

## **Chapter 15.12**

### **AIRCRAFT NOISE REDUCTION**

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#### **15.12.010 Short title.**

This chapter is known as and may be referred to as “aircraft noise control.”

#### **15.12.020 Purpose.**

The purpose of this chapter is to safeguard life, health, property, and public welfare by establishing minimum requirements regulating the design, construction, and/or setting on site of buildings for human occupancy in the vicinity of Seattle-Tacoma International Airport. This chapter is not intended to abridge any safety or health requirements required under any other applicable codes or ordinances.

#### **15.12.030 Scope.**

(1) The provisions of this chapter shall apply to all buildings or structures constructed or placed in use for human occupancy on sites within the vicinity of Seattle-Tacoma International Airport.

(2) Exception.

- (a) Additions under 500 square feet that are not used for sleeping rooms; and
- (b) Remodels with a building department valuation less than \$16,800 as of

December 31, 2003.

New glazing in exempted additions and remodels must conform to the provisions of the Washington State Energy Code.

This chapter is intended to supplement the provisions of the International Building Code, International Residential Code, International Mechanical Code, the Washington State Energy Code, and the Washington State Ventilation and Indoor Air Quality Code. In the case of conflict

between this chapter and any other applicable codes the more restrictive requirements, as determined by the building official, shall be met.

**15.12.040 Application to existing buildings.**

Additions may be made to existing buildings or structures without making the entire building or structure comply with all the requirements of this chapter for new construction. Additions on existing buildings shall be made to comply in the areas being added to the extent that it is deemed practical and effective by the building official in meeting the intent of this chapter.

Change in use or occupancy, or structures, or use of a building previously unapproved for human occupancy to human occupancy use or of one previously unused for sleeping purposes to sleeping use shall not be permitted unless the building or structure complies with this chapter.

**15.12.050 Details.**

The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment and systems, as herein governed, including, but not limited to: exterior envelope component materials; STC ratings of applicable component assemblies; R-values of applicable insulation materials; size and type of apparatus and equipment; equipment and system controls and other pertinent data to indicate conformance with the requirements herein.

The building official shall develop public information to indicate optional ways of achieving compliance with the sound level reduction ratings designated in this chapter.

**15.12.060 Definitions.**

“Noise reduction coefficient (NRC)” is the arithmetic average of the sound absorption coefficients of a material at 250, 500, 1,000, and 2,000 Hz.

“Sound transmission class (STC)” is a single number rating for describing sound transmission loss of a roof/ceiling, wall, partition, window, or door.

**15.12.070 Design requirements.**

The criteria of these sections establish the minimum requirements for acoustic design of the exterior envelope of buildings and for heating, ventilating, and air conditioning systems and its parts. These requirements shall apply to all buildings for human occupancy within the Seattle-Tacoma International Airport Noise Areas.

**15.12.080 Seattle-Tacoma International Airport noise reduction areas.**

Noise determined construction requirements detailed in this chapter shall be applied to new construction and additions of all structures, except for not normally inhabited portions of

warehouses, storage buildings, public and private garages, and similar structures as determined by the building official, within the following areas:

(1) Thirty-Five dB Reduction Area. Those portions of the city, east of First Avenue South extended from the northern to the southern city limits and to the eastern city limits. All living and working areas must comply with BMC 15.12.090 which is designed to achieve a noise reduction level of ~~30~~ 35dB.

(2) Thirty dB Reduction Area. Those portions of the City, between First Avenue South and 12th Avenue S.W. extending from the northern to the southern City limits are a 30 dB Reduction Area. All living and working areas must comply with 15.12.100 BMC which is designed to achieve a noise reduction level of 30 dB.

~~(2)~~ (3) Twenty-Five dB Reduction Area. All remaining areas of the city. All living and working areas must comply with BMC 15.12.110 that is designed to achieve a noise reduction level of 25 dB.

**15.12.090 Thirty-five dB reduction area exterior envelope.**

The exterior envelope of buildings in the 35 dB area shall be designed to meet the following minimum criteria:

(1) Exterior walls shall have a laboratory sound transmission class rating of at least STC-40.

(2) Exterior windows shall have a laboratory sound transmission class rating of at least STC-38.

(3) Exterior doors shall have a laboratory sound transmission class rating of at least STC-33.

(4) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-49.

(5) Ventilation shall be provided to comply with Chapter 51-11 WAC, Energy Code, and the following:

(a) A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors or other openings to the exterior.

The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty gauge steel, which shall be lined with one-inch thick coated glass fiber or approved material, and shall be at least 10 feet long, with one 90-degree bend.

(b) Gravity vent openings shall be as close to code minimum in number and size as practical. The openings shall be fitted with transfer ducts at least six feet in length containing internal one-inch thick coated fiberglass sound absorbing duct lining or other

approved material. Each duct shall have a lined 90-degree bend in the duct such that there is no direct line-of-sight from the exterior, through the duct, into the attic.

(c) Bathroom, laundry and similar exhaust ducts connecting interior space to the outside, shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated glass fiber duct liner at least one inch thick.

(d) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.

**15.12.100 Thirty dB reduction area exterior envelope.**

The exterior envelope of buildings in the 30 dB area shall be designed to meet the following minimum criteria:

(1) Exterior walls shall have a laboratory sound transmission class rating of at least STC-35.

(2) Exterior windows shall have a laboratory sound transmission class rating of at least STC-33.

(3) Exterior doors shall have a laboratory sound transmission class rating of at least STC-33.

(4) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-44.

(5) Ventilation shall be provided to comply with Chapter 51-11 WAC, Energy Code, and the following:

(a) A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least 20-gauge steel, which shall be lined with one-inch thick coated glass fiber or other approved material, and shall be at least five feet long, with one 90-degree bend.

(b) Gravity vent openings shall be as close to code minimum in number and size, as practical. The openings shall be fitted with transfer ducts at least three feet in length containing internal one-inch thick coated fiberglass sound absorbing duct lining or other

approved material. Each duct shall have a lined 90-degree bend in the duct such that there is no direct line-of-sight from the exterior, through the duct, into the attic.

(c) Bathroom, laundry, and similar exhaust ducts connecting interior space to the outside, shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated glass fiber duct liner at least one-inch thick.

(d) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.

**15.12.110 Twenty-five dB reduction area exterior envelope.**

The exterior envelope of buildings in the 25 dB area shall be designed to meet the following minimum criteria:

(1) Exterior walls shall have a laboratory sound transmission class rating of at least STC-30.

(2) Exterior windows shall have a laboratory sound transmission class rating of at least STC-28.

(3) Exterior doors shall have a laboratory sound transmission class rating of at least STC-26.

(4) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-39.

(5) Ventilation shall be provided to comply with Chapter 51-11 WAC, Energy Code, and the following:

(a) A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least 20-gauge steel, which shall be lined with one-inch thick coated glass fiber or other approved material, and shall be at least five feet long, with one 90-degree bend.

(b) Gravity vent openings shall be as close to code minimum in number and size as practical.

(c) Bathroom, laundry, and similar exhaust ducts connecting interior space to the outside shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated glass fiber duct liner at least one-inch thick.

(d) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.