The direct distance, D, from the equipment location to the point of evaluation is a very significant application factor in determining the estimated A-weighted sound pressure levels resulting from the operation of outdoor equipment in any installation. AHRI Std 270(4.1.4)

The equipment location factor must be further raised to 65 dB with a timer and written permission from the affected neighbor on our city standard form: newportbeachca.gov/home/showdocument?id=17340

(a) A copy of the condenser manufacturer’s literature, listing the decibel (dB) level, model # and manufacturer of the equipment to be installed.
(b) A site plan showing the location of the AC equipment with the distance to the neighbor’s nearest OLA or NW, which ever is the least distance.
(c) A scale drawing of any noise barrier, if the noise barrier credit is used.
(d) A calculation using 1984 or latest revision thereof for AHRI Standard 275 Tables, to demonstrate compliance.
(e) Plans and calculations must be ink or copy only.

The information, tables, and examples on this sheet are to assist in completing sheets 2 & 3. The example shown does not begin to cover all of the different possible field conditions. Speak with a Building Division Permit Specialist if you have questions.

### Single Condenser Unit Calculation (AHRI Std 275)

The basic procedure for estimation of the sound level at a given point of evaluation consists of combining the sum of several factors with the Sound Rating Level for the equipment. This is done for an exterior condition at the nearest OLA or NW of the neighbor.

**For the Barrier Shield, L1 and D must occur at not less than 5 ft. from finish surface for Point of Evaluation.**

<table>
<thead>
<tr>
<th>Equipment Location Factor</th>
<th>VALUE (dB)</th>
<th>Phenomenon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Location Factor</td>
<td>4</td>
<td>See Table 1</td>
</tr>
<tr>
<td>Barrier Shielding Factor</td>
<td>7</td>
<td>See Table 2</td>
</tr>
<tr>
<td>Distance Factor</td>
<td>17.5</td>
<td>See Table 3</td>
</tr>
</tbody>
</table>

**Example Calculation:**

- Equipment Location Factor: 4 dB
- Barrier Shielding Factor: 7 dB
- Distance Factor: 17.5 dB

-L1 = 56.5 dB with 55 dB O.K. w/ Timer

**Note:** Typical wood fence not adequate.

**Multiple Condenser Unit Calculation (ARI Std 275)**

Assumptions:

- We are working with a unit that has 2 condensers.
- The difference in sound rating between the two condensers is approximately 4.0 dB, with 72 dB being the maximum value.

**Example Calculation:**

- Sound Rating of Equipment (Decibel Level): 72 dB
- Multiple Condenser Unit Factor: 1
- Equipment Location Factor: 8 dB
- Barrier Shielding Factor: 2 dB
- Distance Factor: 17.5 dB
- Estimated Sound Level of Equipment at the Point of Evaluation (Neighbor): 54.5 dB

Values from Table 4 shall be added to the unit with the highest dB level among the units being evaluated.

**Multiple Condenser Unit Installation**

When there are two or more AC units, figure the dB levels of each at the OLA or NW. Then use Table 4 to determine the overall combined sound level of the two units.

When there are three or more AC units, figure the dB levels of each at the OLA or NW, which ever is the least distance. Then, using Table 4, determine the overall combined sound levels of two units that are the loudest (loudest at the point of evaluation, i.e. the neighbor.) Compare those combined sound levels with the third loudest unit and come up with another combined level, etc., until all units have been considered. Those final combined sound levels are the resultant of the multiple units. AHRI Std 270(4.3.2.5)

**Values in Table 4:**

- At point of evaluation to be added in larger number

-L1 = Direct distance from equipment to Point of Evaluation around barrier. (Determine D by layout sketch.)

- L5 = 5.0 ft. [1.5m]

-Evaluation Point 1: Corner of parapet wall as barrier.

-Evaluation Point 2: Corner of building as barrier.

**Distance Factor**

- Installation of several factors with the Sound Rating Level of Equipment (Decibel Level) of the loudest unit and come up with another combined level, etc., until all units have been considered. Those final combined sound levels are the resultant of the multiple units.

**Sound Rating of Equipment (Decibel Level):**

- Sound Rating of Equipment: 72 dB
- Multiple Condenser Unit Factor: +1
- Equipment Location Factor: +8 dB
- Barrier Shielding Factor: +2 dB
- Distance Factor: +17.5 dB
- Estimated Sound Level of Equipment at the Point of Evaluation (Neighbor): +54.5 dB

**SBMC 10.26.045**

< 55 dB O.K. w/ Timer

- Heavy continuous wall (AHRI 275 4.1.2)
- Corner of flat roof and wall.
- Parapet around flat roof.
- Solid structure obstructs the sound path. These structures could be AHRI Std 275(4.3.2.5):
- Comer of building
- Coner of flat roof and wall.
- Parapet at flat roof.
- Heavy continuous wall (AHRI Std 275.1.2)

**Surface Density (psi):**

- 3.0 psf or more

**Equipment Location Factor**

- Distance Factor
- 0.0 or 1.0
- 2.0, 3.0, 4.0, or 5.0

**Barrier Shielding Factor**

- 1.0 or 2.0
- 3.0
- 4.0 or 5.0
- 6.0 or 7.0
- 8.0 or more

**Multiple Condenser Unit Calculation (ARI Std 275)**

**Assumptions:**

- We are working with a unit that has 2 condensers.
- The difference in sound rating between the two condensers is approximately 4.0 dB, with 72 dB being the maximum value.

