

APPENDIX G

ACOUSTICAL CONSULTANT LETTER





12 October 2020

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**Subject: Ward Village, Block H
Environmental Noise Study
Salter Project 19-0471**

Dear Emily:

We have conducted an environmental noise study for the project. The purpose of the study is to quantify the noise environment at the site, compare the measured data with applicable standards, and propose mitigation measures as necessary. We have also analyzed the potential impact of this project onto the current noise environment at the site. This report summarizes the results.

PROJECT CRITERION

The Hawai’i Building Code (i.e., 2012 International Building Code) does not include standards for environmental noise intrusion. However, the Department of Housing and Urban Development (HUD) has a criterion of DNL¹ 45 dB for multi-family residential projects, which matches the criterion in the California Building Code and is used by several residential developers. We have used that as the criterion for this project.

NOISE ENVIRONMENT

The project is a new 41-story condominium tower east of Ward Avenue, between Queen Street and Auahi Street, in Honolulu. The noise environment at the site is predominantly controlled by vehicular traffic from Ward Avenue. Ala Moana Boulevard contributes to the noise environment at higher elevations.

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}.

To quantify the existing noise environment, we conducted one long-term measurement between 26 and 28 February 2020. The monitor was at a height of 12 feet above grade. This data was used in conjunction with our collected data for Victoria Place.

Based on our measured data, we used the CadnaA 3-D noise model to calculate noise levels at the building facade. Our model includes future noise from the planned HART (Honolulu Authority for Rapid Transit) tracks that will run near the project site. We also added 1 dB to the data in our calculations to account for future traffic increases.

RECOMMENDATIONS

Using concept drawings, we calculated the window STC² ratings needed to meet the project criterion. Our calculations are based on the following:

- Bedrooms will have carpet; all other rooms will have hard-surfaced flooring
- Ceilings are 9-feet high
- The facade generally consists of 90% vision glass
- The exterior facade is window wall, and the window wall structure is separate from the framing support of the interior gypsum board

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 one-inch glazing assemblies (two 1/4-inch thick panes with a 1/2-inch airspace) achieve approximately STC 32.

Where windows need to be closed to meet the project criterion, an alternative method of supplying fresh air (e.g., mechanical ventilation) should be considered. This applies to all residences. This issue should be discussed with the project mechanical engineer.

² 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.

PROJECT-RELATED NOISE IMPACT

Environmental noise mitigation recommendations will be made throughout the design and construction phases. The following recommendations are intended to reduce environmental noise complaints from future residents and neighboring properties.

MEP Equipment

MEP equipment noise impact to adjacent properties will be analyzed throughout the project design. Potential noise sources include the ground floor transformers, garage exhaust fans, and rooftop mechanical equipment. All stationary mechanical equipment (e.g., garage exhaust fans, rooftop cooling towers) will comply with the required noise limits at the property lines.

Potential recommendations to mitigate MEP equipment noise include acoustical duct liner, silencers, louvers, and barriers. We will review equipment sound data and provide more specific input when this information is available.

Parking and Loading Area

Parking and loading areas might generate intrusive noise to nearby residences and adjacent properties. Potential mitigation includes adding absorptive finishes, selecting a garage floor finish that does not easily “squeal”, and keeping potential noise-making obstructions outside of the drive aisle.

Construction

Temporary construction noise might impact nearby properties. The contractor should utilize best practices to mitigate construction noise, as feasible. The contractor is required to submit for a noise permit with the Hawai’i Department of Health. Noise-generating construction activity is permitted from 7:00 am to 6:00 pm on weekdays and 9:00 am to 6:00 pm on Saturdays. Noise-generating construction activity is prohibited on Sundays and holidays.³

* * *

³ Hawai’i Administrative Rules, Title 11 Department of Health, Chapter 46 Community Noise Control



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This concludes our environmental noise study for the Ward Village, Block H project. Should you have any questions, please give us a call.

