SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT
FOR THE
LOS ANGELES AERIAL RAPID TRANSIT PROJECT
LOS ANGELES, CALIFORNIA

September 2025

State Clearinghouse No. 2020100007

DRAFT SUPPLEMENTAL EIR

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Executive Summary

1. Purpose

This Draft Supplemental Environmental Impact Report (SEIR) has been prepared under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) to update the evaluation of construction noise mitigation measures for the Los Angeles Aerial Rapid Transit Project (Project) in response to the Court of Appeal's opinion in *Los Angeles Parks Alliance, et al. v. Los Angeles County Metropolitan Transportation Authority, et al.* (Case Nos. B340838, B340931) (the Court Opinion).[1]

The Los Angeles County Metropolitan Transportation Authority (Metro) previously certified an Environmental Impact Report for the Project (the LA ART EIR) on February 22, 2024. The LA ART EIR was subsequently challenged in two separate lawsuits. On May 1, 2025, the Court of Appeal issued the Court Opinion, in which it concluded that Metro abused its discretion because (1) the administrative record did not provide substantial evidence to support Metro's rejection of a mitigation measure to retrofit buildings to further reduce interior noise levels from construction; (2) the LA ART EIR did not adequately explain the effectiveness of the components of Mitigation Measure (MM) NOI-A, some of which did not provide additional noise reduction beyond what was already assumed in the LA ART EIR's modeling; and (3) Metro did not engage in timely consultation with the Santa Monica Mountains Conservancy (SMMC) as a trustee agency.

In the Court Opinion, the Court of Appeal directed Metro to prepare a "supplemental EIR incorporating the information developed through [its] corrective action."[2] Therefore, this Draft SEIR has been prepared to address the issues regarding construction noise identified by the Court of Appeal's direction.

2. Overview of Analysis

This Draft SEIR has been prepared to address the issues identified in the Court Opinion. In Chapter 3.0, this Draft SEIR considers the feasibility of implementing acoustical retrofitting in buildings along the Project alignment as mitigation for the proposed Project's significant construction noise impacts. To assist in this evaluation, the analysis estimates interior noise levels from construction at the noise-sensitive receptor buildings identified in the LA ART EIR. That analysis is then used to evaluate options for reducing potential interior noise levels experienced during the Project's construction activities. Most of the noise-sensitive receptors affected by Project construction noise are located in relatively high-performing buildings in good condition. Predictive noise modeling indicates that most existing building envelopes would provide 25 to 34 decibels (dB) of exterior-to-interior noise reduction with windows closed, compared to the up to 24 dB reduction with windows closed noted in the LA ART EIR. Thus, the assumptions used in the LA ART EIR were conservative, and actual building performance is generally expected to provide somewhat greater noise reduction. Based on the modeling performed for this Draft

[1] See *Los Angeles Parks Alliance, et al. v. Los Angeles County Metropolitan Transportation Authority, et al.* (Case Nos. B340838, B340931), available at: https://www4.courts.ca.gov/opinions/nonpub/B340838.PDF.

[2] Court Opinion, p. 119.

SEIR, it is estimated that interior noise levels from construction would range from approximately 37 dBA (comparable to quiet urban nighttime noise levels) to 58 dBA (less than normal speech at 3 feet).

The analysis next considers the feasibility of potential retrofit measures, such as sealing or caulking cracks in window assemblies or exterior walls, replacing window glass or entire window systems, adding insulation to walls and ceilings, and replacing roofs. The analysis finds that implementing these retrofits would require substantial construction activities within occupied buildings, potentially lasting weeks or months, and in some cases necessitating temporary displacement of residents. Implementation would also require case-by-case consent from property owners and tenants and permitting or other approvals depending on building condition. Because Metro lacks authority to compel such work, the program would depend entirely on voluntary participation. Moreover, any resulting noise reduction may be limited, contingent on windows remaining closed, and outweighed by the disruption of invasive retrofit construction. Given these considerations, this Draft SEIR concludes that acoustic retrofitting to address temporary construction noise along the Project alignment is not a feasible mitigation strategy.

Chapter 3.0 next responds to the Court Opinion's concerns regarding MM-NOI-A. The Court of Appeal found that the LA ART EIR did not clearly explain the effectiveness of MM-NOI-A's various components. Some components, such as maintaining equipment and limiting idling, were already assumed in the LA ART EIR's noise modeling or required by law and therefore did not provide additional noise reduction. Others, such as using on-site electrical sources instead of diesel generators, or locating equipment away from sensitive receptors, could have some mitigating effect, but the LA ART EIR did not adequately explain their effectiveness. As a result, the LA ART EIR did not distinguish between measures that were at least partially effective in reducing construction noise and measures that were simply project commitments or regulatory requirements. To address this concern, this Draft SEIR refines MM-NOI-A by retaining as mitigation only those components expected to provide partial noise reduction from modeled noise levels, and by reclassifying the remaining components as Project Design Features. Although the Project Design Features are not mitigation, they would be included in the Project's Mitigation Monitoring and Reporting Program (MMRP) to ensure construction noise levels do not exceed those assumed in the LA ART EIR.

1.0 Introduction

This document is a Draft Supplemental Environmental Impact Report (SEIR) to the Los Angeles Aerial Rapid Transit Project EIR (LA ART EIR, State Clearinghouse #2020100007). LA Aerial Rapid Transit Technologies LLC, as the Project Sponsor, is proposing the Los Angeles Aerial Rapid Transit Project (Project). The Los Angeles County Metropolitan Transportation Authority (Metro) is the Lead Agency for the proposed Project in accordance with the California Environmental Quality Act (CEQA). As used in this Draft SEIR, the Draft EIR (2022), Final EIR (2024), and Errata (2024) are collectively referred to as the LA ART EIR for the proposed Project.

1.1 Background

Metro, as Lead Agency under CEQA, published the Draft LA ART EIR for the proposed Project on October 17, 2022, for a 90-day public review period, during which it held two informational workshops and four public hearings.

On December 4, 2023, Metro published the Final LA ART EIR. On February 22, 2024, the Metro Board of Directors certified the Final LA ART EIR, adopted a Mitigation Monitoring and Reporting Program, adopted CEQA Findings of Fact and a Statement of Overriding Considerations, and approved the Project.

The LA ART EIR was subsequently challenged in two separate lawsuits by the Los Angeles Parks Alliance (LAPA) (Case No. 24STCP00944) and The California Endowment (TCE) (Case No. 24STCP00965). On September 6, 2024, the Los Angeles County Superior Court entered judgment in favor of Metro and the Project Sponsor, rejecting LAPA's and TCE's arguments that the LA ART EIR was deficient under CEQA. Both LAPA and TCE appealed.

On May 1, 2025, the Court of Appeal affirmed in part and reversed in part the Superior Court's judgment (the Court Opinion). The Court held that the Metro had prejudicially abused its discretion under CEQA in three ways: (1) the administrative record did not include substantial evidence to support Metro's rejection of retrofitting buildings as mitigation for construction noise; (2) the LA ART EIR did not adequately explain the effectiveness of Mitigation Measure (MM) NOI-A's components, some of which provided no additional noise reduction beyond what was already assumed in the LA ART EIR's modeling; and (3) Metro failed to engage in timely consultation with the Santa Monica Mountains Conservancy (SMMC) as a trustee agency.

In response to the Court Opinion, this Draft SEIR provides additional analysis and evidence regarding the feasibility of retrofitting existing buildings as mitigation for temporary construction noise impacts and discussion regarding and revisions to MM-NOI-A for temporary construction noise impacts.

1.2 Proposed Project Overview

The proposed Project would connect Los Angeles Union Station (LAUS) to the Dodger Stadium property via an aerial gondola system. The proposed Project would also include an intermediate station at the southernmost entrance of the Los Angeles State Historic Park. The proposed Project would provide an aerial rapid transit (ART) option for visitors to Dodger Stadium, while also providing access between the Dodger Stadium property, the surrounding communities, including Chinatown, Mission Junction, Elysian Park, and Solano Canyon, and the Los Angeles State Historic Park, to the regional transit system accessible at LAUS.

The aerial gondola system would consist of cables, three passenger stations, a non-passenger junction, towers, and gondola cabins. When complete, the proposed Project would have a maximum capacity of approximately 5,000 people per hour per direction, and the travel time from LAUS to Dodger Stadium would be approximately seven minutes. The proposed Project would provide pedestrian improvements, including hardscape and landscape improvements, as well as amenities at the Los Angeles State Historic Park. The ART system has the ability to overcome grade and elevation issues between LAUS and Dodger Stadium, and would provide safe, zero-emission, environmentally friendly, and high-capacity transit connectivity in the Project area that would reduce greenhouse gas (GHG) emissions as a result of reduced vehicular congestion in and around Dodger Stadium and on neighborhood streets, arterial roadways, and freeways. The proposed Project would operate daily to serve existing residents, workers, park users, and visitors to Los Angeles.

A detailed description of the proposed Project is provided in Section 2.0, Project Description. The Metro Board of Directors approved the proposed Project with Design Option A. The Project Description is unchanged from the LA ART EIR.

1.3 LA ART EIR

1.3.1 Scope of LA ART EIR

The LA ART EIR analyzed the proposed Project's potential environmental impacts in 20 issue areas: aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise and vibration, population and housing, public services, parks and recreational facilities, transportation, tribal cultural resources, utilities and service systems, and wildfire. In addition to the above issue areas, the LA ART EIR discussed other statutory requirements of CEQA, including cumulative impacts, significant unavoidable adverse impacts, effects not found to be significant, irreversible environmental changes, and growth-inducing impacts.

The LA ART EIR concluded that the proposed Project would result in significant and unavoidable impacts only with regard to Construction Noise and Vibration:

- **Construction Noise** – Project-level and cumulative noise impacts to noise-sensitive receptors from construction activities.
- **Construction Vibration** – Project-level and cumulative human annoyance vibration impacts to adjacent sensitive receptors.

The LA ART EIR concluded that the proposed Project's operation would not result in any significant and unavoidable impacts.

1.3.2 Litigation Challenging the LA ART EIR

The LA ART EIR was challenged in two separate lawsuits, one by LAPA and one by TCE. On September 6, 2024, the Los Angeles County Superior Court entered judgment in favor of Metro and the Project Sponsor, rejecting LAPA's and TCE's respective arguments that the LA ART EIR was deficient under CEQA. Both LAPA and TCE appealed.

On May 1, 2025, the Court of Appeal affirmed in part and reversed in part the Superior Court's judgment. The Court of Appeal affirmed the following with respect to the LA ART EIR:

- Metro is the proper Lead Agency for the proposed Project under CEQA, as the agency statutorily tasked with planning and operating the Los Angeles region's public transportation system.
- The LA ART EIR appropriately analyzed potential land use impacts on the Los Angeles State Historic Park.
- The LA ART EIR's Project Description was complete, and Metro did not engage in improper piecemealing under CEQA.
- The LA ART EIR sufficiently analyzed the proposed Project's potential aesthetic impacts.
- The LA ART EIR adequately discussed potential health consequences connected to the proposed Project's construction noise impacts.
- Metro reasonably concluded that Project alternatives were infeasible.

However, the Court of Appeal found that Metro abused its discretion with respect to the Project's construction noise mitigation and by failing to engage in timely consultation with SMMC as a trustee agency. With respect to the LA ART EIR's discussion of construction noise mitigation measures, the Court of Appeal determined that (1) there was not substantial evidence supporting Metro's rejection of a mitigation measure to retrofit buildings to further reduce interior noise levels from construction; and (2) the discussion of MM-NOI-A was inadequate because it failed to explain whether and how certain components of MM-NOI-A would be partially effective in mitigating construction noise impacts or were necessary to ensure that construction noise levels were consistent with those modeled in the LA ART EIR.

1.4 Purpose of This Draft Supplemental EIR

This Draft SEIR has been prepared to respond to the Court Opinion's direction regarding the adequacy of the construction noise mitigation analysis in the LA ART EIR. It provides additional consideration of the feasibility of retrofitting existing buildings to mitigate significant construction noise impacts and additional analysis of and revisions to MM-NOI-A (requiring preparation of a Construction Noise Management Plan) to ensure CEQA compliance. This Draft SEIR is limited to the discrete construction noise mitigation issues identified by the Court Opinion. The LA ART EIR's analysis of all other environmental topics was upheld by the Court of Appeal and remains unchanged.

This Draft SEIR builds upon the analysis contained in the previously published LA ART EIR. Where relevant, information and analysis from the LA ART EIR are summarized rather than repeated in full. The LA ART EIR in its entirety is available on Metro's website: https://www.metro.net/projects/aerial-rapid-transit/.

1.5 Public Review Process for the Draft Supplemental EIR

This Draft SEIR is being distributed for a 45-day public review and comment period that will begin September 29, 2025, and end November 13, 2025. During the public review and comment period, comments from public agencies, organizations, and individuals concerning the environmental issues analyzed in the Draft SEIR can be submitted by email or U.S. mail to the following address:

Mr. Cory Zelmer, Deputy Executive Officer
Los Angeles County Metropolitan Transportation Authority

One Gateway Plaza, Mail Stop MS: 99-22-6
Los Angeles, CA 90012
Email: LAART@metro.net

Comments on the Draft SEIR can also be submitted by phone at (213) 922-6913. Comments should be limited to Metro's actions in response to the Court Opinion and the analysis in Section 3.0.

At the close of the public review period for the Draft SEIR, Metro will prepare written responses to substantive environmental comments received on the Draft SEIR. These responses will be included in the Final SEIR.

After completing the Final SEIR and any other required documentation, the Metro Board of Directors may consider (1) re-certifying the LA ART EIR as supplemented by certifying the Final SEIR, (2) adopting findings regarding the proposed Project's significant environmental effects and mitigation measures, (3) adopting a Statement of Overriding Considerations, and (4) whether to reaffirm approval of the Project.

1.5.1 CEQA Responsible and Trustee Agencies

The LA ART EIR, together with this Draft SEIR, is intended to serve as the CEQA environmental document for the discretionary approvals required for implementation of the proposed Project. Responsible agencies for the proposed Project include the California Department of Transportation (Caltrans), the California Department of Parks and Recreation (State Parks), the California Division of Occupational Safety and Health (Cal/OSHA), and the City of Los Angeles. Trustee agencies for the proposed Project include the California Department of Fish and Wildlife and SMMC.

1.5.2 Public Resources Code Section 21168.6.9

Section 21168.6.9 to the Public Resources Code provides for streamlined judicial review for "environmental leadership transit projects," so long as certain requirements are met. To qualify for the streamlined judicial review process, the proposed project must be an "environmental leadership transit project," defined as a "fixed guideway" that (i) operates at zero emissions; (ii) reduces GHG emissions in the project's corridor "as defined in the applicable environmental document over the useful life of the project, without using offsets"; (iii) reduces 30 million vehicle miles traveled in the project's corridor "as defined in the applicable environmental document over the useful life of the project"; (iv) is consistent with the applicable sustainable communities strategy and regional transportation plan; and (v) incorporates sustainable infrastructure practices.[3]

The proposed Project is an environmental leadership transit project.

In accordance with Public Resources Code section 21168.6.9(e)(1)(A), the required notice is copied below:

> THIS ENVIRONMENTAL IMPACT REPORT IS SUBJECT TO SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE, WHICH PROVIDES, AMONG OTHER THINGS, THAT THE LEAD AGENCY NEED NOT CONSIDER CERTAIN COMMENTS FILEDAFTER THE CLOSE OF THE PUBLIC COMMENT PERIOD, IF ANY, FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT. ANY JUDICIAL ACTION CHALLENGING THE CERTIFICATION OR ADOPTION OF THE ENVIRONMENTAL IMPACT REPORT OR THE APPROVAL OF THE PROJECT DESCRIBED IN SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE IS SUBJECT

[3] Pub. Resources Code, § 21168.6.9(a)(1)(A)-(F).

TO THE PROCEDURES SET FORTH IN THAT SECTION. A COPY OF SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE IS INCLUDED IN THE APPENDIX TO THIS ENVIRONMENTAL IMPACT REPORT.

Metro has complied with and will comply with all other requirements in Public Resources Code section 21168.6.9, the full and complete text of which is included as Appendix B to this Draft SEIR.

1.5.3 Draft Supplemental EIR Organization

This Draft SEIR is comprised of the sections listed below.

1.0 Introduction. This section briefly describes the purpose and scope of this Draft SEIR, summarizes the litigation and Court Opinion's directive, briefly describes the Project, explains the intended uses of this Draft SEIR, and outlines the contents of this document.

2.0 Project Description. This section summarizes the proposed Project that the Metro Board of Directors approved in February 2024, including its location, context, operations, construction, and required permits and approvals. A complete description of the Project is provided in the LA ART EIR. The Project's purpose and objectives remain unchanged.

3.0 Construction Noise Mitigation. This section addresses the deficiencies identified by the Court of Appeal relating to construction noise mitigation. It analyzes the feasibility of retrofitting existing buildings to reduce interior noise from construction. It also evaluates MM-NOI-A (requiring preparation of a Construction Noise Management Plan), explaining which components would be partially effective at reducing construction noise impacts and which are project commitments or regulatory requirements.

4.0 References. This section lists the reference and source materials used in the preparation of this Draft SEIR.

5.0 List of Preparers. This section lists the individuals involved in the preparation of this Draft SEIR.

2.0 Project Description

A complete Project Description is provided in the LA ART EIR. A summary of the proposed Project that the Metro Board approved – the Project with Design Option A – is provided below. The proposed Project, its purpose, and Project objectives remain unchanged from what Metro previously approved in February 2024.

2.1 Project Overview

The proposed Project would connect Los Angeles Union Station (LAUS) to Dodger Stadium property via an aerial gondola system. The proposed Project would also include an intermediate station at the southernmost entrance of the Los Angeles State Historic Park. The proposed Project would provide an aerial rapid transit (ART) option for visitors to Dodger Stadium, while also providing access between the Dodger Stadium property, the surrounding communities, including Chinatown, Mission Junction, Elysian Park, and Solano Canyon, and the Los Angeles State Historic Park, to the regional transit system accessible at LAUS. The aerial gondola system would be approximately 1.2 miles and consist of cables, three passenger stations, a non-passenger junction, towers, and gondola cabins. When completed, the proposed Project would have a maximum capacity of approximately 5,000 people per hour per direction, and the travel time from LAUS to Dodger Stadium would be approximately seven minutes. The proposed Project would provide pedestrian improvements, including hardscape and landscape improvements, as well as amenities at the Los Angeles State Historic Park. The ART system has the ability to overcome grade and elevation issues between LAUS and Dodger Stadium and provide safe, zero emission, environmentally friendly, and high-capacity transit connectivity in the Project area that would reduce greenhouse gas (GHG) emissions as a result of reduced vehicular congestion in and around Dodger Stadium and on neighborhood streets, arterial roadways, and freeways. The proposed Project would operate daily to serve existing residents, workers, park users, and visitors to Los Angeles.

Established aerial gondola transit systems worldwide, such as in La Paz, Bolivia, and Mexico City, Mexico, are being used as rapid transit for the urban population that they serve. The proposed Project would employ a Tricable Detachable Gondola system (also known as “3S”). 3S Gondola system cabins carry approximately 30 to 40 passengers, more than monocable systems, allowing for higher capacity passenger transport. Similar to the systems used in Koblenz, Germany, Phu Quoc, Vietnam, and Toulouse, France, the proposed Project is expected to provide a smoother, more stable ride than would a monocable system.

2.2 Project Location

The proposed Project is located in the City of Los Angeles, situated northeast of downtown Los Angeles. **Figure 2-1** below shows the regional location of the proposed Project. The proposed Project would commence adjacent to LAUS and El Pueblo de Los Angeles (El Pueblo) and terminate at Dodger Stadium, with an intermediate station at the southernmost entrance of the Los Angeles State Historic Park. The proposed Project would include three stations, a non-passenger junction, and three cable-supporting towers at various locations along the alignment. As shown in **Figure 2-2** below, the proposed Project location would generally be located within public right-of-way (ROW), or on publicly owned property, following Alameda Street and then continuing along Spring Street in a northeast direction through the community of Chinatown to the southernmost corner of the Los Angeles State Historic Park. The alignment would then continue northeast over the western edge of the Los Angeles State Historic Park and the Los Angeles County Metropolitan Transportation Authority (Metro) A Line to the intersection of North Broadway and Bishops Road. At this intersection, the proposed Project alignment would turn and continue northwest following Bishops Road toward its terminus at Dodger Stadium, located in the Elysian Park community. **Figure 2-1** provides an overview of the proposed Project location, and **Figure 2-2** provides an overview of the proposed Project alignment.

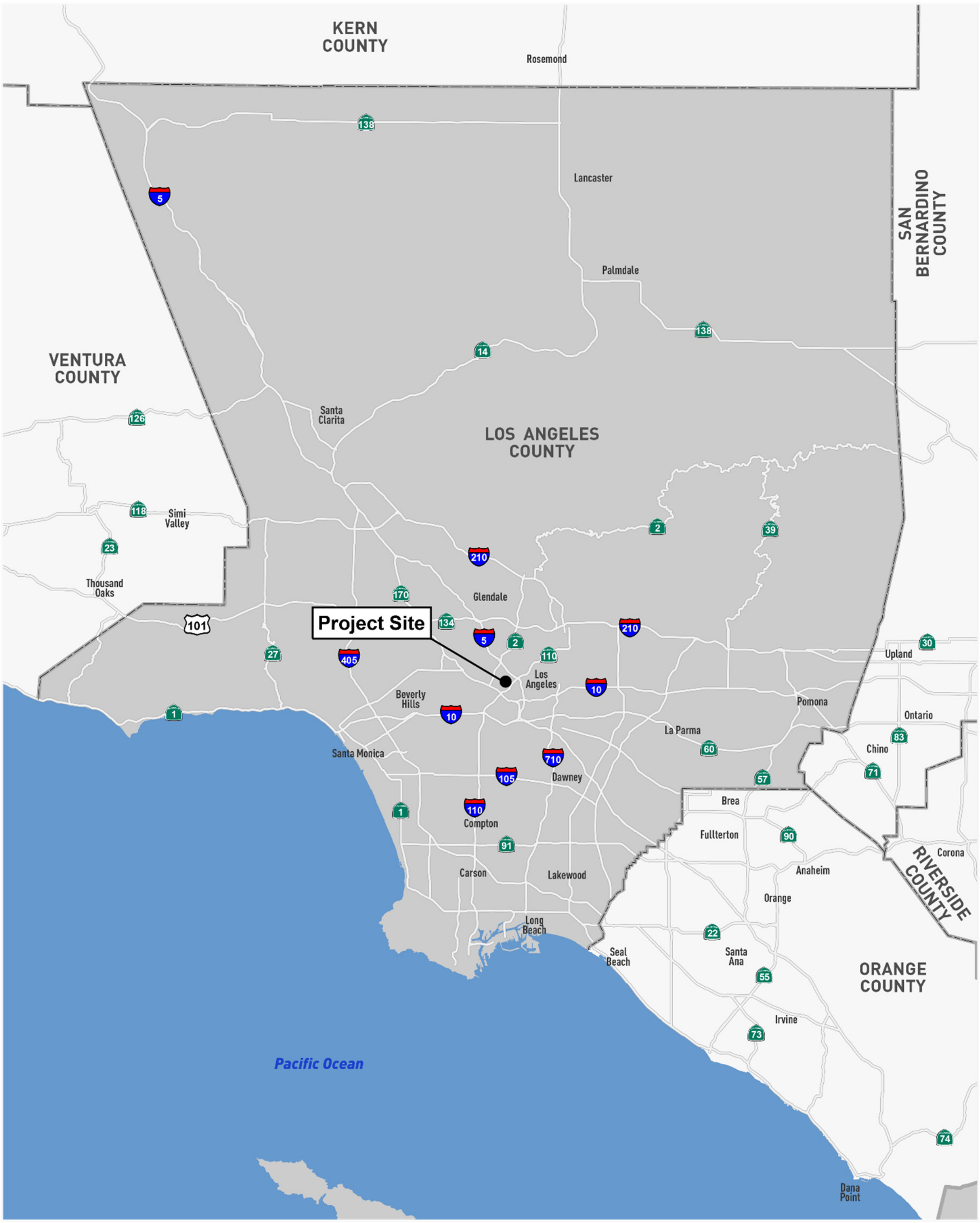

Figure 2-1: Regional Location Map

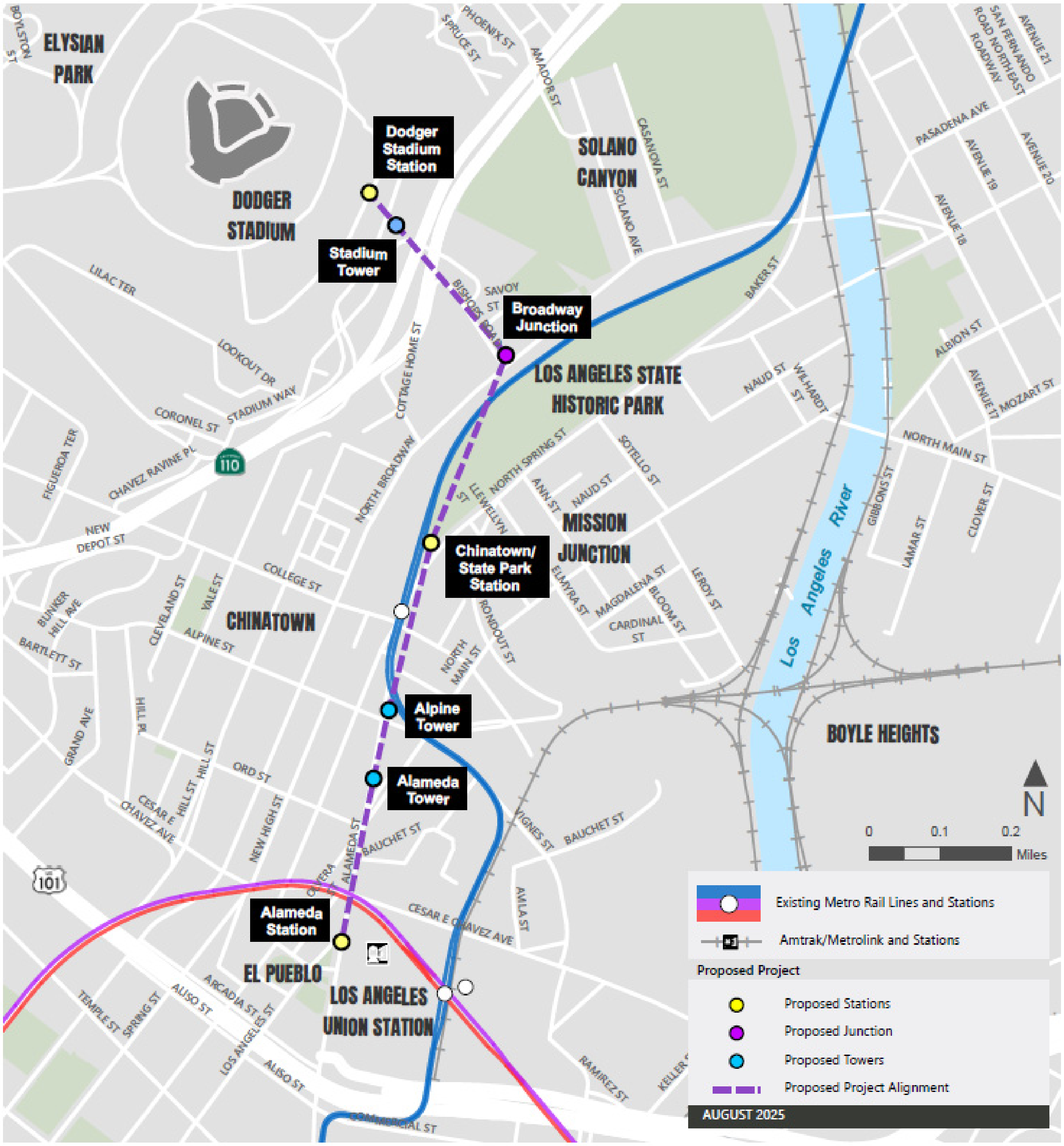

Figure 2-2: Proposed Project Alignment

2.3 Proposed Project Alignment and Components

The proposed Project "alignment" includes the suspended above-grade cables and cabins following the position of the Project components along the proposed alignment from Alameda Station to Dodger Stadium Station. The proposed Project alignment and locations, heights, widths, sizes, and design of the Project components are approximate and may change slightly during final design based on the discretionary entitlements, reviews, and approvals required for implementation of the proposed Project.

