

## Glossary

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**Airport Acceptance Rate** – The maximum number of arrivals at an airport and varies depending upon several conditions such as number of runways available, weather conditions, direction of flow, types of approaches and operational conditions.

**ARTCC (Air Route Traffic Control Center)** – A regional facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight.

**ATA (Airport Traffic Area)** – Class D Airspace. Airspace established around airports with operating air traffic control towers. Class D Airspace generally consists of a 5-mile horizontal radius surrounding the airport and with a ceiling upper limit of 2,500 feet above ground level. Pilots must maintain radio contact with the ATCT while operating in this airspace.

**ATCT (Air Traffic Control Tower)** – The facility that supervises, directs, and monitors the arrival and departure of air traffic at an airport and in the immediate airspace surrounding an airport (about 5 miles).

**IFR (Instrument Flight Rules)** – Rules governing the procedures for instrument flight. Instrument flight rules prevail when weather conditions are less than those required for Visual Flight Rules.

**SID (Standard Instrument Departure)** – A preplanned IFR air traffic control departure procedure published for pilot use.

**STAR (Standard Terminal Arrival Route)** – A preplanned IFR air traffic control arrival procedure published for pilot use.

**TCA (Terminal Control Area)** – Class B Airspace. Airspace surrounding high-density traffic airports (such as Sea-Tac) in which both VFR and IFR operations are permitted but an ATCT clearance is required to enter the airspace.

**TRACON (Terminal Radar Approach Control)** – The facility that monitors the air traffic in the airspace surrounding airports with moderate to high-density traffic. The TRACON has jurisdiction in the control and separation of air traffic from the boundary area of the ATCT at an airport to a distance of up to 50 miles from the airport.

**VFR (Visual Flight Rules)** – Rules that govern the procedures for conducting flight under visual weather conditions.

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(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.

NEW SECTION. SECTION 99. There is added to the Uniform Building Code Standards a new section to read as follows:

UBC Standard 9-4 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.

NEW SECTION. SECTION 100. Section 108.1 of the Uniform Mechanical Code is hereby repealed, and the following is substituted:

UMC 108.1 General. The building official is hereby authorized and directed to enforce all the provisions of this code, except the fuel gas piping requirements contained in Chapter 22 of Appendix B. Fuel-gas piping shall be enforced by the director of public health. For such purposes the building official and public health director shall have the powers of a law enforcement officer with right to entry and serving of notice and orders.

The building official shall have the power to render interpretations of this code and to adopt and enforce rules and regulations supplemental to this code as may be deemed necessary in order to clarify the application of the provisions of this code. Such interpretations, rules and regulations shall be in conformity with the intent and purpose of this code.

NEW SECTION. SECTION 101. Section 108.3 of the Uniform Mechanical Code is hereby repealed, and the following is substituted:

UMC 108.3 Right of entry. The right of entry shall be in accordance with the procedures specified in Title 23 of the King County Code.

NEW SECTION. SECTION 97. There is added to Appendix Chapter 12, Division

II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1240 Floors. The floor of the lowest occupied rooms shall be slab on fill or below grade.

NEW SECTION. SECTION 98. There is added to Appendix Chapter 12, Division

II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1241 Ventilation. (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 20 gauge steel, which shall be lined with 1" thick coated glass fiber, 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. 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. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of Section 1218(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.

(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) as indicated in Section 1236(e).

(f) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket of glazing tape.

NEW SECTION. SECTION 95. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1238 Roofs. (a) Combined roof and ceiling construction other than as described in this section and Section 1239 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 1" 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 concrete or clay tiles as roofing material.

NEW SECTION. SECTION 96. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1239 Ceiling. (a) Gypsum board or plaster ceiling at least 5/8" shall be provided where required by Section 1238, 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.

NEW SECTION. SECTION 93. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1236 Exterior windows. (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.

NEW SECTION. SECTION 94. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1237 Exterior doors. (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 specified in Section 1236(c).

NEW SECTION. SECTION 91. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1234 Building requirements for a noise level reduction of 35 dB compliance. Compliance with Section 1235 through Section 1241 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 35 decibels.

NEW SECTION. SECTION 92. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1235 Exterior walls. (a) Exterior walls, other than as 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 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 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulation shall be glass fiber or mineral wool.

