

Noise is a very difficult issue to control and is affected by sound frequency (and frequency of occurrence), distance from the source, time of day, background noise, height of the source, and acoustic barriers. The types of noise that are problematic include outside activities (music, dining, etc), mechanical equipment (kitchen fans, HVAC compressors, etc), and waste collection. Noise is measured mostly in decibels or sones (see attached information and conversion)

Regulations- Regulations we have found mostly have decibel limits at the property line at certain times of day. Of course the problem in design is having the expertise to predict these and make sure they are not exceeded. Generally seems regulations restrict regular noises at 60db during the day and 50db after 10pm, and allow for garbage collection up to 80db but restrict the time of day- usually after 7 or 8am.

We have not found regulations that require equipment to be a certain distance from property lines. It appears from some product literature that sound barriers can provide both visual screening and acoustic absorption for mechanical equipment.

Our **preliminary recommendation** is to limit equipment to 25-35' from Residential property lines, and to provide visual and acoustic screening. You may want to consider allowing equipment closer if the applicant can prove that certain sound levels will be met. We might look more closely at the applications of wall and ground mounted equipment, and roof mounted equipment depending on the height of the commercial building.

We are thinking the current restriction on outdoor gathering spaces might be modified to allow them a certain distance from Residential property lines (maybe 50') with proper screening and acoustic control, and time of day limitations. Many places with porches, opening walls, and courtyards add to the vibrancy and success of commercial areas.