APPENDIX J
SOUND REDUCTION CODES

The Cities of Burien, Des Moines, and SeaTac, and King County have enacted building code provisions to achieve interior sound attenuation for new structures within the vicinity of Seattle-Tacoma International Airport. This appendix includes the pertinent sections of the building codes for these jurisdictions that were current as of April 2011.

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Chapter 15.12
AIRCRAFT NOISE REDUCTION

Sections:

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.

CITY OF DES MOINES

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14.08.160 Manufactured housing.

All manufactured homes, which are newly installed in residentially zoned areas outside of mobile home parks, shall comply with the following requirements:

(1) Shall be newly constructed and shall not meet the definition of a used mobile home.

(2) Shall have a permanent perimeter foundation of either concrete, concrete masonry units or other approved concrete product.

(3) Shall meet the same design standard as the surrounding neighborhood for new construction.

(4) Shall be thermally equivalent to the State Energy Code.

(5) Shall be designed to support the local snow load of 25 pounds per square foot of ground snow load.

(6) Shall be designed to comply with the sound control requirements in this chapter. [Ord. 1407 § 41, 2007.]

14.08.170 Modular housing.

All modular homes, which are newly installed in residentially zoned areas outside of mobile home parks, shall comply with the following requirements:

(1) Shall be constructed in accordance with the International Residential Code. Factory-built homes are required to have a gold seal.

(2) Shall have a permanent perimeter foundation of either concrete, concrete masonry units or other approved concrete product.

(3) Shall meet the design standards of Title 18 DMMC for new construction.

(4) Shall meet the requirements of the State Energy Code.

(5) Shall be designed to support the local snow load of 25 pounds per square foot of ground snow load.

(6) Shall be designed to comply with the sound control requirements in this chapter. [Ord. 1407 § 42, 2007.]

ARTICLE I. SOUND CONTROL REQUIREMENTS

14.08.180 Purpose.

The purpose of this article 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 article is not intended to abridge any safety or health requirements required under any other applicable codes or ordinances. [Ord. 1407 § 43, 2007.]

14.08.190 Provisions.

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 Airport, except:

(1) Additions under 500 square feet that are not used as sleeping rooms; and

(2) Remodels with a building department valuation less than $20,000 that do not include sleeping rooms.

New glazing in exempted additions and remodels shall conform to the provisions of this title. [Ord. 1407 § 44, 2007.]

14.08.200 Intent.

This article is intended to supplement the provisions of the International Mechanical Code, the Washington State Energy Code, the Washington State Ventilation and Indoor Air Quality Code, and the remainder of the International Building Code. In the case of conflict between this article and other applicable codes the more restrictive requirements, as determined by the building official, shall be met. [Ord. 1407 § 45, 2007.]

14.08.210 Application to existing buildings.

(1) 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 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 article.

Exception: Substantial additions, alterations and remodels.

(2) A change in use in the occupancy or use previously unused 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, structure, or portion of the building complies with this chapter.

Exception: Substantial additions, alterations and remodels. [Ord. 1407 § 46, 2007.]

14.08.220 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. [Ord. 1407 § 47, 2007.]

14.08.230 Modifications and alterations.

Residential buildings' modifications and alterations shall be in accordance with IRC Sections 104.10 and 104.11. Nonresidential buildings' modifications and alterations shall be in accordance with IBC Sections 104.10 and 104.11. [Ord. 1407 § 48, 2007.]

14.08.240 Fees.

The building official is authorized to collect fees for administration, plan checking, and inspections. This fee shall be known as the airport noise fee and shall be as established by the city manager. [Ord. 1407 § 49, 2007.]

14.08.250 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. [Ord. 1407 § 50, 2007.]

14.08.260 Seattle-Tacoma International Airport noise areas.

Noise determined construction requirements detailed in this sound transmission control building code shall be applied to new construction except for not normally inhabited portions of warehouses, storage buildings, and similar structures as determined by the building official, within the following areas:

Area 1 – Those portions of the city north of South 252nd Street or its extension.

Area 2 – Those portions of the city not included in Area 1. [Ord. 1407 § 51, 2007.]

14.08.270 Specific construction requirements for Areas 1 and 2.

(1) Area 1. All living and working areas must comply with this article, which is designed to achieve a noise reduction level of 35 dBA except: Owners of commercial occupancies classified as Group A or F may request the building official to reduce the noise reduction requirements to 30 dBA as provided in this article. Such request must be in writing and demonstrate, by approved methods, that the occupancy generates interior noise levels in excess of 70 dBA as a part of normal business.

(2) Area 2. All living and working areas must comply with this article, which is designed to achieve a noise reduction level of 30 dBA. [Ord. 1407 § 52, 2007.]

14.08.280 Air leakage for all buildings.

The requirements of this section shall apply to the design of the exterior envelope of all buildings in Areas 1 or 2 designed for human occupancy. The requirements of this section are not applicable to the separation of interior spaces from each other. The following locations shall be sealed, caulked, gasketed, or weather stripped to limit or eliminate air leakage:

(1) Exterior joints around window and door frames between the window or door frame and the framing.

(2) Openings between walls and foundations.

(3) Between the wall sole plate and the rough flooring.

(4) Openings at penetrations of utility services through walls, floor, and roofs.

(5) Between wall panels at corners.

(6) All other such openings in the building envelope.

(7) Through the wall, floor, or roof/ceiling penetrations not specifically addressed in these sections shall be designed to limit sound transmission and shall have the same average laboratory sound transmission classification as required for doors. [Ord. 1407 § 53, 2007.]

14.08.290 Compliance – Area 1.

Compliance with DMMC 14.08.300 through 14.08.360 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 35 decibels. [Ord. 1407 § 54, 2007.]

14.08.300 Exterior walls – Area 1.

(1) Exterior walls, other than as described in this section, shall have a laboratory sound transmission class rating of at least STC-40.

(2) Masonry walls having a weight of at least 75 pounds per square foot do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered.

(3) Stud walls shall be at least four inches in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

(4) Interior surface of the exterior walls shall be of gypsum board or plaster at least five-eighths inch thick, installed on the studs. The gypsum board or plaster may be fastened rigidly to the studs if the exterior is brick veneer, stucco or one-quarter-inch cement fiber board siding. If the exterior is siding on sheathing, the interior gypsum board or plaster must be fastened resiliently to the studs or double thickness must be used.

(5) Continuous composition board, plywood or gypsum board sheathing at least one inch thick shall cover the exterior side of the wall studs.

(6) Sheathing panels shall be butted tightly and covered on the exterior with overlapping building paper.

(7) Insulation material of a type approved by the building official and rated not less than R-21 or the current energy code requirement, whichever is the greater, shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. [Ord. 1407 § 55, 2007.]

14.08.310 Exterior windows – Area 1.

(1) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-38.

(2) Windows shall be double glazed with panes at least three-sixteenths inch thick. Panes of glass shall be separated by a minimum one-half-inch airspace and shall not be equal in thickness.

(3) Double-glazed windows shall employ fixed sash or efficiently weatherstripped, operable sash. The sash shall be rigid and weatherstripped with material that is compressed airtight when the window is closed so as to conform to an air infiltration test not to exceed one-half cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.

(4) Glass shall be sealed in an air-tight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

(5) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-00227, TT-S-00230, or TT-S-00153, or other materials approved by the building official. [Ord. 1407 § 56, 2007.]

14.08.320 Exterior doors – Area 1.

(1) Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

(2) Double door construction is required for all hinged-door openings to the exterior. Such doors shall be side-hinged and shall be solid core wood or insulated hollow metal at least one and three-fourths inch thick separated by an airspace of at least three inches from another door. Both doors shall be tightly fitted and weather stripped.

(3) The glass of double-glazed sliding doors shall be separated by a minimum one-half-inch airspace. Each sliding frame shall be provided with an efficiently airtight weather stripping material as specified in Section 1228.3.

(4) Glass of all doors shall be at least three-sixteenths inch thick. Glass of double sliding doors shall not be equal in thickness.

(5) The perimeter of door frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-00227, TT-S-00230, or TT-S-00153, or other materials approved by the building official.

(6) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape. [Ord. 1407 § 57, 2007.]

14.08.330 Roofs – Area 1.

(1) Combined roof and ceiling construction other than described in this section and DMMC 14.08.340 shall have a laboratory sound transmission class rating of at least STC-49.

(2) With an attic or rafter space at least six inches deep, and with a ceiling below, the roof shall consist of one inch composition boards, plywood, or gypsum board sheathing topped by roofing as required.

(3) Open beam roof construction shall follow the energy insulation standard method for batt insulation, except use one inch plywood decking with concrete or clay tiles as roofing material.

(4) Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-38. [Ord. 1407 § 58, 2007.]

14.08.340 Ceilings – Area 1.

(1) Gypsum board or plaster ceilings at least five-eighths inch thick shall be provided where required by DMMC 14.08.330. Ceilings shall be substantially airtight with a minimum of penetrations. The ceiling panels shall be mounted on resilient clips or channels.

(2) Insulation material of a type approved by the building official and rated not less than R-38 or the current energy code requirement, whichever is the greater, shall be provided above the ceiling between joists. [Ord. 1407 § 59, 2007.]

14.08.350 Floors – Area 1.

The floor of the lowest occupied rooms shall be slab on fill or below grade, or over a fully enclosed basement or crawl space. All door and window openings in a fully enclosed basement shall be tightly fitted. [Ord. 1407 § 60, 2007.]

14.08.360 Ventilation – Area 1.

(1) 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, and shall be at least five feet long with one 90-degree bend.

(2) Gravity vent openings in attics 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. 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 or be adequately baffled to dissipate any direct sound transfer from the exterior environment.

(3) Source-specific exhaust shall be at least 70 cfm at the outlet.

(4) Bathroom, laundry and similar exhaust ducts connecting the interior space to the outdoors shall be provided with a 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 or approved flexible duct material.

(5) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing damper across the exterior termination which allows proper ventilation. [Ord. 1407 § 61, 2007.]

14.08.370 Compliance – Area 2.

Compliance with DMMC 14.08.380 through 14.08.440 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 30 decibels. [Ord. 1407 § 62, 2007.]

14.08.380 Exterior walls – Area 2.

(1) Exterior walls, other than as described in this section, shall have a laboratory sound transmission class rating of at least STC-35.

(2) Masonry walls having a weight of at least 40 pounds per square foot do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered.

(3) Stud walls shall be at least four inches in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

(4) Interior surface of the exterior walls shall be of gypsum board or plaster at least one-half inch thick, installed on the studs. The gypsum board or plaster may be fastened rigidly to the studs if the exterior is brick veneer or stucco. If the exterior is siding on sheathing, the interior gypsum board or plaster must be fastened resiliently to the studs or double thickness must be used.

(5) Continuous composition board, plywood or gypsum board sheathing at least three-fourths inch thick shall cover the exterior side of the wall studs.

(6) Sheathing panels shall be covered on the exterior with overlapping building paper.

Insulation material of a type approved by the building official and rated not less than R-21 or the current energy code requirement, whichever is the greater, shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. [Ord. 1407 § 63, 2007.]

14.08.390 Exterior windows – Area 2.

(1) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

(2) Windows shall be double glazed with panes at least one-eighth inch thick.

(3) Panes of glass shall be separated by a minimum one-half inch airspace.

(4) Double-glazed windows shall employ fixed sash or efficiently weather stripped, operable sash. The sash shall be rigid and weather stripped with material that is compressed airtight when the window is closed so as to conform to an air infiltration test not to exceed one-half cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.

(5) Glass shall be sealed in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

(6) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-00227, TT-S-00230, or TT-S-00153, or other materials approved by the building official. [Ord. 1407 § 64, 2007.]

14.08.400 Exterior doors – Area 2.

(1) Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

(2) Double door construction is required for all hinged-door openings to the exterior. Such doors shall be side-hinged and shall be solid core wood or insulated hollow metal at least one and three-fourths inch thick separated by an airspace of at least three inches from another door, which can be a storm door. Both doors shall be tightly fitted and weather stripped.

(3) The glass of double-glazed sliding doors shall be separated by a minimum one-half-inch airspace. Each sliding frame shall be provided with an efficiently airtight weather stripping material to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-00227, TT-S-00230, or TT-S-00153, or other materials approved by the building official.

(4) Glass, over two square feet in area, of all doors shall be at least three-sixteenths inch thick. Glass of double sliding doors shall not be equal in thickness.

The perimeter of door frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-00227, TT-S-00230, or TT-S-00153, or other materials approved by the building official.

(5) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape. [Ord. 1407 § 65, 2007.]

14.08.410 Roofs – Area 2.

(1) Combined roof and ceiling construction other than described in this section and DMMC 14.08.420 shall have a laboratory sound transmission class rating of at least STC-44.

(2) With an attic or rafter space at least six inches deep, and with a ceiling below, the roof shall consist of three-fourths-inch composition boards, plywood, or gypsum board sheathing topped by roofing as required.

(3) Open beam roof construction shall follow the energy insulation standard method for batt insulation, except use one-inch plywood decking with shakes or other suitable roofing material.

(4) Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-33. [Ord. 1407 § 66, 2007.]

14.08.420 Ceilings – Area 2.

(1) Gypsum board or plaster ceilings at least five-eighths-inch-thick shall be provided where required by DMMC 14.08.410. Ceilings shall be substantially airtight with a minimum of penetrations.

