



# SOUND DECISIONS: CONSIDERATIONS WHEN SITING OUTDOOR MECHANICAL EQUIPMENT

Preparing cities for new regulations related to fossil burning appliances

## OPENING DOORS TO BENEFITS

Increasing siting opportunities for outdoor mechanical equipment aids in cleaner, safer more resilient communities.

### » HEALTH

Replacing natural gas appliances with electric heat pumps improves indoor air quality and reduces building emissions.

### » COMFORT & EQUITY

In a warming climate, access to cooling ensures community well-being.

### » SAFETY

Combustion is eliminated, along with associated safety risks.



Figure 1: Typical Retrofit Condenser Installation

## CODES AND MECHANICAL EQUIPMENT

Current codes for setbacks, noise and screening limit available siting locations for mechanical equipment, primarily condensing units for air conditioners and heat pumps. Units like the one shown in Figure 1 are currently disallowed within 3 feet of a property line in 7 of 13 cities in SVCE territory due to the equipment's noise levels.

# OPPORTUNITY FOR CODE UPDATES

## » IMPACT OF MUNICIPAL CODE UPDATES:

By updating municipal codes, as well as noise and zoning ordinances, cities can positively affect the cost and availability of air conditioners and heat pumps.

## » RECOMMENDATIONS FOR MECHANICAL EQUIPMENT INSTALLATION:

To improve options for installing mechanical equipment in space-constrained projects, Exceptions and Variances, similar to the following, should be included in municipal codes:

- » Exception: Allow slightly higher dBA levels and reduced setbacks only for water heating and space heating/cooling equipment with inverter technology.
- » Variance: Keep zoning and noise ordinances unchanged but allow higher acceptable levels if property owners can provide evidence of no other available location (building department approval required).

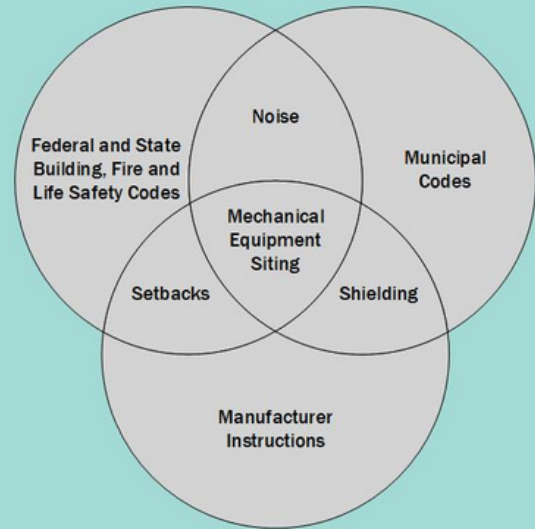


Figure 2: Complex Rules Impacting Siting of Mechanical Equipment

# PROCEDURAL OPPORTUNITIES

There are several municipal codes affecting mechanical equipment siting that building authorities may need to amend to facilitate easier retrofit installation. Changes require careful consideration of a variety of factors, as illustrated in Figure 2. These regulations include:

## » Noise ordinances

Modify language regarding allowable setbacks, noise levels and mechanical equipment shielding.

## » Regulatory documents

Coordinate updates across departments to ensure accurate, timely adoption and implementation.

## » Stakeholder meetings

Promote and host stakeholder engagement meetings with contractors, homeowners' associations, engineers and architects, and the public.

## » Zoning ordinances

Revise language regarding setbacks, aesthetics and other relevant topics.

## » Reach codes

Review reach codes to avoid potential conflicts with changes to ordinances.

## » Exceptions

Include exceptions language to standard thresholds and setback for uniquely constrained sites.

# ORDINANCE RECOMMENDATIONS<sup>1</sup>

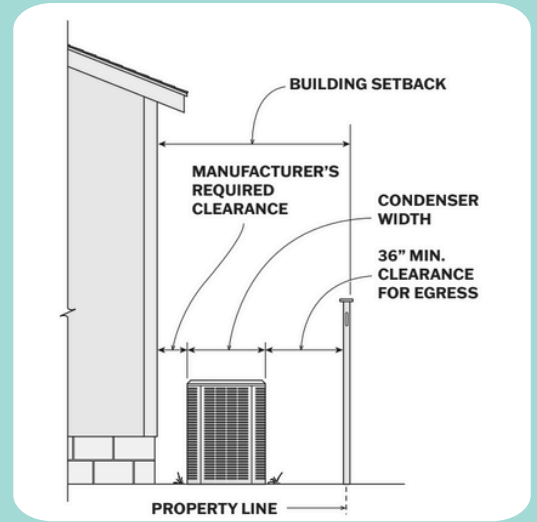
Technical thresholds and requirements that allow more flexibility in siting mechanical equipment. Importantly, these guidelines aim to balance individual quality of life with reasonable and legal standards.

## » SETBACKS

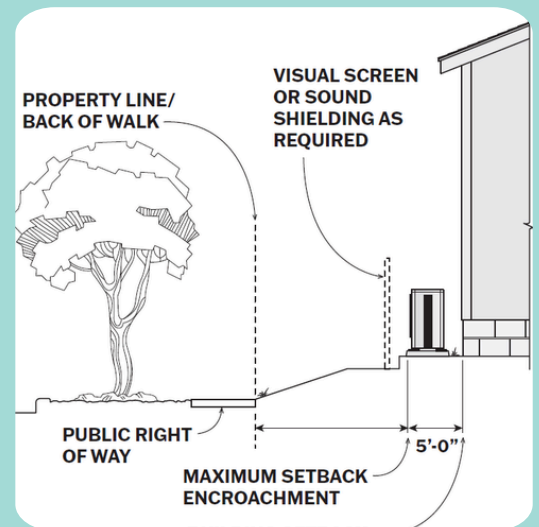
Cities of Menlo Park, Campbell, Milpitas and Mountain View allow mechanical equipment to be installed within the 5-foot side yard setback, however a required minimum of 3 feet (36 inches), net clear space between the equipment and fences or other obstructions, as measured from the nearest point of the equipment to the property line or permanent barrier, must be maintained for egress and fire/life safety access (see Figure 3).

