6 August 2024

Tish Kelly
Jamboree
17701 Cowan Avenue, Suite 200
Irvine, CA 92614
tkelly@jamboreehousing.com

Subject: Costa Mesa Senior Housing
Environmental Noise Study
Salter Project 24-0310

Dear Tish:

As requested, we have conducted an environmental noise study for the project. The purpose of the study is to quantify the noise environment at the proposed site, compare the measured data with applicable standards, and propose mitigation measures as necessary. This report summarizes the results of our study.

PROJECT CRITERIA

California Building Code (Title 24, Part 2)

The California Building Code requires that the indoor noise level in residential units of multi-family projects not exceed DNL[1] 45 dB.

CALGreen

Section 5.507.4 of the CALGreen Code addresses acoustical requirements for non-residential spaces, such as the offices, community rooms, amenity spaces, and conference rooms in this project. If a building is exposed to an exterior $L_{eq}(h)$[2] 65 dB during any hour of operation, the building envelope must reduce interior noise levels to $L_{eq}(h)$ 50 dB in occupied spaces.

We assumed that the hours of operation for these spaces would be from 7 am to 10 pm and used the loudest $L_{eq}(h)$ during that period as the basis of design.

---

[1] DNL (Day-Night Average Sound Level) – A descriptor for a 24-hour A-weighted average noise level. DNL accounts for the increased acoustical sensitivity of people to noise during the nighttime hours. DNL penalizes sound levels by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the DNL and CNEL are usually interchangeable. DNL is sometimes written as L_{dn}.

[2] $L_{eq}(h)$ –The equivalent steady-state A-weighted sound level that, in an hour, would contain the same acoustic energy as the time-varying sound level during that hour.

City of Costa Mesa

Chapter 7 of the City's General Plan provides the Noise Element[3]. This is in line with the State Building Code criterion. Additionally, Table N-3 of the Noise Element provides allowable noise exposure from transportation sources at exterior areas. For multi-family housing, the maximum "normally acceptable" noise level is DNL 65 dB. This would apply to the project's Level 2 courtyard.

NOISE ENVIRONMENT

This project is bounded by Pomona Avenue to the west, Plumer Street to the south, and West 19th Street to the north. The noise environment at the site is predominantly controlled by vehicular traffic on West 19th Street with secondary contribution from traffic on Pomona Avenue.

To quantify the existing noise environment, we conducted two long-term noise measurements between 18 and 19 July 2024. **Figure 1** shows our measurement locations and measured noise levels. The monitors were installed on utility poles at a height of approximately 12 feet above grade.

Based on our measured data, we calculated the expected noise levels at the various facades. A future traffic analysis was not provided for this project. However, we have added 1 dB to our measured noise levels to account for future traffic increases[4].

RECOMMENDATIONS

Interior Noise

Using the drawing set dated 3 July 2024, we calculated the window and exterior door STC[5] ratings needed to meet the criterion, as shown in **Figures 2 to 4.** For our calculations, we assumed the following:

- All rooms have hard-surfaced flooring
- The exterior wall achieves minimum STC 45 (i.e., 3-stucco over wood sheathing or similar)

The recommended STC ratings are for full window assemblies (glass and frame) rather than just the glass itself. Tested sound-rated assemblies should be used. For reference, typical construction-grade windows achieve STC 28. Insulated one-inch thick assemblies (two 1/4-inch panes separated by a 1/2-inch airspace) achieve approximately STC 32. Where STC ratings above 32 are required, at least one pane will likely need to be laminated

Where the windows need to be closed to achieve an indoor DNL of 45 dB, an alternative method of supplying fresh air (e.g., mechanical ventilation) should be provided. This issue should be discussed

---

3 http://ftp.costamesaca.gov/costamesaca/generalplan2015-2035/adopted/07_FinalDraft_NoiseElement.pdf

4 The California Department of Transportation (DOT) assumes a traffic volume increase of three-percent per year, which corresponds to a 1 dB increase in DNL over a ten-year period.

5 STC (Sound Transmission Class) – A single-number rating defined in ASTM E90 that quantifies the airborne sound insulating performance of a partition under laboratory conditions. Increasing STC ratings correspond to improved airborne sound insulation.

with the project mechanical engineer. This applies to all the locations where an STC rating is shown on Figures 2 to 4.