NEW SECTION. SECTION 90. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1233 Ventilation. (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 20 gauge steel, which shall be lined with 1" thick coated glass fiber, and shall be at least 5 feet long with one 90 degree bend.

(b) Gravity vent openings in attic 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. 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 Section 1218(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. 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.

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NEW SECTION. SECTION 87. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1230 Roofs. (a) Combined roof and ceiling construction other than described in this section and Section 1231 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.

NEW SECTION. SECTION 88. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1231 Ceilings. (a) Gypsum board or plaster ceilings at least 5/8" thick shall be provided where required by Section 1230(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.

NEW SECTION. SECTION 89. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1232 Floors. 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.



(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.

NEW SECTION. SECTION 86. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1229 Exterior doors. (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 specified in Section 1228(c).

(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) as indicated in Section 1228 (c).

(f) Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape.

NEW SECTION. SECTION 84. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1227 Exterior walls. (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.

NEW SECTION. SECTION 85. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1228 Exterior windows. (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.

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NEW SECTION. SECTION 82. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1225 Ventilation. (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 20 gauge steel, which shall be lined with 1 inch thick coated glass fiber, and shall be a 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. Exhaust ducts less than 5 feet in length shall be fully lined and shall also meet the provisions of Section 1218(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 U.M.C.) shall be exempt.

(d) Fireplaces shall be provided with well fitted dampers.

NEW SECTION. SECTION 83. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1226 Building requirements for a noise level reduction of 30 dB compliance. Compliance with Section 1227 through Section 1233 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 30 decibels.

(c) Exterior sliding doors shall be weather-stripped with an efficient airtight gasket system with performance as specified in Section 1221(c). 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 as described in Section 1221(e).

NEW SECTION. SECTION 80. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1223 Roofs. (a) Combined roof and ceiling construction other than as described in this section and Section 1224 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 Section 1221.

NEW SECTION. SECTION 81. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1224 Ceilings. (a) Gypsum board for plaster ceilings at least 1/2 inch thick shall be provided where required by Section 1223(b), above. Ceilings shall be substantially airtight with a minimum of penetrations.

(b) Glass fiber or mineral wool insulation at least R-19 shall be provided above the ceiling between joists.

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 wool.

NEW SECTION. SECTION 78. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1221 Exterior windows. (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.

NEW SECTION. SECTION 79. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1222 Exterior doors. (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.

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- 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.

NEW SECTION. SECTION 76. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1219 Building requirements for a noise level reduction of 25 dB compliance. Compliance with Section 1220 through Section 1225 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 25 decibels.

NEW SECTION. SECTION 77. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1220 Exterior walls. (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.

UBC 1217 SEA-TAC Noise Program area. 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 Section 1234 which is designed to achieve a noise reduction of 35 db.

2) All other living and working areas must comply with Section 1226 which is designed to achieve a noise reduction level of 30 dB.

(b) Cost-Share Insulations Area:

1) Bedrooms must comply with Section 1226 which is designed to achieve a noise reduction of 30 dB.

2) All other living and working areas must comply with Section 1219 which is designed to achieve a noise reduction level of 25 dB.

NEW SECTION. SECTION 75. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1218 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 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.

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of apparatus and equipment; equipment and system controls and other pertinent data to indicate conformance with the requirements herein.

NEW SECTION. SECTION 71. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1214 Fees. 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.

NEW SECTION. SECTION 72. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1215 Definitions. 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.

NEW SECTION. SECTION 73. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1216 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 its parts. These requirements shall apply to all buildings for human occupancy within the Sea-Tac Noise Program Areas.

NEW SECTION. SECTION 74. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:



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 Uniform Mechanical Code, the adopted Energy Code, and the remainder of the Uniform Building Code. In the case of conflict between the chapter and any other applicable codes the more restrictive requirements shall be met.

NEW SECTION. SECTION 69. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1212 Application to existing buildings. 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.

NEW SECTION. SECTION 70. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

UBC 1213 Details. 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

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of the device does not conflict with the requirements of this code or the requirements of other ordinances regulating safe exits.