As illustrated in Figure 4 and Figure 5, equipment should be allowed to be installed within the first 5 feet from the building edge in a front yard setback if a) equipment is adequately screened from view with approved materials, b) building setback is a minimum of 15 feet from a public walkway or thoroughfare and c) equipment is no more than 4 feet above grade.

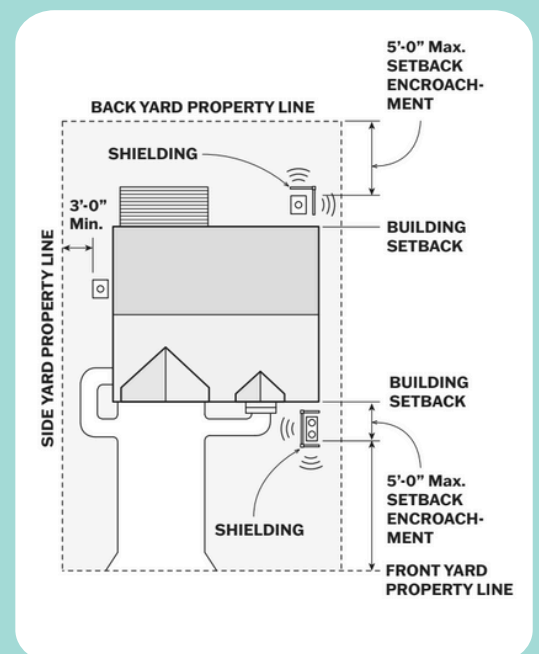
If the current ordinance lacks setback requirements for mechanical equipment, defining a new minimum setback is needed. This may include a distance of at least 3 feet from a property line, along with the use of manufacturer-recommended sound transmission-attenuating materials. The new language may include: “Equipment must be a minimum of 3 feet from the property line on any side yard utilized for ingress or egress. Additionally, equipment should be installed with manufacturer-recommended mechanical sound transmission-attenuating materials.”



**Figure 3:** Mechanical Equipment Side Yard Setback Encroachment



**Figure 4:** Mechanical Equipment Front Yard Setback



**Figure 5:** Mechanical Equipment Setback Encroachments

## » NOISE LEVELS

Depending on the style of heat pump, sound ratings range from 48-75 dBA. This is about the same level as normal conversation. Noise ordinances and the allowable maximum thresholds vary between municipalities based on the time of day and noise source. Cities like Gilroy and Mountain View have already passed amendments that encompass day/night (Ldn) and duration, such as L10 or 10% of the time. Options for allowable noise level limits might include:

- **Option 1:** 65 dBA during the day (7:00 a.m. – 10:00 p.m.) and 60 dBA at night (10:01 p.m. – 6:59 a.m.) and with a cumulative period of no more than 50% of operating time (L50).
- **Option 2:** 60 dBA levels day and night (Ldn) or 70 dBA 15% of the time (L15) measured at the property line if no solid barrier at the property line is present (fence, wall, or other sound attenuating shielding)
- **Option 3:** 60 dBA for inverter driven and 55 dBA for non-inverter driven equipment as measured at the property line if a solid barrier at the property line is present (fence, wall or other sound attenuating screen is in place, measured on the opposite side of the barrier).

## » AESTHETIC SCREENING AND ACOUSTIC SHIELDING/AESTHETICS

Allow mechanical equipment to be installed within the first 5 feet from the building edge of the front or rear setback with appropriate aesthetic screening (see figure 6) to maintain visual requirements and dBA levels at the property line or back of the walk (edge of public access). Not all aesthetic screening provides adequate acoustic or noise shielding.

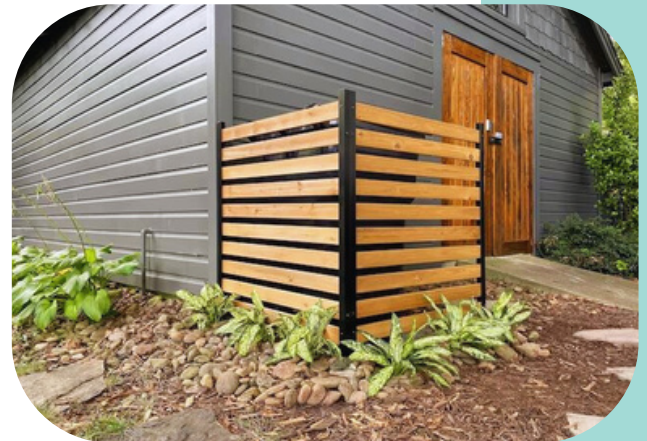


Figure 6: Equipment Screening

## » EXCEPTIONS AND VARIANCES

Examples of potential variances and exceptions allowed under certain conditions include:

### ➤ **Hardship variance:**

If the property owner can provide reasonable evidence that without the variance, installation of mechanical equipment would be either impossible or unreasonably costly (need to define parameters), allow for variance from ordinance thresholds if shown the variance will not negatively impact adjacent properties or the public right-of-way.

### ➤ **Setback exceptions:**

Allow for installation of specific electrical equipment (condensers) within setbacks if the property owner can provide reasonable evidence that no other location exists.

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Scan the QR code to access specific recommendations and model noise, setback and screening ordinances examples, in the: [“Considerations and Alternatives for Siting Outdoor Mechanical Equipment”](#) extended document.

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