Exterior Noise

We calculated noise levels of between DNL 49 and 62 dB at the Level 2 courtyard. This is below the City's "normally acceptable" DNL 65 dB standard. Therefore, no additional noise-reduction measures are needed.

* * *

This concludes our environmental noise study for the project. Let us know if you have any questions.

Best,

SALTER

Raphael Dionisio
Consultant

Ben Piper
Senior Associate

Salter

San Francisco

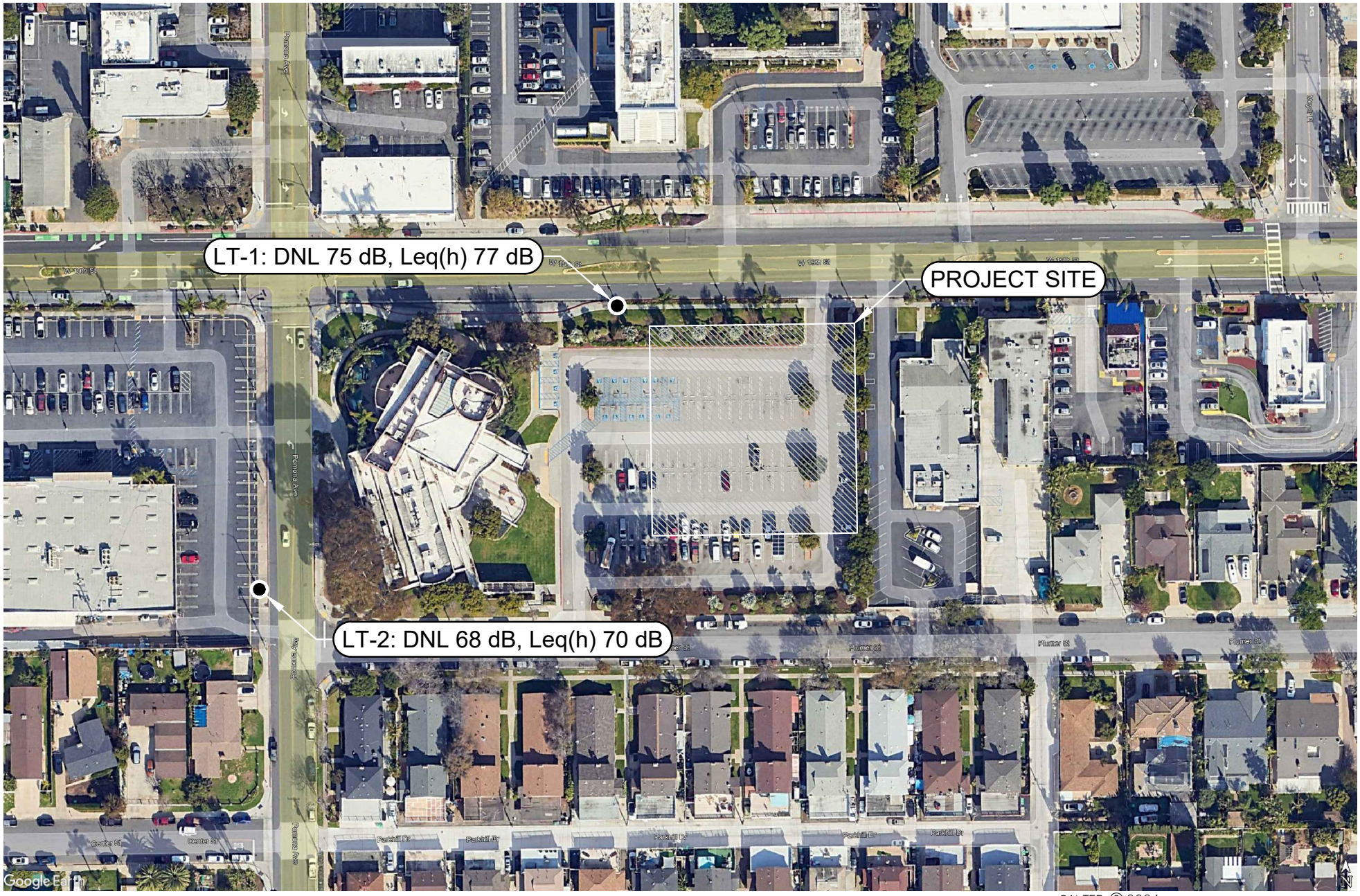
San Jose

Los Angeles

Honolulu

Seattle

www.salter-inc.com



695 W 19TH STREET
MEASUREMENT LOCATIONS AND MEASURED NOISE LEVELS -4-

FIGURE 1

Salter #	RRD/BDP
24–0310	08.06.24

Salter

San Francisco

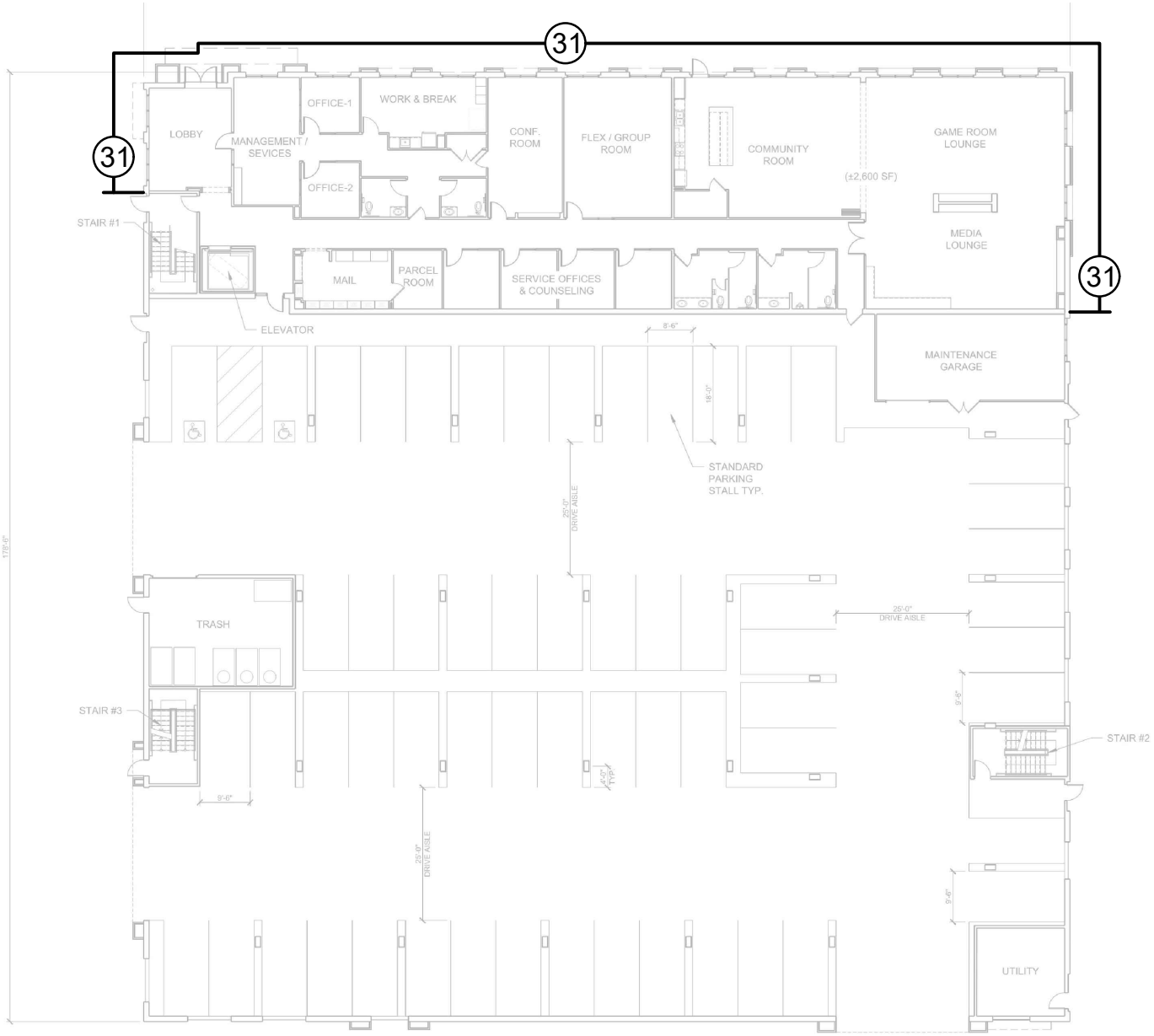
San Jose

Los Angeles

Honolulu

Seattle

www.salter-inc.com



NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

