaces.
D. Install units after above-ceiling work is complete.
E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
F. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.
G. Where round obstructions occur, provide preformed closures to match perimeter molding.
H. Lay acoustical insulation for a distance of 48 inches either side of acoustical partitions as indicated.
I. Install hold-down clips on panels within 20 ft of an exterior door.

3.04 TOLERANCES
A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.05 SCHEDULE
A. AC1: Typical Suites Level - 24" x 24" x 7/8" Tegular with 9/16" Tee grid. NRC of 0.95, CAC of 27, White, equal to Armstrong No. 3259 "Optima". Tiles shall have "Humigard Plus" treatment.
B. AC2: Typical Press Level: 24" x 24" x 5/8" Tegular with 15/16" exposed grid. NRC of 0.55, CAC of 35, White, equal to Armstrong No. 704 "Cortega". Tiles shall have "Humigard Plus" treatment.
C. AC3: Concessions Stands/Prep Kitchens - 24" x 48" x 5/8" Square with 15/16" exposed grid. NRC of 0.55, CAC of 35, White, equal to Armstrong No. 870, "Clean Room VL". Tiles shall have "Humigard Plus" treatment.
D. AC1: All Other Areas - 24" x 48" x 5/8" Square edge with 15/16" exposed grid. NRC of 0.55, CAC of 35, White, equal to Armstrong No. 1761, "Fine Fissured Second Look II". Tiles shall have "Humigard Plus" treatment.

END OF SECTION