The proposed Project alignment would extend approximately 1.2 miles, beginning near El Pueblo and LAUS on Alameda Street. The proposed Alameda Station would be constructed over Alameda Street between Los Angeles Street and Cesar Chavez Avenue, adjacent to the Placita de Dolores and planned LAUS Forecourt. The location of the Alameda Station was selected because it maximizes the proposed alignment over public ROW and publicly owned property and minimizes aerial rights over private properties. The Alameda Station location was also selected because of its high visibility and proximity to LAUS and El Pueblo, safe and convenient pedestrian connection to and from the LAUS passenger terminal and El Pueblo, as well as adjacency to public space for passenger access. The location is also compatible with Metro's plans at LAUS, including the planned LAUS Forecourt and Esplanade Improvements Project. Additional considerations include minimizing impacts to historic and archaeological resources.

From Alameda Station, the proposed Project alignment would remain primarily above the public ROW and publicly owned property with portions above private property, and travel north along Alameda Street to the proposed Alameda Tower, which would be constructed on the Alameda Triangle, a portion of City ROW between Alameda Street, North Main Street, and Alhambra Street.

From Alameda Tower, the proposed Project alignment would continue north along Alameda Street and cross Alpine Street. The proposed Alpine Tower would be constructed at the corner of Alameda Street and Alpine Street on City-owned property. In the process of selecting tower locations, the proposed Project prioritizes the use of public property and minimizes private land acquisition and also considers the proposed Project's relationship to existing adjacent and potential future land uses. Technical considerations of tower locations also include optimizing the height of the towers and minimizing the number of towers. Additionally, the proposed Project limits the bend on the towers to less than two degrees.

From Alpine Tower, the proposed Project alignment would follow the public ROW and continue over the elevated Metro A Line. North of College Street, Alameda Street becomes Spring Street, and the proposed alignment would generally follow Spring Street in a northeast trajectory until it reaches the southernmost point of Los Angeles State Historic Park, where the proposed Chinatown/State Park Station would be constructed partially on City ROW and partially within the boundaries of the Los Angeles State Historic Park. The Chinatown/State Park Station location minimizes the proposed Project's footprint within the Los Angeles State Historic Park.

The alignment then crosses over the western edge of the Los Angeles State Historic Park and the Metro A Line tracks. The Chinatown/State Park Station location avoids adjacent private properties while maintaining transit access to surrounding communities within a half mile walkshed to transit, including the Park, Chinatown, Mission Junction including William Mead Homes, Los Angeles River, and North Broadway.

The proposed Project alignment would continue traveling north towards the intersection of North Broadway and Bishops Road. Broadway Junction would be located at the northern corner of the intersection of North Broadway and Bishops Road (1201 North Broadway). From Broadway Junction, the proposed Project alignment would travel northwest primarily along Bishops Road, with portions above private property, crossing over SR-110 towards Dodger Stadium. The proposed Stadium Tower would be located on hillside private property north of Stadium Way between the Downtown Gate entrance road to Dodger Stadium and SR-110. The northern terminus of the system would be located in a parking lot at the Dodger Stadium property, where the proposed Dodger Stadium Station would be constructed.

2.3.1 Alameda Station

Alameda Station would be located on Alameda Street adjacent to the planned LAUS Forecourt and Placita de Dolores between Los Angeles Street and Cesar E. Chavez Avenue. The station would be approximately 173 feet long, 109 feet wide, and 78 feet high at its tallest point, with the passenger loading platform approximately 31 feet above Alameda Street. Vertical circulation elements (i.e., elevators, escalators, stairs) for pedestrian access, which would also serve as queuing areas to the station, would be introduced at-grade north of the Placita de Dolores in a proposed new pedestrian plaza at El Pueblo on the west in an area currently used as a parking and loading area for El Pueblo. On the east, vertical circulation elements would be introduced at-grade from the planned LAUS Forecourt. Installation of the vertical circulation elements may include removal of approximately 12 trees, removal of parking and loading for El Pueblo, and installation of landscaping and hardscape.

2.3.2 Alameda Tower

Alameda Tower would be located on the Alameda Triangle, a City ROW between Alameda Street, North Main Street, and Alhambra Avenue consisting of a small green space flanked on all sides by roadways. Alameda Tower would be 195 feet tall with the cable suspended 175 feet above ground. The Alameda Tower would require the removal of approximately 10 trees and vegetation. Implementation of Alameda Tower would include reuse and integration of the existing pavers located at the Alameda Triangle, as well as landscape and hardscape updates to the Alameda Triangle.

2.3.3 Alpine Tower

Alpine Tower would be located on a City-owned parcel, currently being used as non-public parking storage for City vehicles, at the northeast corner of Alameda Street and Alpine Street, adjacent to the Metro A Line. Alpine Tower would be 195 feet tall at its tallest point, with the cable suspended 175 feet above ground. Alpine Tower would also include the installation of landscaping and hardscaping near the base of the tower.

2.3.4 Chinatown/State Park Station

Chinatown/State Park Station would be located adjacent to Spring Street in the southernmost portion of the Los Angeles State Historic Park. The southern portion of the station would be located on City ROW, while the northern portion of the station would be integrated into the southern boundary of the Los Angeles State Historic Park. The station would be approximately 200 feet long, 80 feet wide, and 98 feet tall at its tallest point, with the passenger boarding platform approximately 50 feet above-grade. Access to the boarding platform would be from the mezzanine via elevators and stairs. Comprised of three levels, elevators and stairs from the ground level would lead up to a mezzanine, 27 feet above-grade, and ramps for the queuing area would lead up to the boarding platform, which is 50 feet above ground.

Chinatown/State Park Station would also include Park amenities, including approximately 740 square feet of concessions, 770 square feet of restrooms, and a 220 square foot covered breezeway connecting the concessions and restrooms. Additionally, Chinatown/State Park Station would include a mobility hub where passengers would be able to access a suite of first and last mile multi-modal options, such as a bike share program. Pedestrian access enhancements could include pedestrian improvements between Metro's A Line Station and Chinatown/State Park Station consistent with the Connect US Action Plan, including hardscape and landscape improvements, shade structures, and potential seating, as well as support for the future Los Angeles State Historic Park bike and pedestrian bridge. Chinatown/State Park Station would require the removal of approximately 30 trees and vegetation; however, it would include the installation of landscaping and hardscaping, including integration of the granite pavers. The aerial rights requirements for the proposed Project would require the additional removal of approximately 51 trees within the Los Angeles State Historic Park; however, the proposed Project would include the installation of replacement trees. Chinatown/State Park Station would provide passenger access to Chinatown, the Los Angeles State Historic Park, and to nearby neighborhoods and land uses, including the Mission Junction neighborhood, which includes the William Mead Homes public housing complex.

2.3.5 Broadway Junction

Broadway Junction is a non-passenger junction that would be located at the intersection of North Broadway and Bishops Road. The junction would primarily be located on privately-owned property with a portion of the junction and overhead cable infrastructure cantilevered and elevated above the public ROW. The existing commercial building located at 1201 N. Broadway would be demolished. Broadway Junction would be approximately 227 feet long, 60 feet wide, and 98 feet high at its tallest point, with the platform approximately 50 feet above the ground. Vertical circulation elements (i.e., elevators and stairs) would be installed on the northwest side of the junction for staff and maintenance access to the platform. Broadway Junction would require the removal of approximately 25 trees and vegetation.

2.3.6 Stadium Tower

Stadium Tower would be located on hillside private property north of Stadium Way between the Downtown Gate and SR-110 and would stand 179 feet tall with the cable suspended 159 feet above-ground. Stadium Tower would also include removal of approximately 55 significant trees and vegetation, including the fire buffer zone. However, it would include the installation of landscaping near the base of the tower.

2.3.7 Dodger Stadium Station

Dodger Stadium Station would be in the southeast portion of the Dodger Stadium property near the Downtown Gate. This station would be approximately 194 feet long, 80 feet wide, and 74 feet high at its tallest point. Cabins at this station would arrive and depart from an at-grade boarding platform, with the passenger queuing area also at-grade. Dodger Stadium Station would include a subterranean area below the platform for storage and maintenance of cabins, as well as staff break rooms, lockers, and parts storage areas. The cabins would be transferred between the station platform and the subterranean area by way of a cabin elevator. Automated parking and controls would manage the process of storing cabins or returning them to service. Cabins would be returned to and stored at Dodger Stadium Station when the system is not in use.

Restrooms for passenger use would be located at the station. Dodger Stadium Station would also include a pedestrian connection to Dodger Stadium, including hardscape and landscape improvements and potential seating.

Dodger Stadium Station would be located adjacent to Dodger Stadium in a portion of the existing parking lot. The proposed Project would provide a mobility hub where outside of game day periods, passengers would be able to access a suite of first and last mile multi-modal options, such as a bike share program and individual bike lockers, to access Elysian Park and other nearby neighborhoods, including Solano Canyon. The Project Sponsor would coordinate with the Los Angeles Dodgers on maintaining security for Dodger Stadium and the surrounding surface parking areas.

Implementation of Dodger Stadium Station would require the removal of parking spaces, as well as removal of approximately 33 trees and vegetation, however, it would include the installation of replacement landscaping.

2.4 Construction

Construction of the proposed Project is anticipated to take approximately 25 months, including construction, cable installation, and system testing. A summary of the construction activities is provided below. Construction of the Project components may partially overlap in schedule, especially since construction would occur at several physically separated sites. (See LA ART Draft EIR, Appendix B, Construction Assumptions, for detailed construction procedures.)

Utility relocations would occur prior to construction of the proposed Project components and would be coordinated directly with the utility providers. Following utility relocations, construction would commence. (See Draft LA ART EIR, Appendix B, Construction Assumptions, for detailed information on utilities relocations.)

During construction, some parking spaces at Dodger Stadium would be temporarily closed for construction of the Dodger Stadium Station and for overall Project construction, trailers, laydown and staging areas, and construction worker parking.

Construction of more than one Project component would occur at the same time, with consideration of available materials, work crew availability, and coordination of roadway closures. **Table 2-1** below includes the estimated duration to complete construction of each of the proposed Project components, the maximum depths of drilled piles, the maximum depth of excavation, the amount of excavation, and the amount of materials (soils and demolition debris) to be exported for each component of the proposed Project.

Table 2-1: Proposed Project Construction Details[4]

Component	Duration	Required Area for Construction	Drilled Pile Depth	Excavation Depth	Amount of Excavation	Amount of Exported Materials
Alameda Station	17 months	55,600 sq. ft.	125 feet	10 feet	2,728 cubic yards	2,295 cubic yards
Alameda Tower	12 months	40,600 sq. ft	120 feet	10 feet	2,850 cubic yards	2,292 cubic yards
Alpine Tower	11 months	38,700 sq. ft.	120 feet	10 feet	3,606 cubic yards	2,887 cubic yards
Chinatown/State Park Station	19 months	69,000 sq. ft.	80 feet	10 feet	6,267 cubic yards	4,567 cubic yards
Broadway Junction	19 months	65,000 sq. ft.	120 feet	7 feet	6,407 cubic yards	5,379 cubic yards
Stadium Tower	13 months	23,500 sq. ft.	120 feet	7 feet	2,376 cubic yards	1,665 cubic yards
Dodger Stadium Station	21 months	142,600 sq. ft.	93 feet	42 feet	70,805 cubic yards	71,493 cubic yards

Following completion of construction, the gondola cables would be installed, followed by system testing and inspections.

Working hours would vary to meet special circumstances and restrictions, but are anticipated to be consistent with the City's allowable construction hours of Monday through Friday between 7:00 a.m. to 9:00 p.m. and Saturdays and National Holidays between 8:00 a.m. to 6:00 p.m. While not anticipated, approval would be required from the City of Los Angeles Board of Police Commissioners for any extended construction hours and possible construction on Sundays.

Anticipated closures would include lane closures in which lanes would be closed 24 hours a day during certain phases of construction, or alternating closures during certain phases of construction, in which closures would occur during construction hours for approximately 10 hours a day, and roads would reopen during non-construction hours for approximately 14 hours a day. For alternating closures, during non-construction hours, steel plates would be placed over construction sites to the extent feasible in order to allow for vehicular and pedestrian circulation. The closures and hours would vary between location and phase of construction. The proposed Project would implement a Construction Traffic Management Plan that would include detours and ensure that emergency access is maintained throughout all construction activities.

[4] **Table 2-1** reflects the Project with Design Option A, approved by the Metro Board in February 2024.

3.0 Construction Noise Mitigation

3.1 Introduction

This section supplements Section 3.13 of the Draft LA ART EIR regarding construction noise, consistent with the Court Opinion. It focuses on the proposed Project's temporary construction noise impacts and mitigation. The analysis relies on the noise analysis and appendices from the LA ART EIR.[5]

The Court Opinion did not disapprove of the LA ART EIR's use of a worst-case scenario to assess construction noise impacts, and the LA ART EIR concluded that those impacts would be significant.[6] However, the Court held, in part, that Metro lacked substantial evidence to reject acoustic retrofitting as a mitigation measure, because without analyzing interior noise levels Metro could not reasonably assume that existing building exteriors provided sufficient noise attenuation.[7]

The LA ART EIR stated in response to a comment on the Draft EIR that existing building envelopes would provide up to 24 decibels (dB) of exterior-to-interior noise reduction with windows closed, based on guidance from the U.S. Environmental Protection Agency (EPA).[8] As discussed in Section 3.5, the Project Sponsor's noise consultants analyzed interior noise levels at the noise-sensitive receptor buildings identified in the Final LA ART EIR. AECOM performed field observations to assess building conditions and façade components, and Resonance Acoustics measured interior and exterior noise levels at various properties to ascertain the noise reduction performance of the building façades. Most of the affected buildings were determined to be high-performing and in good condition. AECOM also performed acoustic modeling to estimate interior noise levels from construction. AECOM's modeling found that most existing building envelopes would provide 25 to 34 dB of noise reduction with windows closed, resulting in interior noise levels from construction ranging from 37 dBA (comparable to quiet urban nighttime noise levels) to 58 dBA (less than normal speech at three feet).

AECOM also identified potential acoustic retrofits for windows and building façades that could further reduce interior noise levels from construction. Options considered included sealing or caulking cracks in window assemblies or exterior walls, replacing window glass or entire window systems, adding interior or exterior insulation, and replacing roofs.

Section 3.6 addresses the feasibility of implementing retrofit measures as mitigation for the proposed Project's significant construction noise impacts. CEQA defines "feasible" as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."[9] Because Metro does not own or control the affected properties, any retrofitting program would depend entirely on the voluntary cooperation of private property owners, tenants, and occupants. CEQA requires mitigation measures to be enforceable and effective; measures that rely on voluntary participation cannot be assured through binding permit conditions or agreements and therefore do not qualify as enforceable mitigation.

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5 The LA ART EIR can be found at https://www.metro.net/projects/aerial-rapid-transit/.
6 Court Opinion, p. 85.
7 Ibid.
8 EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA 1974). The attenuation value of 24 dB is an estimate based on building construction in warm climates for the era of the publication (i.e., the 1970s) with windows closed.
9 CEQA Guidelines, § 15364.

In addition, retrofitting measures would require substantial construction work inside occupied dwellings, could take weeks to months to complete, and would cause significant disruption to residents and occupants. Coordinating and completing such work across numerous properties during the Project's construction period would not be capable of being accomplished in a successful manner within a reasonable time frame. Accordingly, after evaluating both the broader legal and implementation issues and the building-level considerations identified by AECOM, this Draft SEIR concludes that retrofitting is not a feasible strategy for mitigating the proposed Project's temporary construction noise impacts.

Sections 3.7 and 3.8 of this chapter respond to the Court Opinion's concerns with the adequacy of MM-NOI-A identified in the LA ART EIR. The Court concluded that the LA ART EIR's discussion of MM-NOI-A was inadequate because the LA ART EIR failed to explain the effectiveness of MM-NOI-A's individual components. Some requirements, such as maintaining equipment in good condition and limiting idling, were already assumed in the LA ART EIR's modeling or required by existing regulations and therefore did not provide additional noise reduction. Other requirements, such as using on-site electrical power or locating equipment away from sensitive receptors, might have some mitigating effect, but the LA ART EIR did not disclose under what circumstances they would apply or what level of reduction they would achieve. Without this disclosure, the public and decisionmakers could not determine which elements of MM-NOI-A would at least be partially effective in reducing construction noise impacts and which were simply project commitments or existing regulatory requirements. The Court held that this lack of explanation rendered the LA ART EIR inadequate as an informational document. [10]

In response to the Court Opinion's concerns regarding MM-NOI-A, Section 3.7 of this Draft SEIR refines MM-NOI-A to retain only those components that are expected to be partially effective in reducing construction noise levels. Components that are project commitments or regulatory requirements are reclassified as Project Design Features and would be carried forward to ensure compliance during construction but are not relied upon as mitigation. Section 3.8 then explains how the individual components of MM-NOI-A would either be partially effective in minimizing construction noise levels or ensure that construction noise levels do not exceed what was modeled in the LA ART EIR.

3.2 Noise Basics

Due to the technical nature of noise impacts, a brief overview of basic noise principles and descriptors is below.

3.2.1 Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is defined as undesirable (i.e., loud, unexpected, or annoying) sound. Acoustics is defined as the physics of sound and addresses its propagation and control.[11] In acoustics, the fundamental scientific model consists of a sound source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of noise perceived by the receiver.

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[10] Court Opinion, pp. 80-81.
[11] California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1 (Sept. 2013).

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement and reflects the way people perceive changes in sound amplitude. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling pain. Pressure waves traveling through air exert a force registered by the human ear as sound.[12]

Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured. It is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Furthermore, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound level, would generally be perceived as barely detectable.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but, rather, a broad band of frequencies varying in levels of magnitude. When the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.[13]

The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. Therefore, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements.[14] **Table 3-1** describes typical A-weighted noise levels for various noise sources.

Table 3-1: Typical A-Weighted Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet

[12] Id., Section 2.1.3.
[13] Ibid.
[14] Ibid.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013

3.2.2 Noise Exposure and Community Noise

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant.

Community noise exposure is typically measured over a period of time. A noise level is a measure at a given instant in time. Community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many unidentifiable individual contributors. Single-event noise sources (e.g., aircraft flyovers, sirens, etc.) may cause sudden changes in background noise level.[15] However, generally, background noise levels change gradually throughout the day, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

These successive additions of sound to the community noise environment change the community noise level from moment to moment, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time.[16]

[15] Id., Section 2.2.1.

[16] Id., Section 2.2.2.

Table 3-2: Environmental Noise Level Descriptors

Noise Descriptor	Definition
L_{eq}	The equivalent sound level over a specified time period, typically, 1 hour. The L_{eq} also may be referred to as the energy-average sound level.
L_{max}	The maximum instantaneous noise level experienced during a given time period.
L_{min}	The minimum instantaneous noise level experienced during a given time period.
L_x	The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50% and 90% of the time, respectively.
L_{dn}	The average A-weighed noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 p.m. and 7:00 a.m. to account for nighttime noise sensitivity. The L_{dn} also may be referred to as the day-night average noise level (DNL).
CNEL	The Community Noise Equivalent Level (CNEL) is the time average A-weighted noise level during a 24-hour day that includes the addition of 5 dBA to measured noise levels between the hours of 7:00 p.m. and 10:00 p.m. and the addition of 10 dBA to noise levels between the hours of 10:00 p.m. and 7:00 a.m. the next day to account for noise sensitivity in the evening and nighttime, respectively.

Temporary construction noise levels are generally expressed as an L_{eq}, which is the equivalent sound level over a specified period. In the LA ART EIR, construction noise associated with the proposed Project was analyzed based on the construction equipment and processes expected to be in use during the worst-case (loudest) part of the construction process. Further, the acoustic contribution for all construction equipment assumed to be operating during a given construction phase is combined on an energy basis to estimate the total noise level at each noise-sensitive receptor and then adjusted for distance and for shielding from intervening structures.

The list of construction equipment for the various phases of Project construction was selected from the full Federal Highway Administration (FHWA) Roadway Construction Noise Model equipment list, which includes the maximum noise level (L_{max}) and Acoustic Use Factor (AUF), as shown in Draft LA ART EIR Table 3.13-12. The list of equipment used in the construction noise analysis for each construction phases is shown in Appendix B of the Draft LA ART EIR and Table 3.13-16.

3.2.3 Noise Attenuation

When noise travels over a distance, the noise level reduces—or attenuates—with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g., bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites.[17] Hard sites are those with a reflective surface between the source and the receiver (e.g., asphalt or concrete surfaces, smooth bodies of water). No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is

[17] Id., Sections 2.1.4.1 and 2.1.4.2.

simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provide an excess ground attenuation value of 1.5 dBA (per doubling distance).[18] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

Structures (e.g., buildings and solid walls) and natural topography (e.g., hills and berms) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the “shadow” of obstruction, such as behind a sound wall. If the line-of-sight is not blocked at all by the barrier, then the barrier would not provide noise reduction.

Receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels.[19] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors, such as air temperature, humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels.[20]

3.3 Noise Conditions

3.3.1 Exterior Noise Conditions

As a part of the LA ART EIR, AECOM conducted a noise survey to establish existing conditions along the proposed Project alignment and in surrounding areas. The survey included both short-term (approximately 15 minutes) and long-term (24-hour) measurements at 22 locations. Most measurements were conducted between June 15 and June 18, 2020, with an additional location measured on May 11, 2022.[21] The measurement sites were selected to represent noise-sensitive receptors along the alignment from LAUS to Dodger Stadium, including existing and planned residential developments, schools, parks, and other areas of frequent outdoor use.

[18] Ibid.
[19] Id., Sections 2.1.4.3.
[20] Ibid.
[21] Noise measurements for this analysis were conducted in June 2020 (except ML-22, measured on May 11, 2022), during which time local traffic volumes were likely somewhat lower than normal due to COVID-19 Pandemic restrictions. While no comparative traffic counts were available, an informal comparison to pre-COVID noise measurements from other technical studies in similar locations indicated noise levels up to 3 dBA higher. As no correction was applied, the results of this analysis represent a conservative noise impact assessment because measured noise levels were likely somewhat lower than typical conditions.

