



**REFERENCE STANDARD RS 12
LIGHT, HEAT, VENTILATION AND NOISE CONTROL**

*** LIST OF REFERENCED NATIONAL STANDARDS**

ASHRAE Handbook	HVAC Systems and Application.....	1987
ANSI/ASTM E90	Standard Method for Laboratory Measurement of Air- borne Sound Transmission Loss of Building Partitions.....	1987
ASTM E413	Standard Classification for Determination of Sound Transmission Class.....	1987
ANSI/ASTM E336	Standard Test Method for Measurement of Airborne Sound Insulation in Buildings...	1984
NCMA-TEK 69.A	New Data on Sound Reduction with Concrete Masonry Walls.....	1978
GA-600	Fire Resistance Design Manual Twelfth Edition, as Modified.....	1988
ANSI/ASTM E492	Standard Method of Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies using the Tapping Machine.....	1986
ANSI/ISO 1680	Test Code for the Measurement of Airborne Noise Emitted by Rotating Electrical Machinery, Part 1 and Part 2.....	1986
ASHRAE Handbook	Fundamentals.....	1985
ANSI S 1.4	Specification for Sound Level Meters and Supplement ANSI A1.4a-1985.....	1983
ANSI S 12.34	Engineering Methods for the Determination of Sound Power Levels of Noise Sources for Free-Field Conditions over a Reflecting Plane.....	1988
ANSI S 12.30	Guidelines for the Use of Sound Power Standards and for the Preparation of Noise Test Codes.....	1990
ANSI S 12.31	Precision Method for the Determination of Sound Power Levels of Broadband Noise Sources in Reverberation Rooms.....	1990
ANSI S 12.32	Precision Method for the Determination of Sound Power Levels of Discrete Frequency and Narrow Band Noise Sources in Reverberation Rooms.....	1990
ANSI S 1.13	Methods for the Measurement of Sound Pressure Levels (R 1986).....	1971
ANSI S 1.6	Preferred Frequencies and Band Numbers for Acoustical Measurements (R 1990)..	1984
ANSI S 1.11	Specification for Octave-Band and Fractional-Octave- Band Analog and Digital Filters ..	1986
Opinion 76-16	Proceeding on Motion of the Commissioner as to Insulation Standards, PSC Case No. 26913 August 13, 1976.....	1976

**243-90 BCR; 261-86 BCR; 290-84 BCR*

**** REFERENCE STANDARD RS 12-1 HEATING**

1. HEATING CAPACITY - The heating capacity required in each room or space shall be calculated in accordance with the principles set forth in ASHRAE Handbook-1987 HVAC Systems and Applications.

The calculations of heating capacity shall consider the areas and transmission coefficients of all surfaces exposed to outdoor temperatures or to unheated areas, and shall include allowance for air infiltration and wind velocity. In spaces with high ceilings, an allowance shall be made for the effect of stratification so that the prescribed temperature will be maintained at a level 5 feet above the floor.

***243-90 BCR; 253-82 BCR*

***** REFERENCE STANDARD RS 12-2 SOUND TRANSMISSION CLASS RATINGS**

TEST PROCEDURES FOR STC RATINGS-The STC rating of a construction assembly shall be obtained from one of the following methods:

(a) Laboratory test:

ANSI/ASTM E 90 - 1987 Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

ASTM E 413 - 1987 - Standard Classification for Determination of Sound Transmission Class.

(b) Field Test:

ANSI/ASTM E 90 - 1987 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

ANSI/ASTM E 336 - 1984 Standard Test Method for Measurement of Airborne Sound Insulation in Buildings, applicable portions of this.

STC TEST DATA - Certified laboratory test data obtained by acceptable laboratories in accordance with ANSI/ASTM E 90 AND ASTM E 413 may be used in obtaining STC ratings.

The following national standards may be accepted for sound transmission class-ratings only:

NCMA-TEK 69.A - 1978 New Data on Sound Reduction with Concrete Masonry Walls.

GA-600 1988 Fire Resistance Design Manual, Twelfth Edition, as Modified.

****243-90 BCR; 261-86 BCR; 290-84 BCR; 253-82 BCR*

Reference Standard 12

*** REFERENCE STANDARD RS 12-3 IMPACT NOISE RATINGS

TEST METHOD FOR INR - The INR of a floor-ceiling construction assembly shall be obtained from the following:

ANSI/ASTM E 492 - 1986 Standard Method of Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies using the Tapping Machine.

TEST DATA FOR INR RATINGS - Certified laboratory test data obtained by acceptable laboratories in accordance with ANSI/ASTM E 492 may be used for INR RATING.

***243-90 BCR; 261-86 BCR; 253-82 BCR

* REFERENCE STANDARD RS 12-4 NOISE CRITERION (NC) LEVELS

NC levels shall be as shown in ASHRAE 1989 Handbook-Fundamentals.

*243-90 BCR; 253-82 BCR

* REFERENCE STANDARD 12-5

TEST PROCEDURES FOR SOUND POWER LEVEL
The sound power levels of exterior mechanical equipment and of fan coil units, grills, registers, diffusers and induction units shall be measured in accordance with the following:

ASHRAE Handbook 1987- HVAC Systems and Applications.

**ANSI/ISO 1680-1986 Test Code for the Measurement of Airborne Noise Emitted by Rotating Electrical Machinery, Part 1 and Part 2.

*243-90 BCR; 253-82 BCR

**As enacted but ANSI never adopted.

** REFERENCE STANDARD 12-6

ANSI S 1.4-1983 - Specification for Sound Level Meters and Supplement ANSI S 1.4a-1985.

**243-90 BCR; 261-86 BCR; 290-84 BCR

* REFERENCE STANDARD 12-7

ANSI S 12.34 - 1988 Engineering Methods for the Determination of Sound Power Levels of Noise Sources for Free-Field Conditions over a Reflecting Plane.

ANSI S 12.30 - 1990 Guidelines for the Use of Sound Power Standards and for the Preparation of Noise Test Codes.

ANSI S 12.30† - 1990 Precision Method for the Determination of Sound Power Levels of Broadband Noise Sources in Reverberation Rooms.

ANSI S 12.32-1990 Precision Method for the Determination of Sound Power Levels of Discrete Frequency and Narrow Band Noise Sources in Reverberation Rooms.

ANSI S 1.13-1971 Methods for the Measure of Sound Pressure Levels. *** (R 1986).

*243-90 BCR; 253-82 BCR

†As enacted; but "12.31" probably intended.

***As enacted but "(R 1976)" probably intended.

*** REFERENCE STANDARD 12-8

ANSI S 1.6-1984 Preferred Frequencies and Band Numbers for Acoustical Measurements (R 1990).

***243-90 BCR; 261-86 BCR; 253-82 BCR

* REFERENCE STANDARD 12-9

ANSI S1.11-1986-Specification for Octave-Band and Fractional-Octave Band Analog and Digital Filters.

*243-90 BCR; 253-82 BCR

REFERENCE STANDARD 12-10

OPINION 76-16 PSC 1976 Case No. 26913-Proceeding on Motion of the Commission as to Insulation Standards, August 13, 1976.