NEW SECTION. SECTION 65. There is added to Appendix Chapter 10, Security Provisions, of the Uniform Building Security Code a new section to read as follows:

**UBSC 1033 - Definitions.**

For the purpose of this chapter, certain terms are defined as follows:

**DWELLING UNIT** as used in the Uniform Building Security Code is defined pursuant to K.C.C. 21A.06.345.

**RENT OR LEASE** means an agreement, oral or written, relating to the use and occupancy of a dwelling.

NEW SECTION. SECTION 66. Sections 1208 and 1209 of Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code are hereby repealed.

NEW SECTION. SECTION 67. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

**UBC 1210 Sea-Tac sound reduction standards - Purpose.** 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.

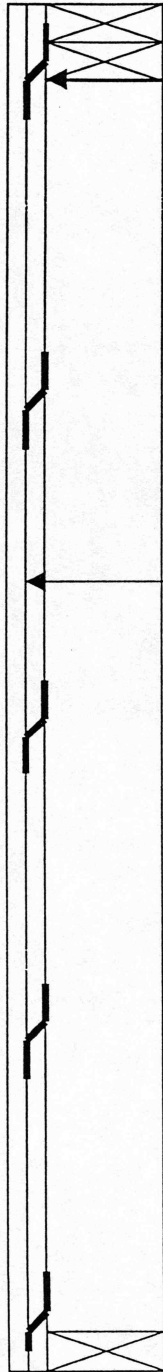
NEW SECTION. SECTION 68. There is added to Appendix Chapter 12, Division II, Sound Transmission Control, of the Uniform Building Code, a new section to read as follows:

**UBC 1211 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



**King County**

FIRE STOPPING RESILIENT CHANNEL IN THE EXTERIOR WALL  
AS PER UBC SECTION 708.2.2



1. Set top channel at the top plate line.

**FIRE STOPPING OPTIONS**

- 2. Mineral fiber strips at 10' on center vertically.
- 3. Run a vertical channel at 10' on center and fire caulk any openings.
- 4. Run vertical strips of 1/2" drywall at 10' on center.

2. Insulation material of a type approved by the building official, (listed), and rated not less than R-30 shall be provided above the ceiling between joist.

### **Floors in Area 2**

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

### **Ventilation in Area 2**

The Washington State Code on Ventilation and Indoor Air Quality shall prevail. The following items shall be included. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty (20) gauge steel, which shall be lined with one inch (1") thick coated glass fiber, and shall be at least five feet (5') long with one (1) ninety degree bend.

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 (6') in length containing internal one inch (1") thick coated fiber glass sound-absorbing duct lining. Each duct shall have a lined ninety degree bend in the duct such that there is no direct line of sight from the exterior through the duct into the attic.

Bathroom, laundry and similar exhaust ducts connecting interior space to the outdoors 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 venting cross section to the room opening cross section. Duct lining shall be coated glass fiber duct liner at least one inch (1") thick.

Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing damper across the exterior termination which allows for proper ventilation.

4. The perimeter of the window frames shall be sealed air-tight 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, (listed).

### Exterior Doors in Area 2

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

1. 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 (1-3/4") thick, separated by an airspace of at least three inches (3") from another door, storm door. Both doors shall be tightly fitted and weatherstripped.
2. The glass of double glazed sliding doors shall be separated by a minimum one-half inch (1/2") airspace. Each sliding frame shall be provided with an efficiently airtight weatherstripping material as specified in (d) above.
3. Glass, over two (2) square feet in area, of all doors, shall be at least three-sixteenths (3/16") thick. Glass of double sliding doors shall not be of equal thickness.
4. The perimeter of door frames shall be sealed airtight to the exterior wall construction (framing) as described in section (d) above.
5. Glass in doors shall be sealed in an airtight non-hardening sealant or in a soft elastomer gasket or gasket tape.

### Roofs in Area 2

Combined roof and ceiling construction on other than as described in this section and the section on ceilings shall have a laboratory sound transmission class of STC-44; (OR)

1. With an attic or rafter space at least six inches (6") deep, and with a ceiling below, the roof shall consist of three-quarter inch (3/4") composition board, plywood or gypsum board sheathing topped with an approved roofing material.
2. Open beam construction shall follow the energy insulation standard method for batt insulation, except use one inch (1") plywood decking with concrete or clay tiles.
3. **Composition board shall mean asphaltic impregnated board or an approved sound board.**
4. Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-33. Skylight assemblies that consist of 1/4" tempered glass, 1/2" air space and a laminated panel consisting of 1/8" tempered glass, .03" (three mils) laminate and 1/8" tempered glass will be accepted in lieu of the tested assembly.