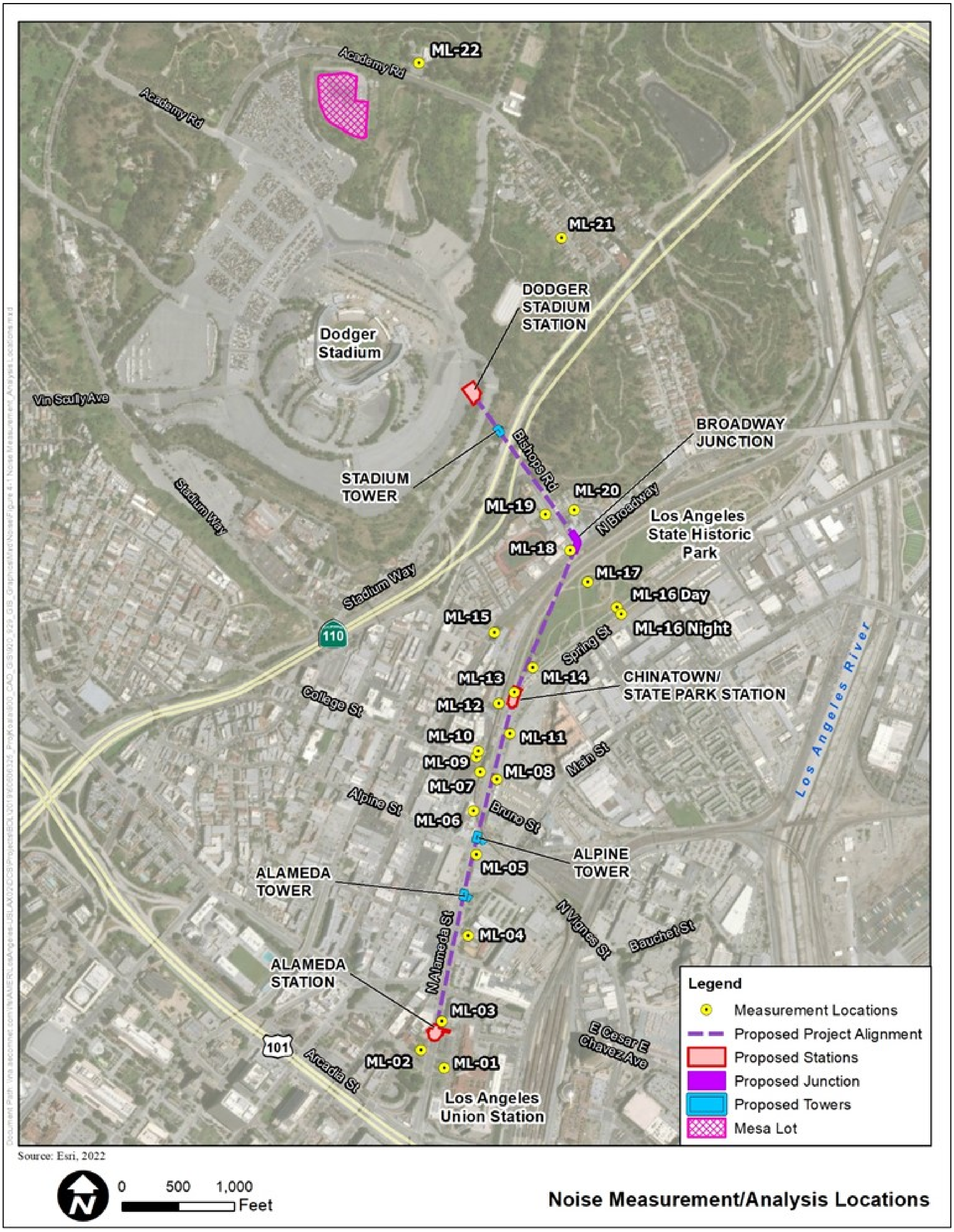
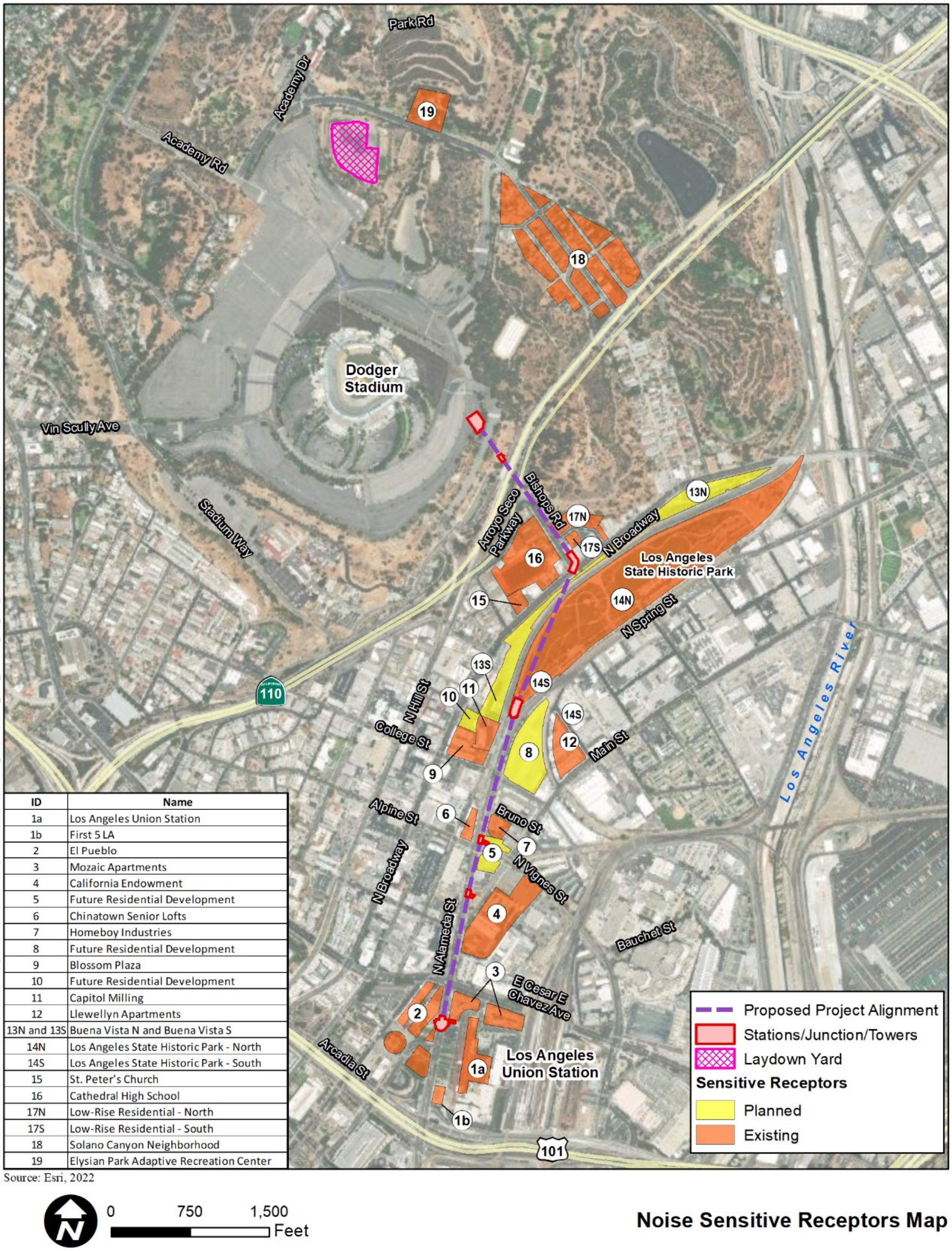


Figure 3-1: Noise Measurement Locations from LA ART EIR



ID	Name
1a	Los Angeles Union Station
1b	First 5 LA
2	El Pueblo
3	Mozaic Apartments
4	California Endowment
5	Future Residential Development
6	Chinatown Senior Lofts
7	Homeboy Industries
8	Future Residential Development
9	Blossom Plaza
10	Future Residential Development
11	Capitol Milling
12	Llewellyn Apartments
13N and 13S	Buena Vista N and Buena Vista S
14N	Los Angeles State Historic Park - North
14S	Los Angeles State Historic Park - South
15	St. Peter's Church
16	Cathedral High School
17N	Low-Rise Residential - North
17S	Low-Rise Residential - South
18	Solano Canyon Neighborhood
19	Elysian Park Adaptive Recreation Center

Figure 3-2: Noise Sensitive Receptors from LA ART EIR

Daytime exterior noise levels measured ranged from 53.6 dBA (similar to a quiet urban area) to 69.8 dBA (similar to a gasoline powered lawnmower from 100 feet away). Nighttime exterior noise levels measured ranged from 51.2 dBA (similar to a quiet sub-urban area) to 65.5 dBA (similar to a commercial area during operation). Day-Nighttime exterior noise levels measured ranged from 58.7 dBA (similar to a quiet urban area) to 72.6 dBA (similar to a gasoline powered lawnmower from 100 feet away). The exterior CNEL measured ranged from 58.5 dBA (similar to a quiet urban area) to 72.9 dBA (similar to a gasoline powered lawnmower from 100 feet away).

3.4 Methodology

The general procedure for assessing noise impacts is to estimate the future noise levels associated with a project and compare those estimated levels to appropriate significance criteria. The noise impact analysis in the LA ART EIR included two primary phases – temporary construction noise and permanent operational noise (see Section 3.13.4 of the Draft LA ART EIR).

Consistent with the Court Opinion, this Draft SEIR discusses mitigation measures for the proposed Project's significant construction noise impacts. It evaluates whether retrofitting adjacent buildings would constitute a feasible mitigation strategy, considering such factors as enforceability, practicality, and potential disruptions to occupants. This Draft SEIR also includes an assessment of predicted interior noise levels from construction at selected sensitive noise receptors, through building condition observations, field measurements, and modeling.

In addition to evaluating the feasibility of acoustic retrofitting, this Draft SEIR clarifies the extent to which the individual components of MM-NOI-A would be partially effective at reducing construction noise; revises MM-NOI-A to ensure that it includes only those components reasonably expected to achieve incremental noise reduction; and reclassifies other components as Project Design Features to maintain enforceability through the Construction Noise Management Plan and MMRP.

The supplemental interior noise modeling builds on the construction noise analysis performed in the Draft LA ART EIR. As such, a summary of the LA ART EIR construction noise impact analysis methodology is provided below, along with a detailed description of the methodology used to perform the supplemental interior noise modeling.

3.4.1 LA ART EIR Construction Noise Methodology

The LA ART EIR assessed sound levels at nearby sensitive receptors from temporary construction noise. Modeled construction noise impacts were a function of the type and number of equipment in use, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Each phase of construction would involve different types of construction equipment and would, therefore, have its own distinct noise characteristics. Construction noise levels would fluctuate throughout a given workday as construction equipment moves within the various Project component construction sites.

Potential impacts were determined by calculating Project-related construction noise levels at representative sensitive receptors and comparing these values to existing ambient noise conditions (i.e., noise levels without construction noise from the proposed Project). Consistent with industry best practice and the guidance of the Federal Transit Administration (FTA) and City of Los Angeles, construction noise levels were established using exterior ambient noise measurements. Applicable thresholds of significance are also based on exterior noise levels. As such, the analysis of construction noise in the LA ART EIR focused on estimating sound levels at exterior areas, using the City of Los Angeles CEQA Thresholds Guide, which specifies construction noise impact thresholds based on relative increases in exterior noise levels (City of Los Angeles, 2006).[22]

Construction noise associated with the proposed Project was analyzed based on the construction equipment and processes expected to be in use during the worst-case (loudest) part of the construction process. The analysis relied on the FHWA Roadway Construction Noise Model (RCNM) and, due to the complexity of the work (multiple equipment types and construction phases), also applied the FTA's detailed construction noise methodology.

The methodology used to analyze on-site construction activities began with the reference noise level and usage factor for each type of equipment expected under conservative worst-case conditions for each construction phase***.*** These levels were then adjusted to account for the distance from the noise source to the receptor, the portion of time each piece of equipment would operate at full power (AUF), the maximum instantaneous noise level, (L_{max}), and any acoustical shielding present (such as buildings or terrain).

The adjusted acoustic contribution from all equipment assumed to be operating during each construction phase was then summed together on an energy basis (i.e., combined logarithmically) to estimate the total noise level at each noise-sensitive receptor, and then adjusted for distance and acoustical shielding from intervening structures such as buildings or terrain, consistent with FTA methodology (FTA 2018) for estimating barrier insertion loss.

In addition, the LA ART EIR evaluated compliance with Los Angeles Municipal Code (LAMC) Section 112.05, which sets a maximum noise level for construction equipment of 75 dBA at 50 feet.

3.4.2 Interior Construction Noise Methodology

When outside noise reaches the exterior of a building, some of the acoustic energy (sound) is reflected (blocked) and some is transmitted to inside the building. The portion that is transmitted through the building's exterior contributes to interior noise levels experienced by occupants. Because a building typically forms a full enclosure around the listener, interior spaces (e.g., apartments, office spaces, etc.) generally experience greater noise reduction than can be achieved by temporary construction barriers or other exterior noise mitigation measures.

Because building construction varies, calculating noise transmission into interior spaces is complex. It requires a reasonable understanding of the composition of the building exteriors and their components (e.g., window types and other materials), each of which has distinct noise attenuation properties. For example, noise hitting a concrete façade with windows would generally travel through the windows rather

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[22] As discussed in Section B, General Corrections and Clarifications, of the Errata to the Final EIR, on December 8, 2023, following the release of the Final EIR, the City of Los Angeles Department of City Planning issued via email the December 2023 Construction Noise and Vibration Proposed Updates to Thresholds and Methodology. The City proposed to update its construction noise and vibration thresholds to be used in assessing the environmental impacts of projects in accordance with CEQA. On September 25, 2024, the City officially adopted the Updated CEQA Thresholds and Methodology for Construction Noise and Vibration and Historical Resources.

The City's Updated CEQA Thresholds remove the increase-over-ambient threshold for daytime construction activities (between 7:00 A.M. and 7:00 P.M. Monday through Friday, and between 8:00 A.M. and 6:00 P.M. on Saturdays). In addition, the Updated CEQA Thresholds provide for a maximum 80 dBA Leq (8-hour) absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas.

than the concrete. The amount of noise entering depends on factors such as noise frequency, window dimensions (square-footage), and window composition (e.g., thickness, number of panes, and lamination). In addition, conditions inside buildings can vary (e.g., type of window coverings, floor coverings, and furnishings) and these variations change how noise is perceived and travels within a building's interior. In part for this reason, industry standard practice is to measure and calculate construction noise levels at building facades rather than interiors, and there are no widely accepted thresholds of significance for interior noise levels from construction. Nevertheless, to provide additional information in response to the Court Opinion, the Project Sponsor commissioned AECOM and Resonance Acoustics to measure and make informed estimations about interior noise levels during the Project's construction. AECOM's report, which appends the Resonance Acoustics report, is included as Appendix A to this Draft SEIR.

In June 2025, AECOM conducted a field survey of the noise-sensitive receptor buildings studied in the LA ART EIR. The survey included streetside observations of façade types (e.g., window assemblies and wall assemblies) and estimates of the dimensions for each element. AECOM acoustical engineers used these observations as inputs in a prediction model to estimate the composite acoustic performance of each building façade, i.e., how much exterior construction noise a building would block. Using the loudest mitigated construction phase noise levels at each receptor reported in the LA ART EIR (i.e., the L_{eq}), AECOM then estimated interior construction noise levels for the surveyed buildings.

In July 2025, on behalf of the Project Sponsor, Resonance Acoustics conducted field sound insulation testing at lower-level units in Receptors 3 (Mozaic Apartments) and 6 (Chinatown Senior Lofts),[23] and at 430 Savoy Street to compare with AECOM's predictive modeling. This testing involved placing a loudspeaker outside the building, measuring the sound level at the exterior facade, and simultaneously measuring inside the unit to calculate the actual noise reduction provided by the façade. The difference between the exterior and interior measurements represents the façade's real-world noise reduction.

Finally, AECOM identified and described the process for implementing potential acoustic retrofits for existing buildings along the Project alignment. The retrofit methods considered included sealing or caulking cracks in window assemblies or facades, replacing windows, upgrading building insulation, and replacing roofs.

3.5 Construction Noise Assessment

This section discusses estimated exterior and interior noise levels from construction of the proposed Project.

3.5.1 Overview of LA ART EIR's Construction Noise Conclusions

As described in the LA ART EIR (see Draft LA ART EIR Tables 3.13-17 through 3.13-20 and Errata Appendix A), noise impacts from Project construction activities were found to be **significant and unavoidable**. These impacts reflect the type and number of construction equipment in use, their location, the timing and duration of construction activities, and the distance to noise-sensitive receptors. Consistent with standard CEQA practice and applicable thresholds, the LA ART EIR assessed construction noise based on exterior noise levels at receptors.

[23] Although the units are on the second story, they are on the first floor of the buildings with residential units.

Based on the City of L.A.'s 2006 CEQA Thresholds Guide, the LA ART EIR conservatively determined that a significant noise impact would occur if construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA $L_{eq(day)}$ or more at a noise-sensitive use. As shown in Draft LA ART EIR Table 3.13-17, construction activities would exceed this 5 dBA threshold at several noise-sensitive uses.

As discussed in Section 3.4, the City has also adopted an updated CEQA threshold establishing an absolute limit of 80 dBA L_{eq} (8-hour) at sensitive uses (measured at the property line with outdoor use areas or at the building exterior). Although fewer individual receptors would be impacted under this absolute threshold than under the incremental 5 dBA threshold, the proposed Project's construction noise impacts would still exceed this threshold at several sensitive receptor locations.

Under appropriate FTA thresholds, which also assess exterior noise levels, significant noise impacts would occur at several sensitive receptors where noise could exceed 80 dBA $L_{eq(day)}$, and at commercial properties where noise levels could exceed 85 dBA $L_{eq(day)}$.

3.5.2 Interior Construction Noise Analysis

The LA ART EIR did not model how outdoor Project construction noise would transmit into the interior spaces of adjacent buildings.[24] For this Draft SEIR, AECOM undertook such modeling to illustrate, in a general sense, the degree to which the existing facades would reduce interior noise levels from Project construction.

As shown in **Table 3-3** below, AECOM's modeling estimates that most sensitive receptors are in buildings that, with windows closed, would reduce exterior construction noise by 25.8 to 34.1 dB. Accounting for this reduction, interior noise levels from construction in higher-performing buildings (Receptors 1B through 12 T) are estimated to range from 36.7 dBA (comparable to quiet urban nighttime noise levels) to 58.1 dBA (less than normal speech at three feet). Other buildings showed more variable performance, with estimated interior noise levels from construction ranging from 55 dBA to 58 dBA (comparable to a large business office and less than normal speech at three feet).

[24] In response to comments on the Draft LA ART EIR, the Final LA ART EIR addressed interior noise attenuation using EPA's guidance, which assumes a 12 dBA reduction with windows open and a 24 dBA reduction with windows closed. (See Final LA ART EIR, p. 6.0-617.) A more detailed analysis was not performed because applicable noise significance thresholds are based on exterior noise levels. The modeling in this Draft SEIR shows attenuation 25.8 to 34.1 dB with windows closed at most sensitive receptors, indicating that the Final LA ART EIR's assumptions were conservative.

Table 3-3: Estimated Interior Noise Levels (dBA) at Receptors Identified in the LA ART EIR

Receptor ID	Receptor Name or Use	Estimated Worst-Case Construction Exterior Noise Level[1]	Applicable Construction Phase	Estimated Existing Façade Noise Reduction	Estimated Worst-Case Construction Interior Noise Level	Estimated Interior Construction Noise Level Comparison[2]
1 B	First 5 LA	65.1	Alameda Station – Foundations and Columns	26.7	38.4	Large conference room
3a	Mozaic Apartments, Balcony Façade Section	87.9	Alameda Station – Deck Shoring, Cribbing, Erection	33.9	54.1	Large business office
3a T[25]	Mozaic Apartments, Balcony Façade Section	91.8	Alameda Station – Deck Shoring, Cribbing, Erection	33.8	58.0	Large business office; less than normal speech at 3 feet
3b	Mozaic Apartments, Glass Façade Section	87.9	Alameda Station – Deck Shoring, Cribbing, Erection	34.1	53.8	Large business office
3b T	Mozaic Apartments, Glass Façade Section	91.8	Alameda Station – Deck Shoring, Cribbing, Erection	34.0	57.8	Large business office
6	Chinatown Senior Lofts	78.4	Alpine Tower – Structural Steel	29.8	48.6	Dishwasher operating in an adjacent room
6 T	Chinatown Senior Lofts	78.9	Alpine Tower – Foundations and Columns	32.8	46.1	Dishwasher operating in an adjacent room
7	Homeboy Industries	80.3	Alpine Tower – Foundations and Columns	26.7	53.6	Large business office
9	Blossom Plaza	68.1	Chinatown/State Park Station – Foundations and Columns	31.4	36.7	Background noise in a conference room

[25] The "T" designation next to receptor names indicates upper-floor receptors of a building that would not receive the full benefit of temporary construction noise barrier shielding (i.e., they experience direct line-of-sight to some pieces of construction equipment, whereas lower floor units may be shielded from all equipment).

Receptor ID	Receptor Name or Use	Estimated Worst-Case Construction Exterior Noise Level[1]	Applicable Construction Phase	Estimated Existing Façade Noise Reduction	Estimated Worst-Case Construction Interior Noise Level	Estimated Interior Construction Noise Level Comparison[2]
9 T	Blossom Plaza	72.4	Chinatown/State Park Station – Foundations and Columns	31.0	41.5	Background noise in a conference room
11	Capitol Milling	77.2	Chinatown/State Park Station – Foundations and Columns	25.8	51.5	Dishwasher operating in an adjacent room
12	Llewellyn Apartments	72.4	Chinatown/State Park Station – Structural Steel	28.1	44.3	Dishwasher operating in an adjacent room
12 T	Llewellyn Apartments	74.8	Chinatown/State Park Station – Structural Steel	30.4	44.4	Dishwasher operating in an adjacent room
16a	Cathedral High School, Building A	72.2	Broadway Junction – Decking and Shoring	22.5	49.7	Dishwasher operating in an adjacent room
16b	Cathedral High School, Building B	72.2	Broadway Junction – Decking and Shoring	24.8	47.4	Dishwasher operating in an adjacent room
16c	Cathedral High School, Building C	72.2	Broadway Junction – Decking and Shoring	17.8	54.4	Large business office
16d	Cathedral High School, Building D	72.2	Broadway Junction – Decking and Shoring	21.6	50.5	Dishwasher operating in an adjacent room
16e	Cathedral High School, Building E	72.2	Broadway Junction – Decking and Shoring	18.4	53.7	Large business office
17Na	Low-rise multi-family residential, North side of Savoy St	71.5	Broadway Junction – Decking and Shoring	20.0	55.0	Large business office
17Nb	Single-family residential, North side of Savoy St	71.5	Broadway Junction – Decking and Shoring	16.5	55.0	Large business office
17S	Low-rise multi-family residential, South side of Savoy St	80.0	Broadway Junction – Demo	21.9	58.1	Large business office; less than normal speech at 3 feet

[1] Values from Final LA ART EIR Errata, Kimley-Horn, February 2024
[2] Approximate comparisons from Caltrans, 2013

3.6 Feasibility of Building Retrofitting to Reduce Interior Noise Levels from Construction

During public review of the Draft LA ART EIR, a comment submitted by TCE suggested "possible noise abatement measures," including "installing noise insulation in buildings" to reduce construction noise.[26] According to the comment, "[i]nsulating buildings can greatly reduce construction noise, especially when windows are sealed, and cracks and other openings are filled. Such measures must be adopted to reduce impacts on adjacent buildings."[27] The Final LA ART EIR responded that such retrofits were not feasible, noting that the Draft LA ART EIR's exterior noise analysis did not account for the 12-24 dB of attenuation typically provided by building facades; retrofits are generally considered in connection with operational noise impacts rather than temporary construction; and retrofitting occupied units could itself create new construction-related disruption.

The Court Opinion held that substantial evidence did not support Metro's response rejecting building retrofitting as a mitigation measure for construction noise impacts.[28] The Court explained that pointing to the existence of façade attenuation did not justify rejecting mitigation measures that could enhance that attenuation; industry guidance, including Caltrans manuals, recognize that retrofits may sometimes be considered for construction noise; and Metro did not substantiate its assertion that retrofit work would be more disruptive than living with elevated levels for an extended construction period. The Court did not hold that retrofits must be found feasible, but rather that Metro's infeasibility conclusion required further evidentiary support. This Draft SEIR therefore updates the prior analysis by evaluating the feasibility[29] of retrofit measures to address temporary construction noise.

3.6.1 Enforceability Considerations

CEQA requires that mitigation measures be fully enforceable through permit conditions, agreements, or other "legally binding instruments" within the agency's jurisdiction. (Pub. Resources Code, § 21081.6(b); CEQA Guidelines, §§ 15091(d), 15126.4(a)(2).) A retrofitting program could not meet this requirement. Metro has no authority to compel private property owners or tenants to allow construction inside their homes, therefore retrofitting implementation could occur only on a voluntary basis. Metro could offer to fund retrofit measures, but there would be no assurance that property owners or tenants would agree to participate. Metro would have no legal means of ensuring the program is implemented successfully, if at all. A measure dependent on voluntary participation cannot be assured through binding conditions or agreements and therefore does not qualify as enforceable mitigation under CEQA, regardless of its potential effectiveness in theory. The measure would depend on each property owner and tenant voluntarily consenting to construction within their homes. Without such consent, Metro could not proceed.

Although CEQA does allow adoption of mitigation measures of uncertain efficacy, the measure must be at least partially effective. An acoustic retrofitting program, however, would depend entirely on the voluntary cooperation of property owners and tenants—parties outside Metro's jurisdiction and control. As a result, the effectiveness of the measure would remain speculative. Even if Metro could describe and

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[26] Final LA ART EIR, p. 6.0-616.
[27] Ibid.
[28] Court Opinion, p. 84.
[29] A feasible mitigation measure is one that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (Pub. Resources Code, § 21061.1; CEQA Guidelines, § 15364.)

analyze specific retrofit techniques (such as window replacement and façade sealing), the measure's implementation would hinge on the independent willingness of numerous private third parties, leaving Metro with no assurance that any meaningful reduction in interior noise levels would be achieved.

Even if some owners or tenants elected to participate, the program would not necessarily return affected receptors to pre-Project conditions. For instance, the success of certain retrofitting measures would depend on residents keeping their windows closed during construction. This would conflict with building codes that mandate operable windows for ventilation and moisture control, as well as with ordinary use, as many occupants rely on open windows for air circulation, cooling, and comfort. Retrofitting could force residents to choose between closing windows to obtain limited noise relief or opening them to maintain habitability. Such a measure would not restore occupants to the position they occupied before any proposed construction; instead, it would impose tradeoffs that fundamentally alter the way residents use their properties.

Furthermore, the effectiveness of retrofitting varies by building and depends on preexisting conditions. AECOM's modeling accounted for broad variables such as building age, design, construction, and general condition, but the results necessarily remain generalized. In practice, actual performance would depend on unit-specific factors that cannot be captured in modeling. Interior noise levels can vary based on floor plan configuration, ceiling height, or the presence of interior partitions. Finishes and furnishings also make a difference. For example, sparsely furnished rooms with hard surfaces may amplify sound, whereas rugs, curtains, and upholstered furniture help dampen it. Background sources of noise, such as traffic or mechanical equipment, would further influence whether construction noise is noticeable. Moreover, outcomes would hinge on occupant behavior, such as whether windows are kept closed consistently. Because these factors would differ from unit to unit and could not be standardized or enforced, the benefits of retrofitting would be uneven at best. In some cases, retrofitting might result in only marginal improvements; in others, it may provide little or no perceptible benefit at all.

Accordingly, a residential retrofitting program is not enforceable and its effectiveness would be uncertain. It would depend on voluntary third-party participation outside Metro's jurisdiction, would amount to a voluntary program with no assurance of actual noise reduction, and would not restore residents to pre-project conditions. For these reasons, such a program would not satisfy CEQA's requirements for effective, enforceable mitigation.

3.6.2 Implementation Constraints

The logistics of implementing a retrofitting program across numerous residences and institutional buildings along the Project alignment would render it infeasible in practice. Unlike traditional noise mitigation measures (e.g., sound walls or project design modifications) that can be implemented directly by a project proponent on project-controlled property, a retrofit program would require extensive, individualized interventions within private dwellings that Metro neither owns nor controls.

Appendix A details the process for implementing potential retrofits, such as window and door replacement, and improving insulation. Window replacement, for example would require a multi-phase process including initial assessment and planning, selection of replacement windows, pre-installation preparation, removal of old windows, installation of new windows, post-installation clean-up and inspection, and final inspection and documentation. Each of these phases involves several individual steps, which require coordination with contractors, owners, tenants, and building officials. Each phase must happen sequentially, and each could take several weeks or more. More complex retrofits would include more steps and more time.

- **Property Access and Negotiation.** Each retrofit would require consent and/or cooperation from property owners and tenants, many of whom may be reluctant to permit construction inside their homes due to privacy concerns, liability risks, or the inconvenience of installation. Each unit would need to be accessed multiple times throughout the process to, among other things, assess existing conditions, evaluating the existing noise attenuation, preparing plans for any proposed retrofits, installing the retrofits, inspections, and testing. Coordinating among landlords, tenants, and homeowners' associations would present significant barriers, and refusal by even a subset of households would prevent comprehensive implementation.

- **Design Variability.** As discussed in more detail in Section 3.6.3, residential buildings along the alignment vary in age, construction type, building orientation, and maintenance conditions, making it impracticable to identify a consistent performance standard. Given this variability, designing retrofits that achieve a consistent performance standard across all properties would not be possible.

- **Aesthetics and Design.** Retrofitting could also affect the aesthetics and design of buildings both on the exterior and in the interior, which owners or tenants may not agree to. Addressing those concerns could add to the cost and time for retrofitting.

- **Permitting and Construction.** As discussed in more detail in Section 3.6.3, retrofitting occupied dwellings could require building permits, inspections, and compliance with applicable codes, including requirements for operable windows for ventilation. Retrofits to older or potentially historic buildings could trigger additional environmental or historic-resource review, while sealing or replacing windows could conflict with building code requirements for ventilation, egress, or fire safety. Construction associated with retrofits would disrupt occupants, potentially requiring temporary relocation or accommodation. Coordinating permits, inspections, and construction across multiple private properties would introduce delays extending well beyond the Project's construction period. Moreover, this process could not start until after completion of the CEQA process and approval of the Project. And because construction could not start until the process is completed, it could delay construction by months and possibly years.

