



# AIRCRAFT NOISE REDUCTION

## 2017 Submittal Checklist

### All Occupancies

***This informational handout is a summary of the City of Burien Aircraft Noise Reduction Ordinance as described in the Burien Municipal Code (BMC) Chapter 15.12.***

**The City of Burien is divided into three aircraft noise reduction areas:**

- **Zone 1:** Those portions of the City, east of First Avenue South extending from the northern to the southern City limits and to the eastern city limits are a 35 dB Reduction Area. All living and working areas must comply with 15.12.90 BMC which is designed to achieve a noise reduction level of 35 dB.
- **Zone 2:** Those portions of the City, between First Avenue South and 12<sup>th</sup> 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.
- **Zone 3:** All remaining portions of the City are a 25 dB Reduction Area. All living and working areas must comply with 15.12.110 BMC which is designed to achieve a noise reduction level of 25 dB.

These provisions apply to all buildings or structures constructed or placed in use for human occupancy on sites within the City of Burien.

**Exceptions:**

- (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.

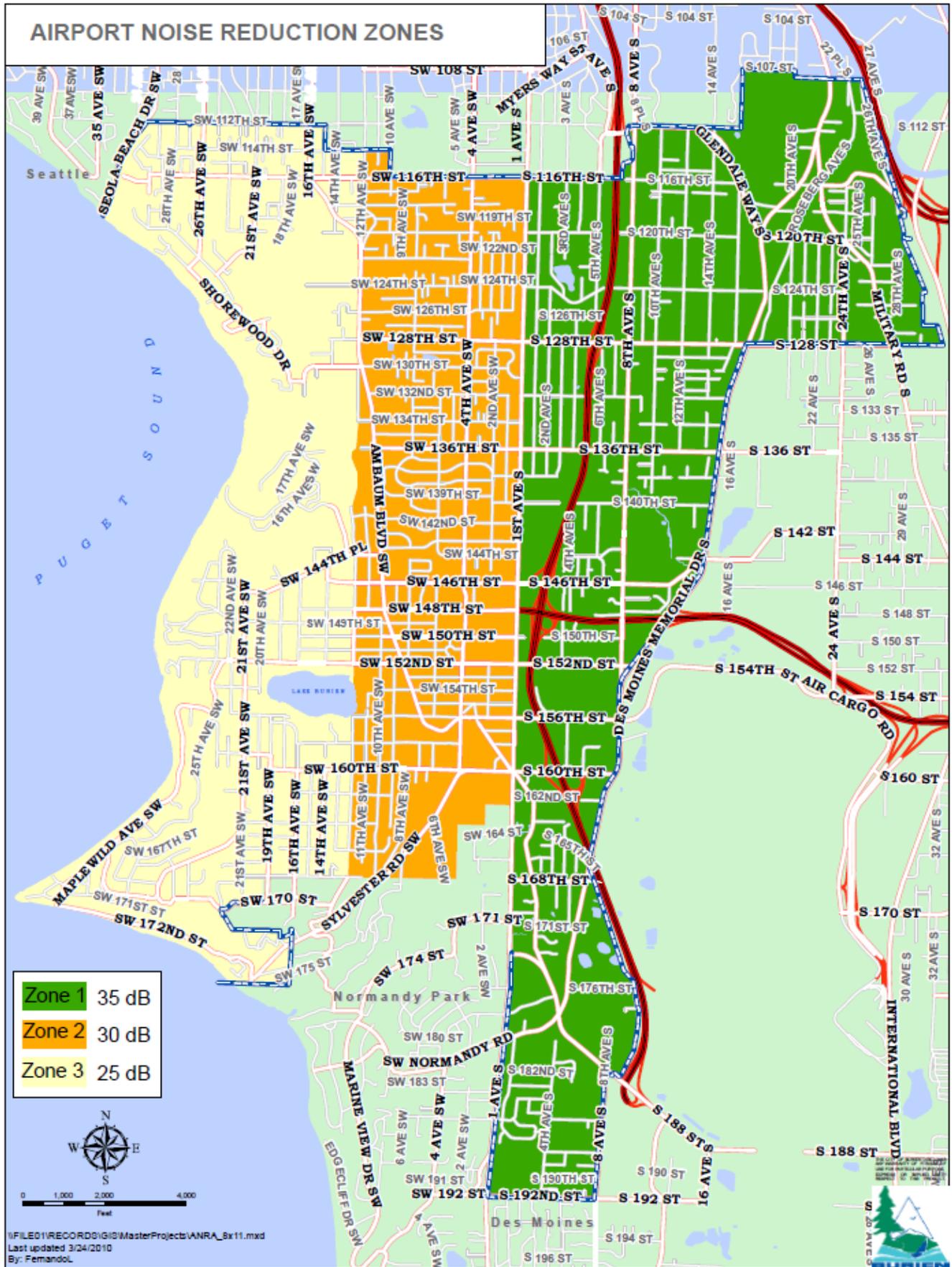
Note: New glazing in exempted additions and remodels must conform to the provisions of the Washington State Energy Code.