(2) Insulation material of a type approved by the building official and rated not less than R-38 or the current energy code requirement, whichever is the greater, shall be provided above the ceiling between joists. [Ord. 1407 § 67, 2007.]

14.08.430 Floors – Area 2.

The floor of the lowest occupied rooms shall be slab on fill or below grade, or over a fully enclosed basement or crawl space. All door and window openings in a fully enclosed basement shall be tightly fitted. [Ord. 1407 § 68, 2007.]

14.08.440 Ventilation – Area 2.

(1) 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, and shall be at least five feet long with one 90-degree bend.

(2) Gravity vent openings in attics 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. 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 or be adequately baffled to dissipate any direct sound transfer from the exterior environment.

(3) Bathroom, laundry and similar exhaust ducts connecting the interior space to the outdoors shall be provided with a 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 and be at least a 70 cfm rated fan at the outlet.

(4) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing damper across the exterior termination which allows proper ventilation. [Ord. 1407 § 69, 2007.]

Chapter 14.12
FIVE-STORY WOOD FRAME BUILDINGS

Sections

14.12.010 Purpose – General.

The purpose of this chapter is to authorize for Pacific Ridge Commercial 1, Pacific Ridge Residential, and Business Park North Subarea the construction of five-story wood frame buildings as an approved alternate design and construction method for Pacific Ridge Commercial 1, Pacific Ridge Residential, and Des Moines Creek Business Park North Subarea under Section 104.11 of the 2006 Edition of the International Building Code, and to set forth the criteria and standards which must be met before a building permit may be issued for a five-story wood frame building. [Ord. 1411 § 1(1), 2007.]

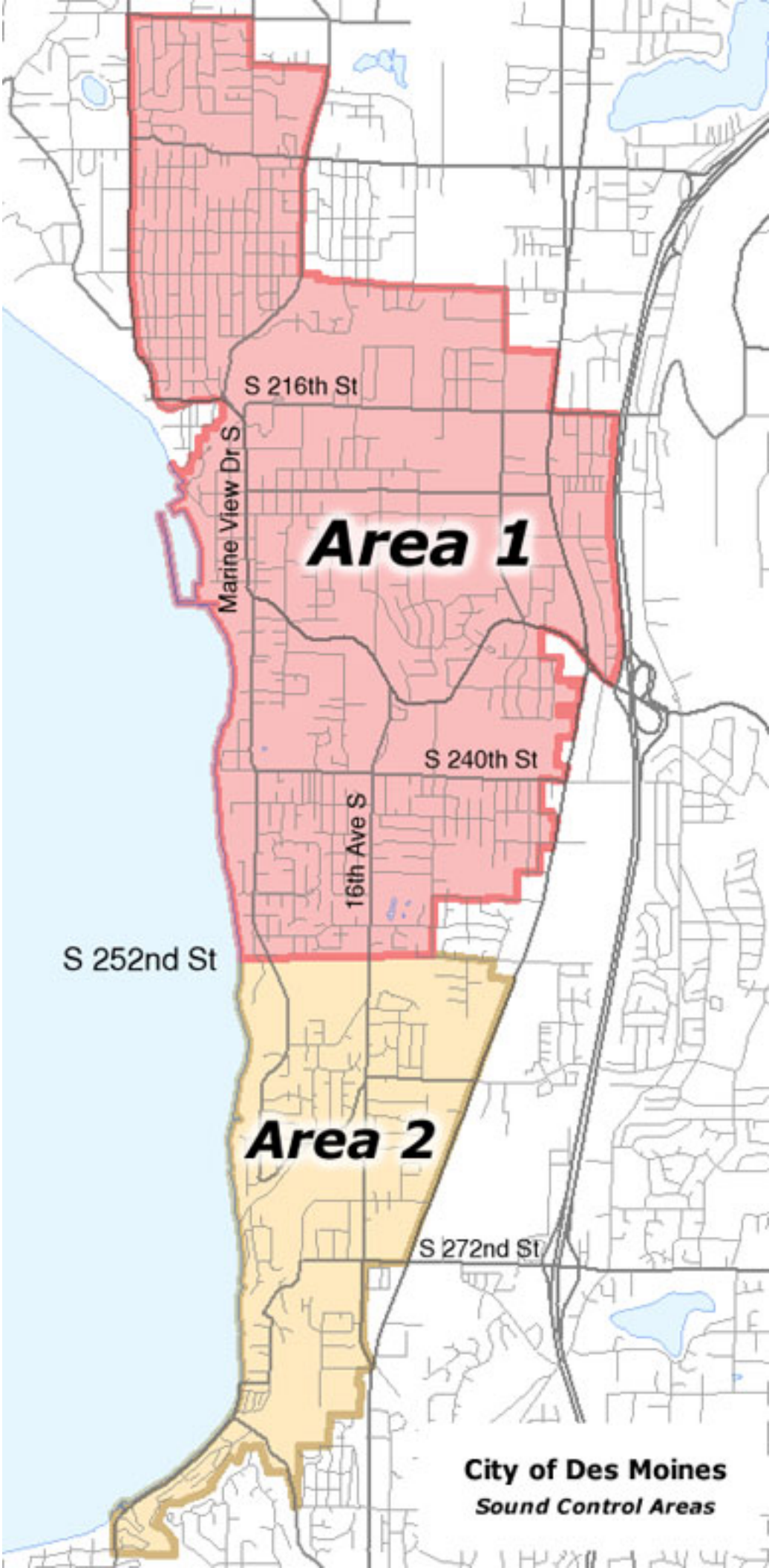
14.12.020 Construction.

(1) International Building Code Requirements. Five-story wood frame buildings must comply with all requirements of the International Building Code, except as modified or supplemented by this chapter. In the event of a conflict between the International Building Code and the provisions of this chapter, the provisions of this chapter shall control. References in this chapter to building construction “types” (e.g., Type I or Type V) shall have the same meaning as set forth in the International Building Code.

(2) Lowest Story Construction Requirements. The lowest story in a five-story wood frame building shall be constructed of Type V-A fire-resistive construction, except that all structural frame and load-bearing elements must consist of approved, two-hour fire-resistive construction.

(3) Upper Four Stories. The upper four stories of a five-story wood frame building shall be constructed of at least Type V-A fire-resistive construction.

(4) Use of Type V above Type I Construction. Where Type V wood frame stories are constructed over Type I construction, the Type V stories shall be separated from the Type I stories as provided in International Building Code


S 216th St
Marine View Dr S
Area 1
S 240th St
16th Ave S
S 252nd St
Area 2
S 272nd St
City of Des Moines
Sound Control Areas

CITY OF SEATAC

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Chapter 13.240
SOUND TRANSMISSION CODE

Sections:

13.240.010 Sound Transmission Code.
The following Sound Transmission Code is hereby adopted as the Sound Transmission Code for the City. (Ord. 04-1008 § 3)

13.240.020 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 as identified on the attached Noise Level Reduction Map (see Figure 13.240.090a). These sections are not intended to abridge any safety or health requirements required under any other applicable codes or ordinances. (Ord. 04-1008 § 3)

13.240.030 Scope.
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 which have been included within the Port of Seattle Noise Remedy Program. This chapter is intended to supplement the provisions of the Washington State Building Codes as adopted and amended by the City of SeaTac. In the case of conflict between this chapter and any other applicable codes, the more restrictive requirements shall apply. (Ord. 04-1008 § 3)

13.240.040 Application.
This chapter is applicable to all uses considered incompatible with airport operations. These uses include, but are not necessarily restricted to, the following:

A. New Structures. New structures shall be constructed to this code.

1. Dwellings, single and multifamily,

2. Hotels/motels,

3. Offices,

4. Schools,

5. Churches and other places of worship,

6. Theaters,

7. Hospitals and medical service providers,

8. Mercantile and food services, Sound Transmission Code requirement shall be considered on a case-by-case basis. The intent should be to fully meet all code requirements.

B. Existing Structures.

1. Additions, alterations, or repairs 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; provided, that the addition, alteration, or repair conforms to the requirements for a new building or structure. Additions shall be made to comply with the requirements of a new structure.

2. Any change of use in the occupancy or use of a building previously unapproved for human occupancy to human occupancy use or of one (1) previously unused for sleeping purposes to sleeping use shall not be permitted unless the building, structure or portion of the building complies with this chapter.

3. 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. (Ord. 04-1008 § 3)

13.240.050 Definitions.

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

B. “Sound transmission class (STC)” is a single number rating for describing sound transmission loss of a wall, roof, floor, window, door, partition or other individual building components or assemblies.

C. “Noise reduction level” is the decibels of sound decrease required. (Ord. 04-1008 § 3)

13.240.060 Design requirements.

The criteria of these sections establish the minimum requirements for acoustic design of the exterior envelope of buildings and for HVAC systems and their parts. These requirements shall apply to all buildings for human occupancy within the SeaTac Noise

Program Areas. (Ord. 04-1008 § 3)

13.240.070 Recognized standards.
The standards listed below are recognized standards:

A. ASTM E90 and E413, Laboratory Determination of Airborne Sound Transmission Class (STC).

B. ASTM E497, Standard Practice for Installing Sound-Isolating Lightweight Partitions.

C. ASTM C919, Standard Practice for the Use of Sealants in Acoustical Applications.

D. ASTM E336, Airborne Sound Insulation Field Test.

1. When an Airborne Sound Insulation Field Test is required, airborne sound insulation shall be determined according to the applicable Field Airborne Sound Transmission Loss Test procedures. All sound transmitted from the source to the receiving room shall be considered to be transmitted through the test partition.

2. Field testing, when required, shall be done under the supervision of a professional acoustician who shall be experienced in the field of acoustical testing and engineering and who shall forward certified test results to the Building Official that the minimum sound insulation requirements stated above have been met.

E. Sound Transmission Control Systems. The generic systems as listed in the Fire Resistance Design Manual, the most recent editions, as published by the Gypsum Association, may be accepted where a laboratory test indicates that the requirements of SMC 13.24.090 are met by the system. (Ord. 04-1008 § 3)

13.240.080 Air leakage for all buildings.
A. The requirements of this section shall apply to the design of the exterior envelope of all buildings in the SeaTac Noise Program Area designed for human occupancy. The requirements of this section are not applicable to the separation of interior spaces from each other.

B. The exterior building envelope shall be sealed in accordance with the SeaTac Energy Code air leakage requirements for residential or nonresidential structures, as applicable. Other penetrations through the wall, floor, or roof/ceiling penetrations not specifically addressed in these sections shall be designed to limit sound transmission and shall have the same average laboratory sound transmission classification as required for doors.

C. An “Airborne Sound Insulation Field Test” in accordance with ASTM E336 may be required to support the installed design.

Sealants shall meet one (1) of the following specifications:

1. Federal Specification A-A-1556 (formerly TT-S-00227 and TT-S-00230).

2. Former Federal Specification TT-S-001543.

3. ASTM C-920. (Ord. 04-1008 § 3)

13.240.090 SeaTac noise program areas.

Noise determination construction requirements detailed in this Sound Transmission Building Code shall be applied to new construction and additions of all structures, except for not normally inhabited portions of warehouses, storage buildings and similar structures as determined by the Building Official, within the designated program areas of the Port of Seattle's Noise Remedy Program. (See Figure 13.240.090a.) The applicable program areas are the Neighborhood Reinforcement Area and the Standard Insulation Area. Specific construction requirements for these two (2) areas are:

A. Neighborhood Reinforcement Area.

1. Bedrooms must comply with SMC 13.240.120 which is designed to achieve a noise reduction level of thirty-five (35) dB.

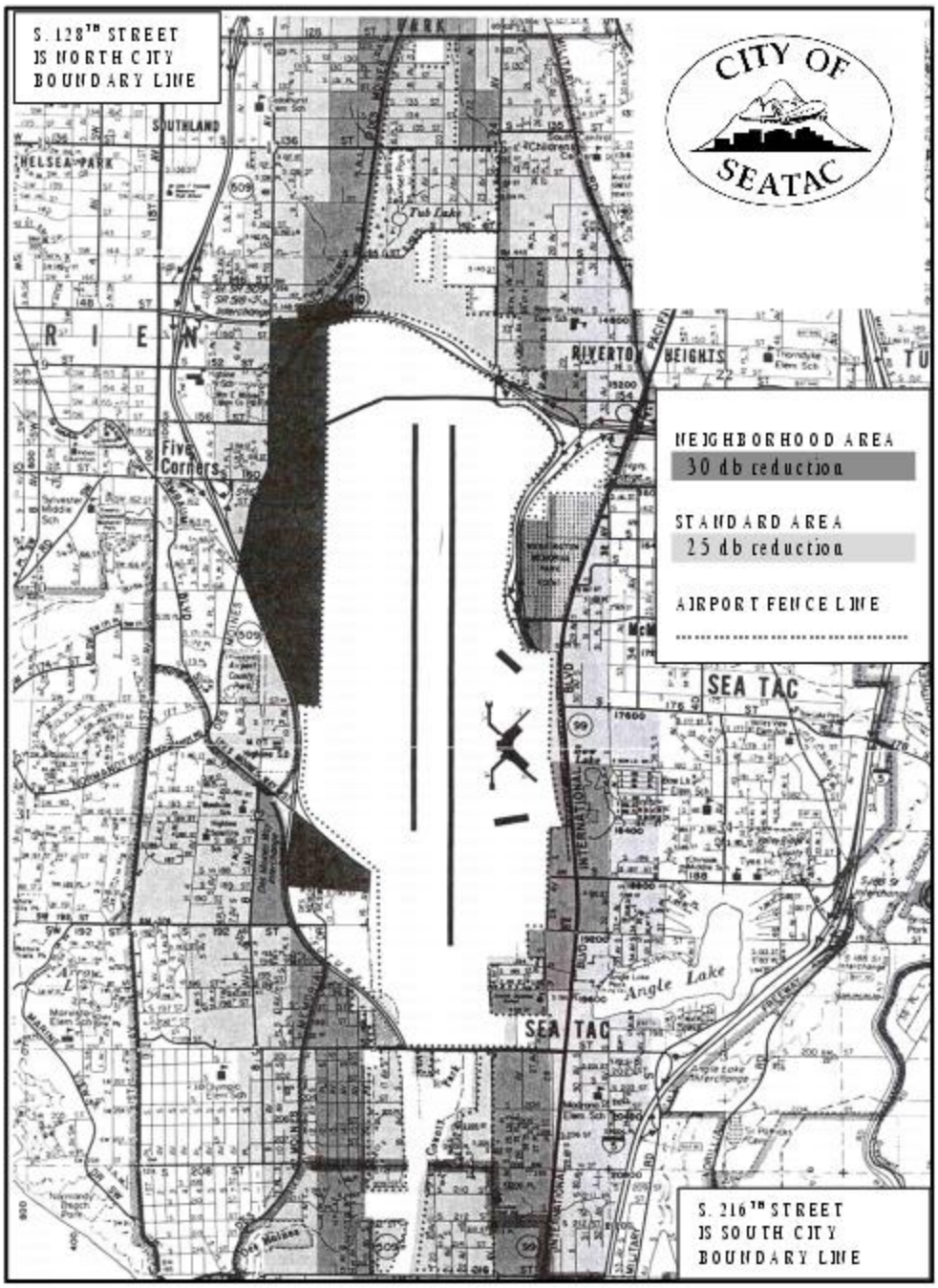
2. All other living and working areas must comply with SMC 13.240.110 which is designed to achieve a noise reduction level of 30 dB.

B. Standard Insulation Area.

1. Bedrooms must comply with SMC 13.240.110 which is designed to achieve a noise reduction of thirty (30) dB.

2. All other living and working areas must comply with SMC 13.240.100 which is designed to achieve a noise reduction level of twenty-five (25) dB.

Figure 13.240.090a. NOISE LEVEL REDUCTION MAP



(Ord. 04-1008 § 3)

13.240.100 Building requirements for a noise level reduction of twenty-five (25) dB.
A. Compliance. Compliance with this section shall be deemed to meet requirements for a minimum noise level reduction (NLR) of twenty-five (25) decibels.

B. Walls.

1. Exterior walls shall have a laboratory sound transmission class rating of at least STC-30. (See Figure 13.240.100a.)

Exception: Insulated walls that are constructed in accordance with the SeaTac Energy Code, or walls built in accordance with the following shall be considered to meet the STC-30 requirements:

a. Masonry and concrete walls having a weight of at least twenty-five (25) pounds per square foot. These walls are not required to be furred out on the interior of the wall if at least one (1) surface of the concrete block wall is plastered.

b. Stud walls at least four (4) inches in nominal depth shall be considered to meet the above requirements if built as defined below and to ASTM E497, Standard Practice for Installing Sound-Isolating Lightweight Partitions.

i. The interior surface of the exterior walls shall be covered with gypsum board or plaster at least one-half (1/2) inch thick.

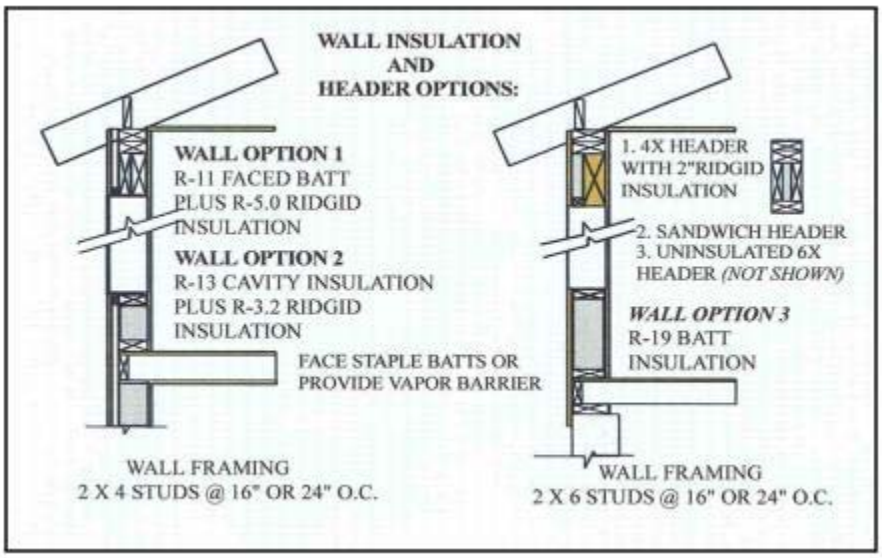
ii. Insulation material shall be installed continuously throughout the cavity space, installed as specified in the SeaTac Energy Code.

iii. The outside of the wall shall be covered with a continuous layer of composition board, plywood, gypsum board, or a combination of these materials that is not less than one-half (1/2) inch thick.

iv. Outside sheathing panels shall be covered with a layer of building paper, or equivalent, installed in accordance with the City of SeaTac Building and Residential Codes.

v. Siding shall be installed over the building paper.

Figure 13.240.100a. WALL AND HEADER OPTIONS



C. Windows.

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

Exception: Windows meeting the SeaTac Energy Code shall be considered to meet the STC-28 requirement, or single pane windows that have glass at least three-sixteenths (3/16) inch thick.

All exterior windows shall be installed in accordance with the following requirements:

a. The glass shall be sealed into the frame in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

b. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

c. The perimeter of the window frames shall be sealed to the exterior wall construction in accordance with SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

D. Exterior Doors.

1. Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-26.

Exception: Doors meeting the following criteria shall be considered as meeting the STC-26 rating:

a. Exterior side-hinged doors that are solid-core wood, or insulated hollow metal, and that are not less than one and three-quarters (1 3/4) inch thick.

b. Glass installed in the door that has a total area of more than two (2) square feet shall be sealed in an airtight manner with a nonhardening sealant or in a soft elastomer gasket or glazing tape.

c. Exterior sliding glass doors shall be weather-stripped with an efficient airtight gasket system so as to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length.

2. All doors shall be installed to meet the following requirements:

a. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

b. The perimeter of the door frames shall be sealed to the exterior wall construction in accordance with SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

E. Roof/Ceiling.

1. Roof-ceiling assemblies shall have a laboratory sound transmission class rating of at least STC-39.

Exception: Roof-ceiling assemblies that are constructed in accordance with the SeaTac Energy Code, or roof-ceiling assemblies that are built in accordance with the following criteria, shall be considered to meet the STC-39 requirement:

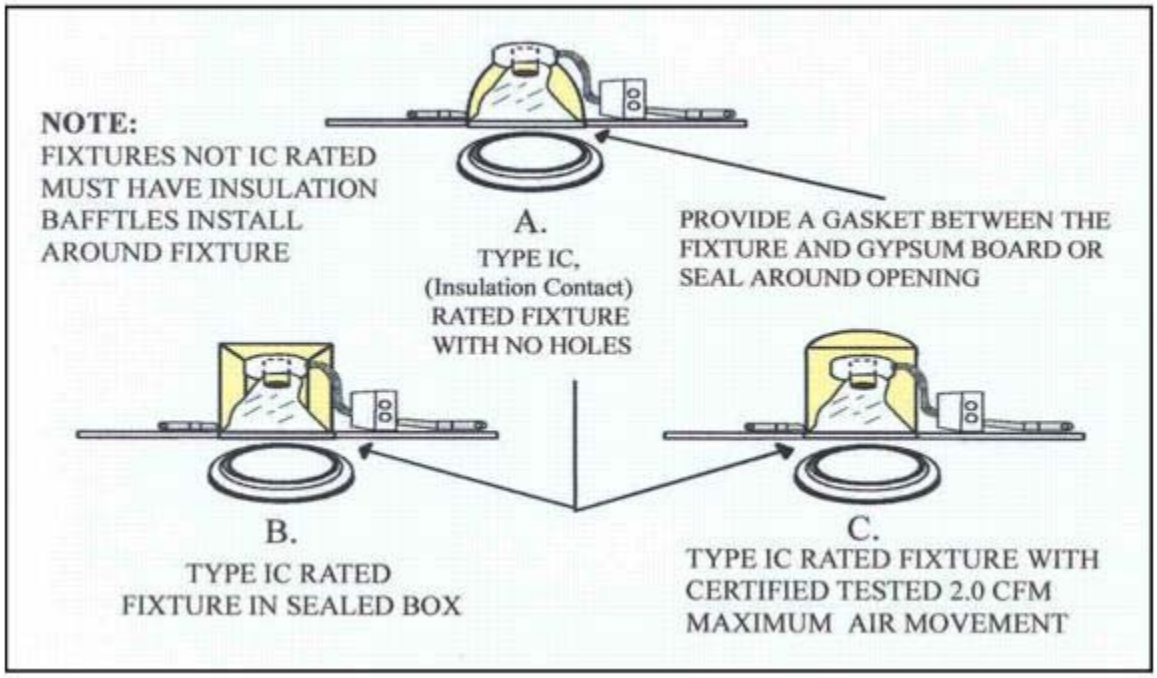
a. The roof deck shall be sheathed with not less than one-half (1/2) inch composition board, plywood or gypsum board sheathing, topped by roofing.

b. Ceiling insulation shall be not less than R-38, and not less than the minimum requirements of the SeaTac Energy Code. The insulation shall be installed with not less than six (6) inches average air space between the insulation and the roof deck.

c. Gypsum board or plaster ceilings shall be not less than one-half (1/2) inch thick.

d. The ceiling shall be substantially airtight with a minimum of penetrations. Lighting fixtures penetrating the ceiling assembly shall be in accordance with the requirements in the SeaTac Energy Code. (See Figure 13.240.100b.) Other penetrations shall be treated in a similar manner to the requirements in the SeaTac Energy Code.

Figure 13.240.100b. LIGHT FIXTURES



2. Skylights shall meet the requirements as listed in subsection (C) of this section.

F. Floors. There are not special requirements for limitation of sound transmission through floors in this section. See SMC 13.240.090 for requirements under bedrooms.

G. Ventilation.

1. Interior Building Ventilation. A mechanical ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for the various uses in the 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 ducts of at least twenty-six (26) gauge steel, which shall be insulated with R-11 sound-absorbing insulation, and shall be at least five (5) feet long with one (1) ninety (90) degree bend.

When homes with forced air heating systems use an “integrated ventilation system” designed in accordance with 302 and/or 303 of the Washington State Ventilation and Indoor Air Quality Code, they shall be considered to meet the above code requirements with the following additions. (See Figures 13.240.100c and 13.240.100d.)

a. The inlet duct shall be sized to allow for it to be insulated with R-11 thick sound-absorbing insulation.

b. This duct shall be not less than five (5) feet long with at least one (1) ninety (90) degree bend.