- **Verification of Effectiveness.** Metro would face significant challenges in verifying the efficacy of any installed retrofits. Interior noise levels depend not only on exterior exposure and construction quality, but also on occupant behavior (e.g., whether windows remain open). Because the measure's effectiveness would fluctuate based on resident choices, Metro could not demonstrate reliable noise reduction attributable to the retrofit program.

Considering these practical and logistical constraints, a building retrofitting program would not be capable of being accomplished in a successful manner within a reasonable period of time. Property access constraints, design variability, permitting and construction challenges, verification issues, and the extensive timeframe required for implementation, individually and collectively, demonstrate that such a program could not be implemented in a way that reliably reduces construction noise during the Project's construction period. A retrofitting program is therefore not feasible.

3.6.3 Building Considerations

As discussed in Section 3.5, in June 2025, AECOM conducted site visits along the Project alignment to observe building exteriors and assess construction types and conditions. The survey team photographed building facades, estimated construction component types and areas (e.g., walls and windows), and reviewed public records to determine years of construction or renovation. Observations focused on features relevant to acoustic performance, such as wall materials, window assemblies, and overall facade conditions (e.g., cracks in walls, eroding sealant/caulk around windows).

Based on these surveys, AECOM determined that most properties (Receptors 1B through 12T, 16a, and 16b) appeared to be in good condition, with window and wall assemblies showing no visible degradation likely to affect noise attenuation. These properties were therefore classified as “high performing” buildings. In contrast, the older residential buildings on Savoy Street (Receptors 17S, 17Na, and 17Nb) were observed to be in “fair” or “poor” condition, with issues such as degraded siding and peeling paint. Finally, while Cathedral High School buildings (Receptors 16c, 16d, and 16e) are anticipated to perform well overall due to their construction, their window assemblies present special considerations for acoustic performance.

Following its assessment of building conditions along alignment, AECOM then identified potential acoustic retrofitting methods and described the processes for their implementation. Potential methods include sealing or caulking cracks in window assemblies and facades, replacing windows, upgrading wall or ceiling insulation, and replacing roofs. In practice, however, the feasibility of these methods is highly constrained. First, the effectiveness of certain interventions (such as sealing or window replacement) depends on residents keeping windows closed during Project construction, which undermines natural ventilation and habitability requirements. Retrofitting also cannot eliminate all noise pathways, such as those through open doors, vents, or adjoining walls, meaning interior levels may still exceed modeled estimates in some cases.

Second, the physical condition and diversity of the existing building stock would complicate implementation. Each building would require a site-specific assessment to determine whether retrofits are technically possible and code-compliant. Some structures are aging or historically significant, raising additional permitting and review hurdles, and the results would vary widely across different properties.

Third, the scope of work necessary to implement retrofits would be highly disruptive to occupants. Window, insulation, and roof replacements would require construction activity within or immediately adjacent to living spaces and could necessitate temporary relocation of residents or occupants. These activities could extend for weeks or months at a single location.

Finally, a program of this scale would require Metro to oversee and coordinate individualized construction work across multiple private homes and institutional buildings, a role that is well outside its typical functions as a transit agency.

Taken together, and individually, these factors show that retrofitting would not be capable of being implemented in a reliable or timely manner to address temporary construction impacts.

3.6.3.1 Acoustic Retrofit Considerations for High-Performing Buildings (Receptors 1B through 12 T)

As discussed in Section 3.5 above, estimated interior noise levels for high-performing buildings from Project construction generally ranged from 37 dBA (comparable to quiet urban nighttime noise levels) to 58 dBA (less than normal speech at three feet). Because these buildings were observed to be in good condition, with intact facades and properly sealed windows, noise that does reach the interior would be primarily transmitted through otherwise functional window assemblies. Visual surveys confirmed that there are no cracked facades or deficient seals. Therefore, additional sealants or caulking would not be expected to produce any perceptible construction noise reduction.

Other retrofits would involve replacing window units with multi-pane assemblies, replacing casements, or converting operable windows and doors to fixed assemblies. The scope of work for each is summarized below and detailed in Appendix A. In many cases, installation of these retrofits would cause substantial construction and associated disruption to building residents and occupants.

Replacing Insulated Glazing Units

One potential retrofit for high-performing buildings would be to replace existing insulated glazing units (IGUs) with specialized acoustic IGUs. A standard IGU consists of two or more panes of glass separated by a spacer and sealed at the edges; in theory, replacing a double-pane IGU with a triple-pane IGU could provide additional noise attenuation.

In practice, however, IGUs replacement is a large and complex undertaking. Work on multi-story buildings or buildings with numerous windows could take months to complete, and each replacement carries risks of damaging the frame or producing improper seals. Differences in the thickness of new units may require full replacement of window systems and repair of adjacent wall finishes. Latent conditions (e.g., water intrusion or structural deficiencies) encountered during installation could further delay work and increase scope. Because the affected buildings are occupied, residents would likely need to be relocated during the IGU replacement. Even under ideal conditions, IGU replacement is highly disruptive, with each window taking about a week to replace, and under less favorable conditions, repair work could extend over many months.

Replacing Window and Door Casements

Another method is to replace windows and door casements (i.e., replacing existing windows and doors with specialized windows and doors designed to minimize the transmission of external sound into interior spaces). This process in a multi-story building requires meticulous planning, careful selection of materials, and adherence to safety and building codes. As described in detail in Appendix A, successful installation includes initial assessment and planning, selection of acoustic windows, pre-installation preparations, removal of old windows, installation of acoustic windows, post-installation procedures, and final inspection and documentation—for a total work time of approximately 18-27 weeks (4-6.5 months).

This work would require scaffolding, mechanical lifts, and other specialized equipment. While all construction generates some noise and vibration, this level of work would be highly disruptive to residents, and could require temporary relocation, as it would require removal and reinstallation of windows and doors. Window replacement may also require obtaining permits from the City of Los Angeles. Permit issuance can take one to two weeks, and potentially longer if additional requirements apply, such as compliance with California's emergency egress standards for second-story windows.[30]

[30] Window replacement on second-story bedrooms must comply with California's requirements for emergency access to second-story bedrooms (see Appendix A). Under Section R310 of the California Residential Code, every sleeping room (including those on the second story) must have at least one operable emergency escape and rescue opening. This can be a window, door, or other permitted opening which allows for both egress (escape from inside) and rescue (access from outside). California's detailed building code requirements for second-story bedroom windows are designed to maximize both occupant safety and emergency responder access.

Converting Operable Windows and Doors to Fixed Systems

A third potential retrofit would be to replace operable windows and doors with fixed systems that cannot be opened. The construction process would be similar to that described for replacing window and door casements and is anticipated to take approximately 18-27 weeks (4-6.5 months).

While fixed systems can improve acoustic performance, they would eliminate natural ventilation, and, in the case of exterior doors, access to balconies. For buildings not designed to provide adequate mechanical ventilation or cooling with windows closed, this could lead to decreased indoor air quality, loss of passive cooling during mild weather, and increased energy demand on the building's HVAC systems. Eliminating operable doors could also raise concerns regarding fire safety and evacuation plans. Furthermore, the result would be the permanent inability to open windows and doors even though construction would only be temporary.

3.6.3.2 Acoustic Retrofit Considerations for Older Residential Buildings (Receptors 17S, 17Na, and 17Nb)

Older residential buildings along the alignment would likely require substantial retrofitting to reduce exterior-to-interior noise. Minor measures such as caulking or sealing façade leaks would provide less than 1 dB of reduction and therefore no perceptible benefit to occupants. To achieve perceptible reductions, work would likely need to include multiple major interventions, such as replacing windows; installing or upgrading wall and attic insulation; and/or replacing roofs. As discussed below, given the age of these structures, additional considerations include the likely presence of plaster interior walls that may require lead abatement, potential structural reinforcement of foundations before renovation, and possible historic preservation constraints.

Sealing Window and Facade Leaks

To assess the potential benefit of simple sealing measures, Resonance Acoustics tested noise reduction measurements at an older residence on 430 Savoy Street.[31] Measurements were taken at a visibly leaky window before and after sealing with putty. The comparison showed that sealing window or façade opening produced less than 1 dB of additional attenuation, an amount that is imperceptible and provides no meaningful reduction in interior noise levels. Accordingly, this measure would not be effective as a standalone mitigation for temporary construction noise. More substantial construction work, as discussed below, would be necessary to provide meaningful sound attenuation.

Window Replacement

As detailed in Appendix A, older residential buildings along the alignment typically have casement windows—side-hinged windows that open outward with a crank. Replacing casement windows is a time-intensive process that often triggers additional construction in the home. Contractors must obtain precise measurements for each window, after which replacement windows are fabricated (a process that can take four to six weeks). Installation then requires removing the old window, preparing the opening, and installing the new window, with several hours of work per window. The total duration depends on the number of windows being replaced, the condition of the existing frames, the need for structural repairs,

[31] Resonance Acoustic's report is attached as Appendix 3 to AECOM's technical report (Appendix A to this Draft SEIR).

and the window siding material. For stucco buildings, additional repairs to the surrounding finishes are typically required.

As discussed above, window replacement may also require obtaining permits from the City of Los Angeles, which can take one to two weeks, and potentially longer if additional requirements apply (e.g., compliance with California's emergency egress standards for second-story windows). Because many of these older buildings are likely to contain lead-based paint around window areas, lead abatement may be necessary before or during installation to ensure the safety and health of the occupants. Abatement methods (encapsulation, enclosure, removal, or replacement) could add several weeks to the overall process.

In total, the time needed to replace all windows in a home is highly variable, depending on factors such as number of windows, permitting, condition of existing frames, need for structural or siding repairs, need for lead abatement, and manufacturer lead times.

For window replacement to provide meaningful sound attenuation, a building must have poor-performing windows set within medium or high-performing walls. This condition was not met for nearly all studied receptor buildings. Instead, buildings tended to have either:

- Medium or high-performing windows set within medium or high-performing walls, in which case replacements would yield only marginal improvements; or
- Poor-performing windows set within poor-performing walls, in which case noise would continue to transmit through other elements such as walls or roofs.

Accordingly, even in most older buildings along the alignment, window replacement alone would not provide meaningful noise attenuation. Additional major interventions, such as wall insulation or roof replacement, would also be required.

Installation of Building Insulation

As described in Appendix A, older residential buildings, such as those along the alignment, often have plaster interior walls, which makes adding insulation particularly challenging. Several methods exist, but each would require substantial disruption of painted surfaces, potential lead abatement, and permitting, as well as scaffolding or other intrusive construction. Depending on the approach, installation could take from one to several weeks, and in some cases may require temporary relocation of occupants due to dust, noise, and loss of livability. In addition, many methods carry long-term performance issues, and health or safety risks that further limit their practicality as mitigation for temporary construction noise. As noted in Appendix A, the installation of building insulation may require obtaining permits from the City of Los Angeles.

- **Blown-In Insulation** involves drilling holes through interior plaster walls and blowing cellulose or fiberglass into wall cavities, followed by patching and repainting. This method requires City permits and can release dust and lead during installation. In addition, blow-in cellulose is highly susceptible to moisture, its installation generates significant dust that may aggravate allergies or respiratory sensitivities, and its weight can damage ceiling or drywall in older structures.

- **Spray Foam Insulation** requires a similar drilling process, with additional preparations where "fire break" cross-studs are present. While this method can provide continuous coverage, it also presents significant practical and regulatory challenges. Improper installation can release harmful chemicals (such as isocyanates), posing risks of skin, eye, and lung irritation, asthma, or other health effects. In addition, spray foam products are petroleum-based, often rely on hydrofluorocarbon (HFC) blowing agents, and are difficult to recycle, raising environmental concerns. Finally, because spray foam creates an air-tight seal, it can obstruct natural ventilation, trap moisture, and lead to mold or timber decay.

- **Rigid Foam Boards** may be installed on interior or exterior walls to provide noise insulation. Interior installation requires removing plaster from all perimeter walls, installing the boards using power tools, and then replastering and repainting—essentially a full wall reconstruction. Exterior installation requires removing the siding, fastening the boards, and reapplying the siding, which can take weeks. For historic buildings, it is often necessary to 'hand nail' siding materials to maintain the historic character of the building and meet regulatory requirements. Foam boards are susceptible to accumulating moisture, leading to mold or mildew growth, and performance problems due to improper cutting or installation.

- **Mineral Wool Batts**[32] may be installed between the studs of walls to provide additional noise insulation, but installation requires near complete removal and reconstruction of interior perimeter walls, making it highly disruptive for occupants. The material itself poses additional feasibility concerns: mineral wool is dense and heavy, which complicates handling and installation, often requiring two workers to place each board or resorting to smaller panels that slow progress. Moreover, mineral wool batts are manufactured in limited sizes and must be cut to fit irregular wall cavities, adding to labor intensity and waste. Because mineral wool lacks a vapor barrier, additional construction steps would be needed to prevent moisture intrusion. Finally, its installation typically requires a flush substrate and nailing surface, meaning additional structural modifications may be necessary before siding or other finishes can be reapplied.

- **Exterior Insulation** involves removing the existing siding, installing insulation (such as rigid foam or mineral wool) and then reapplying the siding. The process requires significant labor, including prying or cutting away siding, placing insulation boards or batts, and reinstalling siding with nail guns (or hand nailing for historic buildings). The work can take one to several weeks per home and typically requires scaffolding, which creates dust, noise, and disruptions for occupants. The added thickness (50–100 mm) reduces exterior space and requires adjustments to downpipes, windowsills, and gutters. Improper installation can also create dampness and condensation issues, leading to mold or structural damage. Exterior insulation changes the outward appearance of a building, which may require planning approvals in historic or conservation areas and could negatively affect architectural character. Moreover, the added weight of the insulation system may strain older or weaker structures, requiring reinforcement before installation.

Taken together, these methods demonstrate that the practical challenges of implementing insulation, including invasive construction, permitting and code requirements, potential lead abatement, and disruptions to occupants, render such retrofits infeasible for temporary construction noise.

[32] Mineral wool batt is a high-density insulation product made from inorganic fibers designed to fit into standard stud cavities in walls.

Roof Replacement

Replacing the roof of older homes is a complex process that must reconcile modern building standards with aging materials, and in some cases, historic preservation requirements. The typical process includes: (1) initial assessment and planning to understand the extent of potential deterioration and any historical elements that may need to be preserved or replicated; (2) site preparation; (3) removal of existing roof material; (4) conducting a detailed structural assessment and carrying out any repairs or upgrades; (5) installation of new roofing components; (6) the addition of any finishing details necessary to ensure adequate roof performance; and (7) thorough post-construction inspections.

Timeframes for roof replacement vary depending on the roofing materials, the extent of structural repairs required, and the time needed to obtain the necessary permits and inspections. For a standard residential home, replacing or renovating a roof typically takes between 2 and 7 days. However, for homes that are nearly a century old, the renovation process can take up to 8 weeks due to the structure’s age, potential complications, historical preservation requirements, and the need for specialized materials. As part of this process, all necessary permits must be secured.

3.6.3.3 Special Considerations for Cathedral High School Buildings (Receptors 16a through 16e)

Certain of the buildings studied in the LA ART EIR that otherwise are anticipated to perform well due to their overall construction have special considerations when it comes to windows. Specifically, Receptors 16a, 16b, 16c, 16d, and 16e, which are associated with Cathedral High School, located near the Interstate 110 Freeway. Receptors 16a and 16b are modern buildings composed primarily of concrete masonry unit (CMU) block and contain inoperable windows, and Receptors 16c and 16d are older brick buildings, also with inoperable windows. By contrast, Receptor 16e is an older brick structure with operable double-sash windows.

The windows and individual assemblies of Cathedral High School buildings would require individualized treatment, careful integration into the existing façade, and potentially extensive lead abatement at Receptors 16c, 16d, and 16e, given their ages. As with other older buildings, upgrades could also necessitate structural assessment and possible reinforcement prior to the renovations.

The school setting also presents challenges because construction could directly interfere with educational activities, limit access to classrooms, and require coordination to avoid disrupting ongoing instruction.

3.6.4 Noise, Vibration, and Disruption and Other Environmental Considerations

As described above, implementation of acoustic retrofit methods would require intrusive construction activities within occupied residential and institutional buildings. These activities would themselves generate new sources of noise, vibration, and disruptions, raising additional environmental and practical concerns. Depending on the scope of work and the size of the building, retrofit activities could extend for weeks or months, exposing occupants to sustained construction activity within their homes and classrooms.

Retrofitting activities typically involve the use of hand and power tools, such as hammers, electric saws, drills, and portable air compressors. Noise levels associated with these tools are summarized below.

- Hammers: The noise level can vary depending on the type of hammer and the material being struck.

- Electric Reciprocating Saws: These tools usually produce noise levels between 90 to 100 dBA at the user, depending on the model and the material being cut.
- Electric Drills: Electric drills typically produce noise levels ranging from 80 to 100 dBA at the user, depending on the specific model and the material being drilled.
- Portable Air Compressors: The noise levels for these can range from 70 to 78 dBA at 50 feet.

For comparison, a vacuum cleaner at 10 feet is typically around 70 dBA, while an ambulance siren across the road can reach 100 dBA.

Retrofit work would also generate vibration, dust, and restricted access to living or workspaces, and in some cases could necessitate temporary relocation of occupants. As noted, for older buildings, additional measures such as lead abatement or structural reinforcement would compound the duration and intensity of disruption.

Retrofit work could also extend the area of potentially significant noise impacts from Project construction by expanding the area of construction work and therefore the radius of noise impacts. Some units that were previously shielded from construction noise by virtue of their locations could now potentially be located adjacent to construction from retrofitting.

Retrofit work would also potentially result in the unnecessary demolition and construction, in that buildings may already comply with building code and standards. Retrofitting work would generate construction waste from demolition which would then need to be hauled away to disposal sites. Construction debris could include hazardous materials. The demolition, construction, and hauling of construction debris would consume additional energy and generate additional greenhouse gas emissions.

Although construction of the proposed Project is expected to take 25 months, this duration refers to the overall construction period, not to continuous construction at any single location. By contrast, a building retrofit program would require invasive construction inside occupied residences and institutional buildings for weeks or potentially months at a time, directly displacing or disrupting daily life.

3.6.5 Feasibility Determination

For the reasons described in Sections 3.6.1 through 3.6.5, retrofitting existing occupied buildings along the alignment is not feasible mitigation for temporary construction noise.

First, enforceability considerations weigh heavily against such a program. Because Metro does not own or control the affected properties, it cannot compel property owners or tenants to allow construction inside their homes or classrooms. Any retrofit program would therefore proceed only on a voluntary basis. Mitigation measures must be both effective and enforceable; measures dependent on third-party consent cannot be assured through binding conditions and do not qualify as feasible mitigation.

Second, implementation considerations further demonstrate infeasibility. Administering a retrofit program across multiple privately owned properties would require individualized negotiations with property owners and tenants, many of whom may be unwilling to permit construction inside their homes. Even if access were obtained, each building would require site-specific assessments, designs, permits, inspections, and code compliance, with added hurdles for older or historically significant structures. Verifying the effectiveness of retrofits would also be difficult, as interior noise levels depend partly on occupant behavior, such as whether windows remain open.

Third, any expected benefit from retrofitting would be uncertain. Modeling shows that many buildings along the alignment already provide façade attenuation of 24 dBA, with measured performance in some cases exceeding those levels. Any benefit would generally be contingent on windows remaining closed, which could conflict with ventilation, egress, and habitability requirements or occupant preferences. Retrofitting also cannot eliminate all noise pathways, such as those through open doors, vents, or adjoining walls, meaning interior levels may still exceed modeled projections in some cases. Older or historically significant structures raise added permitting and review hurdles, including lead paint abatement and historic preservation permitting requirements. Invasive retrofits such as roof replacement or wall insulation would involve substantial construction effort and disruption.

Finally, retrofitting would be disruptive to occupants and could cause additional adverse environmental impacts. Retrofitting methods, such as replacing windows, insulation, or roofs, would generate their own noise, vibration, and dust, in some cases requiring temporary relocation of residents or interfering with educational activities at schools. These activities could extend for weeks or months at a single location. In addition, implementing retrofits would require construction inside occupied dwellings and classrooms, directly interfering with daily life.

Each of these reasons independently supports Metro's determination that retrofitting buildings is not feasible mitigation for construction noise.

3.7 Mitigation Measure NOI-A

The Project's significant noise impacts are associated only with Project construction. The LA ART EIR identified MM-NOI-A to be implemented during Project construction, and Metro adopted MM-NOI-A in its MMRP.

The Court Opinion found the LA ART EIR's discussion of MM-NOI-A inadequate as an informational matter. The Court explained that "the EIR fails to explain *why* Metro could not be certain about each measure's effectiveness."[33] For example, MM-NOI-A required proper equipment maintenance and compliance with idling restrictions, but Metro's construction noise analysis had already assumed those practices in its modeling. As a result, these conditions would not reduce construction noise beyond the significant levels reported in the LA ART EIR. The Court emphasized that this fact should have been disclosed so decisionmakers and the public would not overestimate the measure's effectiveness.[34] More generally, the Court held that the LA ART EIR was required to describe the extent to which each element of MM-NOI-A was expected to reduce noise, or to explain the reasons for uncertainty in its effectiveness, so that the measure's contribution could be accurately understood in the context of Metro's findings and statement of overriding considerations.[35]

Section 3.8 clarifies the basis for MM-NOI-A and describes how each component would function. Certain elements of MM-NOI-A would be at least partially effective in reducing the Project's significant construction noise levels, while others serve to ensure that construction noise does not exceed the levels already modeled in the LA ART EIR. To provide greater clarity and avoid overstating the effectiveness of these requirements, this Draft SEIR refines MM-NOI-A to retain only those components that are expected to achieve a noise reduction benefit. The remaining components have been reclassified as Project Design

33 Court Opinion, p. 77.
34 Id., pp. 80-81.
35 Ibid.

Features that would continue to be included in the Project's MMRP to ensure construction noise levels remain consistent with the LA ART EIR's analysis.

The following revised MM-NOI-A would be implemented during Project construction and incorporated into Metro's MMRP.

MM-NOI-A: Prior to the issuance of grading permits for the proposed Project, the Project Sponsor shall design a Construction Noise Management Plan to minimize the construction-related noise impacts to off-site noise-sensitive receptors. The Construction Noise Management Plan shall include the following measures to reduce noise levels:

- **Noise Barriers**: Temporary construction noise barriers between the Project construction area and affected receptors shall be installed as identified below. The noise barriers shall be designed to have a sound transmission class (STC) rating of at least 25 and should have the ability to provide a range of noise reduction between 5 dBA and 15 dBA when the construction equipment is located below the elevation level of the noise barrier and there is no line-of-sight between the construction equipment and the noise-sensitive receptors. Specific locations and heights for the temporary noise barriers shall include the following by Project components:
  - Alameda Station
    - For the entire duration of construction, the Project shall provide a 24-foot-tall temporary noise barrier between the Project construction site and NSR 3 [Mozaic Apartments].
    - For the entire duration of construction, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 1A [Union Station] and NSR 1B [First Five LA].
    - During the Foundations and Columns phase, the Project shall provide a 10-foot temporary noise barrier between the Project construction activities occurring within Alameda Street and NSR 1A [Union Station], NSR 1B [First Five LA], NSR 2 [El Pueblo], and NSR 3 [Mozaic Apartments].
    - During a portion of the Structural Steel and Gondola Equipment Erection phase and during a portion of the Vertical Circulation, Hardscaping, Landscaping, and Interior Work phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 3
  - Alameda Tower
    - For the entire duration of construction, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 4 [The California Endowment].
    - During a portion of the Structural Steel and Gondola Equipment Erection phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall

provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 4.

- Alpine Tower
  - For the entire duration of construction, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 6 [Chinatown Senior Lofts] and NSR 7 [Homeboy Industries].
  - During a portion of the Structural Steel and Gondola Equipment Erection phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 6 and NSR 7.
  - NSR 5 [Future Residential] is currently an undeveloped City-owned parking lot and is proposed for future multi-family residential uses. If NSR 5 is occupied by residential units at the time of Project construction, the following noise barriers shall be provided:
  - For the entire duration of construction, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 5.
  - During the Foundations and Columns and Structural Steel and Gondola Equipment Erection phases, the Project shall provide a 24-foot temporary noise barrier between the Project construction site and occupied residential units at NSR 5 [Future Residential].
  - During a portion of the Structural Steel and Gondola Equipment Erection phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 5.
- Chinatown/State Park Station
  - For the entire duration of construction, the Project shall provide an 8foot temporary noise barrier between the Project construction site and NSR 9 [Blossom Plaza], NSR 10 [Future Residential Development], NSR 11 [Capitol Milling], and NSR 14S [Los Angeles State Park]. The noise barrier will include a gate that may be temporarily opened for access during construction hours along Spring Street for construction access.
  - For the entire duration of construction, the Project shall provide a 10-foot temporary noise barrier between the Chinatown / State Park Station and NSR 8 [College Station] and NSR 12 [Future Residential Development].
  - During a portion of the Structural Steel and Gondola Equipment Erection phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 8, NSR 12, and NSR 14S.

- Broadway Junction
  - For the entire duration of construction, the Project shall provide a 24-foot temporary noise barrier between the Project construction site and NSR 13 [Future Development], NSR 14N [Los Angeles State Historic Park], and NSR 17 [Low Rise Residential].
  - During the Demolition phase and the Foundations and Columns phase, the Project shall provide a 24-foot temporary noise barrier between the Project construction site and NSR 16 [Cathedral High School].
  - During the Structural Streel and Gondola Equipment Erection phase and the Vertical Circulation, Hardscaping, Landscaping, and Interior Work phase, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 16 [Cathedral High School].
  - During a portion of the Structural Steel and Gondola Equipment Erection phase and during a portion of the Vertical Circulation, Hardscaping, Landscaping, and Interior Work phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between the Project construction site and NSR 13, NSR 14 N, NSR 16, and NSR 17.
- Stadium Tower
  - During the Foundations and Columns phase, the Project shall provide an 8-foot temporary noise barrier between the Project construction site and NSR 16 [Cathedral High School] and NSR 17 [Low Rise Residential].
  - During a portion of the Structural Steel and Gondola Equipment Erection phase, temporary platforms will be installed to facilitate construction activities. While the temporary platforms are installed, the Project shall provide a 10-foot temporary noise barrier on the temporary platforms between Project construction and NSR 16 and NSR 17.