Best,

SALTER

Blake Wells, LEED® GA
Senior Consultant

Enclosure

Eric Mori, PE
Senior Vice President



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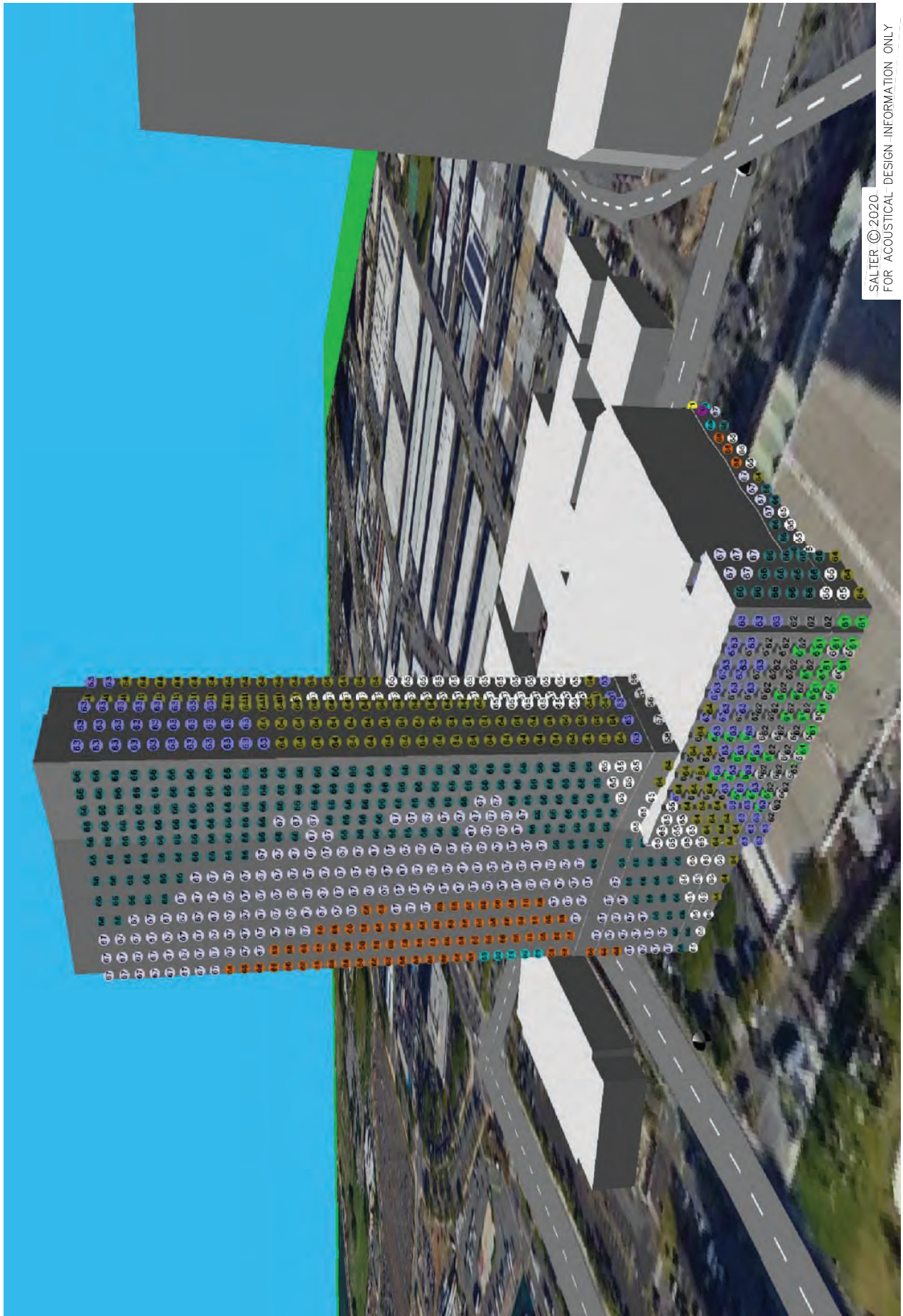