Figure 13.240.100c. VENTILATION TIE-IN

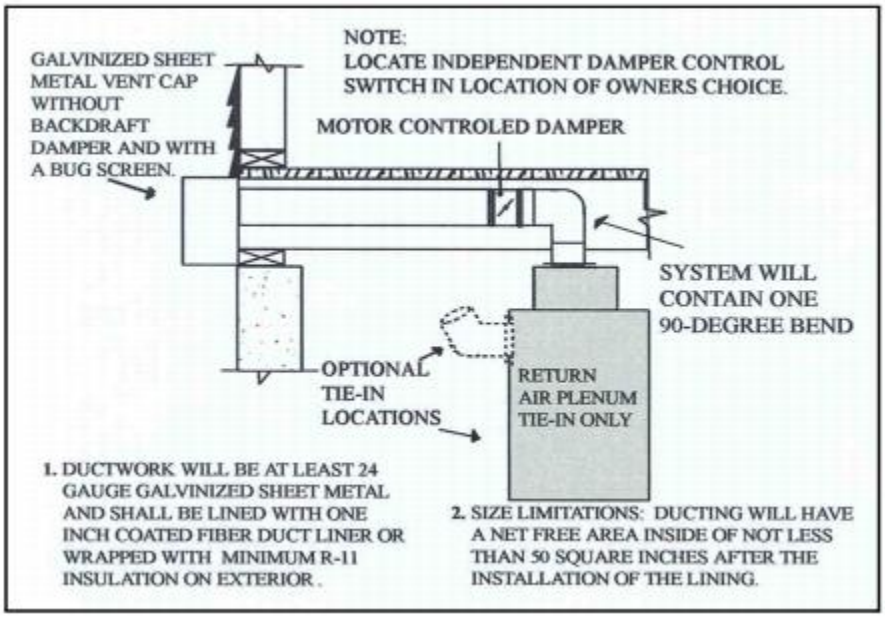
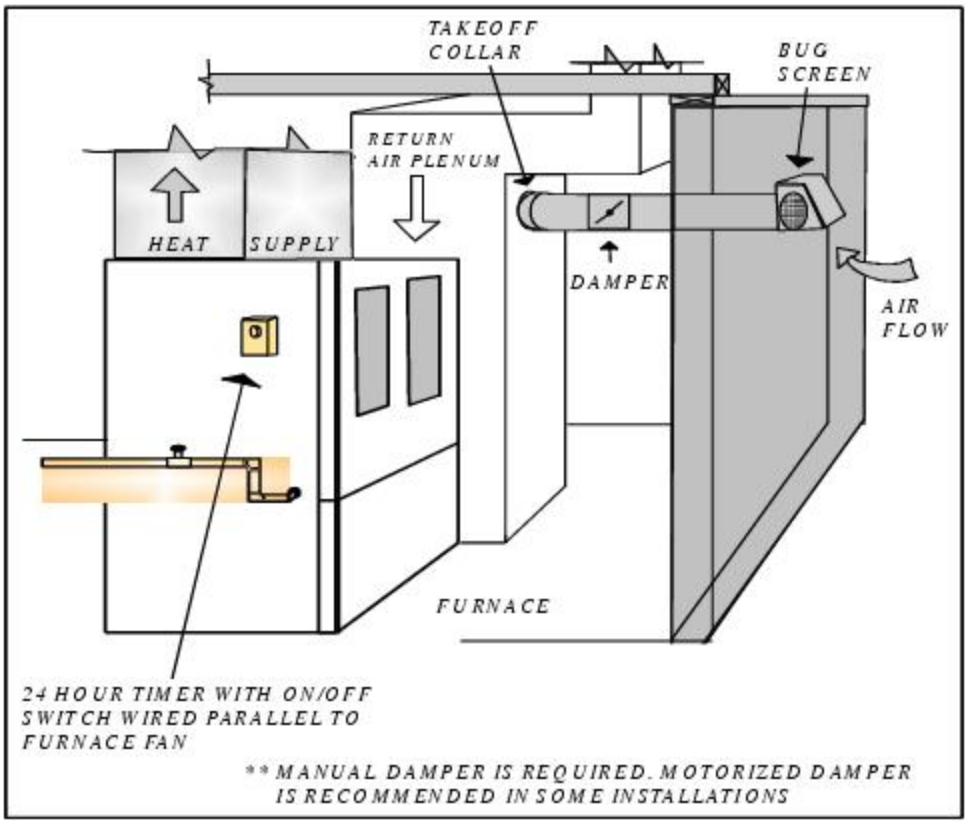


Figure 13.240.100d. VENTILATION DAMPER



2. Gravity vent openings in attics and crawlspaces shall be as close to code minimum in number and size as is practical.

3. All ducts serving bathrooms, laundries, kitchens and similar rooms shall meet a twenty-five (25) dB noise reduction level. The following criteria will be considered as meeting a twenty-five (25) dB noise reduction level:

a. They shall contain at least a five (5) foot length of external sound-absorbing duct insulation, when allowed by the SeaTac Mechanical Code. When allowed, duct may be glass fiber duct insulation of at least R-11 thickness for its entire length. (See Figures 13.240.100e and 13.240.100f.)

b. Each duct shall be provided with a bend in the duct such that there is no direct line-of-sight through the duct from the vent exterior opening to the room opening.

4. Fireplaces shall be provided with well-fitted dampers.

Figures 13.240.100e. BATH OR KITCHEN FAN

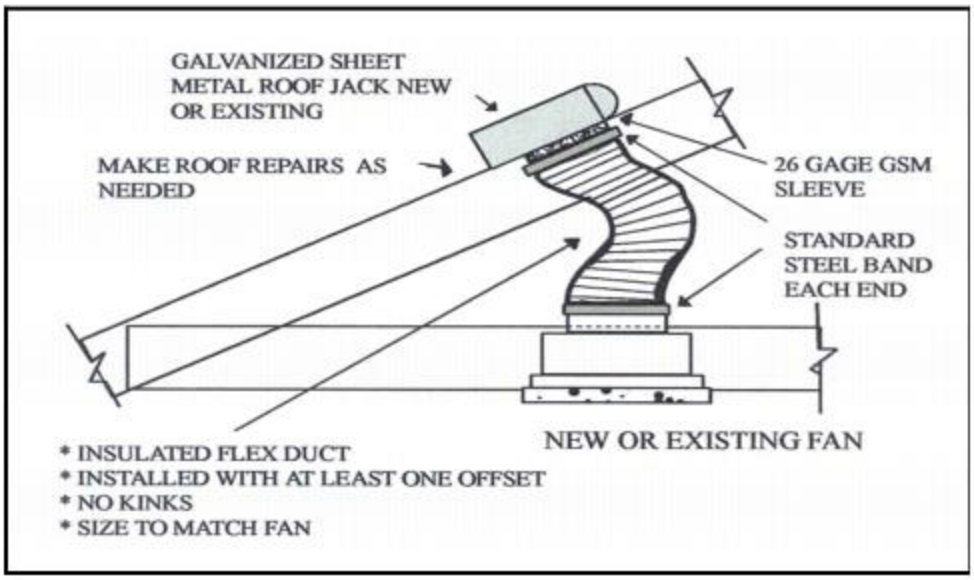
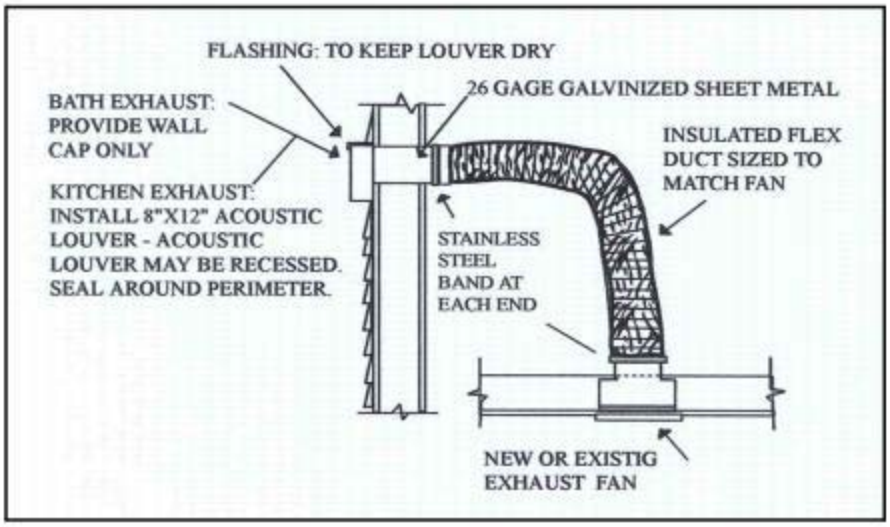


Figure 13.240.100f. BATH OR KITCHEN FAN



(Ord. 04-1008 § 3)

13.240.110 Building requirements for a noise level reduction of thirty (30) dB.
A. Compliance. Compliance with this section shall be deemed to meet requirements for a minimum noise level reduction (NLR) of thirty (30) decibels.

B. Exterior Walls.

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

Exception: Insulated walls that are constructed in accordance with the SeaTac Energy Code and that have interior and exterior sheathing of not less than five-eighths (5/8) inch thick, or walls built in accordance with the following, shall be

considered to meet the STC-35 requirements:

a. Masonry and concrete walls having a weight of at least forty (40) pounds per square foot. These walls are not required to be furred out on the interior of the wall if at least one (1) surface of the concrete block wall is plastered.

b. Stud walls at least four (4) inches in nominal depth shall be considered to meet the above requirements if built as defined below and to ASTM E497, Standard Practice for Installing Sound-Isolating Lightweight Partitions.

i. The interior surface of the exterior walls shall be covered with gypsum board or plaster at least one-half (1/2) inch thick. If the exterior of the wall is stucco or brick veneer, the interior gypsum board or plaster may be fastened rigidly to the studs. If the exterior is of any other siding, the interior gypsum board or plaster shall be fastened resiliently to the studs.

ii. Insulation material at least R-11 shall be installed continuously throughout the cavity space, installed as specified in the Washington State Energy Code. (See Figure 13.240.100a.)

iii. The outside of the wall shall be covered with a continuous layer of composition board, plywood, gypsum board, or a combination of these materials that is not less than three-quarters (3/4) inch thick.

iv. Outside sheathing panels shall be covered with a layer of building paper, or equivalent, installed accordance with the SeaTac Building and Residential Codes.

v. Siding shall be installed over the building paper.

C. Exterior Windows.

1. Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

Exception: Windows meeting the criteria listed below shall be considered to meet the STC-33 requirement:

a. A window that is double-glazed with the glass at least one-eighth (1/8) inch thick with not less than a one-half (1/2) inch air space between the glass panels.

2. All windows shall be installed to meet the following requirements:

a. The glass shall be sealed into the frame in an airtight manner with a nonhardening sealant or a soft elastomer gasket, or gasket tape.

b. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

c. The perimeter of the window frames shall be sealed to the exterior wall construction in accordance with the SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

D. Exterior Doors.

1. Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

Exception: Doors meeting the following criteria shall be considered as meeting the STC-33 rating:

a. Double door construction, where a minimum space between the double doors shall be not less than three (3) inches, is required.

b. At side-hinged doors, at least one (1) of the doors shall be a solid-core wood, or insulated hollow metal, that is not less than one and three-quarters (1 3/4) inch thick at its thinnest point. The second door may be a storm door. Both doors shall meet all requirements of this section.

c. Glass installed in a solid-core wood door, that has a total area of more than two (2) square feet, shall be not less than three-sixteenths (3/16) inch thick.

d. All glass and glazing shall be sealed in an airtight manner with a nonhardening sealant or in a soft elastomer gasket or glazing tape.

e. Exterior sliding glass doors shall be weather-stripped with an efficient airtight gasket system.

f. The double sliding glass doors shall be double-glazed with a separation between glass panels of not less than one-half (1/2) inch. The glass used in the double-glazed glass panels shall be of unequal thickness.

2. All doors shall be installed to meet the following requirements:

a. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

b. The perimeter of the doorframes shall be sealed to the exterior wall construction in accordance with the SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

E. Roof/Ceiling.

1. Combined roof and ceiling construction other than described in this section shall have a laboratory sound transmission class rating of at least STC-44.

Exception: Roof-ceiling assemblies that are constructed in accordance with the SeaTac Energy Code, and the following criteria, shall be considered to meet the STC-44 requirement:

a. The roof deck shall be sheathed with not less than three-quarters (3/4) inch composition board, plywood or gypsum board sheathing, topped by roofing.

b. Ceiling insulation shall be not less than R-19, and not less than the minimum requirement of the SeaTac Energy Code. The insulation shall be installed with not less than six (6) inches average air space between the insulation and the roof deck.

c. Gypsum board or plaster ceilings shall be not less than five-eighths (5/8) inch thick.

d. The ceiling shall be substantially airtight with a minimum of penetrations. Lighting fixtures penetrating the ceiling assembly shall be in accordance with the requirements in the SeaTac Energy Code. (See Figure 13.240.100b.) Other types of penetrations shall be treated in a similar manner to the requirements in the SeaTac Energy Code.

F. Floors.

1. The floor of the lowest occupied rooms shall be slab on fill, below grade, over a fully enclosed basement, or over a crawlspace. All window and door openings in a fully enclosed basement shall be tightly fitted and sealed in accordance with this section. All ventilation openings into the crawlspace shall be constructed in accordance with the provisions elsewhere in this section.

2. Floors over fully enclosed garages and over carports shall have laboratory sound transmission class rating of at least STC-35.

Exception: Fully enclosed garages, where the roof/ceiling, walls, windows, and doors are completed in accordance with the provisions of SMC 13.240.100. The overhead garage door will not be required to meet the provisions in section (D) of this section for doors, if it is an insulated garage door.

Floors over fully enclosed garages and over carports, when constructed as defined below, will be considered to meet minimum requirements.

a. The floor over the garage shall be insulated to not less than an R-19, but not less than that specified in the SeaTac Energy Code.

b. The floor/ceiling assembly shall be sealed in accordance with the SeaTac Energy Code.

G. Ventilation.

1. Interior Building Ventilation. A mechanical ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for the various uses in the 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 ducts of at least twenty-six (26) gauge steel, which shall be insulated with R-11 sound-absorbing insulation, and shall be at least five (5) feet

long with one (1) ninety (90) degree bend.

When homes with forced air heating systems use an “integrated ventilation system” designed in accordance with Section 302 and/or 303 of the SeaTac Ventilation and Indoor Air Quality Code, they shall be considered to meet the above code requirements with the following additions. (See Figures 13.240.100c and 13.240.100d.)

a. The inlet duct shall be sized to allow for it to be insulated with R-11 sound-absorbing insulation.

b. This duct shall be not less than five (5) feet long with at least one (1) ninety (90) degree bend.

2. Gravity vent openings in attics and crawlspaces shall be as close to code minimum in number and size as practical. The openings shall be fitted with transfer ducts at least three (3) feet in length insulated with R-11 sound-absorbing duct insulation. Each duct shall have a ninety (90) degree bend in the duct such that there is no direct line-of-sight from the exterior through the duct into the attic or crawlspace. The interior cross-sectional area shall not be reduced to less than the opening size that the duct is attached to. (See Figures 13.240.110a, 13.240.110b, 13.240.110c, and 13.240.110d.)