- ~~**Equipment Maintenance**: Construction equipment shall be properly maintained per manufacturers' specifications to prevent noise due to worn or improperly maintained parts and shall be fitted with the best available noise suppression devices (i.e., mufflers, lagging, and/or motor enclosures). All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded.~~
- ~~**Electrical Sources:** When possible, on-site electrical sources shall be used to power equipment rather than diesel generators.~~
- **Sensitive Uses:** Fixed and/or stationary equipment (e.g., generators, compressors, concrete mixers) shall be located away from noise-sensitive receptors.
- ~~**Community Outreach**: The following shall be implemented to reduce impacts to the local community related to disturbances from construction noise:~~

- ~~**Noise Disturbance Coordinator:** A noise and vibration disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise and vibration disturbance coordinator shall determine the cause of the complaint (e.g., starting too early, bad muffler, etc.) and shall be required to implement reasonable measures to address the complaint. Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event a complaint is received, appropriate corrective actions shall be implemented, and a report of the action provided to the reporting party.~~
- ~~**Construction Notice:** The construction contractor shall provide a construction notice to residents within 500 feet of the construction site for each Project component prior to initiation of construction activities. The construction site notice shall include job site address, anticipated equipment to be used and duration of construction activities, permit number, name and phone number of the job superintendent, construction hours, and the City telephone number where violations can be reported. The notice will also include the phone number of the noise disturbance coordinator.~~

- ~~**Limit Idling Equipment**: Construction equipment shall not idle for longer than 5 minutes, as required by section 2485 of the California Code of Regulations.~~

In addition to revised MM-NOI-A, the Project would incorporate the following new Project Design Feature, which would be implemented through the Construction Noise Management Plan and included in the MMRP.

Project Design Feature – NOI-PDF-B: Project Noise Control Requirements for Construction Noise Management Plan:

The Construction Noise Management Plan prepared pursuant to MM-NOI-A shall include the following requirements:

- **Equipment Maintenance:** Construction equipment shall be properly maintained per manufacturers' specifications to prevent noise due to worn or improperly maintained parts and shall be fitted with the best available noise suppression devices (e.g., mufflers, lagging, and/or motor enclosures). All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded.
- **Use of Electrical Sources:** When possible, on-site electrical sources shall be used to power equipment rather than diesel generators.
- **Community Outreach:** The following shall be implemented to reduce impacts to the local community related to disturbances from construction noise:
  - *Noise Disturbance Coordinator:* A noise and vibration disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise and vibration disturbance coordinator shall determine the cause of the complaint (e.g., starting too early, bad muffler, etc.) and shall be required to implement reasonable measures to address the complaint. Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding

property owners to contact the job superintendent if necessary. In the event a complaint is received, appropriate corrective actions shall be implemented, and a report of the action provided to the reporting party.

- *Construction Notice:* The construction coordinator shall provide a construction notice to residents within 500 feet of the construction site for each Project component prior to initiation of construction activities. The construction site notice shall include job site address, anticipated equipment to be used and duration of construction activities, permit number, name and phone number of the job super intendent, construction hours, and the City telephone number where violations can be reported. The notice will also include the phone number of the noise disturbance coordinator.
  - **Limit Idling Equipment:** Construction equipment shall not idle for longer than 5 minutes, as required by section 2485 of the California Code of Regulations.

The above components of NOI-PDF-B are characterized as Project Design Features, rather than CEQA mitigation, because they do not reduce the Project's modeled construction noise impacts below the significant levels identified in the LA ART EIR. Instead, they represent construction practices and management protocols that Metro assumed in its noise modeling, or compliance with existing regulatory requirements and are necessary to ensure actual construction noise levels remain consistent with the levels disclosed in the LA ART EIR. Reclassifying them as elements of a Project Design Feature provides transparency regarding their role in the analysis, while their inclusion in the MMRP ensures they remain enforceable conditions of Project approval.

The retained components of MM-NOI-A are expected to provide at least partial reductions in the Project's significant construction noise impacts. While these measures would not eliminate or reduce those impacts to less-than-significant levels, they represent feasible strategies that can lessen noise exposure at nearby receptors.

Consistent with the Court Opinion, Section 3.8 identifies which components of MM-NOI-A are reasonably expected to be at least partially effective in reducing construction noise impacts and explains the reasons why their effectiveness cannot be predicted with certainty.

3.8 Effectiveness of Components of Mitigation Measure NOI-A

In the Court Opinion, the Court of Appeal recognized that the LA ART EIR identified MM-NOI-A to address the Project's significant construction noise impacts, but found the LA ART EIR's treatment of the measure inadequate as an informational matter.[36] The Court explained that the LA ART EIR failed to specify the expected effectiveness of most components of MM-NOI-A and did not disclose when those components had already been assumed in the construction noise modeling."[37] As a result, decisionmakers and the public could not determine whether the individual components of MM-NOI-A would reduce construction noise or just help ensure that actual conditions did not exceed the levels modeled in the LA ART EIR.[38]

As explained in greater detail below and in Appendix A, each component of the original MM-NOI-A addressed temporary construction noise, but with different functions. Some components, such as the

36 Court Opinion, pp. 75-76.
37 Ibid.
38 Id. at p. 77.

placement of stationary equipment away from sensitive receptors, would provide at least partial noise reduction beyond the modeled levels, and are therefore retained in MM-NOI-A. Other elements, such as equipment maintenance and idling restrictions, were already assumed in AECOM's predictive modeling for the LA ART EIR. As described in Section 3.7, these requirements are now reclassified as Project Design Features (NOI-PDF-B) to preserve modeling validity and ensure actual construction noise remains consistent with the LA ART EIR's analysis.

3.8.1 Noise Barriers

As explained in the LA ART EIR, the noise barrier requirement includes a specific and quantifiable noise reduction target—5 to 15 dBA when construction equipment is located below the elevation level of the barrier and the barrier blocks the line-of-sight between equipment and noise-sensitive receptors. The LA ART EIR also disclosed the inherent limitation of barriers for receptors located above the barrier height or otherwise within the direct line-of-sight. To account for this limitation, the construction noise analysis for the LA ART EIR modeled multistory residential receptors at two elevations: (1) ground level and (2) the lowest floor at which a sound barrier would no longer be effective because it could not block the line-of-sight between the source and the receptor.

The Court of Appeal acknowledged that the LA ART EIR had identified a noise reduction range for barriers and did not raise concerns with this component of MM-NOI-A. Consistent with established acoustical engineering practice, noise barriers remain a feasible and enforceable means of achieving partial reductions in construction noise. For this reason, the noise barrier requirement is retained in the revised MM-NOI-A as a partially effective mitigation measure, with barrier heights and locations specified by project component to ensure that the modeled reductions are realized in practice.

3.8.2 Equipment Maintenance

This component of the original MM-NOI-A required proper maintenance of construction equipment to prevent excess noise from worn or missing parts (e.g., missing mufflers or cracked engine enclosure). The LA ART EIR's predictive construction noise modeling relied on reference sound levels for properly maintained equipment, which is standard practice in acoustic analysis. In other words, the analysis already assumed that equipment would be maintained per manufacturer specifications, and therefore, the modeled noise levels incorporated the effect of this practice.

Because the requirement does not provide an incremental reduction beyond the levels disclosed in the LA ART EIR but instead ensures that actual construction noise does not exceed those levels, this Draft SEIR reclassifies this requirement as a Project Design Feature (NOI-PDF-B). This characterization ensures that the effectiveness of the requirement is not overstated. The requirement would remain an enforceable obligation through the Construction Noise Management Plan and MMRP, thereby ensuring consistency between the noise analysis and actual construction practices.

3.8.3 Electrical Sources

This component of the original MM-NOI-A required that on-site electrical sources to be used to power equipment, rather than diesel generators, when possible. Diesel generators typically produce continuous noise levels of approximately 77 dBA at 50 feet, whereas on-site electrical sources generate no operational noise. Diesel generators are also distinctive from other construction equipment in that they often run for extended periods of time (e.g., an entire construction day or large portion of the day) to provide on-demand power.

Replacing diesel generators with on-site electrical sources would avoid this noise source. However, the overall contribution of diesel generators to the Project's construction noise profile is relatively minor given the presence of louder, mobile equipment (such as cranes, excavators, and haul trucks), as well as the existing urban ambient conditions along the alignment. In addition, the extent to which on-site electrical power can be used is inherently uncertain because access to existing electrical connections may not be available at all sites and construction staging would vary by location and phase. Furthermore, even where utility connections are possible, the sequencing of work activities may necessitate use of generators for certain periods. Because of these variables, Metro cannot reasonably predict in advance the duration or frequency of generator use at each site. For this reason, the overall noise reduction benefit of this requirement cannot be reliably quantified at this stage of the Project.

As a result of these uncertainties, this requirement has been removed from MM-NOI-A and reclassified as a Project Design Feature (NOI-PDF-B) to ensure that the requirement is fully enforceable through the Construction Noise Management Program and MMRP.

3.8.4 Sensitive Uses

This component of the original MM-NOI-A requires that fixed and stationary equipment (e.g., generators, compressors, concrete mixers) be located away from noise-sensitive receptors. The LA ART EIR's noise modeling assumed a conservative, worst-case scenario by placing such equipment at the closest possible location to receptors within each defined work area. However, equipment may be placed at many different points within the work area depending on construction logistics, and each potential location would produce a different noise at nearby receptors. Attempting to model every possible configuration would not be practical or informative, given the variability in construction sequencing and site-specific conditions.

For this reason, the LA ART EIR used the reasonable worst-case assumption that equipment would be located as close as possible to sensitive receptors. Under actual conditions, placing equipment further away from sensitive receptors would reduce noise exposure relative to the modeled levels. Accordingly, although the precise reduction cannot be predicted in advance, this measure would provide an incremental benefit beyond the conservative assumptions in the analysis and would thus be partially effective in minimizing temporary construction noise at sensitive receptors. It is therefore retained in MM-NOI-A.

3.8.5 Community Outreach[39]

This component of the original MM-NOI-A required the retention of a noise disturbance coordinator and provision of advance notice to the community prior to construction activities. The intent of this measure was to establish a process for responding to noise complaints and to increase community awareness and tolerance of temporary construction noise. The California Department of Transportation advises that "community awareness may be the most effective approach to reduce complaints of construction noise," noting that residents are more accepting of temporary construction noise when they are informed in

[39] Although the Court Opinion did not address the Community Outreach component of MM-NOI-A, it is addressed in this Section for completeness.

advance, have a clear point of contact for concerns, and know that reasonable efforts will be made to address those concerns.[40]

The effectiveness of community outreach and complaint response cannot be predicted in advance because it would depend on the nature of the specific concern and the feasibility of the corrective action in the field. For example, some complaints may be resolved by addressing a discrete issue, such as repairing equipment, or adjusting the temporary noise barrier, which could provide a measurable reduction. Others may involve concerns regarding general construction activities within the hours and intensity already evaluated in the LA ART EIR. The effectiveness of this measure also depends on voluntary participation by affected resident and businesses. The program would only be triggered when members of the community report concerns, and its success would rely on their willingness to engage with the designated coordinator and cooperate with feasible solutions.

For these reasons, the overall effectiveness of this measure cannot be reliably predicted for the Project as a whole. It is also possible that this measure would not reduce noise levels below those predicted in the LA ART EIR. Therefore, this measure has been removed from MM-NOI-A and reclassified as a Project Design Feature (NOI-PDF-B). Minor clarifying revisions to the measure have also been made. Reclassifying this measure as a Project Design Feature ensures that it is fully enforceable through the Construction Noise Management Program and MMRP.

3.8.6 Limiting Idling Equipment

This component of the original MM-NOI-A required that construction equipment not idle for longer than five minutes. The requirement reflects existing state law under Section 2485 of Title 13 of the California Code of Regulations, which prohibits drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, including buses and sleeper berth equipped trucks, from idling the vehicle's primary diesel engine for longer than five minutes at any location.

Because the LA ART EIR's construction analysis assumed compliance with this regulation, limiting idling would not provide any incremental reduction in noise levels beyond what was assumed for the Project in the LA ART EIR. Rather, compliance with this regulation would be necessary to ensure that actual noise levels do not exceed those disclosed in the LA ART EIR.

For this reason, the idling requirement has been reclassified as a Project Design Feature (NOI-PDF-B) to reinforce compliance with existing law. As a Project Design Feature, it will remain enforceable through the Construction Noise Management Plan and the MMRP, ensuring consistency with the LA ART EIR's assumptions and maintaining accountability during construction.

3.8.7 Summary of NOI-A Refinements

As refined in this Draft SEIR, MM-NOI-A now includes only those elements reasonably expected to provide partial reductions in significant construction noise, such as the installation of temporary noise barriers and the placement of stationary equipment away from sensitive receptors. Other elements of the original MM-NOI-A (equipment maintenance, use of electrical power in lieu of generators, community outreach, and idling restrictions) have been reclassified as Project Design Features. MM-NOI-A would continue to

[40] California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 7.5.3.4 (Sept. 2013).

be adopted as a CEQA mitigation measure, while the components of NOI-PDF-B would function as enforceable conditions of Project.

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5.0 List of Preparers

For ease of reference, this section provides the lead agency and list of preparers for the Supplemental EIR only. The list preparers from Section 9.0, List of Preparers, of the Final EIR, is incorporated by reference.

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5.4 Project Sponsor

LA Aerial Rapid Transit Technologies LLC

Appendix A
AECOM Acoustics Technical Report

Prepared for:

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Prepared by:

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Interior Construction Noise Analysis

The analysis of construction noise in the LA ART Environmental Impact Report (EIR) assessed sound levels at the façades of nearby sensitive receptors from temporary construction noise. Noise levels are assessed at the exterior of buildings because federal and local standards establish thresholds of significance based on exterior noise levels. Additionally, due to the vast range of potential sound reduction provided by a given set of exterior building wall (i.e., façade) construction types, and because interior noise levels not related to the project cannot be known, it is difficult to predict interior noise levels and how those noise levels may be perceived by occupants. Nevertheless, to respond to the Court of Appeal decision in *Los Angeles Parks Alliance, et al. v. Los Angeles County Metropolitan Transportation Authority, et al.* (Case Nos. B340838, B340931) (the Court Opinion), and to assist Metro in assessing whether retrofitting existing buildings is a feasible mitigation measure to address the project's construction noise, AECOM evaluated potential interior noise levels during the project's construction.[1]

When outside noise reaches the façade of a building, some of the sound is reflected, while a portion of it may pass through the building wall. Temporary construction noise barriers are less effective at reducing the amount of construction noise reaching interior spaces than exterior building walls because, unlike a building wall, noise can travel over the top of a construction noise barrier.

The amount of noise that enters through a building's exterior walls is a complex calculation that relies heavily on the acoustical characteristics of each wall element (e.g., a single-pane window would allow more noise to pass than a brick wall) and the amount of area covered by each element (e.g., a large single pane window would allow more noise to pass than a small one). Due to the vast range of potential noise reduction provided by a given set of construction types, construction noise levels calculated for future projects are predicted and assessed at the building façade using methods consistent with the analysis in the LA ART EIR.

To estimate temporary interior noise levels during construction, AECOM conducted a field survey of the existing noise-sensitive receptor buildings studied in the LA ART EIR to gather details that would provide a basis for estimating how much noise reduction the building walls and windows may provide for the interior spaces at each receptor. These surveys, conducted from June 25 through June 27, 2025, included streetside observations of building façade construction types (e.g., window assemblies, wall assemblies) and estimations of area dimensions for each element. AECOM acoustical engineers used these observations as inputs in a prediction model to estimate the sound reduction provided by each building façade. In other words, AECOM analyzed how much construction noise the building would block.

Using the worst-case mitigated construction phase noise level at each receptor reported in the LA ART EIR, Table ES-1 shows the resulting estimated interior construction noise levels in the studied buildings.

[1] The credentials and curricula vita of the AECOM team members involved in preparing this report are attached as **Appendix 6** to this report.

Table ES-1. Estimated Interior Noise Levels at Receptors

Receptor ID	Receptor Name or Use	Estimated Worst-Case Mitigated Construction Noise Level (dBA)[1]	Estimated Façade Noise Reduction	Resulting Estimated Interior Noise Level at Receptor (dBA)
1 B	First 5 LA	65.1	26.7	38.4
3a	Mozaic Apartments, Balcony Façade Section	87.9	33.9	54.1
3a T	Mozaic Apartments, Balcony Façade Section	91.8	33.8	58.0
3b	Mozaic Apartments, Glass Façade Section	87.9	34.1	53.8
3b T	Mozaic Apartments, Glass Façade Section	91.8	34.0	57.8
6	Chinatown Senior Lofts	78.4	29.8	48.6
6 T	Chinatown Senior Lofts	78.9	32.8	46.1
7	Homeboy Industries	80.3	26.7	53.6
9	Blossom Plaza	68.1	31.4	36.7
9 T	Blossom Plaza	72.4	31.0	41.5
11	Capitol Milling	77.2	25.8	51.5
12	Llewellyn Apartments	72.4	28.1	44.3
12 T	Llewellyn Apartments	74.8	30.4	44.4
16a	Cathedral High School, Building A	72.2	22.5	49.7
16b	Cathedral High School, Building B	72.2	24.8	47.4
16c	Cathedral High School, Building C	72.2	17.8	54.4
16d	Cathedral High School, Building D	72.2	21.6	50.5
16e	Cathedral High School, Building E	72.2	18.4	53.7
17Na	Low-rise multi-family residential, North side of Savoy St	71.5	20.0	55.0
17Nb	Single-family residential, North side of Savoy St	71.5	16.5	55.0
17S	Low-rise multi-family residential, South side of Savoy St	80.0	21.9	58.1

1. Values from Final EIR Errata, Kimley-Horn, February 2024.
2. Model output values are rounded to the nearest tenth.

As shown in Table ES-1, estimated noise reduction at high-performing buildings (1 B through 12 T) with windows closed would range from 25.8 to 34.1 decibels (dB). This is similar to or notably greater than the noise reduction considered in the LA ART Final EIR.[2] For context, reductions in noise less than 3 dB are generally not perceptible to people, whereas reductions of 10 dB are perceived as the loudness being half as loud, and reductions of 30 dB and greater are equivalent to the effect of

[2] A noise reduction of 24 dB was assumed during development of the guidelines within the Environmental Protection Agency's (EPA) Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA 1974). The noise reduction value of 24 dB is an estimate based on building construction in warm climates for the era of the publication (i.e., the 1970s) with windows closed.

plugging one's ears. As indicated in Table ES-1, older buildings (e.g., Receptors 16c, 16d, 16e, 17Na, 17Nb, and 17S) perform more variably.

With these estimated reductions, the highest levels of interior construction noise levels with windows closed are predicted to range from 37 dBA (comparable to the level of noise one would experience during quiet urban nighttime) to 58 dBA (less than the noise level of normal speech at 3 feet). It is important to note that construction noise is not consistent and starts and stops throughout a single day and over weeks and months. As such, the intensity of construction activity and associated noise levels vary throughout a construction period.

The LA ART EIR modeled each construction phase, assuming all equipment is operating simultaneously at the location closest to each receptor. The construction noise levels utilized in this study are based on the loudest predicted construction phase for each receptor.

To validate the prediction modeling, real-world noise testing was conducted at two receptor buildings where the building owner or occupants allowed such testing to occur. This testing used a powerful outdoor loudspeaker, a sound level meter at the exterior of the building façade, and a second sound level meter in the interior space on the other side of the façade to calculate the real-world noise reduction provided by a building's particular construction. The results of these measurements indicate that the noise reductions estimated by AECOM were less than the measured real-world performance. In other words, the real-world testing showed the buildings blocked more noise than AECOM's model predicted. Therefore, AECOM expects the estimated interior noise levels reported in Table ES-1 to be a reliable conservative representation of worst-case interior construction noise levels.

The real-world noise testing also collected ambient sound level data within sample units within two recently constructed apartment buildings—Chinatown Senior Lofts and Mozaic Apartments. Ambient interior noise levels ranged from 51.2 to 51.5 dBA at the measured Chinatown Senior Lofts unit and from 50.5 to 52.9 dBA at the measured Mozaic Apartments unit.[3]

The building sound insulation survey also tested the efficacy of caulking cracks in window assemblies. Land uses along Savoy Street are different from the rest of the Project alignment because it includes residential structures that are approximately 100 to 130 years old and feature wood sash single-pane windows. Testing was performed at the currently unoccupied home at 430 Savoy. This building featured visible openings where sealing issues (i.e., gaps) occurred between the sashes. Façade noise attenuation testing was performed both before and after the visible window leaks were sealed using a putty compound. Results of this testing determined that sealing these gaps would not reduce exterior sound intrusion by a perceptible degree (less than 1 dB difference). The human threshold for the perception of changes in environmental noise levels is 3 dB. Due to the age of some buildings on the north and south side of Savoy Street, the lack of noise reduction after applying the putty compound is likely due to the overall poor performance of the single-pane window and noise potentially traveling largely uninhibited through the presumed roof assembly, the uninsulated wall assemblies, or other weak spots in the building.

For older buildings like the one at 430 Savoy Street, a substantial construction effort is the only method to reduce the construction noise levels in interior spaces by a perceptible degree. Due to the relative age of the buildings on Savoy Street and likely flanking paths for the temporary construction noise, such a retrofit may require window replacements, the replacement of the building roof, and/or the bolstering or replacement of façade walls. In comparison, AECOM's visual assessment determined that all other buildings in the study area were in good condition (i.e., not requiring repairs to window seals or other façade penetrations).

[3] These interior noise levels reflect controlled façade transmission testing, in which an outdoor loudspeaker was used to generate exterior sound at approximately 95 dBA to distinguish the sound level being tested indoors from ambient noise levels. During testing, there were no resident activities, television, HVAC, or other major-noise generating appliances in operation, and windows were closed. These values therefore isolate façade performance and do not capture other indoor (e.g., HVAC, appliances) or community noise sources that can contribute to ambient interior levels.

Mitigation Measure NOI-A Responses

The LA ART EIR included Mitigation Measure (MM) NOI-A to mitigate temporary construction noise to the extent feasible. Originally, MM-NOI-A required the design and implementation of a construction noise management plan to reduce construction noise impacts through, among other things, the use of noise barriers, maintenance of equipment, avoidance of unnecessary equipment idling, the use of electrical equipment where practicable, and locating equipment as far from noise-sensitive receptors as feasible.

The use of noise barriers is the only quantifiable component of original MM-NOI-A, providing 5 dB to 15 dB noise reduction when construction activities are shielded. Nevertheless, as explained in detail below, certain other components of original MM-NOI-A would be “partially effective” at reducing noise levels. However, other components were included in original MM-NOI-A to ensure that noise levels during construction would be no greater than those estimated in the LA ART EIR. Thus, the components of original MM-NOI-A were intended to restrict or prevent conditions where construction activities may generate excessive noise and to ensure the accuracy of construction noise modeling conclusions. The Draft SEIR refines MM-NOI-A to include only those components that would be partially effective at mitigating the Project’s significant construction noise levels. The other components previously included in MM-NOI-A are now reclassified as Project Design Features that will be included in and enforced through the Project’s Mitigation Monitoring and Reporting Program.

1. Interior Construction Noise & Retrofit Assessment

The LA ART EIR's analysis of construction noise assessed noise levels at the façades of nearby sensitive receptors from temporary construction noise. Noise levels are assessed at the exterior of buildings because federal guidance and local standards establish thresholds of significance based on exterior noise levels. Additionally, it is difficult to predict interior noise levels due to the vast range of potential noise reduction provided by a given set of façade construction types. How noise passes from exterior to interior spaces is a complex calculation. It requires a reasonable understanding of the composition of the building façade and its component parts (e.g., window types and other materials), each of which with particular noise reduction performance. For example, if a building façade is made of solid concrete and there is a window in the middle of it, construction noise hitting this façade would generally travel through the window penetration in the wall. The resulting amount of noise passing through would be affected both by the window's dimensions (i.e., total square-foot area) and composition (e.g., thickness, quantity, and lamination of panes). How that noise is then perceived inside the building is dependent on a number of factors including the size of the room, amount and placement of furniture, the presence of drapes or other windows coverings, distance of person from the exterior wall, and the other noise generating activities occurring inside the room and building (e.g., are people talking, is a television or radio on, are people typing or walking around, etc.).

Nevertheless, to respond to the Court Opinion and to assist Metro in assessing whether retrofitting existing buildings to reduce further noise transmission to interior spaces is a feasible mitigation measure, AECOM modeled estimated interior noise levels from the Project's construction. To estimate interior noise levels, AECOM (i) conducted a building condition survey (the results of which are presented in **Appendix 1**); (ii) coordinated specialized building noise reduction measurements (performed by Resonance Acoustics and presented in **Appendix 2**); and (iii) performed interior noise level modeling. These data were used to calculate estimated interior construction noise levels.

1.1 Acoustical Terminology and Concepts

Sound and Noise

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. In the science of acoustics, the fundamental model consists of a sound source, a receptor, and the propagation path between the two. The loudness of the sound source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the sound perceived by the receptor. The following discussion presents the basic parameters used to describe the environmental sound levels evaluated in this analysis. Since noise is typically defined as unwanted sound and the purpose of this study is to determine the potential for unwanted sound at sensitive receptors, the terms sound and noise are being used interchangeably in this document.

Decibels

Noise Levels, also referred to as Sound Levels or Sound Pressure Levels, are expressed on a decibel (dB) scale which compresses the values used to quantify the range of human hearing. Sound pressure amplitude is measured in micro-Pascals (μPa). Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to more than 100,000,000 μPa. Because of this large range of values and our sensitivity to changes in these values, sound is rarely expressed in terms of μPa. Instead, a logarithmic scale is used to describe noise levels in terms of dB.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). Frequency is expressed in terms of cycles per second, or Hertz (Hz). For example, a frequency of 250 cycles per second is referred to as 250 Hz. High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz, although human sensitivities to sounds within that frequency range can vary considerably.

The audible range of frequencies is often divided into “octave bands”. Each octave band is identified by its center frequency, which doubles for each band (e.g., the 500 hertz band is followed by the 1000 hertz band, which is followed by the 2000 hertz band). A “spectrum” is a group of octave frequency bands creating the entire “broadband” sound, the sum of all octave bands.

A-Weighted Decibels (dBA)

The notation dBA refers to measurements of sound with frequencies filtered to account for typical human hearing that is less sensitive to sound at low frequencies (or pitch) and at very high frequencies.

Human Response to Changes in Noise Levels

In typical environments, changes in noise levels of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people, in general, are able to begin to detect sound level increases of 3 dB in typical environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness.

1.2 Background and Methodology

1.2.1 Receptors Studied

Interior noise was assessed at 15 existing locations the LA ART EIR identified as noise-sensitive receptors (NSRs). The buildings represent a range of land uses including single-family residential, multi-family residential, childcare, school, and commercial.

Sensitive receptors identified in the LA ART EIR and omitted from this analysis include:

- Outdoor use areas (NSRs 1A, 2, 4, and 14). These receptors were not assessed because, as outdoor spaces, they would not benefit from façade/building noise reduction from a building’s walls or windows.
- Proposed future uses (NSRs 5, 8, 10, and 13). These receptors were not studied because the makeup of the façade cannot be known until the buildings are constructed. Further, the building’s owner is required to construct the building consistent with interior noise standards established by the City of Los Angeles, which construction type and method will necessarily consider their location in an urban environment and potential for construction occurring nearby.
- Receptors that are not significantly impacted prior to mitigation (NSRs 15, 18, and 19).

Table 1 lists the studied receptors.