695 W 19TH STREET
MINIMUM CODE-REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOOR 1)

FIGURE 2

Salter # 24-0310

RRD/BDP 08.06.24

Salter

San Francisco

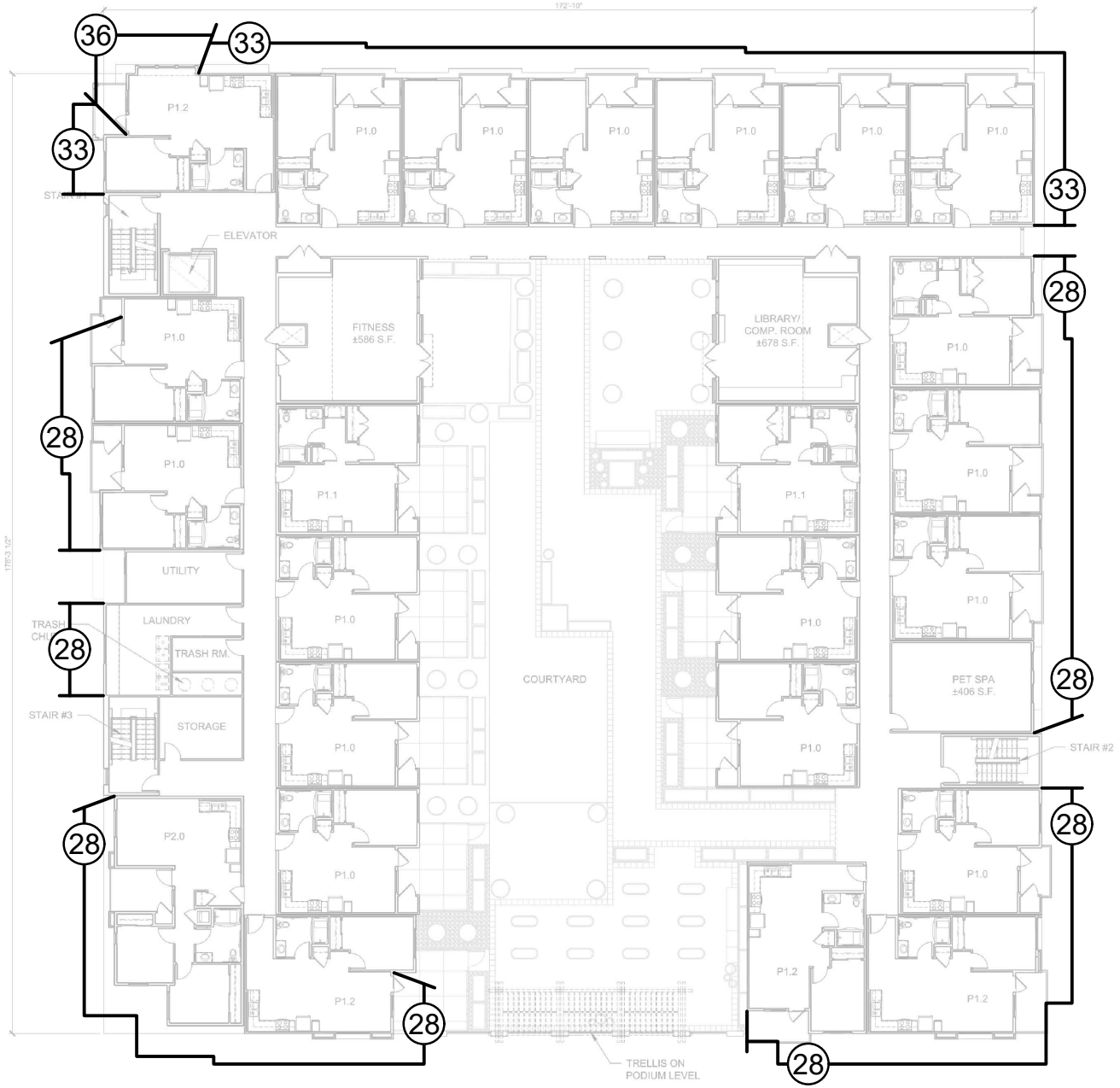
San Jose

Los Angeles

Honolulu

Seattle

www.salter-inc.com



NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

695 W 19TH STREET
MINIMUM CODE–REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOORS 2 AND 3)