3. All ducts serving bathrooms, laundries, kitchens and similar rooms shall meet a thirty (30) dB noise reduction level. The following criteria will be considered as meeting a thirty (30) dB noise reduction level. (See Figures 13.240.100e and 13.240.100f.)

a. They shall contain at least a ten (10) foot length of external sound-absorbing duct insulation, when allowed by the SeaTac Mechanical Code. When allowed, duct insulation may be glass fiber duct insulation of at least R-11 inch thickness for its entire length.

b. Each duct shall be provided with a ninety (90) degree bend in the duct such that there is no direct line-of-sight through the duct from the vent exterior opening to the room opening.

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

4. Fireplaces shall be provided with well-fitted dampers.

Figure 13.240.110a. FOUNDATION VENT

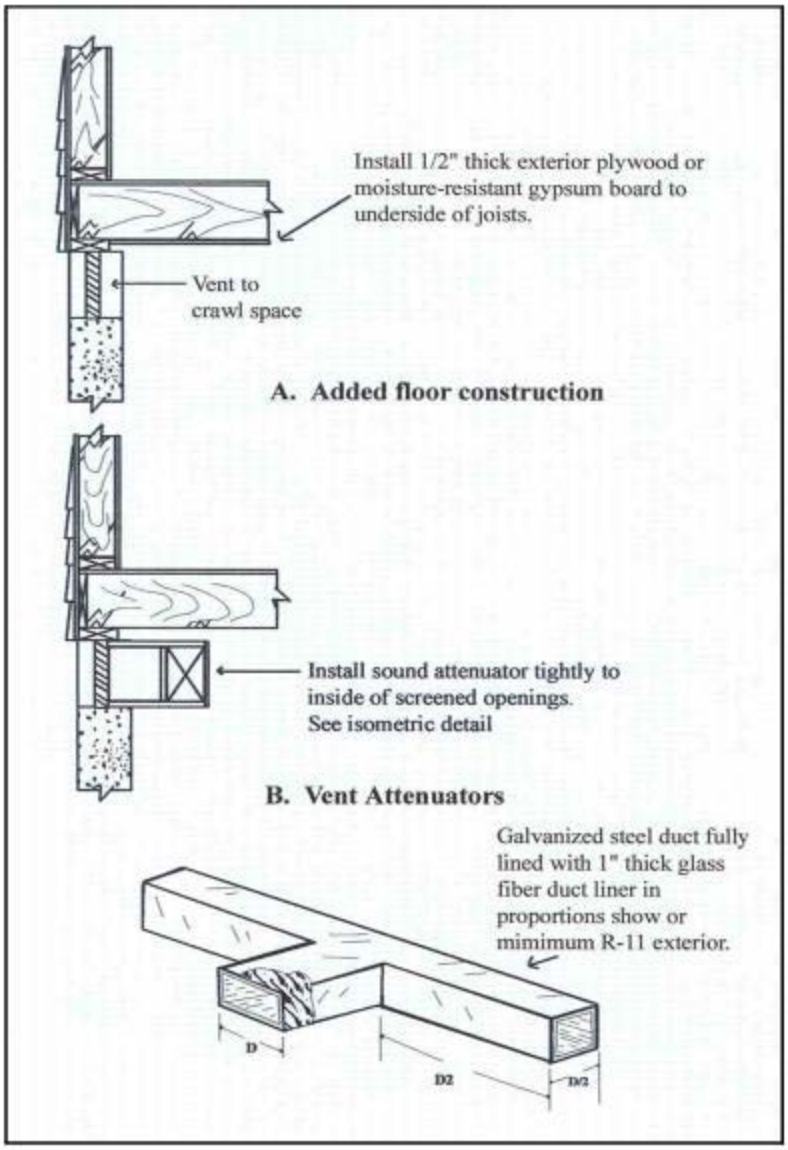


Figure 13.240.110b. RIDGE VENT

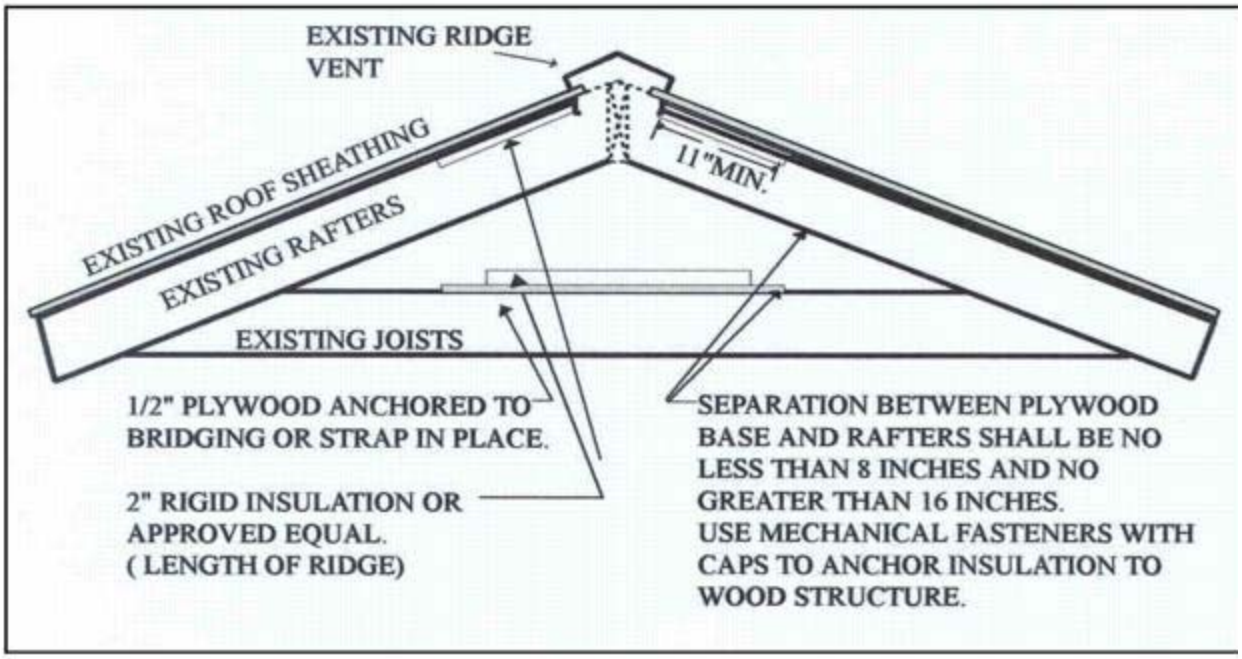


Figure 13.240.110c. GABLE END VENT

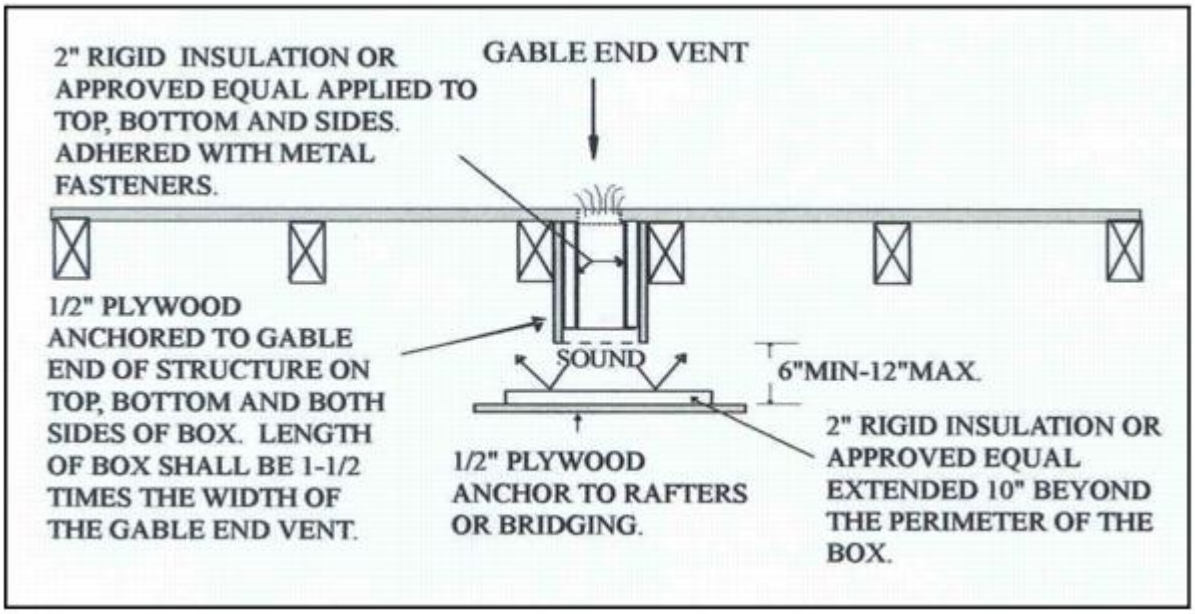
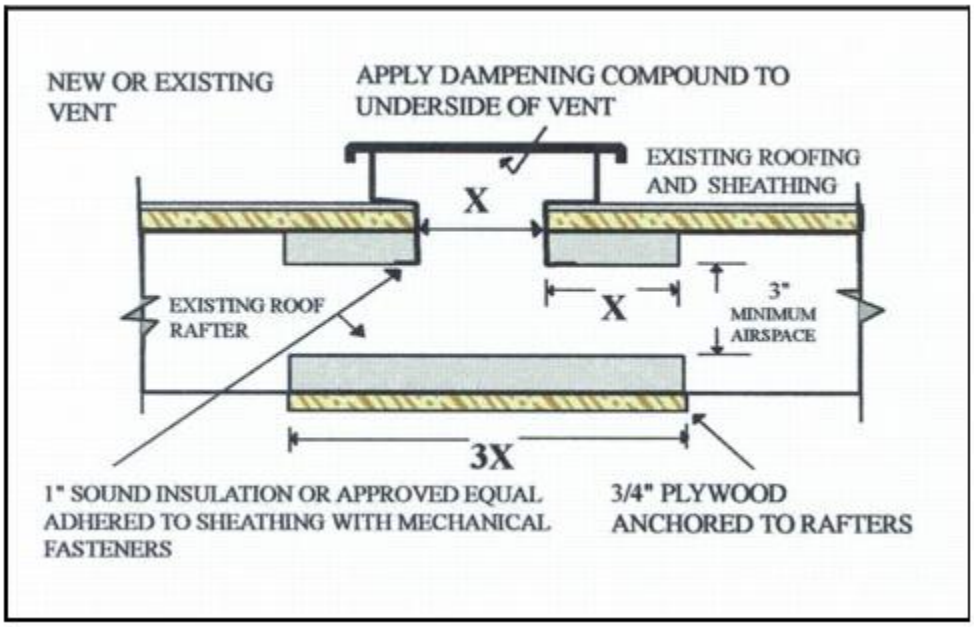


Figure 13.240.110d. ROOF VENT



(Ord. 04-1008 § 3)

13.240.120 Building requirements for a noise level reduction of thirty-five (35) dB.
A. Compliance. Compliance with this section shall be deemed to meet requirements for a minimum noise level reduction (NLR) of thirty-five (35) decibels.

B. Exterior Walls.

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

Exception: The following wall descriptions shall be considered to meet an STC-40 requirement.

a. Masonry and concrete walls having a weight of at least seventy-five (75) pounds per square foot. These walls are not required to be furred out on the interior of the wall if at least one (1) surface of the concrete block wall is plastered.

b. Stud walls at least four (4) inches in nominal depth shall be considered to meet the above requirements if built as defined below and to ASTM E497, Standard Practice for Installing Sound-Isolating Lightweight Partitions.

i. The interior surface of the exterior walls shall be covered with gypsum board or plaster at least five-eighths (5/8) inch thick. If the exterior of the wall is stucco or brick veneer, the interior gypsum board or plaster may be fastened rigidly to the studs. If the exterior is of any other siding, the interior gypsum board or plaster shall be fastened resiliently to the studs.

ii. Insulation of at least R-19, or an R-19 equivalent, shall be installed continuously within, or upon, the building envelope. The installation shall

be as specified in the SeaTac Energy Code. (See Figure 13.240.100a.)

iii. The outside of the wall shall be covered with a continuous layer of composition board, plywood, gypsum board, or a combination of these materials that is not less than one (1) inch thick.

iv. Outside sheathing panels shall be covered with a layer of building paper, or equivalent, installed in accordance with the SeaTac building codes.

v. Siding shall be installed over the building paper.

C. Exterior Windows.

1. Windows shall have a laboratory sound transmission class rating of at least STC-36.

Exception: Windows meeting the criteria listed below shall be considered to meet the STC-36 requirement.

a. A window that is double-glazed with the glass at least three-sixteenths (3/16) inch thick with not less than a one-half (1/2) inch air space between the glass panels.

b. The glass panels shall be of unequal thickness.

2. All windows shall be installed to meet the following requirements:

a. The glass shall be sealed into the frame in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

b. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

c. The perimeter of the window frames shall be sealed to the exterior wall construction in accordance with the SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

D. Exterior Doors.

1. Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33.

Exception: Doors meeting the following criteria shall be considered as meeting the STC-33 rating:

a. Double door construction, with a three (3) foot vestibule or enclosed porch between the doors, is required.

b. The doors shall be side-hinged solid-core wood, or insulated hollow metal

doors, that are not less than one and three-quarters (1 3/4) inches thick at its thinnest point. Both doors shall meet all other requirements of this section.

c. Glass installed in the door that has a total area of more than two (2) square feet shall be not less than three-sixteenths (3/16) inches thick.

d. Exterior sliding glass doors shall be weather-stripped with an efficient airtight gasket system.

e. The double sliding glass doors shall be double-glazed with a separation between glass panels of not less than one-half (1/2) inch. The glass used in the double-glazed glass panels shall be of unequal thickness.