Table 1. Receptors Assessed for Interior Construction Noise

DEIR Receptor	Receptor Name	Receptor Address
1 B	First 5 LA[1]	750 North Alameda Street, Los Angeles, CA 90012
3	Mozaic Apartments	888 North Alameda Street, Los Angeles, CA 90012
6	Chinatown Senior Lofts	808 North Spring Street, Los Angeles, CA 90012
7	Homeboy Industries	130 Bruno Street, Los Angeles, CA 90012
9	Blossom Plaza	900 North Broadway, Los Angeles, CA 90012
11	Capitol Milling	1231 North Spring Street, Los Angeles, CA 90012
12	Llewellyn Apartments	1101 North Main Street, Los Angeles, CA 90012
16	Cathedral High School (Five Buildings)	1253 Bishops Road, Los Angeles, CA 90012
17Na	Low-rise multi-family residential, North side of Savoy St[2]	455 Savoy Street, Los Angeles, CA 90012
17Nb	Single-family residential, North side of Savoy St[2]	451 Savoy Street, Los Angeles, CA 90012
17S	Low-rise multi-family residential, South side of Savoy St[2]	438 Savoy Street, Los Angeles, CA 90012

1. This building does not contain a sensitive receptor because the First 5 LA preschool/day care is no longer a tenant.
2. The LA ART EIR did not identify specific buildings for receptors 17N and 17S. Due to similar exposures to construction noise, these receptors were intended to be representative of all homes on the north (17N) and south (17S) of Savoy Street. For purposes of modeling building attenuation, this analysis reviewed details of three specific buildings within the Savoy Street area.

1.2.2 Building Assessment Survey

AECOM assessors visited the Project alignment from June 25 through 27, 2025, to visually assess structures. For each building, the survey team photographed the affected building façades and estimated construction components (e.g., wall and window types) and square-foot areas for each component as part of the greater façade. Assessors also reviewed publicly available data to determine years of construction and renovation and investigated the overall condition of the façade components (e.g., cracks in walls, eroding sealant/caulk around windows). Field observation forms from AECOM's building assessment are provided in **Appendix 1**.[4]

1.2.3 Prediction of Building Noise Reduction

Each element comprising a building façade reduces exterior noise depending on the physical properties of the materials within each element. The relative surface area of each element is used to determine the amount of reduction each element provides to the total noise reduction performance of a given façade.

Data collected by AECOM (e.g., façade element details and relative surface area dimensions) were used to calculate estimated interior noise levels. The potential noise levels inside the rooms also depend upon the sizes of the rooms and how much of the noise is absorbed by furnishings and finishes within the room. Therefore, the following estimates were made:

- Interior spaces (receiving rooms) have a volume of 1,200 cubic feet.

[4] See **Appendix 6** for the credentials of AECOM's building assessment team.

- Interior spaces (receiving rooms) have a reverberation time of 0.5 seconds, which is within the typical range for a furnished apartment. Reverberation time is the measure of how long it takes for sound to decay (dissipate) by 60 dB within a space and is directly related to the amount of acoustical absorption within the room.

The composite noise reduction performance of each façade was modeled using Marshall Day Acoustics INSUL software (Version 10.0.6). This software uses a combination of laboratory data and physics-based calculations to predict noise reduction through various wall and window types and is internationally accepted and used by acoustical engineers.

Low frequency noise, such as from a diesel engine or a loud motorcycle, will pass through building walls more readily than higher frequency sounds such as tire noise or a radio. Therefore, the noise reductions were calculated for individual octave frequency bands over the range of audible sound for use in the analysis.

1.2.4 Building Sound Insulation Measurements

Resonance Acoustics performed sound insulation (noise reduction) measurements at three properties in July of 2025 (see **Appendix 3**):

- Receptor 3: A representative living space on the second story (but first floor with residential units) of the Mozaic Apartments facility at 888 North Alameda Street.
- Receptor 6: A representative living space on the second story (but first floor with residential units) of the Chinatown Senior Lofts facility at 808 North Sprint Street.
- 430 Savoy: A representative living space at 430 Savoy Street (one of several homes represented by Receptor 17S). The sound insulation measurements at 430 Savoy Street are discussed below in Section 1.2.3.

These types of surveys are performed to assess building sound attenuation performance in residential structures within or near the flight paths of major airports. Members of the Resonance Acoustics team who performed the sound insulation survey for this project are also on the team that executed identical measurements for the Los Angeles International Airport (LAX) Residential Sound Insulation Program.

These real-world sound insulation measurements use a large loudspeaker mounted on a stand (or mounted to a bucket truck for high-elevation apartment units) to generate high levels of noise at the studied residence. The noise level from the speaker is simultaneously measured both on the exterior and interior of the building to measure the noise reduction performance of the building façade. The difference between the exterior and interior measurements is the amount of noise reduction the building provides. As for the noise reduction estimations described above, the measured noise reduction was calculated at multiple octave frequency bands over the range of audible sound. As part of this effort, Resonance Acoustics also collected ambient sound level data within sample units at Receptors 3 and 6.

1.3 Survey and Prediction Results

1.3.1 Building Visual Assessment Survey

The building visual surveys determined that building penetrations (e.g., window assemblies) for all studied properties (except for the residential buildings on Savoy Street) appeared to be in “Good” condition with no apparent issues related to frame condition, sealant condition, cracks, or other observable degradation or misalignment that could affect the noise reduction performance. Older residential buildings on Savoy Street were observed to be in overall “Fair” condition.[5] A Condition Score of “Good” reflects that the building exterior is functional and may display superficial defects only; a Condition Score of “Fair” reflects that the building exterior is functional but shows signs of moderate wear and tear from age or use; and a Condition Score of “Poor” reflects reduced or failed

[5] As noted in **Appendix 1**, the building at 430 Savoy Street was observed to be in “Poor” condition.

building exterior performance with defects that require repairs or replacement of building elements (e.g., windows, walls).

The assessors compiled a spreadsheet-based inventory of their observations, including determinations of wall types, window types, and calculations of square-foot areas of each component that would be entered into the prediction software. A summary of these observation sheets is provided as **Appendix 1** to this report.

1.3.2 Exterior Construction Noise Prediction at Façades

The construction noise levels studied herein are based on each receptor's worst-case mitigated construction noise level presented in Final LA ART EIR Errata Table 1.

The Draft LA ART EIR construction noise analysis methodology predicted noise levels at sensitive receptors by summing the overall sound level for each piece of construction equipment, assuming that all equipment would be operating simultaneously. As detailed in Draft LA ART EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets, each piece of equipment contributes to the reported overall level (e.g., a crane will generate 57 dBA at Receptor 11). To calculate interior noise levels, the single-piece equipment sound levels predicted at the façade of a receptor were individually broken down into their component octave frequency bands, representing the sound spectrum of that piece of equipment at the façade. This level of acoustic detail for each piece of equipment allows for interior noise calculation because noise within each octave frequency band for a given piece of equipment passes through façade types with varying levels of efficiency.

For example, the spectrum of sound associated with the 57 dBA crane noise at Receptor 11 would reduce down to 29 dBA when transmitted through a double-pane window. The same sound spectrum would reduce to 20 dBA when transmitted through the 4-inch brick walls. Combining both transmission paths, the noise transmitting through the receptor façade from the single piece of equipment would be 30 dBA. This analysis calculated the spectrum of all pieces of equipment (summed together) and assessed the interior noise for each receptor/receptor façade composition.

Octave band center frequencies for each piece of equipment were compiled using the United Kingdom's Department of Environment, Food, and Rural Affairs (DEFRA) construction noise source database.[6] Detailed reference octave band spectra for each piece of equipment are provided in **Appendix 2** to this report.

1.3.3 Interior Construction Noise Level Prediction

The following section provides a summary of the results of estimated interior construction noise levels at each receptor. Detailed interior noise level calculation reports are provided in **Appendix 5** to this report.

The "T" designation next to receptor names indicates upper-floor receptors of a building that would not receive the benefit of temporary construction noise barrier shielding (i.e., they experience direct line-of-sight to the construction equipment being shielded by the construction noise barrier, whereas on lower floors the construction noise barrier would provide shielding from that construction equipment).

Receptor 1 B (First 5 LA)

Worst-case estimated construction noise levels at Receptor 1 B (750 North Alameda Street) would occur during the Alameda Station – Foundations and Columns phase. Mitigated noise levels at the building's façade are estimated to reach 65.1 dBA during this phase. The building façade composition is variable along Alameda Street with differing amounts of glass, stucco, and other finishing materials.

[6] The DEFRA construction noise source database is the most thorough publicly available database. The database provides detailed measurement data from over 300 samples of various construction equipment and specific construction activities.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. As a worst-case scenario, this analysis used the corner portions of the façade at ground level where unit façades are primarily composed of non-operable storefront glass. Figure 1 shows a photograph of the analyzed building façade.

Figure 1 Analyzed Façade Area of Receptor 1 B

Estimated interior construction noise levels are expected to reach 38.4 dBA. This is approximately 26.7 dB lower than the estimated exterior sound level. A sound level of 38 dBA is similar to background noise commonly experienced in a large conference room (Caltrans, 2013).

Receptor 3 (Mozaic Apartments)

Receptor 3 (888 North Alameda Street) has two façade types along Alameda Street, delineated by receptor names "3a" and "3b." Applicable to both Receptors 3a and 3b, the windows and sliding glass doors at 888 North Alameda Street underwent retrofitting in the past five years and were upgraded to acoustically rated, triple-pane assemblies.[7]

Receptors 3a and 3a T (Mozaic Apartments, Balcony Façade Section)

Worst-case estimated construction noise levels at Receptors 3a and 3a T would occur during the Alameda Station - Deck Shoring, Cribbing and Erection phase. Mitigated noise levels at the building's façade are estimated to reach 87.9 dBA and 91.8 dBA, respectively. Receptors 3a and 3a T feature operable window penetrations, a stucco façade, and balconies with operable glass doors.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 2 shows a photograph of the analyzed building façade.

Figure 2 Analyzed Façade Area of Receptors 3a and 3a T

Estimated interior construction noise levels are expected to reach 54.1 dBA and 58 dBA at Receptors 3a and 3a T, respectively. This is approximately 34 dB lower than the estimated exterior sound level.

[7] Based on "Condominium Complex Soundproofing" case study by Soundproof Windows, Inc. Available at https://www.soundproofwindows.com/case-study-los-angeles-apartment-soundproofing/.

A sound level of 54 dBA is similar to that of a large business office, and a sound level of 58 dBA is less than normal speech at three feet (Caltrans, 2013).

Receptors 3b and 3b T (Mozaic Apartments, Glass Façade Section)

Worst-case estimated construction noise levels at Receptors 3b and 3b T would occur during the Alameda Station - Deck Shoring, Cribbing, and Erection phase. Mitigated noise levels at the building's façade are estimated to reach 87.9 dBA and 91.8 dBA, respectively. The building façade at Receptors 3b and 3b T features primarily operable and inoperable windows with stucco borders.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 3 shows a photograph of the analyzed building façade.

Figure 3 Analyzed Façade Area of Receptors 3b and 3b T

Estimated interior construction noise levels are expected to reach 53.8 dBA and 57.8 dBA at Receptors 3b and 3b T, respectively. This is approximately 34 dB lower than the estimated exterior sound level. A sound level of 54 dBA is similar to that of a large business office, and a sound level of 58 dBA is less than normal speech at three feet (Caltrans, 2013).

Receptors 6 and 6 T (Chinatown Senior Lofts)

Worst-case estimated construction noise levels at Receptor 6 (808 North Spring Street) would occur during the Alpine Tower - Structural Steel phase. Mitigated noise levels at this location of the building's façade are estimated to reach 78.4 dBA during this phase. Worst-case estimated construction noise levels at Receptor 6 T would occur during the Alpine Tower - Foundations and Columns phase. Mitigated noise levels at elevated areas of the building façade are estimated to reach 78.9 dBA during this phase. Both receptors feature stucco façades with a combination of operable and inoperable glass.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 4 shows a photograph of the analyzed building façade.

Figure 4 Analyzed Façade Area of Receptors 6 and 6 T

Estimated interior construction noise levels are expected to reach 46.1 dBA and 48.6 dBA at Receptors 6 T and 6, respectively. This is approximately 32 and 30 dB lower than the respective estimated exterior sound levels. A sound level of 46 to 49 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptor 7 (Homeboy Industries)

Worst-case estimated construction noise levels at Receptor 7 (130 Bruno Street) would occur during the Alpine Tower - Foundations and Columns phase. Mitigated noise levels at the building's façade are estimated to reach 80.3 dBA during this phase. The building façade composition is entirely storefront glass with glass doors.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 5 shows a photograph of the analyzed building façade.

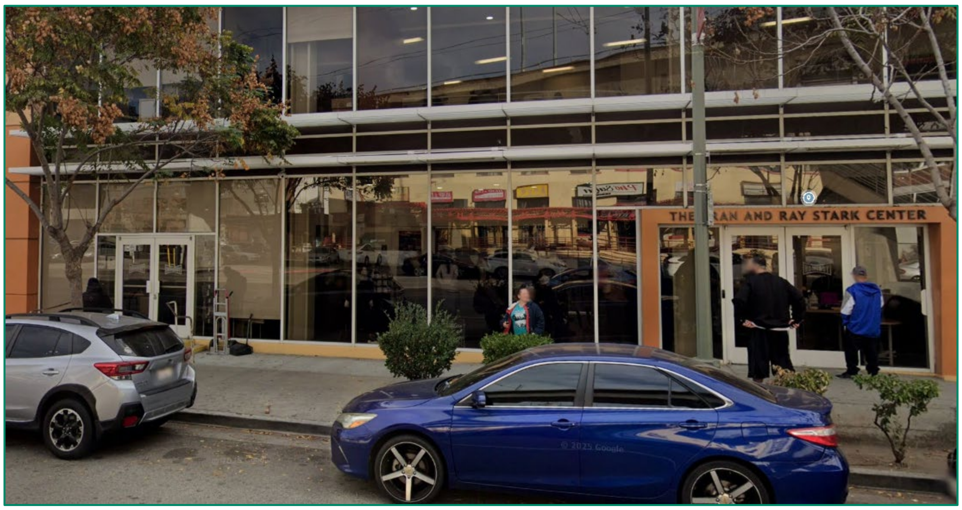


Figure 5 Analyzed Façade Area of Receptor 7

Estimated interior construction noise levels are expected to reach 53.6 dBA. This is approximately 26.7 dB lower than the estimated exterior sound level. A sound level of 54 dBA is similar to that commonly experienced in a large business office (Caltrans, 2013).

Receptors 9 and 9 T (Blossom Plaza)

Worst-case estimated construction noise levels at Receptors 9 and 9 T (900 North Broadway) would occur during the Chinatown/State Park Station - Foundations and Columns phase. Mitigated noise levels at the building's façade are estimated to reach 68.1 dBA and 72.4 dBA, respectively. The first floor of the building (Receptor 9) features large inoperable storefront glass with concrete masonry unit (CMU) block. Higher residential floors (Receptor 9 T) feature stucco façades with a combination of operable and inoperable windows.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 6 and Figure 7 show photographs of the analyzed building façades.

Figure 6 Analyzed Façade Area of Receptor 9

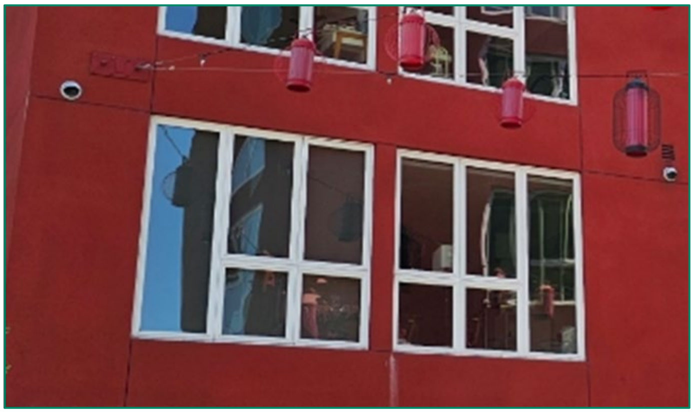


Figure 7 Analyzed Façade Area of Receptor 9 T

Estimated interior construction noise levels are expected to reach 36.7 dBA and 41.5 dBA at Receptors 9 and 9 T, respectively. This is approximately 31 dB lower than the respective estimated exterior sound levels. A sound level of 38 to 41 dBA is similar to that of background noise in a conference room (Caltrans, 2013).

Receptor 11 (Capitol Milling)

Worst-case estimated construction noise levels at Receptor 11 (1231 North Spring Street) would occur during the Chinatown/State Park Station - Foundations and Columns phase. Mitigated noise levels at the building's façade are estimated to reach 77.2 dBA during this phase. The building façade composition is a minimum 8-inch-thick brick wall with operable and fixed windows.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 8 shows a photograph of the analyzed building façade.

Figure 8 Analyzed Façade Area of Receptor 11

Estimated interior construction noise levels are expected to reach 51.5 dBA. This is approximately 25.8 dB lower than the estimated exterior sound level. A sound level of 52 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptors 12 and 12 T (Llewellyn Apartments)

Worst-case estimated construction noise levels at Receptor 12 (1101 North Main Street) would occur during the Chinatown/State Park Station - Structural Steel phase. Mitigated noise levels at the building's façade are estimated to reach 72.4 dBA during this phase. Worst-case estimated construction noise levels at Receptor 12 T would occur during the Chinatown/State Park Station - Foundations and Columns phase. Mitigated noise levels at elevated areas of the building façade are estimated to reach 74.8 dBA during this phase. The building façade composition includes operable windows set within a stucco wall.

AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 9 shows a photograph of the analyzed building façade.

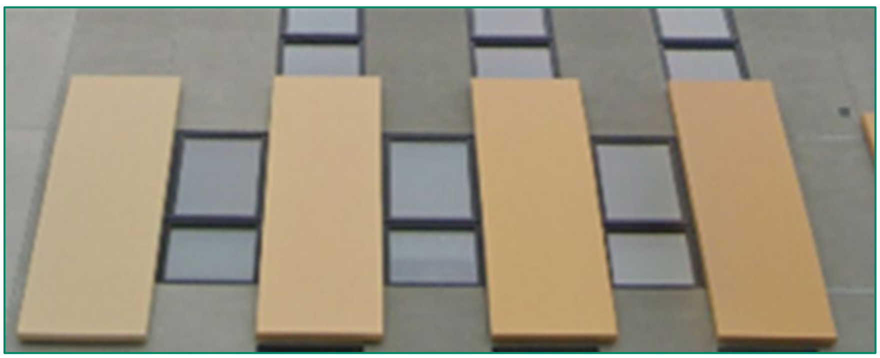


Figure 9 Analyzed Façade Area of Receptors 12 and 12 T

Estimated interior construction noise levels are expected to reach 44.3 dBA and 44.4 dBA at Receptors 12 and 12 T, respectively. This is approximately 28.1 and 30.4 dB lower than the respective estimated exterior sound levels. A sound level of 44 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptors 16a through 16e (Cathedral High School)

The buildings associated with Cathedral High School (1253 Bishops Road) studied in the LA ART EIR have varying construction dates and types. The same worst-case construction noise level of 72.2 dBA (during the Broadway Junction – Decking and Shoring phase) was conservatively assigned to all five buildings, even though buildings further from construction activities would experience lower construction noise levels.

Receptor 16a

Receptor 16a's façade is primarily CMU block with inoperable windows. AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 10 shows a photograph of the analyzed building façade.

Figure 10 Analyzed Façade Area of Receptor 16a

Estimated interior construction noise levels are expected to reach 49.7 dBA. This is approximately 22.5 dB lower than the estimated exterior sound level. A sound level of 50 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptor 16b

Receptor 16b's façade is primarily CMU block with inoperable windows. AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 11 shows a photograph of the analyzed building façade.

Figure 11 Analyzed Façade Area of Receptor 16b

Estimated interior construction noise levels are expected to reach 47.4 dBA. This is approximately 24.8 dB lower than the estimated exterior sound level. A sound level of 47 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptor 16c

Receptor 16c is an older building with a façade of primarily brick with inoperable windows. AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 12 shows a photograph of the analyzed building façade.

Figure 12 Analyzed Façade Area of Receptor 16c

Estimated interior construction noise levels are expected to reach 54.4 dBA. This is approximately 17.8 dB lower than the estimated exterior sound level. A sound level of 54 dBA is similar to that commonly experienced in a large business office (Caltrans, 2013).

Receptor 16d

Receptor 16d is an older building with a façade of brick, with sections of stucco and inoperable windows. AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 13 shows a photograph of the analyzed building façade.

Figure 13 Analyzed Façade Area of Receptor 16d

Estimated interior construction noise levels are expected to reach 50.5 dBA. This is approximately 21.6 dB lower than the estimated exterior sound level. A sound level of 51 dBA is similar to that of a dishwasher operating in an adjacent room (Caltrans, 2013).

Receptor 16e

Receptor 16e is an older structure with a brick façade featuring operable double-sash windows. AECOM's building assessment determined that the building was in good condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 14 shows a photograph of the analyzed building façade.

Figure 14 Analyzed Façade Area of Receptor 16e

Estimated interior construction noise levels are expected to reach 53.7 dBA. This is approximately 18.4 dB lower than the estimated exterior sound level. A sound level of 54 dBA is similar to that commonly experienced in a large business office (Caltrans, 2013).

Receptor 17Na (Low-rise multi-family residential, North side of Savoy Street)

Worst-case estimated construction noise levels at Receptor 17Na (455 Savoy Street) would occur during the Broadway Junction - Decking and Shoring phase. Mitigated noise levels at the building's façade are estimated to reach 71.5 dBA during this phase. The building façade composition is stucco with operable windows.

AECOM's building assessment determined that the building was in fair condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 15 shows a photograph of the analyzed building façade.

Figure 15 Analyzed Façade Area of Receptor 17Na

Estimated interior construction noise levels are expected to reach 55 dBA. This is approximately 20 dB lower than the estimated exterior sound level. A sound level of 55 dBA is similar to that commonly experienced in a large business office (Caltrans 2013).

Receptor 17Nb (Single-family residential, North side of Savoy Street)

Worst-case estimated construction noise levels at Receptor 17Nb (451 Savoy Street) would occur during the Broadway Junction – Decking and Shoring phase. Mitigated noise levels at the building's façade were estimated to reach 71.5 dBA during this phase.

Similar to other homes along Savoy Street, this home is more than 100 years old, featuring wood siding and potentially the original single-pane windows. Figure 16 shows a photograph of the analyzed building façade.

Figure 16 Analyzed Façade Area of Receptor 17Nb

Predictive modeling of interior noise for homes of this era is unreliable and may overpredict the performance (i.e., show it blocks more noise than it actually does) of the building façade. Therefore, in lieu of modeling this and other older homes along Savoy Street, façade noise reduction testing was performed at 430 Savoy Street (another older home on Savoy Street that is unoccupied and unmaintained) to which access was able to be gained to determine a generalized façade noise reduction that would be conservatively representative of how other older homes on Savoy Street may function. Details regarding this testing are provided in **Appendix 3** to this report.

Based on the measured façade noise reduction levels at 430 Savoy Street, interior construction noise levels at 451 Savoy Street are expected to reach 55 dBA. This is approximately 16.5 dB lower than the estimated exterior sound level. A sound level of 55 dBA is similar to that commonly experienced in a large business office (Caltrans 2013).

Receptor 17S (Low-rise multi-family residential, South side of Savoy Street)

Worst-case estimated construction noise levels at Receptor 17S (438 Savoy Street) would occur during the Broadway Junction - Demo phase. Mitigated noise levels at the building's façade are estimated to reach 80 dBA during this phase. The building façade composition is primarily stucco with operable windows.

AECOM's building assessment determined that the building was in fair condition with no observed cracks in the façade or window frame sealant/caulking issues. Figure 17 shows a photograph of the front of the analyzed building – no photos were taken of the analyzed (southern) façade.

Figure 17 Front Façade of Analyzed Receptor 17S

Estimated interior construction noise levels are expected to reach 58.1 dBA. This is approximately 21.9 dB lower than the estimated exterior sound level. A sound level of 58 dBA is less than normal speech at three feet (Caltrans, 2013).

1.3.4 Building Façade Noise Reduction Measurements; Predicted Interior Construction Noise Levels from Construction

Ambient noise levels collected within the living spaces of the Mozaic Apartments unit (Receptor 3) ranged from 50.5 to 52.9 dBA, and ambient noise levels collected within the living spaces of the Chinatown Senior Lofts unit (Receptor 6) ranged from 51.2 to 51.5 dBA.

In addition, the façade noise reduction data collected at Mozaic Apartments and Chinatown Senior Lofts shows that the building façades provide consistently high levels of overall noise reduction—in the mid-30 dB range. The measurement survey report is provided as **Appendix 3** to this report. Table 2 compares the estimated interior construction noise levels of each building using the modeled transmission loss performance and the measured transmission loss performance for the same façade of each structure. Detailed octave-band data comparisons used for the development of this table are provided in **Appendix 4** to this report.

Table 2. Comparison of Measured and Estimated Interior Noise Levels from Construction

Receptor ID	Building	Estimated Interior Noise Level from Construction (dBA)		Difference (Modeled - Measured)
		Predictive Modeling Result	Result Using Measured Façade Data	
3a T	Mozaic Apartments	58	55.7	+2.3
6 T	Chinatown Senior Lofts	45.9	41.3	+4.6

As shown in Table 2, the modeled noise reduction was less than the real-world measured noise reduction data collected by Resonance Acoustics at both buildings. Said another way, the buildings are blocking more noise than the model predicted they would block. This result suggests that the modeled interior noise estimations reported herein are representative of, and likely more conservative than, real-world façade performance.

Moreover, the modeled and measured interior construction noise levels for Receptor 3 (55-58 dBA) are consistent with existing ambient interior noise levels (50-53 dBA). Differences in noise levels of 3 dB or less are generally not perceptible to people. Similarly, the modeled and measured interior construction noise levels for Receptor 6 (41 to 46 dBA) are below existing ambient interior noise levels at Receptor 6 (51 dBA), suggesting that construction noise may not be discernible to the occupant.

The façade of the currently unoccupied building at 430 Savoy Street was also measured during the survey. However, this building was not included in the modeled versus measured comparison because modeling buildings of this age introduces too many uncertainties related to construction unknowns (e.g., wall construction, roof construction, and window construction/condition) that may lead to an overestimation of noise reduction. A summary of the measurements at 430 Savoy Street is included in Sections 1.2.3 and 1.3.2.

1.4 Retrofitting Improvements

Estimated construction noise levels within interior spaces generally ranged from 37 dBA (comparable to quiet urban nighttime noise levels) to 58 dBA (less than normal speech at 3 feet). Retrofitting considerations are dependent on many factors, including the age of the structure and type of construction. Discussed below are what retrofitting improvements may be available to reduce interior construction noise further.

1.4.1 Retrofitting for High-Performing Buildings

As discussed in Section 1.2.2, the building visual assessment survey determined that all window and wall assemblies appeared to be in good condition for Receptors 1 B through 12 T. Given the good condition of these buildings and their high-performing façades, retrofitting improvements would not be expected to provide a reduction in interior sound levels from construction greater than 5 dB.