**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.

**A 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 the Aircraft Noise Reduction requirements of 15.12 BMC.

***The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment and systems, 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 Aircraft Noise Reduction requirements.***

# AIRPORT NOISE REDUCTION ZONES



## AIRPORT NOISE REDUCTION - Minimum design requirements

Project Address: \_\_\_\_\_

**Please Circle the options that are included in the construction drawings for this project**

<b>EXTERIOR WALLS</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>Exterior walls</b> shall be designed to meet a minimum STC rating of <input type="checkbox"/> . <b>Documentation</b> shall be provided to demonstrate the exterior wall construction details complies with the laboratory sound transmission class rating.	<b>40</b>	<b>35</b>	<b>30</b>
<b>➤ OR; comply with all of the following options:</b>			
<b>Stud walls</b> shall be at least <input type="checkbox"/> in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.	<b>6"</b>	<b>6"</b>	<b>6"</b>
<b>Continuous plywood</b> or oriented strand board (OSB) at least <input type="checkbox"/> 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>1/2"</b>	<b>1/2"</b>	<b>1/2"</b>
<b>Sheathing panels</b> shall be butted tightly and covered on the exterior with an approved building wrap. Building paper must be overlapping.	<b>✓</b>	<b>✓</b>	<b>✓</b>
<b>Batt or loose fill Insulation</b> material rated not less than <input type="checkbox"/> shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Headers shall be insulated in accordance with the Energy Code.	<b>R-21</b>	<b>R-21</b>	<b>R-21</b>
<b>The interior surface</b> of the exterior walls shall be of gypsum board or plaster at least <input type="checkbox"/> thick, installed on the studs. In Zone 1, this can be reduced to 1/2" if installed with resilient channels.	<b>5/8"</b>	<b>1/2"</b>	<b>1/2"</b>
<b>Energy Credit Options</b> shall include option <input type="checkbox"/> (R-4 rigid insulation over exterior sheathing)	<b>1b</b>	n/a	n/a

<b>ROOFS &amp; CEILINGS</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>Combined roof and ceiling construction</b> shall be designed to meet a minimum STC rating of <input type="checkbox"/> . <b>Documentation</b> shall be provided to demonstrate the roof/ceiling assembly details complies with the laboratory sound transmission class rating.	<b>49</b>	<b>44</b>	<b>39</b>
<b>➤ OR: comply with all of the following options:</b>			
<b>Attic or rafter space</b> shall be at least 16" deep with a ceiling below. This requires raised heel trusses for roofs with attics.	<b>✓</b>	<b>✓</b>	<b>✓</b>
<b>Roof sheathing over an attic</b> shall consist of <input type="checkbox"/> plywood or oriented strand board (OSB) sheathing topped with an approved roofing material.	<b>3/4"</b>	<b>7/16"</b>	<b>7/16"</b>
<b>Roof sheathing over vaulted ceilings</b> or open beam construction be provided with <input type="checkbox"/> or oriented strand board (OSB) sheathing topped with an approved roofing material	<b>1"</b>	<b>7/16"</b>	<b>7/16"</b>
<b>Gypsum board</b> or plaster ceilings at least <input type="checkbox"/> thick shall be provided on the ceiling. Ceilings shall be substantially airtight with a minimum of penetrations. For zone 1 this can be reduced to 1/2" if installed with resilient channels	<b>5/8"</b>	<b>1/2"</b>	<b>1/2"</b>
<b>Insulation material</b> shall be have a minimum R-Value of <input type="checkbox"/> with a minimum of 2" airspace above.	<b>R-49</b>	<b>R-49</b>	<b>R-49</b>

## AIRPORT NOISE REDUCTION - Minimum design requirements

FLOORS	Zone 1	Zone 2	Zone 3
<b>Option 1: Slab on Grade</b> with R-10 underslab insulation installed per Washington State Energy Code.	✓	✓	✓
<b>Option 2. Crawl Space construction:</b> <ul style="list-style-type: none"> <li>▪ <b>Crawl space</b> walls shall be constructed of solid concrete (with no cripple walls).</li> <li>▪ <b>Floor joists</b> shall be placed so the top of the joist is no higher than the top of the concrete foundation wall.</li> <li>▪ <b>Underfloor vent</b> opening area shall not be more than the minimum allowed under code. Noise control louvers shall be installed at underfloor vents.</li> <li>▪ <b>Underfloor insulation</b> shall be <input type="text"/> minimum.</li> </ul>	<b>R-38</b>	<b>R-30</b>	<b>R-30</b>
<b>Option 3. Basement construction:</b> <ul style="list-style-type: none"> <li>▪ <b>Below grade exterior walls</b> shall be constructed of solid concrete.</li> <li>▪ <b>Below grade exterior walls</b> shall be insulated on the exterior with minimum <input type="text"/> rigid insulation.</li> <li>▪ <b>Above ground exterior walls</b> shall meet the requirements of the exterior wall section.</li> <li>▪ <b>Floor joists above basement</b> shall be placed so the top of the joist is no higher than the top of the concrete foundation wall.</li> </ul>	<b>R-10</b>	<b>R-10</b>	<b>R-10</b>