2. All doors shall meet the following requirements:

a. All glass and glazing shall be sealed in an airtight manner with a nonhardening sealant or in a soft elastomer gasket or glazing tape.

b. They shall be weather-stripped to conform to an air infiltration test not to exceed one-half (1/2) cubic foot per minute per foot of crack length, in accordance with ASTM E-283-65-T.

c. The perimeter of the doorframes shall be sealed to the exterior wall construction in accordance with the SeaTac Energy Code. The sealant used shall meet one (1) of the specifications listed in SMC 13.240.080.

E. Roofs/Ceilings.

1. Combined roof and ceiling construction shall have a laboratory sound transmission class rating of at least STC-49.

Exception: Roof-ceiling assemblies that are constructed in accordance with the SeaTac Energy Code shall be considered to meet the STC-49 requirement if they meet the following additional criteria:

a. The roof deck shall be sheathed with not less than one (1) inch composition board, plywood or gypsum board sheathing, topped by roofing.

b. Ceiling insulation shall be not less than R-30, and not less than the minimum requirement of the SeaTac Energy Code. The insulation shall be installed with not less than six (6) inches average air space between the insulation and the roof deck.

c. Gypsum board or plaster ceilings shall be not less than five-eighths (5/8) inch thick mounted to the structural members on resilient clips or channels.

d. The ceiling shall be substantially airtight with a minimum of penetrations. Lighting fixtures penetrating the ceiling assembly shall be in accordance with the requirements in the SeaTac Energy Code. (See Figure 13.240.100b.) Other penetrations shall be treated in a similar manner to the requirements in the

Washington State Energy Code.

2. Open beam roof construction using clay or concrete tiles shall be considered as meeting an STC-49 requirement when one (1) inch plywood decking is used and the insulation levels meet the SeaTac Energy Code requirements.

F. Floors.

1. The floor of the lowest occupied rooms shall be slab on grade or below grade. Crawlspaces are prohibited.

2. Floors over fully enclosed garages and over carports shall have laboratory sound transmission class rating of at least STC-40.

Exception: Fully enclosed garages, where walls, windows, and doors are completed in accordance with the provisions of SMC 13.240.110. The overhead garage door will not be required to meet the provisions in subsection (D) of this section for doors, if it is an insulated garage door.

3. Fully enclosed garages, when constructed as defined below, will be considered to meet minimum requirements.

a. The floor over the garage shall be insulated to not less than an R-19, but not less than that specified in the SeaTac Energy Code.

b. The floor/ceiling assembly shall be sealed in accordance with the SeaTac Energy Code.

c. Two (2) layers of five-eighths (5/8) inch, one and one-quarter (1 1/4) inch minimum thickness gypsum wallboard shall be installed on the garage side of the floor-ceiling assembly.

d. All window and door openings in the garage shall be tightly fitted and sealed in accordance with this section.

4. Carports, when constructed as defined below, will be considered to meet minimum requirements:

a. Carports where the ceiling is insulated to not less than an R-19, but not less than that specified in the SeaTac Energy Code.

b. The floor/ceiling assembly shall be sealed in accordance with the SeaTac Energy Code.

c. Two (2) layers of five-eighths (5/8) inch, one and one-quarter (1 1/4) inch minimum thickness gypsum wallboard shall be installed on the carport side of the floor-ceiling assembly.

G. Ventilation.

1. Interior Building Ventilation. A mechanical ventilation system shall be installed

that will provide the minimum air circulation and fresh air supply requirements for the various uses in the 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 ducts of at least twenty-six (26) gauge steel, which shall be insulated with R-11 sound-absorbing insulation, and shall be at least ten (10) feet long with one (1) ninety (90) degree bend.

When homes with forced air heating systems use an “integrated ventilation system” designed in accordance with Section 302 and/or 303 of the SeaTac Ventilation and Indoor Air Quality Code, they shall be considered to meet the above code requirements with the following additions:

a. The inlet duct shall be sized to allow for it to be insulated with R-11 sound-absorbing insulation.

b. This duct shall be not less than ten (10) feet long with at least one (1) ninety (90) degree bend. (See Figures 13.240.100c and 13.240.100d.)

2. Gravity vent openings in attics shall be as close to code minimum in number and size as practical. The openings shall be fitted with ducts at least six (6) feet in length insulated with R-11 sound-absorbing insulation. Each duct shall have a ninety (90) degree bend in the duct such that there is no direct line-of-sight from the exterior through the duct into the attic. The interior cross-sectional area shall not be reduced to less than the opening size that the duct is attached to.

3. All ducts serving bathrooms, laundries, kitchens and similar rooms having a direct, unimpeded connection with a bedroom shall meet a thirty-five (35) dB noise reduction level. The following criteria will be considered as meeting a thirty-five (35) dB noise reduction level. (See Figures 13.240.100e and 13.240.100f.)

4. They shall contain at least a ten (10) foot length of external R-11 sound-absorbing duct insulation, when allowed by the SeaTac Mechanical Code. When allowed, duct insulation may be glass fiber insulation of at least R-11 thickness for its entire length.

a. Each duct shall be provided with a ninety (90) degree bend in the duct such that there is no direct line-of-sight through the duct from the vent exterior opening to the room opening

b. Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination, which allows proper ventilation. The duct shall be provided with a ninety (90) degree bend. (Ord. 04-1008 § 3)

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16.04.348 Stairways. Section 1009.1 of the International Building Code is supplemented with:

Stairways to mechanical rooms (IBC 1009.12) Platforms and rooms, used only to attend equipment, that are less than 300 square feet in area or have less than 5' headroom are exempted from the requirement of sections 1009.1 to 1009.11. (Ord. 15802 § 25, 2007).

16.04.350 Vertical exit enclosures - smokeproof enclosure. Section 1020.1.7 of the International Building Code is not adopted and following is substituted:

Smokeproof enclosures (IBC 1020.1.7). In buildings required to comply with section 403 or 405, each of the exits of a building that serves stories where the floor surface is located more than 65 feet (19.812 m) above the lowest level of fire department vehicle access or more than 30 feet (9,144 mm) below the level of exit discharge serving such floor levels shall be a smokeproof enclosure or pressurized stairway in accordance with Section 909.20. (Ord. 15802 § 26, 2007: Ord. 14914 § 153, 2004: Ord. 14111 § 58, 2001. Formerly K.C.C. 16.04.050458).

16.04.360 Ventilation - Exceptions. Section 1203.3.2 of the International Building Code is not adopted and the following is substituted:

Exceptions (IBC 1203.3.2). The following are exceptions to section 1203.3 and 1203.3.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings is permitted to be reduced to 1/1500 of the under-floor area where the ground surface is treated with an approved vapor retarder material and the required openings are placed so as to provide cross ventilation of the space.
3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of one cubic foot per minute for each fifty square feet of crawl-space floor area and the ground surface is covered with an approved vapor retarder.

Ventilation openings are not required when the ground surface is covered with an approved vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the Washington state Energy Code, chapter 51-11 WAC. (Ord. 14914 § 155, 2004).

16.04.370 Sound transmission – Sea-Tac sound reduction standards. Section 1207 of the International Building Code is supplemented with the following:

Sea-Tac sound reduction standards (IBC 1207.4). All buildings or structures constructed or placed in use for human occupancy on sites in the vicinity of Sea-Tac International Airport which have been included within or enclosed by the Port of Seattle Noise Remedy Program boundaries shall comply with the provisions in supplemental Appendix Z as adopted by King County. (Ord. 15802 § 27, 2007: Ord. 14914 § 156, 2004).

16.04.380 Performance requirements – Flood resistance. Section 1403.5 of the International Building Code is not adopted and the following is substituted:

Performance requirements – Flood resistance (IBC 1403.5). For buildings in flood hazard areas as established in K.C.C. chapter 21A.24, exterior walls extending below the base flood elevation shall comply with K.C.C. chapter 21A.24. (Ord. 15802 § 28, 2007: Ord. 14914 § 157, 2004).

16.04.390 Performance requirements – Flood resistance for high-velocity wave action areas. Section 1403.6 of the International Building Code is not adopted. (Ord. 15802 § 29, 2007: Ord. 14914 § 158, 2004).

16.04.400 Construction documents - Flood load. Section 1603.1.6 of the International Building Code is not adopted. (Ord. 14914 § 159, 2004).

16.04.510 Swimming pool enclosures and safety devices. Section 3109.3 through 3109.5 of the International Building Code is not adopted. (Ord. 14914 § 177, 2004).

16.04.515 Existing structures – Definitions. Section 3402 of the International Building Code is supplemented with the following.

Definition for administration of the alternative disaster repair provisions of IBC 3411 as amended by King County (IBC 3402.2). The following term shall, for the purposes of administration of IBC 3411.5 have the following meaning:

STORY IN HEIGHT: Any story having its finished floor surface entirely above grade plane, except that a basement shall be considered a story where:

1. The finished surface of the floor above the basement is more than 6 feet above grade plane; or
2. The finished surface of the floor above the basement is more than 12 feet above the finished ground level at any point: or
3. The basement has more than 60% of the perimeter wall framing comprised of studs greater than 36 inches in length. (Ord. 15802 § 36, 2007).

16.04.520 Additions, alterations or repairs - Existing buildings or structures. Section 3403.1 and all of its subsections of the International Building Code are not adopted and the following is substituted:

Existing buildings or structures (IBC 3403.1). Additions or alterations to any building or structure shall conform with the requirements of the code for new construction. Additions or alterations shall not be made to an existing building or structure which will cause the existing building or structure to be in violation of any provisions of this code. An existing building plus additions shall comply with the height and area provisions of Chapter 5. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure.

EXCEPTION: Repair of buildings and structures in flood hazard areas shall comply with K.C.C. chapter 21A.24. (Ord. 15802 § 37, 2007: Ord. 14914 § 178, 2004).

16.04.530 Historic buildings - Flood hazard areas. Section 3407.2 of the International Building Code is not adopted and the following is substituted:

Flood hazard areas (IBC 3407.2). Historic buildings within flood hazard areas shall comply with K.C.C. chapter 21A.24. (Ord. 14914 § 179, 2004).

16.04.540 Existing structures - Compliance alternatives - Applicability. Section 3410.2 of the International Building Code is not adopted and the following is substituted:

Applicability (IBC 3410.2). Structures existing prior to October 22, 1971, in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this section or Sections 3403 through 3407. Sections 3410.2.1 through 3410.2.5 apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, F, M, R, S and U. These sections shall not apply to buildings with occupancies in Group H or I. (Ord. 14914 § 185, 2004).

16.04.545 Existing structures – Compliance alternatives – Flood hazard areas. Section 3410.2.4.1 of the International Building Code is not adopted and the following is substituted:

Flood hazard areas (IBC 3410.2.4.1) Existing buildings within flood hazard areas shall comply with K.C.C. chapter 21A.24. (Ord. 15802 § 38, 2007).

16.04.550 Appendix Z, Sound transmission control - Sea-Tac sound reduction standards - Purpose. The International Building Code is supplemented by the following appendix:

Purpose (IBC AZ 101). The purpose of these sections 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 Sea-Tac International Airport as identified on the maps referenced in the April 24, 1985 Federal Register, Volume 50, No. 79. These sections are not intended to abridge any safety or health requirements required under any other applicable codes or ordinances. (Ord. 15802 § 39, 2007: Ord. 14914 § 187, 2004: Ord. 14111 § 84, 2001: Ord. 12560 § 67, 1996. Formerly K.C.C. 16.04.05064).

16.04.560 Appendix Z, Sound transmission control - Scope. The International Building Code is supplemented by the following appendix:

Scope (IBC AZ 102). 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 which have been included within or enclosed by the Port of Seattle Noise Remedy Program boundaries;

1. Structures relocated shall comply with all requirements of this chapter and,
2. Mobile homes located in mobile home parks shall be exempt from these requirements.

This chapter is intended to supplement the provisions of the International Residential Code, the International Mechanical Code, the Washington state Energy Code, and the International Building Code. In the case of conflict between the chapter and any other applicable codes the more restrictive requirements shall be met. (Ord. 15802 § 40, 2007: Ord. 14914 § 189, 2004: Ord. 14111 § 85, 2001: Ord. 12560 § 68, 1996. Formerly K.C.C. 16.04.05065).

16.04.570 Appendix Z, Sound transmission control - Application to existing buildings. The International Building Code is supplemented by the following appendix:

Application to existing buildings (IBC AZ 103). Additions may be made to existing buildings or structures without making the entire building structure comply with all the requirements of this chapter for new construction. Additions shall be made to comply in the areas being added to the extent that it is deemed practical and effective by the director of the department of development and environmental services in meeting the intent of this chapter.

Any change of use in the occupancy or use of a building previously unapproved for human occupancy to human occupancy use or one previously unused for sleeping purposes to sleeping use shall not be permitted unless the building, structure or portion of the building complies with this chapter. (Ord. 15802 § 41, 2007: Ord. 14914 § 191, 2004: Ord. 14111 § 86, 2001: Ord. 12560 § 69, 1996. Formerly K.C.C. 16.04.05066).