For example, interior construction noise levels at Receptor 3a T could reach up to 58 dBA, roughly the sound of a large business office. This elevated interior level is not a result of poor façade noise reduction performance (i.e., performing worse than the EPA estimate for typical façade noise reduction with closed windows – up to 24 dB), but rather, the elevated outdoor construction noise levels at this façade (approximately 92 dBA during the most intense construction periods). The façade noise reduction at this receptor was approximately 34 dB, indicating that the currently installed windows are highly effective. Currently installed windows and glass doors are estimated to meet a Sound Transmission Class[8] rating of STC 50.[9] With these window assemblies installed, the dominant path of noise transmission through the façade is through the wood-stud façade wall. AECOM's visual assessment survey deemed this building to be in good condition, and therefore, in-situ application of sealants or caulking at windows would not be expected to provide any perceptible reduction in construction noise levels. As discussed above, to the extent construction noise enters the interior spaces, it is most likely through the windows because the façades and window frames were observed to be in good condition and free of cracking. Replacement of insulated glazing units (IGUs)[10] and other assemblies in these buildings is described below.

1.4.1.1 Insulated Glazing Unit Reglazing and Replacement

One method to potentially improve acoustic performance in high-performing buildings (e.g., Receptors 1 B through 12 T) could be replacing existing IGUs with specialized, acoustically rated IGUs designed to mitigate sound transmission.

Reglazing an existing building is a large and complex undertaking that typically takes months to complete. Replacing IGUs risks damage to the glazing frame during replacement, improper seals, and differences in total thickness of the replacement IGU that could lead to more disruptive

[8] Sound Transmission Class (STC) is a single-number rating system that indicates how well a building element blocks airborne sound.
[9] Based on "Condominium Complex Soundproofing" case study by Soundproof Windows, Inc. Available at https://www.soundproofwindows.com/case-study-los-angeles-apartment-soundproofing/
[10] An insulated glazing unit is a modern window assembly consisting of two or more panes of glass with an air gap between them. These window assemblies offer improved thermal performance (i.e., thermal insulation).

replacements of the entire glazing system and repair of adjacent wall finishes. Delays from latent building conditions like water intrusion or structural deficiencies that cannot be known until construction commences are likely to be encountered. Differences in the thickness of the new IGUs may require full replacement of window systems and repair of adjacent wall finishes. Because the buildings are occupied, residents and occupants would likely need to be relocated during the glazing replacement. Although the work could be phased, each window could take a week to replace under ideal conditions and months if concealed conditions result in more extensive repair work needing to be done. Work on multi-story buildings or buildings with numerous windows could take months to complete.

1.4.1.2 Replacing Windows & Doors

Another method is to replace existing windows and doors with specialized windows and doors designed to minimize the transmission of external sound into interior spaces. Replacing windows and doors in a multi-story building requires meticulous planning, careful selection of materials, and adherence to safety and building codes. The detailed steps required for successful installation, from initial assessment to final inspection, ensuring optimal acoustic performance are described below.

Total time for this work can take approximately 18-27 weeks (4-6.5 months), depending on various factors such as the number of windows and doors to be replaced, availability of materials, weather conditions, and the efficiency of the installation team.

Installation Process.

Step 1: Initial Assessment and Planning (2-3 weeks)

- Site Survey: Conduct a thorough evaluation of the building’s existing windows and façade. Identify sources of unwanted noise, such as traffic, nearby construction, or entertainment venues.
- Acoustic Analysis: Employ sound level meters or consult with an acoustic engineer to measure current indoor and outdoor noise levels. Determine the required STC rating for the new windows.
- Building Code Review: Study local building codes and regulations regarding window replacement, especially those related to fire egress, energy efficiency, and structural integrity.
- Budget and Timeline: Develop a realistic budget, accounting for materials, labor, scaffolding or lifts, permits, and other contingencies. Establish a timeline that considers lead times for ordering custom windows and scheduling installation to minimize disruption.

Step 2: Selection of Acoustic Windows (3-6 weeks)

- Window Types: Choose the appropriate acoustic window types based on the desired STC, such as laminated glass units, double or triple glazing, and windows with argon or krypton gas fill for additional insulation.
- Frame Selection: Identify and select frames constructed from materials with good acoustic properties, such as vinyl, fiberglass, or thermally broken aluminum. Frames should have airtight seals to prevent sound leakage.
- Customization: Consider custom window sizes and shapes to fit existing openings, especially in older or architecturally significant buildings.
- Supplier Evaluation: Vet manufacturers and suppliers for quality standards, warranty coverage, and proven acoustic performance in similar projects.

Step 3: Pre-Installation Preparations (4-6 weeks)

- Permits and Approvals: Obtain necessary permits from local authorities. If the building is occupied, notify residents or tenants of the installation schedule.

- Scaffolding and Safety Measures: For a four-story building, erect scaffolding or use mechanical lifts to ensure safe access to all window locations. Implement safety protocols, including fall protection, hard hats, and restricted access zones.
- Removal of Furnishings: Clear areas around window openings inside each unit. Protect floors, walls, and furniture with drop cloths or plastic sheeting.
- Weather Considerations: Plan installation for a period with favorable weather, as rain or high winds can complicate the process and affect window seals.

Step 4: Removal of Old Windows (2-3 weeks)

- Inspection: Inspect existing windows for hazardous materials (e.g., lead paint or asbestos), especially in older structures. Engage certified professionals for safe removal if necessary.
- Careful Dismantling: Remove window sashes, frames, and glazing with care to avoid damage to surrounding masonry or trim. Salvage reusable components if possible.
- Debris Management: Collect and dispose of old windows and related debris according to local regulations, especially for glass and hazardous materials.
- Opening Preparation: Clean and prepare the rough opening for new installation. Repair any structural damage, rot, or mold discovered during removal.

Step 5: Installation of Acoustic Windows (3-5 weeks)

- Frame Placement: Set the new window frame into the prepared opening, ensuring it is level, plumb, and properly aligned. Use shims as needed for precise placement.
- Secure Fastening: Anchor the frame to the building structure using appropriate fasteners, following manufacturer specifications for spacing and torque.
- Sealing: Apply high-quality acoustic and weatherproof sealants around the perimeter of the frame. This step is critical to prevent both sound and water infiltration.
- Glazing Installation: Insert the acoustic glass panels into the frame. Ensure that any insulating gas fills and multi-layered panes are intact and properly seated.
- Hardware and Accessories: Install window hardware such as handles, locks, and restrictors. Fit any required acoustic accessories (e.g., secondary seals or acoustic vents).

Step 6: Post-Installation Procedures (2 weeks)

- Cleaning: Clean all windows inside and out, removing protective films and any construction residue.
- Initial Inspection: Conduct a preliminary inspection to verify correct installation, alignment, and the integrity of seals.
- Acoustic Testing: Perform post-installation acoustic testing to confirm that the windows achieve the targeted STC rating and effectively reduce noise transmission.
- Touch-Ups: Repair or refinish any adjacent surfaces (drywall, trim, paint) affected during installation.
- Waste Removal: Ensure all scaffolding, debris, and protective coverings are removed from the premises, maintaining safety and cleanliness.

Step 7: Final Inspection and Documentation (2 weeks)

- Professional Evaluation: Arrange for a final inspection by a building official or an acoustic engineer to verify compliance with building codes and project specifications.
- Warranty Registration: Register the new windows with the manufacturer to activate warranties and obtain maintenance documentation.

- Occupant Orientation: Provide residents or tenants with information on the operation, maintenance, and cleaning of the new acoustic windows.
- Record Keeping: Document the installation process, including photos, acoustic test results, and inspection reports for future reference and regulatory compliance.

Installation Equipment. Installing high-STC windows in a multi-story building requires a variety of specialized equipment to ensure the process is safe, efficient, and effective. Here's a comprehensive list of the equipment typically needed:

1. Scaffolding and Mechanical Lifts:
   - **Scaffolding**: Essential for providing safe access to all window locations on the building's exterior.
   - **Mechanical Lifts**: Used to transport windows and materials to higher floors.
2. Safety Equipment:
   - **Fall Protection Gear**: Includes harnesses, lanyards, and anchor points to ensure worker safety at heights.
   - **Hard Hats and Safety Glasses**: Basic protective gear for all workers on site.
3. Window Removal and Installation Tools:
   - **Pry Bars and Hammers**: For dismantling old window frames and sashes.
   - **Screwdrivers, Drills, Portable Air Compressors**: For removing and installing screws and fasteners and powering equipment.
   - **Shims and Levels**: To ensure new window frames are properly aligned and level.
4. Sealing and Glazing Tools:
   - **Caulking Guns**: For applying acoustic and weatherproof sealants around the window frames.
   - **Glazing Tools**: For handling and installing glass panels.
5. Debris Management and Cleaning Equipment:
   - **Drop Cloths and Plastic Sheeting**: To protect interior furnishings and floors.
   - **Debris Containers**: For collecting and disposing of old windows and related debris.
   - **Cleaning Supplies**: For post-installation cleaning of windows and surrounding areas.

Construction Noise from Installation Process. While all construction activities generate some level of noise, the highest noise levels would be associated with the removal and reinstallation of windows and doors. Hammers, electric saws, drills, and portable air compressors would generate the greatest levels of construction noise in the building. Noise levels associated with this equipment are summarized below.

- Hammers: The noise level can vary greatly depending on the type of hammer, the force of the user, and the material being struck.
- Electric Reciprocating Saws: These tools usually produce noise levels between 90 to 100 dBA at the user, depending on the model and the material being cut.
- Electric Drills: Electric drills typically produce noise levels ranging from 80 to 100 dBA at the user, depending on the specific model and the material being drilled.
- Portable Air Compressors: The noise levels for these can range from 70 to 78 dBA at 50 feet.

For comparison, a vacuum cleaner at 10 feet is typically around 70 dBA, while an ambulance siren across the road can reach 100 dBA. Therefore, the noise produced by the equipment commonly used during these activities can be quite substantial.

The retrofitting work may result in noise intrusion, and to a lesser extent vibration intrusion, due to construction vibration traveling from the work area, through the walls and floor/ceiling assemblies, and into other units within the building, where it will likely be perceived as structure-borne noise. The extent of these impacts can span several units on the same floor, as well as several floors above and below the work. Units adjacent to those undergoing construction may also be exposed to noise traveling through demising walls and floor/ceiling assemblies, as well as noise traveling outside and entering through the façades of those units.

1.4.1.3 Converting Operable Windows & Doors to Fixed Windows & Doors

A third potential method to improve acoustic performance is to replace operable windows and doors with fixed windows and doors. Replacement of operable windows and doors with fixed glazing systems (i.e., glass) could reduce sound leakage. While beneficial for acoustic performance, replacing operable windows and doors with fixed systems results in the loss of natural ventilation. Similarly, in the case of exterior doors, removing fixed doors would eliminate access to exterior balconies. Additionally, because buildings may not be designed to provide adequate ventilation or cooling with the windows closed, there is potential for decreased indoor air quality, loss of passive cooling during mild weather, and increased energy demand on the building's heating, ventilation, and air conditioning (HVAC) systems. The process for doing this would be similar to the process for replacing windows and doors, causing similar disruptions and noise for building residents and occupants. Elimination of operable doors could also raise concerns regarding fire safety and evacuation.

1.4.1.4 Cathedral High School Building Receptors 16a, 16b, 16c, 16d, and 16e

Certain of the buildings that otherwise are predicted to perform well due to their overall construction have special considerations when it comes to windows, specifically, Receptors 16a, 16b, 16c, 16d, and 16e.

These five receptors are associated with Cathedral High School (1253 Bishops Road), located near the Interstate 110 Freeway. Receptors 16a and 16b are recently constructed school buildings composed primarily of CMU block and contain inoperable windows. To the extent retrofitting of windows was sought, the work would be consistent with that discussed above in Section 1.4.1.1.2.

Receptors 16c and 16d are older school buildings composed of brick and contain inoperable windows. Receptor 16e is an older structure with a brick façade featuring operable double-sash windows. These buildings, regardless of age, have windows with individual assemblies that would require careful replacement similar to the process required for window replacement for older residential structures, as discussed below in Section 1.4.2.

Moreover, upgrades to Receptors 16c, 16d, and 16e may require lead abatement given the age of the buildings. As with any renovations of older buildings, the structural integrity of the foundations would need to be assessed and may require reinforcement prior to completing other renovations. Further, given the buildings' age, particularly for Receptor 16e, historic preservation considerations would need to be assessed as part of any window replacement. The considerations around such work is discussed below in Section 1.4.2.

Finally, the school setting also presents challenges because construction could directly interfere with educational activities, limit access to classrooms, and require coordination to avoid disrupting ongoing instruction.

1.4.2 Retrofitting Considerations for Poor-Performing Residential Buildings (Receptors 17S 17Na, and 17Nb)

The LA ART EIR identified residential properties near the proposed Project alignment that may be affected by temporary construction noise. Certain of these buildings were built prior to 1930 and have double-hung wooden sash windows. Certain of these buildings also have poor-performing windows, walls, and/or roofs (i.e., an aggregate façade noise reduction worse than the EPA's typical closed-window reduction assumption of -24 dB).

To test the efficacy of caulking apparent window leaks, Resonance Acoustics performed tests at the home on 430 Savoy Street, which entailed façade noise reduction measurements using an unsealed (visibly leaky with holes to the outside) and sealed/caulked (using putty) comparison condition. Results of this testing, detailed in the Resonance Acoustics report provided in **Appendix 3** to this report, found that the sealing of window openings in older homes (even with the presence of notable window leaks) resulted in no perceptible change in interior sound level (less than 1 dB).

To provide meaningful interior noise reduction for these buildings, substantial construction work that would take substantial time and be extremely disruptive to occupants would be necessary. Work would include, at a minimum: (i) replacing the windows; (ii) installing new or upgrading the existing insulation in the walls and attic space; and/or (iii) replacing the roofs. Based on façade noise reduction measurements performed at 430 Savoy Street, at least two if not all three of these improvements would need to be fulfilled for the work to result in a meaningful improvement in exterior noise reduction.

It is likely that these buildings also have plaster interior walls and require lead abatement given the age of the buildings. As with any renovations of older buildings, the structural integrity of the foundations would need to be assessed and may require reinforcement prior to completing other renovations. Further, given the buildings' age, historic preservation considerations would need to be assessed.

1.4.2.1 Window Replacement

Replacing double-hung wooden sash windows and frames in older homes is a time-intensive undertaking and one that may lead to additional construction throughout the home. Contractors would need to obtain precise window measurements for each window to be replaced. Once the window measurements are obtained, replacement windows would be fabricated—a process that can take four to six weeks. Once replacement windows are ready, window installation can take anywhere from 1.5 to 3 hours per window. This process includes removing the old window, preparing the opening, and installing the new window. The total time for the replacement is influenced by the number of windows being replaced, the condition of the existing frames, and whether any structural repairs are needed. Timing is also dependent on the siding material. If the building is stucco, then additional repairs may be required to the stucco surrounding the windows. This would take additional time. For instance, if multiple windows are replaced, the project could take a few days to complete. Replacing double-hung wooden sash windows and frames in older homes can be a bit more complex due to the age and potential structural issues of the house.

Here are the general steps to follow that are followed for window replacement:

1. **Measure the Window Opening**: Measure the height and width of the window from both the interior and exterior sides. Take three measurements vertically and horizontally (top, middle, bottom) and use the smallest readings to ensure a snug fit.
2. **Remove the Old Window**: Carefully remove the existing window's hardware using a screwdriver or drill. Use a pry bar to loosen the frame from the wall. Be cautious not to damage the surrounding drywall or siding.
3. **Prepare the Frame**: Clean the opening thoroughly. Remove old caulk, debris, and inspect the area for water damage or rot. Repair as necessary to create a solid, dry base for the new window installation.
4. **Install the New Frame**: Position the new frame into the opening and check for plumb using a level. Insert shims on at least two opposite sides to maintain balance. Pre-drill holes and use mounting screws to secure the frame. Insulate the gap between the frame and wall using foam insulation.
5. **Insert the Glass and Hardware**: Following the manufacturer's instructions, insert the glass pane and attach the crank hardware. Test the window for smooth operation and a proper seal. Reinstall or add new trim inside and out.

6. **Final Touches**: Apply caulk around the edges of the window to ensure a weather-tight seal. Paint or stain the trim as desired to match the existing decor.

Window renovation would require obtaining permits from the local agency (City of Los Angeles). Typical timeframe to obtain permits is one to two weeks but could be longer if there are other considerations such as complying with California's emergency access requirements for second story windows.

In addition, window replacement on second-story bedrooms must comply with California's requirements for emergency access to second-story bedrooms. California's detailed building code requirements for second-story bedroom windows are designed to maximize both occupant safety and emergency responder access. California's building codes and fire safety standards are among the most rigorous in the United States. If the existing windows do not meet the current California requirements in terms of size, then the windows in second floor bedrooms might need to be expanded to comply with these requirements. Expanding the width or height of window openings may require additional construction activities such as plaster removal and repair, re-framing of window openings, re-siding of exterior walls, and repainting walls.

The primary codes governing emergency access for second story bedroom windows in California are:

- The California Building Code (CBC), based on the International Building Code (IBC);
- The California Residential Code (CRC); and
- Local amendments and ordinances, which may add stricter requirements.

Under Section R310 of the California Residential Code, every sleeping room (including those on the second story) must have at least one operable emergency escape and rescue opening. This can be a window, door, or other permitted opening which allows for both egress (escape from inside) and rescue (access from outside).

For a window replacement to provide meaningful sound attenuation on its own (i.e., without any other upgrades to the building), the building must have a specific combination of poor-performing windows set within medium or high-performing walls. This condition was not met for nearly all studied receptor buildings because the buildings featured either:

- Medium or high-performing windows set within medium or high-performing walls (wherein replacements of windows would result in marginal noise reduction improvement); or
- Poor-performing windows set within poor-performing walls (wherein replacements of windows would not stop sound from transmitting through the walls or roof).

Window Size and Net Clear Opening

If the existing windows do not meet the current California requirements in terms of size (outlined below), then the windows in second floor bedrooms might need to be expanded to comply with these requirements. Expanding the width or height of window openings may require additional construction activities such as plaster removal and repair, re-framing of window openings, re-siding of exterior walls, and repainting walls.

Second Floor Window Size and Net Clear Opening:

- Minimum opening area: The window must have a net clear opening of at least 5.7 square feet (820 square inches).
- Minimum opening height: The opening must be at least 24 inches high.
- Minimum opening width: The opening must be at least 20 inches wide.
- Operational requirements: The window must be easily openable from the inside without the use of keys, tools, or special knowledge.

1.4.2.2 Lead-based Paint Abatement

Given the age of these buildings, it is likely that the areas surrounding the existing windows contain lead-based paint. These areas would require abatement. Abating lead-based paint in older homes is a crucial process to ensure the safety and health of the occupants.

Abatement activities could include encapsulation, enclosure, removal, or replacement.

1. **Encapsulation**: This involves applying a special liquid coating over the lead-based paint to seal it and prevent the release of lead dust. This method is often used when the paint is in good condition and not peeling.
2. **Enclosure**: This method involves covering the lead-painted surfaces with a new material, such as drywall or paneling, to prevent exposure. This is a long-term solution that effectively isolates the lead paint.
3. **Removal**: This is the process of physically removing the lead-based paint from surfaces. It can be done using various techniques such as wet scraping, sanding with high efficiency particulate air (HEPA) vacuum attachments, or using chemical paint strippers. This method requires careful handling to prevent the spread of lead dust.
4. **Replacement**: In some cases, it may be necessary to completely remove and replace components like windows, doors, or trim that are coated with lead-based paint.

Abatement activities would need to occur prior to or in conjunction with window installation. These activities can range from two to four days on up to several weeks depending on the method used for abatement.

1.4.2.3 Insulation Upgrades

Older buildings and structures likely have plaster interior walls. There are five common methods for adding insulation to homes with plaster walls.

1. **Blown-In Insulation**: This method involves drilling small holes of two to three inches through interior plaster walls using an electric drill in the plaster at a spacing of every 16 to 24 inches (i.e., between each supporting wall stud) and blowing insulation material, such as cellulose or fiberglass, into the wall cavities using an insulation blower (similar to a commercial air compressor). If there are ‘fire break’ cross studs in the wall, then multiple holes would be required to completely fill the void spaces. Typically, only the exterior walls of the home would be insulated. After the insulation is blown into the walls, the holes in the walls would be repaired and the walls would be repainted. This method minimizes damage to the existing walls and provides good coverage. This method requires City permits and can release dust and lead during installation. In addition, blown-in cellulose is highly susceptible to moisture, its installation generates significant dust that may aggravate allergies or respiratory sensitivities and its weight can damage ceiling or drywall in older structures.
2. **Spray Foam Insulation**: Spray foam can be injected into the wall cavities through a smaller hole of ½-inch using an electric drill at a similar spacing as that for blown-in insulation. Additional holes would be drilled in those areas where ‘fire break’ cross studs are present to ensure complete coverage. The material is blown in using equipment similar to a commercial air compressor. It expands to fill gaps and provides excellent insulation and air sealing. Again, only the exterior walls of the home would be insulated. Once the foam is sprayed into the walls, the holes in the wall would be repaired and the walls would be repainted. Any required permits would need to be secured. While this method could provide continuous coverage, it presents significant challenges because improper installation can release harmful chemicals (such as isocyanates), posing risks of skin, eye, and lung irritation, asthma, or other health effects. Spray foam products are also petroleum-based, often rely on hydrofluorocarbon blowing agents, and are difficult to recycle, raising environmental concerns. Because spray foam creates an air-tight seal, it can obstruct natural ventilation, trap moisture, and lead to mold or timber decay.

3. **Rigid Foam Boards**: These boards can be installed on the interior or exterior of the walls. When installed on the interior, it requires removing the plaster, which can be labor- and time-intensive. This method essentially requires that the interior walls be re-built. First, the plaster would be removed from all perimeter walls by manual or mechanical scraping exposing the supporting lath material of the wall. Then, rigid foam boards would be installed on the walls using an electric screw gun or nailer powered by a commercial air compressor. Once the rigid foam boards are installed the walls would be re-plastered (if there is a desire or requirement to return to the original plaster material) or gypsum board would be installed using methods like installing the rigid foam boards. The finished walls would then be repainted. Exterior installation involves removing the siding, adding the foam boards, and then reapplying the siding. To remove the siding, crews would pry any wooden siding from the exterior of the home using crow bars or cut siding away from the home using electric saws. Once the exterior of the home is exposed, rigid foam boards would be installed around the perimeter of the home using methods like installation as described above for internal wall installation. Following installation of the rigid foam boards on the external walls, the siding would be replaced with similar material. Siding installation typically is done using nail guns powered by a commercial air compressor. Foam boards are susceptible to accumulating moisture, leading to mold or mildew growth, and performance problems due to improper cutting or installation.

   Depending on the size of the home, this work can take one to several weeks. Depending on the occupants' sensitivity to construction dust and noise, occupants may need to relocate during the construction.

   For any historic buildings, it may be necessary to 'hand nail' siding materials to maintain the historic character of the building and meet any regulatory requirements. Both methods (internal and external) would require permitting from local agencies. Additional approvals may be required if the building has a historic designation.

4. **Mineral Wool Batts**: This method involves removing the plaster and installing mineral wool batts (pre-cut, dense sheets of insulation material) between the studs. The method of installation is similar to that of installing interior rigid foam boards as described above and uses similar construction methods. It would essentially require rebuilding the interior perimeter walls of the home, making it highly disruptive for occupants. Once the walls are repaired using plaster or gypsum board, they would be repainted. Although this approach provides good insulation and is fire-resistant, it requires significant wall removal. Any required permits would need to be secured. In addition, mineral wool is dense and heavy, often requiring two workers to place each board or the use of smaller panels that extend overall constructional time. Mineral wool batts are also manufactured in limited sizes and must be cut to fit any irregular wall cavities, adding to labor intensity and waste. Because mineral wool lacks a vapor barrier, additional constructional steps would be needed to prevent moisture intrusion. Finally, mineral wool batt installation typically requires a flush substrate and nailing surface, such that additional structural modifications may be necessary before siding or other finishes can be reapplied.

5. **Exterior Insulation**: This method involves installing insulation to the exterior of the house. It typically includes removing the existing siding, adding insulation (such as rigid foam or mineral wool), and then reapplying the siding. This process requires significant labor. To remove the siding, crews would pry any wooden siding from the exterior of the home using crow bars or cut siding away from the home using electric saws. Once the exterior of the home is exposed, mineral wool batt insulation would be installed around the perimeter of the home using methods similar to installation as described above for internal wall installation. Following installation of the mineral wool batts on the external walls, the siding would be replaced with similar material. Siding installation typically is done using nail guns powered by a commercial air compressor. However, for any historic buildings it may be necessary to 'hand nail' siding materials to maintain the historic character of the building and meet any regulatory requirements. Although this method may be less disruptive to the building interior, both methods (internal and external) would require permitting from local agencies. Additional approvals may be required if the building has a historic designation. Overall, this work can take one to several weeks per home and typically requires scaffolding, which creates dust, noise, and disruptions for occupants. The added thickness (50-

100 mm) reduces exterior space and requires adjustments to downpipes, windowsills, and gutters. Improper installation can also create dampness and condensation issues, leading to mold or structural damage. Exterior insulation also changes the outward appearance of a building, which may require planning approvals in historic or conservation areas and could negatively affect architectural character. Moreover, the added weight of insulation may strain older or weaker structures, requiring structural reinforcement before installation.

It is also likely that the insulation within the attic spaces of each building would need to be upgraded. Typically, attic insulation is upgraded using blown-in insulation or mineral wool batts. The insulation would be installed by accessing the attic through a ceiling access point. For blown-in insulation, the equipment needed is similar to that used for blown-in insulation for the walls except access points would not be required. If using mineral wool batts, they would be installed manually by accessing the attic space and laying out the batts throughout the attic space. Insulation upgrades to the ceiling would be done in conjunction with any roof replacement that might be needed.

Timeframes to upgrade building insulation could range from one to several weeks depending on the methodology that is selected. All these methods would require disruption of painted surfaces and likely require lead abatement as well.

In addition, the methods that require removal of the plaster walls could also lead to a need to abate any asbestos materials that may have been used in the construction of the interior walls. The likelihood of discovering asbestos containing materials increases if the home was built or renovated after the 1920s. Because asbestos cannot be identified visually, the only way to know for sure is to have the material tested through a laboratory analysis. Given the serious health risks associated with asbestos exposure, erring on the side of caution is always recommended when dealing with old building materials.

If it is suspected that the interior plaster could contain asbestos, which is possible given the building's age, it is essential to take precautions:

- Do not disturb the material without proper assessment.
- A certified asbestos abatement professional should collect and analyze a sample.
- If asbestos is present, removal or disturbance would only be done by licensed professionals using appropriate containment and personal protective equipment.

1.4.2.4 Roof Replacement

It may also be necessary to replace the roofs on poor-performing buildings to provide meaningful construction noise attenuation. Replacing the roof of older homes is a delicate operation, balancing the demands of current building standards with the reverence for architectural history. The process, while echoing the fundamentals of any roofing project, carries unique complexities due to the age of materials, potential for hidden damage, and, often, the desire to preserve or restore original features.