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WARD VILLAGE BLOCK H
MEASUREMENT LOCATIONS AND MEASURED
NOISE LEVELS

FIGURE 1

Salter #
19-0471
BMW/EBM
03.20.20

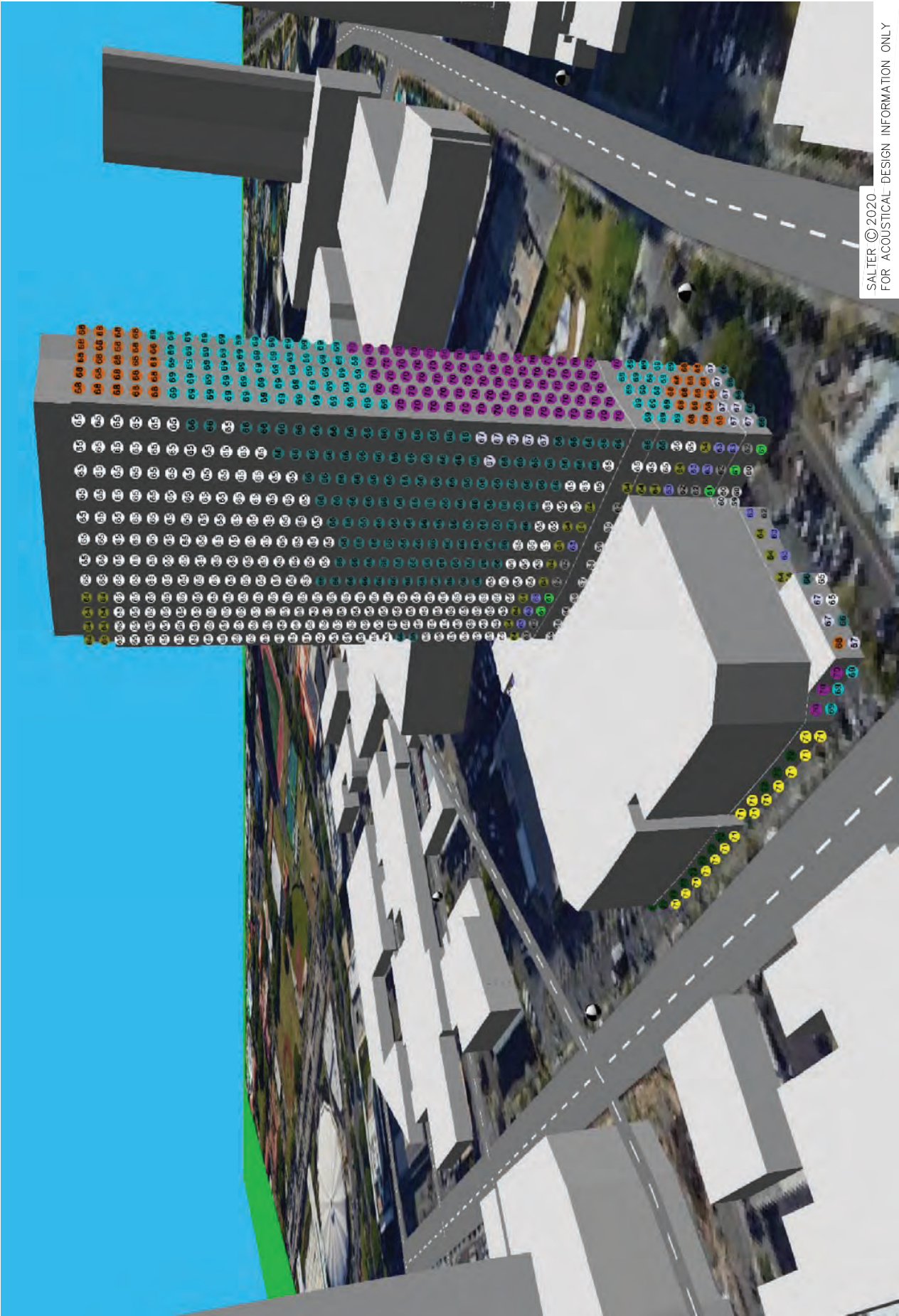


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WARD VILLAGE BLOCK H
MODELED DNL RESULTS
EAST CORNER

FIGURE 2

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BMW/EBM
03.20.20

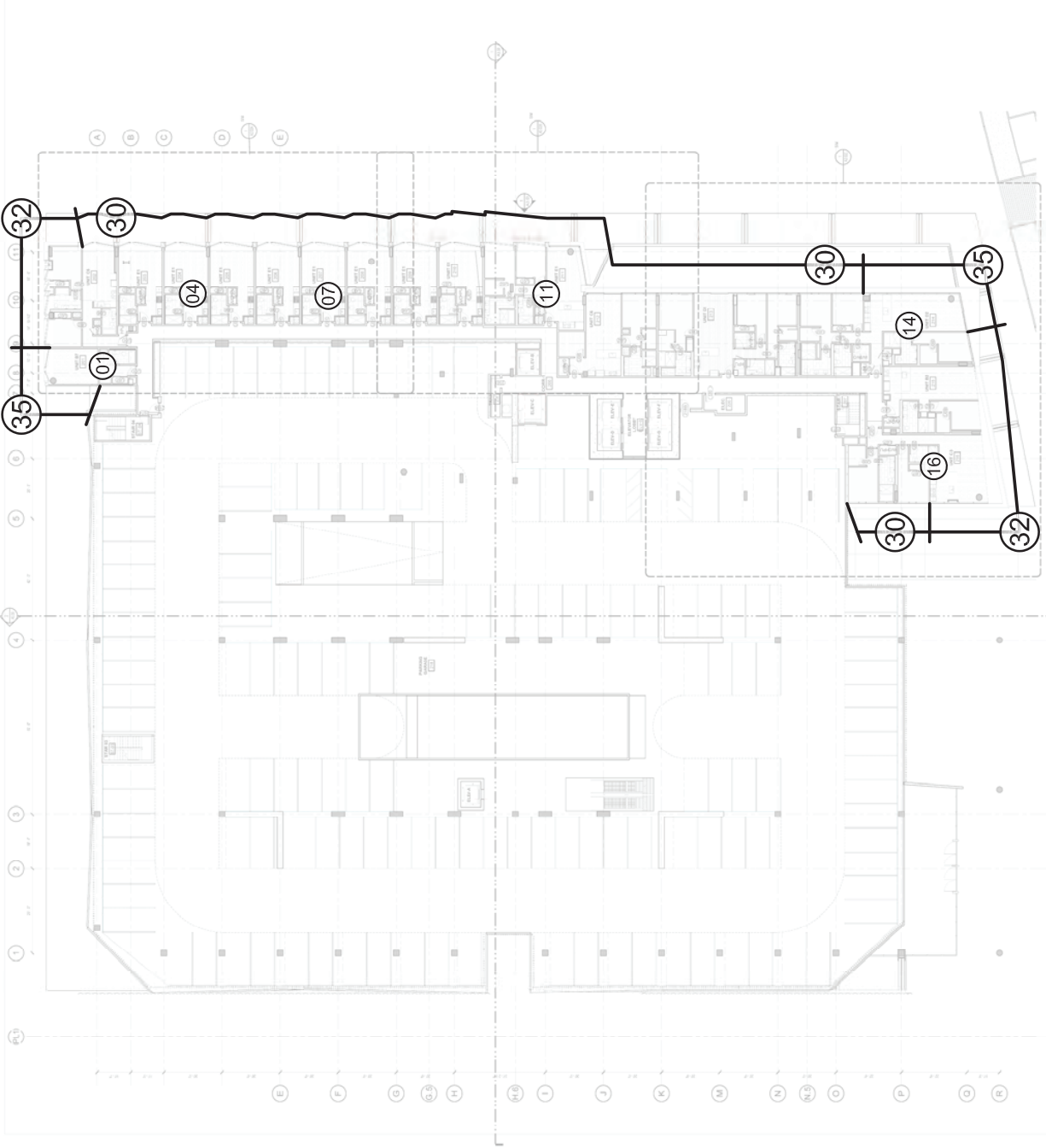