### Ceilings in Area 2

1. Gypsum board or plaster ceilings at least five-eighths inch (5/8") thick shall be provided. Ceilings shall be substantially airtight with a minimum of penetrations.

## SECTION 2

### Exterior Walls in 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; (OR)
2. Masonry walls having a weight of at least forty (40) pounds per square foot, do not require a furred (stud) interior wall. At least one surface of the concrete block walls shall be plastered.
3. Stud walls shall be at least four inches (4") in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish. Due to energy code requirements, a 2" X 6" wall would be appropriate in order to obtain the R-19 minimum insulation requirements.
  - A. Continuous composition board, plywood, O. S. B. board or gypsum board sheathing at least three-quarter inch (3/4") thick shall cover the exterior side of the wall studs. The thickness of the exterior sheathing includes the thickness of the sub-sheathing only. The thickness of the exterior wall finish (or siding) is not included.
  - B. Sheathing panels shall be butted tightly and covered on the exterior with an approved building wrap. Building paper must be overlapping.
  - C. Insulation material of a type approved by the Building Official, (listed), and rated not less than R-19 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs.
  - D. The interior surface of the exterior walls shall be of gypsum board or plaster at least one-half inch (1/2") 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 wall finish is siding on sheathing, the interior gypsum board or plaster shall be fastened resiliently to the studs or double thickness must be used.

*(Please see attached Fire Stopping detail for requirements and options if using resilient channel in the exterior wall.)*

### Exterior Windows in Area 2

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

1. Windows shall be double glazed with panes at least one-eighth inch (1/8") thick. Panes of glass shall be separated by a minimum one-half inch (1/2") airspace.
2. 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 (1/2) cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.
3. Glass shall be sealed in an air-tight manner with a non-hardening sealant or a soft elastomer gasket or gasket tape.

2. Open beam construction shall follow the energy insulation standard method for batt insulation, except use one inch (1") plywood decking with concrete or clay tiles.
3. **Composition board shall mean asphaltic impregnated board or an approved sound board.**
4. Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-38. Skylight assemblies that consist of 1/4" tempered glass, 1/2" air space and a laminated panel consisting of 1/8" tempered glass, .03" (three mils) laminate and 1/8" tempered glass will be accepted in lieu of the tested assembly.

### Ceilings in Area 1

1. Gypsum board or plaster ceilings at least five-eighths inch (5/8") thick shall be provided. 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, (listed), and rated not less than R-30 shall be provided above the ceiling between joist.

### Floors in Area 1

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

### Ventilation in Area 1

The Washington State Code on Ventilation and Indoor Air Quality shall prevail. The following items shall be included. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty (20) gauge steel, which shall be lined with one inch (1") thick coated glass fiber, and shall be at least five feet (5') long with one (1) ninety degree bend.

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 (6') in length containing internal one inch (1") thick coated fiber glass sound-absorbing duct lining. Each duct shall have a lined ninety degree bend in the duct such that there is no direct line of sight from the exterior through the duct into the attic.

Bathroom, laundry and similar exhaust ducts connecting interior space to the outdoors shall be provided with a ninety 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 (1") thick.

Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing damper across the exterior termination which allows for proper ventilation.



## Exterior Windows in Area 1

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

1. Windows shall be double glazed with panes at least three-sixteenths inch (3/16") thick. Panes of glass shall be separated by a minimum one-half inch (1/2") airspace, and shall not be equal in thickness.
2. 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 (1/2) cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.
3. Glass shall be sealed in an air-tight manner with a non-hardening sealant or a soft elastomer gasket or gasket tape.
4. The perimeter of the window frames shall be sealed air-tight 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, (listed).