FIGURE 3

Salter # 24–0310

RRD/BDP 08.06.24

Salter

San Francisco

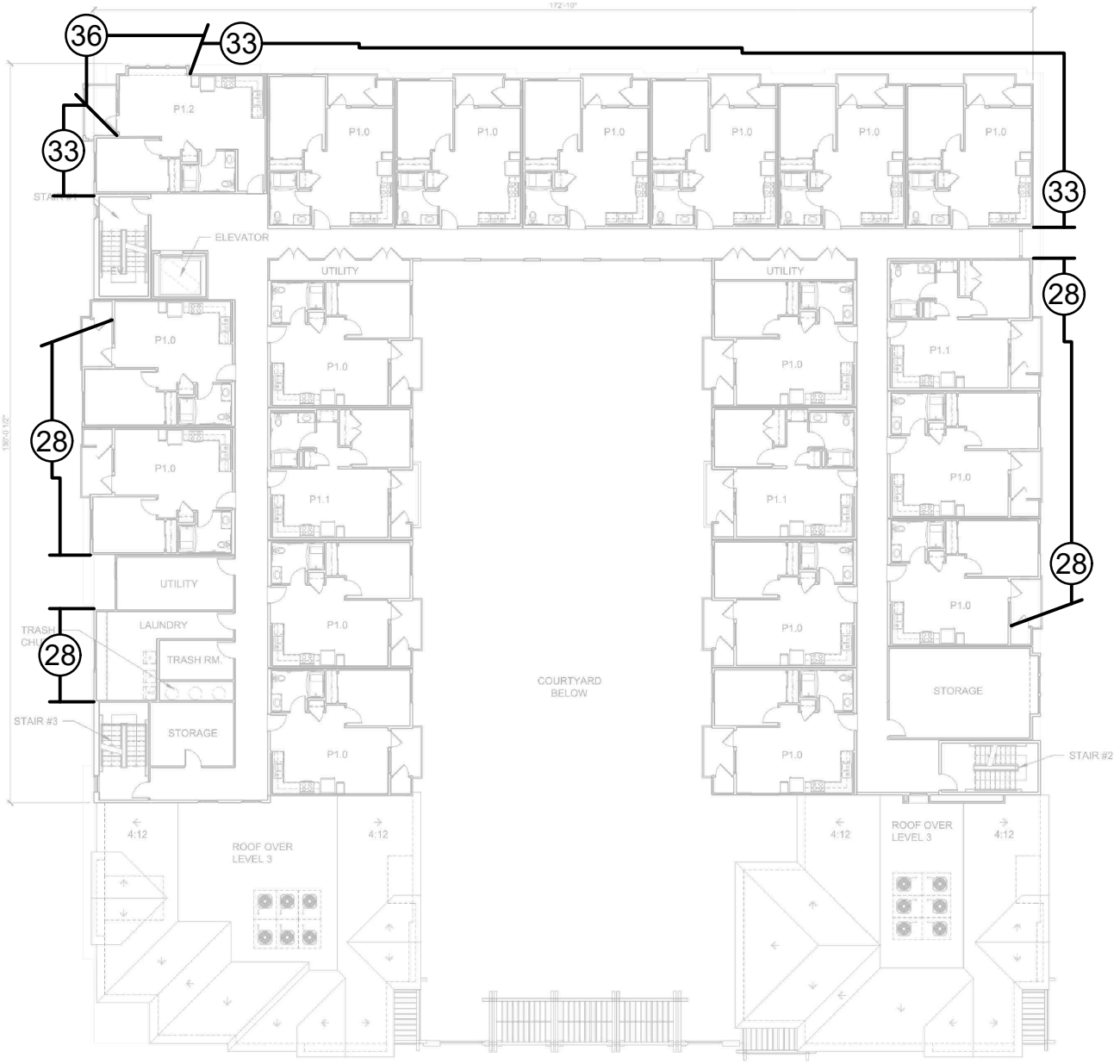
San Jose

Los Angeles

Honolulu

Seattle

www.salter-inc.com



NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

695 W 19TH STREET
MINIMUM CODE–REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOOR 4)

FIGURE 4

Salter #	RRD/BDP
24–0310	08.06.24