WARD VILLAGE BLOCK H
MODELED DNL RESULTS
WEST CORNER

FIGURE 3

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03.20.20

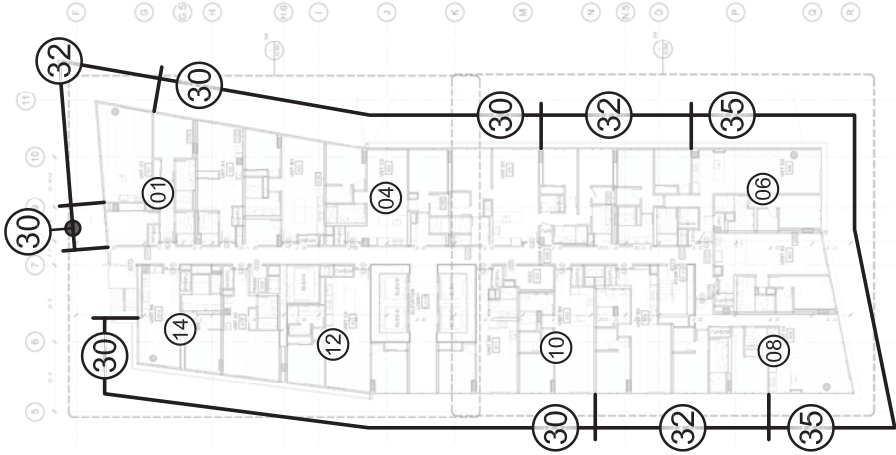


WARD VILLAGE BLOCK H
MINIMUM CODE-REQUIRED STC RATINGS FOR
WINDOWS AND EXTERIOR DOORS (FLOORS 2 TO 7)

FIGURE 4

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03.20.20



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

