

Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

Getting a Refrigeration Permit from SDCI

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Sound level compliance is an important detail that sometimes gets overlooked since it is not fully understood by many contractors. This Tip helps you choose the proper placement for residential condensers to comply with the Seattle noise ordinance.

This Tip summarizes the Seattle Department of Construction and Inspections (SDCI) sound level requirements for refrigeration permits. The information in this Tip is required during SDCI's review, so we encourage you to read this document before submitting your application.

This Tip references noise levels using dB(A), which is the sound level measured in decibels using the "A" weighting network (Seattle Municipal Code 25.08.090).

According to Seattle Municipal Code, the exterior sound level limits (SMC 25.08.410 and .420) are:

Daytime

- From 7:00 a.m. – 10:00 p.m. on weekdays, and
- From 9:00 a.m. – 10:00 p.m. on weekends/holidays.
- The limit from a residential noise source to a receiving property is 55dB(A).

Nighttime

- From 10:00 p.m. – 7:00 a.m. on weekdays, and
- From 10:00 p.m. - 9:00 a.m. on weekends/holidays.
- The limit from a residential noise source to a receiving property is 45dB(A).

Before you start your application, you will need the following information:

Step 1. Measuring Distance

Measure the distance from the neighboring property

line and the proposed equipment location. This is the most important detail and needs to be accurate, so to be on the safe side it's a good idea to look for multiple acceptable locations for the equipment.

Step 2. Finding Distance Factor

Once you determine the distance between your proposed location and the property line, you can then use the manufacturer's published data and Table 2 - Distance Factor, below, to calculate the expected sound level at the property line.

Table 2. Distance Factor

Distance in feet from equipment to property line	dB(A) reduction from equipment sound Rating (ARI 270)
2	3
3	7
4	10
5	12
6	13
7	14
8	15
9	16
10	17
15	21
20	23
25	25
30	27
40	29
50	31
60	33
70	34
80	35
90	36
100	37

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Important: Manufacturers may publish their data differently; Some use Sound Power and others use Sound Pressure Table 2 above is presented in Sound Pressure only.

Working through the above steps will get you an approximate predicted sound level at the property line, but you'll also need to consider if you are working with reflective surfaces. Reflective surfaces, which amplify noise, include walls, bump-outs, and other hard surfaces within 10 feet of the condenser. Each surface adds 3dB(A) to the sound pressure/power, and they can be combined if multiple surfaces are present. If there are reflective surfaces affecting your installation, you must adjust your calculation to take them into consideration.

Remember: Equipment located on the ground, roof or inside the building walls with a single reflective surface within 10 feet will add 3dB(A) to the noise source.

- Equipment located on the ground, roof or inside of building walls within 10 feet of two adjacent reflecting walls forming an inside corner will add 6dB(A) to the noise source.
- Equipment on the ground, roof, or inside of building walls, and between two opposite reflecting surfaces less than 15 feet apart, adds 6dB(A) to the noise source. These can include reflecting surfaces located on the neighboring parcel, or a hard surface like a carport roof or deck on the same parcel.

Examples of Distance and Noise Reduction

Using the provided distance chart (Table 2) you can estimate any noise reduction requirements for your project.

- **Example 1:** A condenser rated at 52dB(A) is placed 3 feet from the property line which reduces noise by 7dB(A) for the neighboring property and there are no reflective surfaces. This results in 45dB(A) at the property line and is approved since it meets the 45dB(A) SMC sound level limit
- **Example 2:** A 52dB(A) condenser has one reflective surface which increases noise to 55dB(A). Placing this condenser 4 feet from the property line, noise is reduced by 9.5dB(A), resulting in 45.5dB(A) at the property line. This is approved since it meets the 45dB(A) SMC sound level limit.
- **Example 3:** Placing a condenser rated at 52dB(A) 3 feet from the property line will reduce noise by 7dB(A). But if the condenser has 2 reflective surfaces in proximity, the reflective noise adds 6dB(A) ($52-7+6= 51$ dB(A)). The newly calculated 51dB(A) meets the daytime exterior sound level limit but is above the nighttime allowable exterior sound level

limit of 45dB(A), meaning the installation will fail inspection and will need sound mitigation to become compliant.

For A/C installations only, If the A/C meets the daytime exterior sound level limit but exceeds the allowable nighttime exterior sound level limit, the homeowner must agree to not use the A/C past 10:00 p.m.

An approved noise review does not mean it will stay compliant for the life of the equipment. If a noise review was previously approved, but a complaint is received, you may need an SDCI inspector to conduct a site visit to re-certify approval.

Links to additional resources:

[Noise Tips for Siting Equipment](#)

[SDCI Noise Code](#)

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Access to Information

Links to electronic versions of SDCI Tips, Director's Rules, and the Seattle Municipal Code are available on our website at www.seattle.gov/sdci.