**Example Calculation:**

- Sound Rating of Equipment (Decibel Level): 72 dB
- Multiple Condenser Unit Factor: +1
- Equipment Location Factor: +8 dB
- Barrier Shielding Factor: +2 dB
- Distance Factor: +17.5 dB
- Estimated Sound Level of Equipment at the Point of Evaluation (Neighbor): +54.5 dB

Values from Table 4 shall be added to the unit with the highest dB level among the units being evaluated.

**Multiple Condenser Unit Installation**

When there are two AC units, figure the dB levels of each at the OLA or NW. Then use Table 4 to determine the overall combined sound level of the two units.

When there are three or more AC units, figure the dB levels of each at the OLA or NW, which ever is the least distance. Then, using Table 4, determine the overall combined sound levels of two units that are the loudest (loudest at the point of evaluation, i.e. the neighbor.) Compare those combined sound levels with the third loudest unit and come up with another combined level, etc., until all units have been considered. Those final combined sound levels are the resultant of the multiple units. AHRI Std 270(4.3.2.5)
BUICK DIVISION
STANDARD A.C. CONDENSER NOISE ANALYSIS PLAN

MANUFACTURER'S NAME & PRODUCT DATA SHEET
(LISTING dB LEVEL)

SITE PLAN

BARRIER SHIELD ANALYSIS

NOTE: BARRIER DRAWING MUST BE TO SCALE

MANUFACTURER'S NAME & PRODUCT DATA SHEET
(LISTING dB LEVEL)

SOUND RATING OF EQUIPMENT (DECIBEL LEVEL)

+ Equipment Location Factor
- Barrier Shielding Factor
- Distance Factor

= Estimated Sound Level of Equipment at the Point of Evaluation (Neighbor)

Calculation:

Exterior

When two or more units:

+ Multi-Unit Value
= Grand Total with Multi-Unit Value

NOTE: SCALE IS NOT SET, BUT MUST REMAIN CONSISTENT THROUGHOUT

SIDE YARD SETBACK AS DETERMINED BY A PLANNER: FT.

PLANNER'S INITIALS

SCOPE OF WORK:

OWNER'S NAME:

TEL. NO.:

SIGNATURE:

LICENSE NO.:

PLAN PREPARER:

CONTACT INFO:

PROJECT ADDRESS:

STANDARD A.C. CONDENSER NOISE ANALYSIS PLAN

NOTE: BARRIER DRAWING MUST BE TO SCALE

SIDE YARD SETBACK AS DETERMINED BY A PLANNER: FT.

PLANNER'S INITIALS

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OWNER'S NAME:

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PLAN PREPARER:

CONTACT INFO:

PROJECT ADDRESS:
SHEET 3 OF 3

MANUFACTURER’S NAME & PRODUCT DATA SHEET

SITE PLAN

BARRIER SHIELD ANALYSIS

*(NOTE: BARRIER DRAWING MUST BE TO SCALE)*

**MANUFACTURER’S NAME & PRODUCT DATA SHEET**

**LISTING dB LEVEL**

**SITE PLAN**

**BARRIER SHIELD ANALYSIS**

*(NOTE: SCALE IS NOT SET, BUT MUST REMAIN CONSISTENT THROUGHOUT)*

**UNIT #1**

**UNIT #2 (IF APPLICABLE)**

**UNIT #3 (IF APPLICABLE)**

**UNIT #4 (IF APPLICABLE)**

**CALCULATION:**

- **Sound Rating of Equipment (Decibel Level):** ___________ dB
- **Equipment Location Factor:** ___________ (see Table 1)
- **Barrier Shielding Factor:** ___________ (see Table 2)
- **Distance Factor:** ___________ (see Table 3)
- **Estimated Sound Level of Equipment at the Point of Evaluation (Neighbor):** ___________ dB

When two or more units:

- **Multi-Unit Value:** ___________ (see Table 4)
- **Grand Total with Multi-Unit Value:** ___________ dB

**A.C. CONDENSER NOISE ANALYSIS**

**SIDE YARD SETBACK AS DETERMINED BY A PLANNER:** ___________ FT.

**ZONE:** ___________ CITY:

**PROJECT ADDRESS:**

**SCOPE OF WORK:**

**OWNER’S NAME:**

**TEL. NO.:**

**SIGNATURE:**

**LICENSE NO.:**

**PLAN PREPARATOR:**

**CONTACT INFO:**

**PLANNER’S INITIALS:**