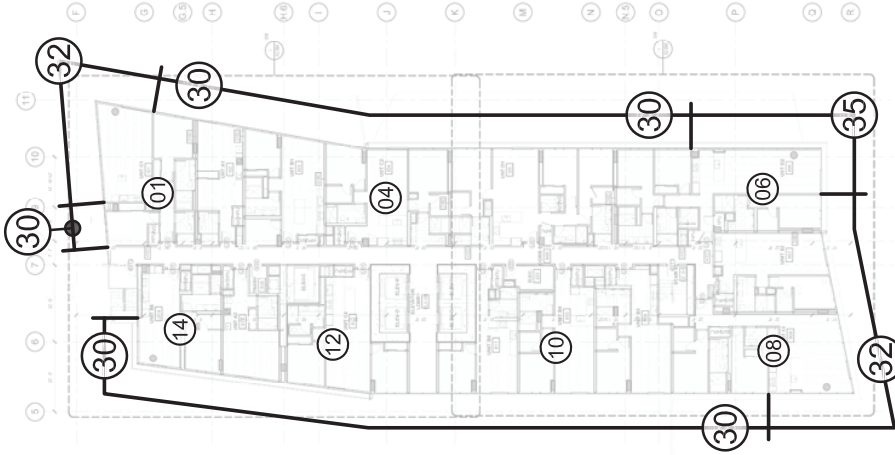
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WARD VILLAGE BLOCK H
MINIMUM CODE-REQUIRED STC RATINGS FOR
WINDOWS AND EXTERIOR DOORS (FLOORS 9 TO 35)

FIGURE 5

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WARD VILLAGE BLOCK H
MINIMUM CODE-REQUIRED STC RATINGS FOR
WINDOWS AND EXTERIOR DOORS (FLOORS 36 TO 41)

FIGURE 6

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