## Exterior Doors in Area 1

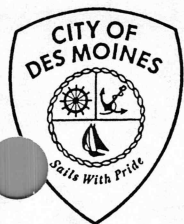
Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33; (OR)

1. 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 (1-3/4") thick separated by an airspace of at least three inches (3") from another door, storm door. Both doors shall be tightly fitted and weatherstripped.
2. The glass of double glazed sliding doors shall be separated by a minimum one-half inch (1/2") airspace. Each sliding frame shall be provided with an efficiently airtight weatherstripping material as specified in (d) above.
3. Glass, over two (2) square feet in area, of all doors, shall be at least three-sixteenths (3/16") thick. Glass of double sliding doors shall not be of equal thickness.
4. The perimeter of door frames shall be sealed airtight to the exterior wall construction (framing) as described in section (d) above.
5. Glass in doors shall be sealed in an airtight non-hardening sealant or in a soft elastomer gasket or gasket tape.

## Roofs in Area 1

Combined roof and ceiling construction on other than as described in this section and the section on ceilings shall have a laboratory sound transmission class of STC-49; (OR)

1. With an attic or rafter space at least six inches (6") deep, and with a ceiling below, the roof shall consist of one inch (1") composition board, plywood or gypsum board sheathing topped with an approved roofing material.



## SOUND TRANSMISSION CONTROL REQUIREMENTS

The City is divided into two sound transmission control areas. Area 1 (all portions of the city north of South 252nd Street or its extension) is a 35 decibel reduction zone. Area 2 (all of the city south of South 252nd Street) is a 30 decibel reduction zone. These areas are based DMMC 14.08.280.

This informational handout is a summary of the City of Des Moines Sound Transmission Control Ordinance. Section 1 describes the construction requirements for buildings constructed in Area 1 that must meet the requirement of 35 decibel reduction. Section 2 provides the same information for buildings constructed in Area 2.

### SECTION 1

#### Exterior Walls in 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; (OR)
2. Masonry walls having a weight of at least seventy-five (75) pounds per square foot, do not require a furred (stud) interior wall. At least one surface of the concrete block walls shall be plastered.
3. Stud walls shall be at least four inches (4") in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish. Due to energy code requirements, a 2" X 6" wall would be appropriate in order to obtain the R-19 minimum insulation requirements.
  - A. Continuous composition board, plywood, O. S. B. board or gypsum board sheathing at least one inch (1") thick shall cover the exterior side of the wall studs. The thickness of the exterior sheathing includes the thickness of the sub-sheathing only. The thickness of the exterior wall finish (or siding) is not included.
  - B. Sheathing panels shall be butted tightly and covered on the exterior with an approved building wrap. Building paper must be overlapping.
  - C. Insulation material of a type approved by the Building Official, (listed), and rated not less than R-19 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs.
  - D. The interior surface of the exterior walls shall be of gypsum board or plaster at least five-eighths (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 wall finish is siding on sheathing, the interior gypsum board or plaster shall be fastened resiliently to the studs or double thickness must be used.

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**13.25.010**

taining internal 1" 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.

3. 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. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of Section 13.23.080, paragraph C. Each duct shall be provided with aligned 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.

4. 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. 93-1024 § 1)

**Chapter 13.25****PERMIT FEES****Sections:**

- 13.25.010 Definitions.**
- 13.25.020 Right-of-way use permits.**
- 13.25.030 Shoreline management permits.**
- 13.25.040 Special review fees.**
- 13.25.050 Subdivision permit fees.**
- 13.25.060 Uniform Fire Code permit fees.**
- 13.25.070 Zoning and land use permit fees.**

**13.25.010 Definitions.**

The following sections of Chapter 27.04 King County Code as now in effect, and as may subsequently be amended, are adopted by reference:

- 27.04.010 Development permits.
- 27.04.020 Division.
- 27.04.030 Manager.

(Ord. 90-1023 § 1)

**13.25.020 Right-of-way use permits.**

The following sections of Chapter 27.16 King County Code as now in effect, and as may subsequently be amended, are adopted by reference:

- 27.16.010 Right-of-way use permits.
- 27.16.020 Right-of-way permit fees.

(Ord. 90-1023 § 4)

**13.25.030 Shoreline management permits.**

The following sections of Chapter 27.20 King County Code as now in effect, and as may subsequently be amended, are adopted by reference:

- 27.20.010 Shoreline management permit fees.
- 27.20.020 Shoreline fees.

