

09 80 00 –Acoustical Treatment

DIVISION 9 - Finishes



STATEMENT OF PURPOSE & BACKGROUND

- Scope:
 - Field applied commercial acoustical:
 - Wall panels
 - Ceiling cloud panels
 - Ceiling baffles
 - Fabric facing material
 - Anchoring system
 - Painting of framing/furring
 - Self-supported commercial sprayed cellulose
 - Perforated metal can be considered for certain locations and applications. Coordinate potential applications with Owner and SPPS Project Manager.
 - Refer to Section 09 51 13 Acoustic Panel Ceilings for typical ceiling tile products for general use. This section is intended for special-use applications other than typical ceiling field tile use. It was developed chiefly for installations in existing buildings requiring improved acoustical treatments.
 - Refer to Section 09 83 16 for Acoustic Ceiling Coating.
- Statement of goals:
 - Provide a consistent, high quality acoustical treatment system that is functional, aesthetic and:
 - Is durable, safe, and secure.
 - Reduces operating and replacement costs
 - Is humidity and fire resistant
 - Has light reflective qualities
 - Zero or low formaldehyde emissions
 - Provide a consistent, high quality acoustical treatment system that is based on the following reports:
 - “St. Paul Public Schools Facility Planning: Acoustic Standards” prepared by Derrick Knight.
 - “Managing Noise Problems in Saint Paul Public School Gymnasiums, Cafeterias, Media Centers and Music Classrooms” prepared by SDA Consulting. See SPPS Project Manager for these reports.
- Revision history of section:
 - 04/16/13
 - 11/20/18
 - 05/20/21

SELECTION AND APPLICATION CRITERIA

Space	Ceiling				Wall
	Existing Grid	Metal Structure	Concrete Deck	Plaster/Exist. Adhered	
Band Room (All grade levels)	ACT-8	ACT-9	ACS	ACT-8	FFP
Orchestra Room (All grade levels)	ACT-8	ACT-9	ACS	ACT-8	FFP
Choir Room (All grade levels)	ACT-8	ACT-9	ACS	ACT-8	FFP
Music Classroom – Instrumental/Vocal	ACT-8	ACT-9	ACS	ACT-8	FFP
Drama Classroom	ACT-8	ACT-9	ACS	ACT-8	FFP
Black Box / Little Theatre	ACT-8	ACT-9	ACS	ACT-8	FFP
Auditorium / Assembly	ACT-8	ACT-9	ACS	ACT-8	FFP
Library / Media Center	ACT-8	ACT-9	ACS	ACT-8	FFP
Gymnasium (All grade levels)	ACT-8	ACT-9	ACS	ACT-8	FFP
Multipurpose / P.E.	ACT-8	ACT-9	ACS	ACT-8	FFP
Cafeteria / Dining Area	ACT-8	ACT-9	ACS	ACT-8	FFP

Notes:

- ACT-8 1” fiberglass tile.
- ACT-9 New suspended ceiling system: Metal grid with 1” fiberglass tile.
- ACS Acoustic spray (minimize use). See Section 09 83 16.
- FFP Fabric covered fiberglass panel on furring strips.

ACOUSTIC CRITERIA – TABLE 1

Space	Background Noise Level ^{a)}	Reverberation Time ^{b)}	Sound Transmission Class ^{c)}
Band Room (All grade levels)	Max: 35 dBA Rec: NC-25	Min: 0.6 s Max: 0.9 s	STC-60
Orchestra Room (All grade levels)	Max: 35 dBA Rec: NC-25	Min: 0.8 s Max: 1.2 s	STC-60
Choir Room (All grade levels)	Max: 35 dBA Rec: NC-25	Min: 1.0 s Max: 1.3 s	STC-60
Music Classroom – Instrumental/Vocal	Max: 35 dBA Rec: NC-25	Min: 0.5 s Max: 0.8 s	STC-60
Drama Classroom	Max: 35 dBA Rec: NC-25	Min: 0.4 s Max: 0.6 s	STC-60
Black Box / Little Theatre	Max: 35 dBA Rec: NC-25	Min: 0.8 s Max: 1.0 s	STC-60
Auditorium / Assembly	Max: 35 dBA Rec: NC-25	Consult professional for Auditorium Spaces ^{d)}	
Library / Media Center	Max: 35 dBA Rec: NC-25	Min: 0.5 s Max: 1.0 s	STC-60
Gymnasium	Max: 40 dBA	Min: 1.4 s	STC-60

(All grade levels)	Rec: NC-35	Max: 1.6 s	
Multipurpose / P.E.	Max: 40 dBA Rec: NC-35	Min: 1.2 s Max: 1.4 s	STC-60
Cafeteria / Dining Area See Note (e) below	Max: 40 dBA Rec: NC-35	Min: 1.2 s Max: 1.5 s	STC-60

Notes from Table 1:

- a) Maximum levels (Max) represent one-hour-averaged A-weighted steady background noise levels. These levels come from reference document (R1) and must not be exceeded. Recommended Levels (Rec) are noise Criteria Levels which is a metric preferred by acoustic professionals. These levels come from references (R2), (R3) and (R4). The Recommended Levels may be superseded by the judgement of an acoustic professional so long as the Maximum Levels are not exceeded.
- b) Reverberation Times are specified with a minimum and maximum value. The ideal reverberation time for any space depends on the exact programming for the space in addition to the geometric volume of the space. These times may be superseded by the judgement of an acoustic professional in consideration of the specific programming and volume of each space on an individual project.
- c) Sound Transmission Class levels (STC) represent the minimum design criteria for interior partitions. Exterior partitions may be designed as low as STC-45. In all cases, the judgement of an acoustic professional may require higher STC values to achieve appropriate background noise levels given the specific noise conditions on an individual project.
- d) Due to widely varying sizes and uses for auditoria, it is impractical to set any meaningful ranges for Reverberation Time and Sound Transmission Class. Consult an acoustic professional to ensure appropriate values are selected.
- e) Most of these spaces require professional acoustical design and the noted products may or may not be appropriate for all spaces. Other factors such as durability and cleanability must also be considered. Food serving areas within cafeterias may require washable ceiling surfaces that differ from these acoustic standards. Refer to Section 09 51 13.

OUTLINE SPECIFICATION

- Part 1 General
 - Extra Materials
 - Contractor to not supply any additional attic stock unless directed otherwise by Owner.
- Part 2 Products
 - Ceiling Products/Manufacturers:
 - ACT-8: 1" fiberglass tile in existing grid.
 - NRC 0.85-0.90
 - Referenced Manufacturer: USG Premier Nubby ClimaPlus tile.
 - Acceptable Manufacturer:
 - Armstrong
 - ACT-9: 1" fiberglass tile in a new metal grid suspension system.
 - NRC .95
 - Referenced Manufacturer: USG Halycon ClimaPlus tile with a Donn brand suspension system.
 - Acceptable Manufacturer
 - Armstrong