16.04.580 Appendix Z, Sound transmission control - Details. The International Building Code is supplemented by the following appendix:

Details (IBC AZ 104). The plans and specifications shall show in sufficient detail all pertinent data and features of the building, equipment and systems, as herein governed, including, but not limited to: exterior envelope component materials; STC rating 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. (Ord. 15802 § 42, 2007: Ord. 14914 § 193, 2004: Ord. 14111 § 87, 2001: Ord. 12560 § 70, 1996. Formerly K.C.C. 16.04.05067).

16.04.590 Appendix Z, Sound transmission control - Fees. The International Building Code is supplemented by the following appendix:

Fees (IBC AZ 105). The director, department of development and environmental services, is authorized to collect fees for administration, plan checking and inspection. This fee shall be known as the Sea-Tac Noise Fee. The fee shall be calculated as the sum of the fees for special plan review and supplemental inspection. (Ord. 15802 § 43, 2007: Ord. 14914 § 195, 2004: Ord. 14111 § 88, 2001: Ord. 12560 § 71, 1996. Formerly K.C.C. 16.04.05068).

16.04.600 Appendix Z, Sound Transmission - Definitions. The International Building Code is supplemented by the following appendix:

Definitions (IBC AZ 106).

NOISE REDUCTION COEFFICIENT (NRC) is the arithmetic average of the sound absorption coefficients of a material at 250, 500, 1000, and 2000 Hz.

SOUND TRANSMISSION CLASS (STC) is single-number rating for describing sound transmission loss of a wall, roof, floor, window, door, partition or other individual building components or assemblies. (Ord. 15802 § 44, 2007: Ord. 14914 § 197, 2004: Ord. 14111 § 89, 2001: Ord. 12560 § 72, 1996. Formerly K.C.C. 16.04.05069).

16.04.610 Appendix Z, Sound transmission control - Design requirements. The International Building Code is supplemented by the following appendix:

Design requirements (IBC AZ 107). The criteria of these sections establish the minimum requirements for acoustic design of the exterior envelope of buildings and for HVAC systems and its parts. These requirements shall apply to all buildings for human occupancy within the Sea-Tac Noise Program Areas. (Ord. 15802 § 45, 2007: Ord. 14914 § 199, 2004: Ord. 14111 § 90, 2001: Ord. 12560 § 73, 1996. Formerly K.C.C. 16.04.05070).

16.04.620 Appendix Z, Sound transmission control - Sea-Tac noise program area. The International Building Code is supplemented by the following appendix:

Sea-Tac noise program area (IBC AZ 108). 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 and similar structures as determined by the director, within the designated program areas of the Port of Seattle's Noise Remedy Program. The applicable program areas are the Neighborhood Reinforcement Area and the Cost Share Insulation Area. Specific construction requirements for these two areas are:

(a) Neighborhood Reinforcement Area:

1) Bedrooms must comply with AZ 125 which is designed to achieve a noise reduction of 35 db.

2) All other living and working areas must comply with AZ 117 which is designed to achieve a noise reduction level of 30 dB.

(b) Cost-Share Insulations Area:

1) Bedrooms must comply with AZ 117 which is designed to achieve a noise reduction of 30 dB.

2) All other living and working areas must comply with AZ 110 which is designed to achieve a noise reduction level of 25 dB. (Ord. 15802 § 46, 2007: Ord. 14914 § 201, 2004: Ord. 14111 § 91, 2001: Ord. 12560 § 74, 1996. Formerly K.C.C. 16.04.05071).

16.04.630 Appendix Z, Sound transmission control - Air leakage for all buildings. The International Building Code is supplemented by the following appendix:

Air leakage for all buildings (IBC AZ 109).

(a) The requirements of this section shall apply to the design of the exterior envelope of all buildings in the Sea-Tac Noise Program Area designed for human occupancy. The requirements of this section are not applicable to the separation of interior spaces from each other.

(b) The following limitations shall be sealed, caulked, gasketed, or weather-stripped to limit or eliminate air leakage:

1) Exterior joints around window and door frames between the window or door frame and the framing.

2) Openings between walls and foundations.

3) Between the wall sole plate and the rough flooring.

4) Opening at penetrations of utility services through walls, floor, and roofs.

5) Between wall panels at corners.

6) All other openings in the building envelope.

(c) Through the wall, floor, or roof/ceiling penetrations not specifically addressed in these sections shall be designed to limit sound transmission and shall have the same average laboratory sound transmission classification as required for doors. (Ord. 15802 § 47, 2007: Ord. 14914 § 203, 2004: Ord. 14111 § 92, 2001: Ord. 12560 § 75, 1996. Formerly K.C.C. 16.04.05072).

16.04.640 Appendix Z, Sound transmission control - Building requirements for a noise level reduction of 25 dB compliance. The International Building Code is supplemented by the following appendix:

Building requirements for a noise level reduction of 25 dB compliance (IBC AZ 110). Compliance with AZ 111 through AZ 116 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 25 decibels. (Ord. 15802 § 48, 2007: Ord. 14914 § 205, 2004: Ord. 14111 § 93, 2001: Ord. 12560 § 76, 1996. Formerly K.C.C. 16.04.05073).

16.04.650 Appendix Z, Sound transmission control - Exterior walls 25 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior walls 25 dB compliance (IBC AZ 111).

(a) Exterior walls, other than as described in this section, shall have a laboratory sound transmission class rating of at least STC-30; or

(b) Masonry walls having a weight of at least 25 pounds per square feet do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered.

(c) Stud walls shall be at least 4 inches in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

1. Interior surface of the exterior walls shall be of gypsum board or plaster at least 1/2 inch thick, installed on the studs.

2. Continuous composition board, plywood or gypsum board sheathing at least 1/2 inch thick shall cover the exterior side of the wall studs.

3. Sheathing panels shall be covered on the exterior with overlapping building paper.

4. Insulation material at least R-11 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulations shall be glass fiber or mineral wood. (Ord. 15802 § 49, 2007: Ord. 14914 § 207, 2004: Ord. 14111 § 94, 2001: Ord. 12560 § 77, 1996. Formerly K.C.C. 16.04.05074).

16.04.660 Appendix Z, Sound transmission control - Exterior windows 25 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior windows 25 dB compliance (IBC AZ 112).

(a) Windows other than as described in this section shall have a laboratory sound transmission class rating at least STC-28; or

(b) Glass shall be at least 3/16" thick.

(c) All windows that open shall be weather-stripped and airtight when closed so as to conform to an air infiltration test not to exceed 0.5 cubic feet per minute per foot of crack length in accordance with ASTM E-283-65-T.

(d) Glass shall be sealed in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

(e) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following Federal specifications: TT-S-00227, TT-S-00230 or TT-S-00153. (Ord. 15802 § 50, 2007: Ord. 14914 § 209, 2004: Ord. 14111 § 95, 2001: Ord. 12560 § 78, 1996. Formerly K.C.C. 16.04.05075).

16.04.670 Appendix Z, Sound transmission control - Exterior doors 25 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior doors 25 dB compliance (IBC AZ 113).

(a) Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-26; or

(b) All exterior side-hinged doors shall be solid-core wood or insulated hollow metal at least 1-3/4" thick and shall be fully weather-stripped.

(c) Exterior sliding doors shall be weather-stripped with an efficient airtight gasket system with performance that conforms to an air infiltration test not to exceed 0.5 cubic feet per minute per foot of crack length in accordance with ASTM E-283-65-T. The glass in the sliding doors shall be at least 3/16" thick.

(d) Glass in doors, over two square feet in area, shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape.

(e) The perimeter of door frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following federal specifications: TT-S-0227, TT-S-00230 or TT-S-00153. (Ord. 15802 § 51, 2007: Ord. 14914 § 211, 2004: Ord. 14111 § 96, 2001: Ord. 12560 § 79, 1996. Formerly K.C.C. 16.04.05076).

16.04.680 Appendix Z, Sound transmission control - Roofs 25 dB compliance. The International Building Code is supplemented by the following appendix:

Roofs 25 dB compliance (IBC AZ 114).

(a) Combined roof and ceiling construction other than as described in this section and AZ 115 shall have a laboratory sound transmission class rating of at least STC-39; or

(b) With an attic or rafter space at least 6" deep, and with a ceiling below, the roof shall consist of 1/2" composition board, plywood or gypsum board sheathing topped by roofing as required.

(c) Open beam roof construction shall follow the energy insulation standard method for batt insulation.

(d) Skylights shall conform to the window standard of AZ 112. (Ord. 15802 § 52, 2007: Ord. 14914 § 213, 2004: Ord. 14111 § 97, 2001: Ord. 12560 § 80, 1996. Formerly K.C.C. 16.04.05077).

16.04.690 Appendix Z, Sound transmission control - Ceilings 25 dB compliance. The International Building Code is supplemented by the following appendix:

Ceilings 25 dB compliance (IBC AZ 115).

(a) Gypsum board for plaster ceilings at least 1/2 inch thick shall be provided where required by AZ 114(b), above. Ceilings shall be substantially airtight with a minimum of penetrations.

(b) Glass fiber or mineral wood insulation at least R-19 shall be provided above the ceiling between joists. (Ord. 15802 § 53, 2007: Ord. 14914 § 215, 2004: Ord. 14111 § 98, 2001: Ord. 12560 § 81, 1996. Formerly K.C.C. 16.04.05078).

16.04.700 Appendix Z, Sound transmission control - Ventilation 25 dB compliance. The International Building Code is supplemented by the following appendix:

Ventilation 25 dB compliance (IBC AZ 116).

(a) Ventilation systems 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 26 gauge steel, which shall be insulated with R-11 sound absorbing insulation or lined with 1 inch thick coated glass fiber, and shall be at least 5 feet long with a 90 degree bend.

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

(c) Bathroom, laundry and similar exhaust ducts connecting the interior space to the outdoors, shall contain at least a 5-foot length of internal sound-absorbing duct lining or external sound-absorbing duct insulation of at least R-11 thickness. Exhaust ducts less than 5 feet in length shall be fully lined and shall also meet the provisions of AZ 109(c). Each duct shall be provided with a 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 line at least 1 inch thick. In areas (i.e. shower rooms) which produce moisture, duct lining shall be made of non-absorbent material. Commercial kitchen exhaust systems and product conveying duct systems (Chapter 5 IMC) shall be exempt.

(d) Fireplaces shall be provided with well fitted dampers. (Ord. 15802 § 54, 2007: Ord. 14914 § 217, 2004: Ord. 14111 § 99, 2001: Ord. 12560 § 82, 1996. Formerly K.C.C. 16.04.05079).

16.04.710 Appendix Z, Sound transmission control - Building requirements for a noise level reduction of 30 dB compliance. The International Building Code is supplemented by the following appendix:

Building requirements for a noise level reduction of 30 dB compliance (IBC AZ 117). Compliance with AZ 118 through AZ 124 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 30 decibels. (Ord. 15802 § 55, 2007: Ord. 14914 § 219, 2004: Ord. 14111 § 100, 2001: Ord. 12560 § 83, 1996. Formerly K.C.C. 16.04.05080).

16.04.720 Appendix Z, Sound transmission control - Exterior walls 30 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior walls 30 dB compliance (IBC AZ 118).

(a) Exterior walls, other than as described in this section, shall have a laboratory sound transmission class rating of at least STC-35; or

(b) Masonry walls having a weight of at least 40 pounds per square foot do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered.

(c) Stud walls shall be at least 4" in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

1. Interior surface of the exterior walls shall be of gypsum board or plaster at least 1/2 inch thick, installed on the studs. The gypsum board or plaster may be fastened rigidly to the studs if the exterior is brick veneer or stucco. If the exterior is siding, the interior gypsum board or plaster must be fastened resiliently to the studs.

2. Continuous composition board, plywood, or gypsum board sheathing at least 3/4" thick shall cover the exterior side of the wall studs.

3. Sheathing panels shall be covered on the exterior with overlapping building paper.

4. Insulation material at least R-11 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulation shall be glass fiber or mineral wool. (Ord. 15802 § 56, 2007: Ord. 14914 § 221, 2004: Ord. 14111 § 101, 2001: Ord. 12560 § 84, 1996. Formerly K.C.C. 16.04.05081).

16.04.730 Appendix Z, Sound transmission control - Exterior windows 30 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior window 30 dB compliance (IBC AZ 119).

(a) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33; or

(b) Windows shall be double glazed with panes at least 1/8” thick. Panes of glass shall be separated by a minimum 1/2" airspace.

(c) Double-glazed windows shall employ fixed sash or efficiently weather-stripped, operable sash. The sash shall be rigid and weather-stripped with material that is compressed airtight when the window is closed so as to conform to an air infiltration test not to exceed 0.5 cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.T.

(d) Glass shall be sealed in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

(e) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following Federal specifications: TT-S-0027, TT-S-00230 or TT-S-00153. (Ord. 15802 § 57, 2007: Ord. 14914 § 223, 2004: Ord. 14111 § 102, 2001: Ord. 12560 § 85, 1996. Formerly K.C.C. 16.04.05082).

16.04.740 Appendix Z, Sound transmission control - Exterior doors 30 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior doors 30 dB compliance (IBC AZ 120).

(a) Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33; or

(b) Double door construction is required for all door openings to the exterior. Openings fitted with side-hinged doors shall have one solid core of wood or be an insulated hollow metal door at least 1-3/4" thick separated by an airspace of at least 3" from another door, which can be a storm door. Both doors shall be tightly fitted and weather-stripped.