(Ord. 90-1023 § 5)

## 13.23.100

between wall studs. Insulation shall be glass fiber or mineral wool.

#### C. Exterior Windows.

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

2. 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;

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

4. Glass shall be sealed in an airtight 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.

#### 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; or

2. 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;

3. 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 weatherstripping material as specified in Section 13.23.110 paragraph C, subparagraph (2);

4. Glass of all doors shall be at least 3/16" 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 construc-

tion (framing) as indicated in Section 13.23.110, paragraph C, subparagraph (5);

6. Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape.

#### E. Roofs.

1. Combined roof and ceiling construction other than described in this section and Section 13.23.110, paragraph F, shall have a laboratory sound transmission class rating of at least STC-49; or

2. With an attic or rafter space at least 6" deep, and with a ceiling below, the roof shall consist of 1" composition board, 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 1" plywood decking with concrete or clay tiles as roofing material.

#### F. Ceilings.

1. Gypsum board or plaster ceilings at least 5/8" thick shall be provided where required by Section 13.23.110, paragraph E., above. Ceilings shall be substantially airtight with a minimum of penetrations. The ceiling panels shall be mounted on resilient clips or channels.

2. Glass fiber, cellulose or mineral wool insulation at least R-38 shall be provided above the ceiling between joists.

G. Floors. The floor of the lowest occupied rooms shall be slab on fill or below grade.

#### H. Ventilation.

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 1" thick coated glass fiber, and shall be at least 10 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 6 feet in length con-

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for batt insulation, except use 1" 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.

**F. Ceilings.**

1. Gypsum board or plaster ceilings at least 5/8" thick shall be provided where required by Section 13.23.100, paragraph E, subparagraph (2), above. Ceilings shall be substantially airtight with a minimum of penetrations.

2. Glass fiber, cellulose or mineral wool insulation at least R-38 shall be provided above the ceiling between joists.

G. Floors. 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.

**H. Ventilation.**

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 1" thick coated glass fiber, and shall be at least 5 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 3 feet in length containing internal 1" 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.

3. 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. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of Section 13.23.080, paragraph 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.

4. 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. 93-1024 § 1)

**13.23.100 Building requirements for a noise level reduction of 35dB.**

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

**B. Exterior Walls.**

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

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 4" in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish;

a. Interior surface of the exterior walls shall be 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.

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

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

d. Insulation material at least R-19 shall be installed continuously throughout the cavity space behind the exterior sheathing and

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

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 4" in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

a. 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.

b. Continuous composition board, plywood, or gypsum board sheathing at least three-fourths (3/4) inch thick shall cover the exterior side of the wall studs.

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

d. 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.

#### 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; or

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

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 infiltration test not to exceed 0.5 cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-1;

4. Glass shall be sealed in an airtight 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.

#### 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; or

2. Double door construction is required for all door openings to the exterior. Openings fitted with side-hinged doors shall have one solid core wood or 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 weatherstripped;

3. The glass double glazed sliding doors shall be separated by a minimum 1/2" airspace. Each sliding frame shall be provided with an efficiently airtight weatherstripping material as specified in Section 13.23.100, paragraph C;

4. 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;

5. The perimeter of door frames shall be sealed airtight to the exterior wall construction (framing) as indicated in Section 13.23.100, paragraph E;

6. Glass in doors shall be sealed in an airtight nonhardening sealant or in a soft elastomer gasket or glazing tape.

#### E. Roofs.

1. Combined roof and ceiling construction other than described in this section and Section 13.23.100, paragraph F shall have a laboratory sound transmission class rating of at least STC-44; or

2. 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;

3. Open beam roof construction shall follow the energy insulation standard method

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2. Glass shall be at least 3/16" thick.

3. All operable windows shall be weatherstripped and airtight when 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.

4. Glass shall be sealed in an airtight manner with a non-hardening 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.

