
Noise Abatement for New Construction

Brochure #11

In general, construction industry standards start regulating noise impacts on residential and commercial structures at the 65 Ldn noise level. The general construction performance standards listed in this brochure are intended to provide for the insulation of the interior of buildings to an Ldn 45 or less from outside noise levels.

Even though the City of Mukilteo has very little property within the 65 Ldn noise contour of Paine Field's operations, these standards can be used to help reduce the overall noise impact on new construction in the City.

Are these standards required on new development?

No; The standards contained in this brochure are optional and are intended to be used only as a guide to help property owners reduce noise impacts on their new homes or businesses.

Noise Abatement Guidelines for New Construction:

General

1. Brick veneer, masonry blocks, or stucco exterior walls should be constructed airtight. All joints should be grouted or caulked airtight.
2. At the penetration of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits should be caulked or filled with mortar.
3. Window and/or through-the-wall HVAC type units should not be used.
4. Operational, vented fireplaces should not be used.
5. All sleeping spaces should be provided with a sound-absorbing ceiling and carpeted floor.
6. Through-the-wall/door mailboxes should not be used.

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Planning and Community Development Department
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Walls

1. Masonry walls having a surface weight of at least 40 pounds per square foot do not require a furred interior wall. In areas over 70 Ldn, masonry walls having a surface weight of at least 75 pounds per square foot do not require a furred interior wall. At least one surface of concrete block wall should be plastered or painted with heavy "bridging" paint.
2. Stud walls should be at least four inches in nominal depth and should be finished on the outside with siding on sheathing, stucco, or brick veneer.
 - a. Interior surface of the exterior stud walls should 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-on-sheathing, the interior gypsum board or plaster must be fastened resiliently to the studs.
 - b. Continuous composition board, plywood, or gypsum board sheathing should cover the exterior side of the wall studs behind wood or metal siding. The sheathing and facing should weigh at least four pounds per square foot.
 - c. All edges of the sheathing should be sealed with resilient caulking.
 - d. Insulation material at least two inches thick should be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulation should be glass fiber or mineral wool.

Windows

1. Glass of double-glazed windows should be used and be at least 1/8-inch thick.
2. Double-glazed windows should employ fixed sash or efficiently weather-stripped operable sash. The sash should be rigid and weather-stripped with material that is compressed airtight when the window is closed.
3. Glass of fixed-sash windows should be sealed in an airtight manner with a non-hardening sealant, or a soft elastomeric gasket or glazing tape.
4. The perimeter of the window frame should be sealed airtight to the exterior wall construction with a resilient sealant.
5. The total area of glass of both windows and exterior doors in sleeping spaces should not, exceed 20 percent of the floor area.

Doors

1. All exterior side-hinged doors should be side-hinged wood or insulated or hollow metal at least 1.75 inches thick and should be fully weather-stripped.
2. The glass of double-glazed sliding doors should be at least 3/16 of an inch thick and separated by a minimum 1/2-inch airspace. The frame should be provided with an efficiently airtight weather-stripping material.
3. The perimeter of door frames should be 'Sealed airtight to the exterior wall construction.
4. Glass in doors should be set and sealed in an airtight non-hardening sealant, or a soft elastomeric gasket or glazing tape.

Roofs

1. With an attic or rafter space at least six inches deep, and with a ceiling below, the roof should consist of 1/2-inch composition board, plywood, or gypsum board sheathing topped by roofing as required.
2. If the underside of the roof is exposed, or if the attic or rafter space is less than six inches, the roof construction should have a surface weight of at least six pounds per square foot, except that, in areas over 70 Ldn, the roof construction should have a surface weight of at least nine pounds per square foot. Rafters, joists, or other framing may not be included in the surface weight calculation.
3. Window or dome skylights should be double glazed and separated by minimum 1/2-inch airspace. In areas over 70 Ldn, skylights are not permitted.

Ceilings

1. Gypsum board of plaster ceilings at least 1/2-inch thick should be provided where required by Section 5.0(A)(5). Ceilings should be substantially airtight, with minimum number of penetrations.
2. Glass fiber or mineral wool insulation at least six inches thick shall be provided above the ceiling between joists.

Floors

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

Ventilation

1. A mechanical ventilation system should be installed that will provide the minimum air circulation and fresh air-supply requirements for various uses in occupied rooms, without need to open any windows, doors, or other openings to the exterior.
2. Gravity vent openings in the attic should not exceed code minimum in number and size. The openings should be fitted with transfer ducts at least three feet in length, containing approved internal sound-absorbing duct lining. Each duct should have a line 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. If a fan is used for forced ventilation, the attic inlet and discharge openings should be fitted with sheet metal transfer ducts of at least 20-gauge steel, which should be lined with, one inch thick approved duct liner, and should be at least five-feet long with one 90-degree bend. In areas over 70 Ldn, the duct lining should be at least 10 feet long.
4. All vent ducts connecting the interior space to the outdoors, excepting domestic range and dryer, exhaust ducts, should contain at least a 10-foot length of approved internal sound absorbing duct lining. Each duct should be provided with a line 90-degree bend in the duct such that there is no direct line of sight through the duct.

5. Duct lining should be a coated glass fiber duct liner at least one-inch thick, approved and suitable for the intended use.
6. Domestic range and dryer exhaust ducts connecting the interior space to the outdoors should contain a baffle plate across the exterior termination that allows proper ventilation. The dimensions of the baffle plate should extend at least one diameter beyond the line of sight into the vent duct. The baffle plate should be of the same material and thickness as the vent duct material and should have the same free area as the vent duct.
7. Building heating units with flues or combustion air vents should be located in a closet or room closed off from the occupied space by doors.
8. Doors between occupied space and mechanical equipment areas should be solid-core wood or 20-gauge steel hollow metal at least 1.75 inches thick and should be fully weather-stripped.

For questions or additional information:

Call...

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Location...

11930 Cyrus Way
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Hours...

Monday - Thursday
7:30 a.m. to 5:00 p.m.
Friday
7:30 a.m. to 4:30 p.m.

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