(c) The glass of double glazed sliding doors shall be separated by a minimum 1/2" airspace. Each sliding frame shall be provided with an efficiently airtight weather-stripping material as that conforms to an air infiltration test not to exceed 0.2 cubic feet per minute per foot of crack length in accordance with ASTM E-283-65-T.

(d) Glass (over two square feet in area) of all doors shall be at least 3/16" thick. Glass of double sliding doors shall not be equal in thickness.

(e) The perimeter of door frames shall be sealed airtight to the exterior wall construction (framing) with a sealant conforming to one of the following Federal specifications: TT-S-0227, TT-S-00230 or TT-S-00153.

(f) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape. (Ord. 15802 § 58, 2007: Ord. 14914 § 225, 2004: Ord. 14111 § 102, 2001: Ord. 12560 § 86, 1996. Formerly K.C.C. 16.04.05083).

16.04.750 Appendix Z, Sound transmission control - Roofs 30 dB compliance. The International Building Code is supplemented by the following appendix:

Roofs 30 dB compliance (IBC AZ 121).

(a) Combined roof and ceiling construction other than described in this section and AZ 122 shall have a laboratory sound transmission class rating of at least STC-44; or

(b) With an attic or rafter space at least 6" deep, and with a ceiling below, the roof shall consist of 3/4" composition board, plywood or gypsum board sheathing topped by roofing as required.

(c) Open beam roof construction shall follow the energy insulation standard method for batt insulation, except use 1" plywood decking with shakes or other suitable roofing material.

(d) Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-33. (Ord. 15802 § 59, 2007: Ord. 14914 § 227, 2004: Ord. 14111 § 104, 2001: Ord. 12560 § 87, 1996. Formerly K.C.C. 16.04.05084).

16.04.760 Appendix Z, Sound transmission control - Ceilings 30 dB compliance. The International Building Code is supplemented by the following appendix:

Ceilings 30 dB compliance (IBC AZ 122).

(a) Gypsum board or plaster ceilings at least 5/8" thick shall be provided where required by AZ 121(b) above. Ceilings shall be substantially airtight with a minimum of penetrations.

(b) Glass fiber or mineral wool insulation of least R-19 shall be provided above the ceiling between joists. (Ord. 15802 § 60, 2007: Ord. 14914 § 229, 2004: Ord. 14111 § 105, 2001: Ord. 12560 § 88, 1996. Formerly K.C.C. 16.04.05085).

16.04.770 Appendix Z, Sound transmission control - Floors 30 dB compliance. The International Building Code is supplemented by the following appendix:

Floors 30 dB compliance (IBC AZ 123). The floor of the lowest occupied rooms shall be slab on fill, below grade, or over a fully enclosed basement or crawl space. All door and window openings in the fully enclosed basement shall be tightly fitted.

EXCEPTION: Floors over fully enclosed garages or over carports shall have a laboratory sound transmission class rating of at least STC-35. The floor over the garage or carport shall be insulated to not less than R-19, but not less than that specified by the Washington state energy code and enclosed with one layer of 5/8" type 'X' GWB on the garage or carport side or any equivalent approved garage or dwelling separation assembly in conformance with IRC section R309.2. (Ord. 15802 § 61, 2007: Ord. 14914 § 231, 2004: Ord. 14111 § 106, 2001: Ord. 12560 § 89, 1996. Formerly K.C.C. 16.04.05086).

16.04.780 Appendix Z, Sound transmission control - Ventilation 30 dB compliance. The International Building Code is supplemented by the following appendix:

Ventilation 30 dB compliance (IBC AZ 124).

(a) A ventilation system shall be installed that would 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 26 gauge steel, which shall be lined with 1" thick coated glass fiber or insulated with R-11 sound-absorbing duct insulation, and shall be at least 5 feet long with one 90 degree bend.

(b) Gravity vent openings in attics or crawlspaces shall be as close to minimum code in number and size, as practical. The openings shall be fitted with transfer ducts at least 3 feet in length containing internal 1" thick coated fiberglass sound-absorbing duct lining or insulated with R-11 sound-absorbing duct insulation. 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 the interior space to the outdoors, shall contain at least 10-foot length of internal sound-absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also be the provisions of AZ 109(c). 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 1" thick or insulated with R-11 sound-absorbing duct insulation. In areas (i.e. shower rooms) which produce moisture, duct lining shall be made of non-absorbent material. Commercial kitchen exhaust systems and product conveying duct systems (Chapter 5 U.M.C.) shall be exempt.

(d) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination which allows proper ventilation. The duct shall be provided with a 90 degree bend. (Ord. 15802 § 62, 2007: Ord. 14914 § 233, 2004: Ord. 14111 § 107, 2001: Ord. 12560 § 90, 1996. Formerly K.C.C. 16.04.05087).

16.04.790 Appendix Z, Sound transmission control - Building requirements for a noise level reduction of 35 dB compliance. The International Building Code is supplemented by the following appendix:

Building requirements for a noise level reduction of 35 dB compliance (IBC AZ 125). Compliance with AZ 126 through AZ 132 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 35 decibels. (Ord. 15802 § 63, 2007: Ord. 14914 § 235, 2004: Ord. 14111 § 108, 2001: Ord. 12560 § 91, 1996. Formerly K.C.C. 16.04.05088).

16.04.800 Appendix Z, Sound transmission control - Exterior walls 35 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior walls 35 dB compliance (IBC AZ 126).

(a) Exterior walls, other than s described in this section shall have a laboratory sound transmission class rating of at least STC-40; or

(b) Masonry walls having a weight of at least 75 pounds per square feet do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered.

(c) Stud walls shall be at least 4" in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

1. Interior surface of the exterior walls shall be of gypsum board or plaster at least 5/8" thick installed on the studs. The gypsum board or plaster may be fastened rigidly to the studs if the exterior is brick veneer or stucco. If the exterior is stucco or siding, the interior gypsum board or plaster must be fastened resiliently to the studs or double thickness must be used.

2. Continuous composition board, plywood, or gypsum board sheathing, or any combination of these materials of unequal thickness, that is at least 1″ thick shall cover the exterior side of the wall studs.

3. Sheathing panels shall be butted tightly and covered on the exterior with overlapping building paper.

4. Insulation material at least R-19 or R-19 equivalent shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulation shall be glass fiber or mineral wool. (Ord. 15802 § 64, 2007: Ord. 14914 § 237, 2004: Ord. 14111 § 109, 2001: Ord. 12560 § 92, 1996. Formerly K.C.C. 16.04.05089).

16.04.810 Appendix Z, Sound transmission control - Exterior windows 35 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior window 35 dB compliance (IBC AZ 127).

(a) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-38; or

(b) Windows shall be double glazed with panes at least 3/16" thick. Panes of glass shall be separated by a minimum 1/2" airspace and shall not be equal in thickness.

(c) Double-glazed windows shall employ fixed sash or efficiently weather-stripped, operable sash. The sash shall be rigid and weather-stripped with material that is compressed airtight when the window is closed so as to conform to an air infiltration test not to exceed 0.5 cubic foot per minute per foot of crack length in accordance with ASTM-E-283-65-T.

(d) Glass shall be sealed in an airtight manner with a nonhardening sealant of soft elastomer gasket or gasket tape.

(e) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following Federal specifications: TT-S-00227, TT-S-00230 or TT-S-00153. (Ord. 15802 § 65, 2007: Ord. 14914 § 239, 2004: Ord. 14111 § 110, 2001: Ord. 12560 § 93, 1996. Formerly K.C.C. 16.04.05090).

16.04.820 Appendix Z, Sound transmission control - Exterior doors 35 dB compliance. The International Building Code is supplemented by the following appendix:

Exterior doors 35 dB compliance (IBC AZ 128).

(a) Doors other than as described in this section shall have a laboratory sound transmission class rating of a least STC 33; or

(b) Double door construction is required for all door openings to the exterior. The doors shall be side-hinged and shall be solid core wood or insulated hollow metal door at least 1-3/4" thick, separated by a vestibule or enclosed porch at least 3 feet in length. Both doors shall be tightly fitted and weather-stripped.

(c) The glass or double glazed sliding doors shall be separated by a minimum 1/2" airspace. Each sliding door frame shall be provided with an efficiently airtight weather-stripping material that conforms to an air infiltration test not to exceed 0.5 cubic feet per minute per foot of crack length in accordance with ASTM E-283-65-T.

(d) Glass of all doors shall be at least 3/16” thick. Glass of double sliding doors shall not be equal in thickness.

(e) The perimeter of door frames shall be sealed airtight to the exterior wall construction (framing) with a sealant conforming to one of the following Federal specifications: TT-S-00227, TT-S-00230 or TT-S-00153.

(f) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket of glazing tape. (Ord. 15802 § 66, 2007: Ord. 14914 § 241, 2004: Ord. 14111 § 111, 2001: Ord. 12560 § 94, 1996. Formerly K.C.C. 16.04.05091).

16.04.830 Appendix Z, sound transmission control - Roofs 35 dB compliance. The International Building Code is supplemented by the following appendix:

Roofs 35 dB compliance (IBC AZ 129).

(a) Combined roof and ceiling construction other than as described in this section and AZ 130 shall have a laboratory sound transmission class rating of at least STC-49; or

(b) With an attic or rafter space at least 6” deep, and with a ceiling below, the roof shall consist of composition board, plywood or gypsum board sheathing, or any combination of these materials of unequal thickness, that is at least 1" thick and topped by roofing as required.

(c) Open beam roof construction shall follow the energy insulation standard method for batt insulation, except use 1” plywood decking with concrete or clay tiles as roofing material. (Ord. 15802 § 67, 2007: Ord. 14914 § 243, 2004: Ord. 14111 § 112, 2001: Ord. 12560 § 95, 1996. Formerly K.C.C. 16.04.05092).

16.04.840 Appendix Z, Sound transmission control - Ceiling 35 dB compliance. The International Building Code is supplemented by the following appendix:

Ceiling 35 dB compliance (IBC AZ 130).

(a) Gypsum board or plaster ceiling at least 5/8" shall be provided where required by AZ 129, above. Ceiling shall be substantially airtight with a minimum of penetrations. The ceiling panels shall be mounted on resilient clips or channels.

(b) Glass fiber or mineral wool insulation at least R-30 shall be provided above the ceiling between joists. (Ord. 15802 § 68, 2007: Ord. 14914 § 245, 2004: Ord. 14111 § 113, 2001: Ord. 12560 § 96, 1996. Formerly K.C.C. 16.04.05093).

16.04.850 Appendix Z, Sound transmission control - Floors 35 dB compliance. The International Building Code is supplemented by the following appendix:

Floors 35 dB compliance (IBC AZ 131). The floor of the lowest occupied rooms shall be slab on fill or below grade or over a fully enclosed basement or crawl space. All door and window openings in the fully enclosed basement shall be tightly fitted.

EXCEPTION: Floors over fully enclosed garages or over carports shall have a laboratory sound transmission class rating of at least STC-40. The floor over the garage or carport shall be insulated to not less than R-19, but not less than that specified by the Washington state energy code and enclosed with two layers of 5/8" type 'X' GWB on the garage or carport side or any equivalent approved garage/dwelling separation assembly in conformance with IRC section R309.2. (Ord. 15802 § 69, 2007: Ord. 14914 § 247, 2004: Ord. 14111 § 114, 2001: Ord. 12560 § 97, 1996. Formerly K.C.C. 16.04.05094).

16.04.860 Appendix Z, Sound transmission control - Ventilation 35 dB compliance. The International Code is supplemented by the following appendix:

Ventilation 35 dB compliance (IBC AZ 132).

(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 opening to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least 26 gauge steel, which shall be lined with 1″ thick coated glass fiber or insulated with R-11 sound-absorbing duct insulation, and shall be at least 10 feet long with one 90 degree bend.

(b) Gravity vent openings in attics shall be as close to minimum code in number and size, as practical. The openings shall be fitted with transfer ducts at least 6 feet in length containing internal 1" thick coated fiberglass sound-absorbing duct lining or insulated with R-11 sound-absorbing duct insulation. Each duct shall have a lined 90 degree bend in the duct 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 the interior space to the outdoors, shall contain at least a 10-foot length of internal sound-absorbing duct lining or insulated with R-11 sound-absorbing duct insulation. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of AZ 109(c). 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 1″ thick or R-11 sound-absorbing duct insulation. In areas such as shower rooms which produce moisture, duct lining shall be made of non-absorbent material. Commercial kitchen exhaust systems and product conveying duct systems (Chapter 51) shall be exempt.

(d) Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination which allows proper ventilation. The duct shall be provided with a 90 degree bend. (Ord. 15802 § 70, 2007: Ord. 14914 § 249, 2004: Ord. 14111 § 115, 2001: Ord. 12560 § 98, 1996. Formerly K.C.C. 16.04.05095).

16.04.870 International Building and Residential Code Standards - Installation of sprinkler systems in one and two family dwellings and manufactured homes. The installation of sprinklers systems in Group R-3 Occupancies required in this code shall be in accordance with the Standard for the Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes, N.F.P.A. 13 D - Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes, 1994 Edition. (Ord. 14111 § 116, 2001: Ord. 12560 § 99, 1996. Formerly K.C.C. 16.04.05096).

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