EXTERIOR WINDOWS	Zone 1	Zone 2	Zone 3
<b>Exterior Windows</b> other than as described in this section shall have a laboratory sound transmission class rating of at least STC <input type="text"/>	<b>38</b>	<b>33</b>	<b>28</b>
➤ <b>OR comply with all of the following options:</b>			
<b>Windows</b> shall be double-glazed with panes at least <input type="text"/> thick and a maximum U-Value of U= 0.30.	<b>3/16"</b>	<b>1/8"</b>	<b>1/8"</b>
<b>Panes of glass</b> shall be separated by a minimum one-half inch (1/2") airspace and <u>shall not be equal in thickness.</u>	✓	n/a	n/a
<b>Glass shall be sealed</b> in an air-tight manner with a non-hardening sealant or a soft elastomer gasket or gasket tape.	✓	✓	✓
<b>The perimeter of the frames</b> 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.	✓	✓	✓
<b>Maximum Air Leakage</b> and testing shall be as required by the Washington State energy Code.	✓	✓	✓

SKYLIGHTS	Zone 1	Zone 2	Zone 3
<b>Skylights</b> other than as described in this section shall have a laboratory sound transmission class rating of at least STC <input type="text"/>	<b>38</b>	<b>33</b>	<b>28</b>
➤ <b>OR comply with the following options:</b>			
<b>Zone 1: Skylight assemblies</b> 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.	✓	✓	✓
<b>Zones 2 &amp; 3: Skylights assemblies</b> meeting the requirements of the Washington State Energy Code and the Building code requirements for safety glazing.			

## AIRPORT NOISE REDUCTION - Minimum design requirements

EXTERIOR DOORS	Zone 1	Zone 2	Zone 3
<b>Doors</b> other than as described in this section shall have a laboratory sound transmission class rating of at least STC <input type="text"/>	<b>33</b>	<b>26</b>	<b>26</b>
➤ <b>OR comply with all the following options:</b>			
1. <b>Double door construction</b> 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, which can be a storm door. Both doors shall be tightly fitted and weather-stripped.	✓	n/a	n/a
2. <b>All exterior side hinged</b> doors shall be solid core wood or insulated hollow metal at least 1- 3/4" thick, and shall be fully weather-stripped.	n/a	✓	✓
3. <b>The glass of double glazed sliding doors</b> shall meet the requirements for exterior windows.	✓	✓	✓
4. <b>Glass panels in exterior all doors</b> shall meet the requirements for exterior windows.	✓	✓	✓
5. <b>The perimeter of door frames</b> 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. <b>Glass in doors</b> shall be sealed in an airtight non-hardening sealant or in a soft elastomer gasket or gasket tape.	✓	✓	✓

VENTILATION	Zone 1	Zone 2	Zone 3
<b>A ventilation system shall be provided</b> and meet the minimum air circulation and fresh air supply as required by the International Residential Code or International Mechanical Code (as applicable) without opening doors or windows.	✓	✓	✓
<b>AND shall include the following items:</b>			
1. 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.	✓	n/a	n/a
2. Gravity vent openings in attics shall be as close to code minimum in number and size, as practical.	✓	✓	✓
2.1 The openings shall be fitted with transfer ducts at least <input type="text"/> feet 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.	<b>6</b>	n/a	n/a
3. 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 1" thick.	✓	n/a	n/a
4. Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing damper across the exterior termination that allows for proper ventilation. The duct shall be provided with a 90 degree bend.	✓	n/a	n/a

**AIRPORT NOISE REDUCTION - Minimum design requirements**

<b>AIR LEAKAGE</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<p>The following locations shall be sealed, caulked, gasketed, or weather-stripped to limit or eliminate air leakage;</p> <ol style="list-style-type: none"> <li>1. Exterior joints around window and door frames, between the window or door frame and the framing members.</li> <li>2. Openings between walls and foundations. Between the wall sole plate and the rough flooring. Between the wall panels at corners. Openings at penetrations of utility services through walls, floor, and roofs. All other such openings in the building envelope.</li> <li>3. All other openings not specifically addressed shall be designed to limit sound transmission and shall have the same average STC as required for doors.</li> </ol>	✓	✓	✓