**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; or

2. All exterior side-hinged doors shall be solid-core wood or insulated hollow metal at least 1-3/4" thick and shall be fully weatherstripped;

3. Exterior sliding doors shall be weatherstripped with an efficient airtight gasket system with performance as specified in Section 3534(c). The glass in the sliding doors shall be at least 3/16" thick;

4. Glass, over two square feet in area, in doors shall be sealed in an airtight non-hardening sealant or in a soft elastomer gasket or glazing tape;

5. The perimeter of door frames shall be sealed airtight to the exterior wall construction as described in Section 13.23.090C(4).

**E. Roofs.**

1. Combined roof and ceiling construction other than described in this paragraph and in paragraph F of Section 13.23.090 shall have a laboratory sound transmission class rating of at least STC-39; or

2. 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;

3. Open beam roof construction shall follow the energy insulation standard method for batt insulation;

4. Skylights shall conform to the window standard in paragraph C of Section 13.23.090.

**F. Ceilings.**

1. Gypsum board or plaster ceilings at least 1/2 inch thick shall be provided where required by paragraph E(2) of Section 13.23.090, above. Ceilings shall be substantially airtight with a minimum of penetrations.

2. Glass fiber, cellulose or mineral wool insulation at least R-38 shall be provided above the ceiling between joists.

**G. Ventilation.**

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 1 inch thick coated glass fiber, and shall be at least 5 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.

3. 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. Exhaust ducts less than 5 feet in length shall be fully lined and shall also meet the provisions of Section 13.23.080, paragraph 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 liner at least 1 inch thick.

4. Fireplaces shall be provided with well fitted dampers. (Ord. 93-1024 § 1)

**13.23.090 Building requirements for a noise level reduction of 30 dB.**

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

**B. Exterior Walls.**



13.23.080

**13.23.060 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 attached map). The applicable program areas are the Neighborhood Reinforcement Area and the Standard Insulation Area. Specific construction requirements for these two areas are:

**A. Neighborhood Reinforcement Area.**

1. Bedrooms must comply with Section 13.23.110 which is designed to achieve a noise reduction level of 35 dB.

2. All other living and working areas must comply with Section 13.23.100 which is designed to achieve a noise reduction level of 30 dB.

**B. Standard Insulation Area.**

1. Bedrooms must comply with Section 13.23.100 which is designed to achieve a noise reduction of 30 dB.

2. All other living and working areas must comply with Section 13.23.090 which is designed to achieve a noise reduction level of 25 dB. (Ord. 93-1024 § 1)

**13.23.070 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 following locations shall be sealed, caulked, gasketed, or weatherstripped 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.

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. 93-1024 § 1)

**13.23.080 Building requirements for a noise level reduction of 25 dB.**

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

**B. Exterior Walls.**

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

2. Masonry walls having a weight of at least 25 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 4 inches in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

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

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

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

d. 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.

**C. Exterior Windows.**

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

**13.23.010****Chapter 13.23****SOUND TRANSMISSION CONTROL****Sections:**

- 13.23.010 Purpose.**
- 13.23.020 Scope.**
- 13.23.030 Application to existing buildings.**
- 13.23.040 Definitions.**
- 13.23.050 Design requirements.**
- 13.23.060 SeaTac Noise Program Areas.**
- 13.23.070 Air leakage for all buildings.**
- 13.23.080 Building requirements for a noise level reduction of 25 dB.**
- 13.23.090 Building requirements for a noise level reduction of 30 dB.**
- 13.23.100 Building requirements for a noise level reduction of 35dB.**

**13.23.010 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 map 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. 93-1024 § 1)

**13.23.020 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 Uniform Mechanical Code, the adopted Energy Code, and the remainder of the Uniform Building Code. In the case of conflict between this chapter and any other applicable codes the more restrictive requirements shall apply. (Ord. 93-1024 § 1)

**13.23.030 Application to existing buildings.**

A. 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 chapter.

B. Any change of use in the occupancy 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, structure or portion of the building complies with this chapter.

C. 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. 93-1024 § 1)

**13.23.040 Definitions.**

A. "Noise reduction coefficient (NRC)" is the arithmetic average of the sound absorption coefficients of a material at 250, 500, 1000, and 2000 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. (Ord. 93-1024 § 1)

**13.23.050 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 its parts. These requirements shall apply to all buildings for human occupancy within the SeaTac Noise Program Areas. (Ord. 93-1024 § 1)

**City of SeaTac**

# Community Sound Attenuation Requirements