For example, replacing a roof on a home that has stood for nearly a century (or longer) generally involves the following process.

1. Initial Assessment and Planning

For an older home, the assessment phase is crucial, as it reveals both the extent of deterioration and the historical elements that must be preserved or replicated.

- Historical Documentation Review: Consult historical records, photographs, and, if available, original blueprints to understand the structure's original roof design, materials, and any previous modifications.
- On-Site Inspection: Bring in a qualified roofing contractor experienced in historic homes, ideally alongside a structural engineer and, if necessary, a preservation specialist. Examine the roof surface, framing, decking, flashing, chimneys, and adjoining walls. Identify areas affected by rot, insect damage, or structural sagging.

- Hazard Identification: Test for hazardous materials common in older homes, such as asbestos in roofing felt or insulation and lead-based paints. Plan for safe removal and abatement if these are present.
- Permit Acquisition: Secure all necessary permits. If the home is in a designated historic district, approvals from local heritage or preservation authorities may be required.
- Material Selection: Choose replacement materials that match or closely resemble the originals. This may include slate, wood shakes, clay tiles, or period-correct asphalt shingles. For visible elements, authenticity is vital.
- Site Preparation: Arrange for scaffolding, safety barriers, and dumpster placement for debris. Notify neighbors about the upcoming work.

2. Protection and Preparation of the Site

The next phase involves preparing the home and property for construction activity, ensuring safety, and protecting vulnerable architectural features.

- Interior Protection: Move or cover belongings in the attic and upper floors to protect them from dust or falling debris. Install tarps or plastic sheeting as needed.
- Landscape Care: Protect gardens, shrubs, and walkways with plywood sheets or tarps. Move outdoor furniture away from the work area.
- Safety Measures: Set up scaffolding or roof brackets as appropriate. Erect temporary fencing and put up warning signage to keep non-workers out of hazardous zones.

3. Removal of Existing Roof Material

With the site secure, carefully remove old roofing materials to avoid damaging underlying structures.

- Remove Accessories: Dismantle gutters, downspouts, lightning rods, finials, weathervanes, and any decorative elements, labeling and storing items for later reinstallation if appropriate.
- Strip Shingles or Tiles: Use roofing shovels or pry bars to lift off existing shingles, tiles, or shakes. For slate or clay tile, consider salvaging intact pieces for future repairs.
- Remove Old Flashing and Underlayment: Strip away flashing around chimneys, valleys, and vents, as well as aged underlayment or felt, inspecting for signs of water infiltration or damage.
- Debris Management: Place all removed materials into dumpsters, separating hazardous materials per regulatory requirements. Recycle where possible.

4. Structural Assessment and Repair

Once the roof deck is exposed, conduct a detailed assessment and carry out repairs or upgrades.

- Decking Inspection: Examine for rot, warping, or insect damage. On an older home, it is common to find original planking that may require partial or complete replacement.
- Framing Evaluation: Assess rafters and trusses for integrity and proper load-bearing capacity. Repair or reinforce with sistering (attaching new lumber alongside old) as needed, using materials and techniques that respect the home's historical construction.
- Insulation and Ventilation Upgrades: Consider improving attic insulation and ventilation to meet modern standards, as these upgrades can dramatically enhance energy efficiency and prolong the new roof’s life. Ensure that any changes do not compromise the historic character of visible elements like soffits or eaves.

- Pest and Moisture Protection: Treat any wood with appropriate preservatives or pest deterrents, especially in areas previously affected by damage.

5. Installation of New Roofing Components

With the structure sound, installation of new roofing materials can proceed.

- Install Drip Edge: Position a metal drip edge along eaves and rakes to direct water away from the fascia and underlying structure.
- Lay Underlayment: Roll out high-quality, waterproof underlayment (such as synthetic or ice-and-water shield) over the entire roof surface, paying special attention to valleys and areas with complex geometry.
- Install Flashing: Place new flashing around chimneys, dormers, valleys, and other intersections, using copper or other materials appropriate to the era and the selected roofing material.
- Install Primary Roofing Material: Place new shingles, tiles, shakes, or slate, following the original pattern and installation method where possible.
- Repair or Reinstate Decorative Elements: Restore and reinstall ornamental components, such as cresting, finials, or patterned slates, referencing historical photos or drawings.
- Install Gutters and Downspouts: Reattach or replace these, choosing profiles and materials in keeping with the house’s architectural style.

6. Detailing and Finishing Touches

Finishing details are necessary to ensure that the roof performs well.

- Paint and Seal: Paint or seal exposed woodwork, such as eaves, fascia, and soffits, using colors and finishes appropriate for the building.
- Restore Flashing and Sealants: Where visible, ensure all flashing is neatly installed and sealed. Use compatible mortars for masonry repairs around chimneys or parapets.
- Final Clean-Up: Remove all leftover materials, nails, and debris from the site. Use magnets to search for stray nails in the yard.
- Protective Coatings: If using metal roofing or flashing, apply protective coatings as needed to prevent oxidation and weathering.

7. Inspection, Documentation, and Handover

The project concludes with thorough inspection and documentation, ensuring all work meets applicable standards requirements.

- Professional Inspections: Have the work inspected by the roofing contractor, project manager, and, if required, permitting authorities.
- Punch List Review: Address any outstanding items or touch-ups identified during inspection.
- Documentation: Photograph the completed project and create a record of materials and methods used, which will aid future repairs.
- Homeowner Walkthrough: Conduct a final walkthrough with the homeowner to review the work, discuss maintenance, and provide warranty information.

Timeframes for roof replacement vary depending on the roofing materials that are selected, the extent of structural repairs required once the structural elements of the roof are exposed, and the time needed to obtain the necessary permits and inspections. For a standard residential home, replacing or renovating a roof typically takes between 2 and 7 days. However, for homes that are nearly a century old, the timeframe extends due to the structure’s age, potential complications, and the need for specialized materials. On average, the process can be expected to last from 1 to 4 weeks, though larger or more intricate projects may require 8 weeks or more to complete.

A typical roof renovation for a home that is nearly a century old could be as follows:

- Week 1: Inspection, assessment, and planning.
- Weeks 2-3: Sourcing materials and obtaining permits.
- Week 4: Site preparation, demolition, and discovery of any structural issues.
- Weeks 5-6: Structural repairs and reinforcement.
- Weeks 7-8: Installation of new roofing materials and finishing details.
- Final Days: Clean-up, inspection, and final approval.

1.4.2.5 Noise During Retrofitting/Renovation Activities

Retrofitting and renovation activities for residential buildings would require equipment like that required for retrofitting high-performing buildings. This includes hand tools (e.g., hammers) and an array of power tools (e.g., electric reciprocating saws, electric drills, and portable air compressors). Noise levels associated with this equipment are summarized below.

- Hammers: The noise level can vary greatly depending on the type of hammer, the force of the user, and the material being struck.
- Electric Reciprocating Saws: These tools usually produce noise levels between 90 to 100 dBA at the user, depending on the model and the material being cut.
- Electric Drills: Electric drills typically produce noise levels ranging from 80 to 100 dBA at the user, depending on the specific model and the material being drilled.
- Portable Air Compressors: The noise levels for these can range from 70 to 78 dBA at 50 feet.

For comparison, a vacuum cleaner at 10 feet is typically around 70 dBA, while an ambulance siren across the road can reach 100 dBA. Therefore, the noise produced by the equipment commonly used during these activities can be quite substantial.

As was the case for high-performing buildings, the retrofitting work may result in noise intrusion, and to a lesser extent vibration intrusion, due to construction vibration traveling from the work area, through the walls and floor/ceiling assemblies, and into other units within the building, where it will likely be perceived as structure-borne noise. The extent of these impacts can span several units on the same floor, as well as several floors above and below the work. Units adjacent to those undergoing construction may also be exposed to noise traveling through demising walls and floor/ceiling assemblies, as well as noise traveling outside and entering through the façades of those units.

1.4.2.6 Special Considerations for Historic Buildings

To the extent any buildings are or may be considered historic, there are additional considerations that must be accounted for in any renovation.

- Matching Historical Details: When possible, preserve or replicate unique features such as turret roofs, intricate woodwork, or original metalwork. Custom fabrication may be required for missing or damaged elements.
- Modern Upgrades Sensitively Added: Integrate modern materials or systems (such as improved ventilation) in ways that do not detract from the home's character.
- Dealing with Surprises: Expect unforeseen issues—hidden structural damage, undocumented additions, or obsolete construction methods—and budget additional time and resources to resolve them.

- Working with Preservation Authorities: Collaborate closely with local boards or societies to ensure compliance with preservation guidelines and maintain eligibility for restoration grants or tax incentives.

The LA ART EIR identified one building in this area as a designated City of Los Angeles historic cultural monument and another as eligible. Renovations for these buildings would likely need to comply with the Secretary of Interior's Standards for the Treatment of Historic Properties.[11] The Secretary of the Interior's Standards for the Treatment of Historic Properties provide essential principles for the renovation, rehabilitation, restoration, and preservation of historic homes across the United States. These guidelines, developed by the National Park Service, are widely recognized as the benchmark for responsible stewardship of historically significant properties. They are especially relevant for projects seeking federal tax incentives, grants, or regulatory approval, but are frequently used as best practices for any renovation involving historic structures.

[11] https://www.nps.gov/orgs/1739/upload/treatment-guidelines-2017-part1-preservation-rehabilitation.pdf and https://www.nps.gov/orgs/1739/upload/treatment-guidelines-2017-part2-reconstruction-restoration.pdf

2. Mitigation Measure NOI-A

Original MM-NOI-A required that, prior to issuance of grading permits for the proposed Project, the Project Sponsor design a Construction Noise Management Plan to minimize construction-related noise impacts to off-site noise-sensitive receptors. The Construction Noise Management Plan must include specific enumerated measures to reduce noise levels.

The Court of Appeal found that Metro abused its discretion by failing to assess potentially feasible measures to mitigate the Project's significant construction noise impacts adequately. The Court Opinion explained that, although the LA ART EIR "plainly has formulated mitigation measure NOI-A to address the Project's significant construction noise impacts," the LA ART EIR does not "specify the noise reduction that the measure will achieve, other than the five dBA to 15 dBA reduction that noise barriers should deliver when construction activities are shielded." (Court Opinion, pages 75-76.) According to the Court Opinion, the LA ART EIR "fails to explain why Metro could not be certain about each measure's effectiveness" and that "Metro's failure to disclose this information renders the EIR inadequate as an informational document." (Id., pages 77, 81.)

As explained in greater detail below, original MM-NOI-A included requirements that, except for the noise barriers, do not contain a quantifiable construction noise reduction target. Rather, the requirements are intended to restrict or prevent conditions where construction activities may generate excessive noise. The following section explains how each component of MM-NOI-A either will be at least "partially effective" at reducing noise levels or will ensure that noise levels are no greater than those predicted in the LA ART EIR. The Draft SEIR refines MM-NOI-A to include only those components that would be partially effective at mitigating the Project's significant construction noise levels. The other components previously included in original MM-NOI-A are reclassified as Project Design Features that will be included in the Project's Mitigation Monitoring and Reporting Program (MMRP).

2.1.1 Noise Barriers

Original MM-NOI-A provided:

> *Temporary construction noise barriers between the Project construction area and affected receptors shall be installed as identified [in MM-NOI-A]. The noise barriers shall be designed to have a sound transmission class (STC) rating of at least 25 and should have the ability to provide a range of noise reduction between 5 dBA and 15 dBA when the construction equipment is located below the elevation level of the noise barrier and there is no line-of-sight between the construction equipment and the noise-sensitive receptors…*

The Court Opinion did not identify any concerns with the LA ART EIR's evaluation of noise barriers as a mitigation measure. The measure includes a specific and quantifiable noise reduction target—5 to 15 dBA when construction equipment is located behind the noise barrier and there is no line-of-sight between the construction equipment and noise-sensitive receptors. The LA ART EIR also recognized and disclosed the measure's inherent limitation for receptors located above the noise barrier height or otherwise within the direct line-of-sight. To account for this limitation, the LA ART EIR modeled construction noise impacts for multistory residential receptors at two different elevations: (i) ground level and (ii) the lowest floor at which a sound barrier would no longer be effective because it could not block the line-of-sight between the sources and the receptor (i.e., the receptor closest to unmitigated construction noise sources). The noise barrier component is being retained in the revised MM-NOI-A as a partially effective mitigation measure.

2.1.2 Equipment Maintenance

Original MM-NOI-A provided:

> *Construction equipment shall be properly maintained per manufacturers' specifications to prevent noise due to worn or improperly maintained parts and shall be fitted with the best available noise suppression devices (i.e., mufflers, lagging, and/or motor enclosures).*
>
> *All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded.*

The Court Opinion found that the LA ART EIR does not specify what range of noise reduction this requirement should achieve in comparison to the significant construction noise impacts modeled and disclosed in the LA ART EIR.

This component of original MM-NOI-A required proper maintenance of construction equipment to prevent excess noise from improperly maintained equipment parts. Worn or missing construction equipment parts (e.g., missing mufflers or a cracked engine enclosure) could result in increased construction noise levels. The LA ART EIR's predictive construction noise modeling relied on reference sound levels for properly maintained construction equipment, which is standard practice in acoustic analyses. In other words, the LA ART EIR's noise analysis already assumed that construction equipment would be maintained per manufacturer specifications, and, therefore, the modeled noise levels incorporated the effect of this practice. The failure to maintain equipment could result in an increase in construction noise levels beyond what was evaluated in the LA ART EIR.

Because this requirement does not provide an incremental reduction beyond the levels disclosed in the LA ART EIR, but instead ensures that construction noise does not exceed those levels, the Draft SEIR removes this component from the revised MM-NOI-A and adds it as a Project Design Feature (NOI-PDF-B) included in the Project's MMRP. Thus, the requirement would remain an enforceable obligation through the Construction Noise Management Plan and MMRP, ensuring consistency between the LA ART EIR's noise analysis and actual construction practices.

2.1.3 Electrical Sources

Original MM-NOI-A provided:

> *When possible, on-site electrical sources shall be used to power equipment rather than diesel generators.*

The Court Opinion concluded that the electrical sources requirement of the Construction Noise Management Plan does not contain a specific noise reduction target. As a result, the LA ART EIR does not specify what range of noise reduction this requirement should achieve in comparison to the significant construction noise impacts modeled and identified in the EIR. According to the Court Opinion, "Metro should be able to report the level of noise generally contributed by using diesel generators and how this can be reduced by using electrical sources."

Diesel generators typically produce continuous noise levels of approximately 77 dBA at 50 feet, whereas on-site electrical sources do not generate noise to operate. Diesel generators are also distinctive from other construction equipment in that they often run for extended periods of time (e.g., an entire construction day or large portion of the day) to provide on-demand power. Replacing diesel generators with on-site electrical sources would avoid this particular noise source. However, the overall contribution of diesel generators to the Project's construction noise profile is relatively minor given the presence of louder, mobile equipment (such as cranes, excavators, and haul trucks), as well as the existing urban ambient conditions along the alignment. In addition, the extent to which on-site electrical power can be used is inherently uncertain because access to existing electrical connections may not be available at all sites and construction staging would vary by location and phase. Further, even where utility connections are possible, the sequencing of work activities may necessitate use of generators for certain periods.

Because of these variables, Metro cannot reasonably predict in advance the duration or frequency of generator use at each site. For this reason, the overall noise reduction benefit of this requirement cannot be reliably quantified at this stage of the Project. As a result of these uncertainties, this requirement has been removed from revised MM-NOI-A and reclassified as a Project Design Feature (NOI-PDF-B) to ensure that the requirement is fully enforceable through the Construction Noise Management Program and MMRP.

2.1.4 Stationary Equipment Placement Near Sensitive Uses

Original MM-NOI-A provided:

> *Fixed and/or stationary equipment (e.g., generators, compressors, concrete mixers) shall be located away from noise-sensitive receptors.*

The Court Opinion recognized this condition "likely will be at least partially effective insofar as Metro's construction noise analysis assumed the 'shortest' distance from source to receptor in modeling the Project's impacts." Nonetheless, the Court Opinion concluded this "is apparent only upon close examination of a notation attached to the distance variable in the formula Metro used for calculating construction noise impacts" in Appendix M to the Draft LA ART EIR.

The LA ART EIR's predictive construction noise assumed a conservative, worst-case scenario by placing construction equipment at the closest possible location to receptors within each defined work area. However, construction equipment may be placed at many different points within each defined work area, depending on construction logistics. Each potential location would produce a different noise at nearby receptors. It would not be practical or informative to model every possible construction equipment configuration, given the variability in construction sequencing and site-specific conditions. For this reason, the LA ART EIR used a reasonable worst-case scenario to assume that such equipment would be located at the closest location to a sensitive receptor within an identified work area boundary. Under actual conditions, placing equipment further away from sensitive receptors would reduce noise exposure relative to the modeled levels. Therefore, although the precise reduction cannot be quantified or predicted in advance, this measure would provide an incremental benefit beyond the conservative assumptions in the LA ART EIR. Therefore, it would be partially effective at minimizing temporary construction noise at sensitive receptors and is being retained in the revised MM-NOI-A.

2.1.5 Community Outreach

Original MM-NOI-A provided:

> *The following shall be implemented to reduce noise impacts to the local community related to disturbances from construction noise:*
>
> - *Noise Disturbance Coordinator: A noise and vibration disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise and vibration disturbance coordinator shall determine the cause of the complaint (e.g., starting too early, bad muffler, etc.) and shall be required to implement reasonable measures to address the complaint. Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event a complaint is received, appropriate corrective actions shall be*

implemented, and a report of the action provided to the reporting party.

- *Construction Notice: The construction contractor shall provide a construction notice to residents within 500 feet of the construction site for each Project component prior to initiation of construction activities. The construction site notice shall include job site address, anticipated equipment to be used and duration of construction activities, permit number, name and phone number of the job superintendent, construction hours, and the City telephone number where violations can be reported. The notice will also include the phone number of the noise disturbance coordinator.*

The Court Opinion did not identify a specific concern with the community outreach component of original MM-NOI-A beyond the general determination that original MM-NOI-A (apart from the noise barriers) does not include a specific noise reduction target for each component.

The LA ART EIR included the community outreach component to ensure that a process is established for responding to local construction noise complaints that may arise. The effectiveness of community outreach and complaint response cannot be predicted in advance because it would depend on the nature of the specific concern and the feasibility of the corrective action in the field. For example, some complaints may be resolved by addressing a discrete issue, such as repairing equipment, or adjusting the temporary noise barrier, which could provide a measurable reduction. Others may involve concerns regarding general construction activities within the hours and intensity already evaluated in the LA ART EIR. The effectiveness of this measure also depends on voluntary participation by affected residents and businesses. The program would only be triggered when members of the community report concerns, and its success would rely on their willingness to engage with the designated coordinator and cooperate with feasible solutions.

For these reasons, the overall effectiveness of this measure cannot be reliably predicted for the Project as a whole. It is also possible that this measure would not reduce noise levels below those predicted in the LA ART EIR. Therefore, this measure is being removed from the revised MM-NOI-A and is being added as a Project Design Feature (NOI-PDF-B). Minor clarifying revisions to the measure have also been proposed in the Draft SEIR.

2.1.6 Limiting Idling Equipment

Original MM-NOI-A provided:

> *Construction equipment shall not idle for longer than 5 minutes, as required by section 2485 of the California Code of Regulations.*

The Court Opinion determined that while a condition requiring compliance with regulations can be a reasonable mitigation measure where the regulations impose specific performance standards, “the condition is properly labeled a mitigation measure only if it will be at least partially effective in mitigating a project’s significant environmental impacts.”

California Code of Regulations, Title 13, Section 2485 prohibits drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, including buses and sleeper berth-equipped trucks, from idling the vehicle’s primary diesel engine for longer than five minutes at any location. This anti-idling regulation helps to reduce engine usage, thereby preventing excess air pollution and noise generation. The LA ART EIR’s predictive construction noise modeling assumed that equipment would only operate during active construction efforts (i.e., in compliance with Section 2485). The failure to comply with Section 2485’s idling limitation could result in an increase in construction noise levels. Like diesel generators, idling vehicles generally generate less noise than active construction equipment. Thus, the relative contribution associated with idling construction vehicles to the proposed Project's construction activities will be minimal due to the array of louder, mobile noise sources and existing ambient noise levels.

Because the LA ART EIR's construction analysis assumed compliance with this regulation, limiting idling would not provide any incremental reduction in noise levels beyond what was assumed for the Project in the LA ART EIR. Rather, compliance with this regulation would be necessary to ensure that actual noise levels do not exceed those disclosed in the LA ART EIR. For this reason, the idling requirement has been removed from the revised MM-NOI-A and reclassified as a Project Design Feature (NOI-PDF-B) included in the Project's MMRP. As a Project Design Feature, it will remain enforceable through the Construction Noise Management Plan and the MMRP, ensuring consistency with the LA ART EIR's assumptions.

Appendix 1 Building Visual Assessment Survey Sheets

Appendix 1 - Building Visual Assessment Survey Sheets - Legend

Abbreviation/Term	Description
NSR	Noise Sensitive Receptor
Name	The recognized identifier of the building.
Address	The building's physical location, including all relevant details.
Year of Construction	The estimated year the building became operational.
Year of Renovation	The estimated year of updates to the building, if known.
Building Condition	The overall state of a building determined from visible physical defects. Please refer to the condition score descriptions.
Condition Score	Please refer to the condition score descriptions.
Building Construction Type	Describes the primary method or materials used in the construction of the building.
Uniformat	A standardized classification system for building elements.
Location	A description of where the element is located on the building.
Percentage Coverage	Indicates the proportion of the building element as it relates to the overall area of the building façade.
Typical Approximate Height	The estimated vertical dimension of the building element. Where elements vary in dimension, an average height is shown. Height is given in feet.
Typical Approximate Width	The estimated horizontal dimension of the building element. Where elements vary in dimension, an average width is shown. Width is given in feet.
Quantity (EA)	Represents the number of discrete items or elements being evaluated in the survey. "EA" stands for "Each," indicating an individual count.
Technical Notes	Comments recorded during the survey to add context or clarify specific details about the building element.

Condition Score	Description
Good	Functional and may display superficial defects only.
Fair	Functional but shows signs of moderate wear and tear from age/use.
Poor	Reduced or failed performance with defects that require repairs or replacements of elements.

Asset Information

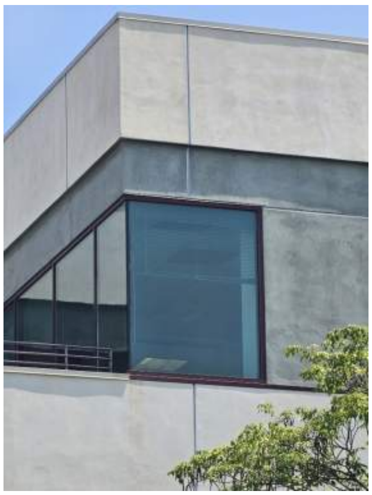
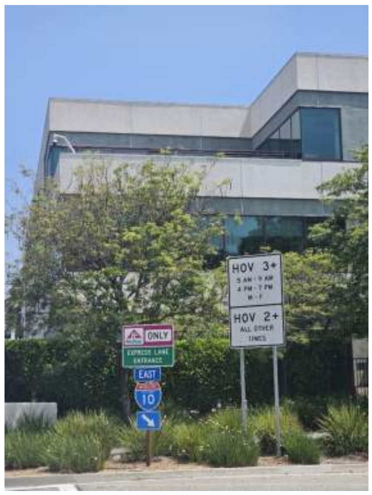
NSR	1B
Name	First 5 LA
Address	750 North Alameda Street, Los Angeles, CA 90012
Year of Construction	2004
Year of Renovation	2005
Building Condition	Good
Building Construction Type	Steel Frame
Discipline	Architecture

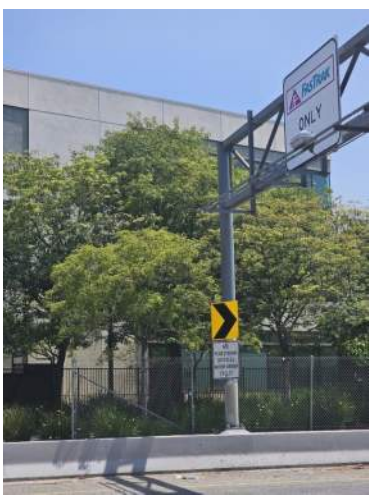
B2010.10 - Simulated Stone

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Simulated Stone
Location	South Wall
Percent Coverage	60
Typical Approximate Height	40
Typical Approximate Width	94

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Control joints approx. 8' x 8' spacing.

Equipment Photos

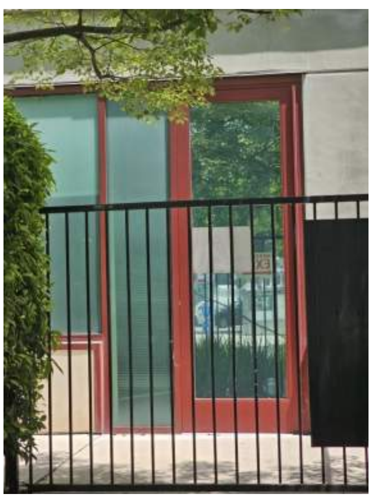



B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	8
Location	South and North Walls	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appear to be double pane with an aluminum frame Sidelights for each door approx. 1.5' x 8' North Count: 4 EA; South Count: 4 EA
Typical Approximate Height	8		
Typical Approximate Width	4		

Equipment Photos




B2010.10 - Simulated Stone

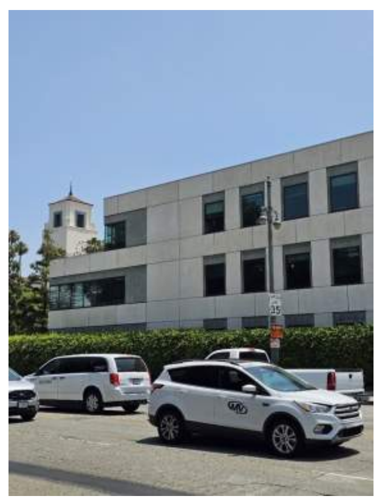
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Simulated Stone
Location	West Wall
Percent Coverage	70
Typical Approximate Height	40
Typical Approximate Width	200

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Control joints approx. 8' x 8' spacing.

Equipment Photos





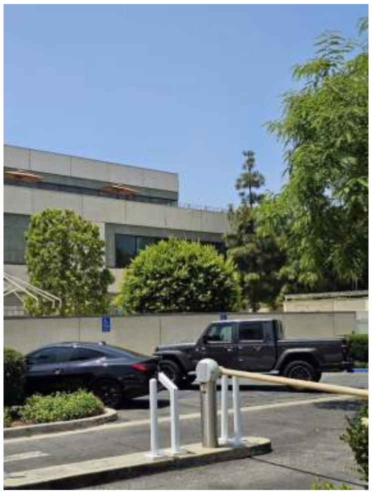




LA
DASH

B2010.10 - Simulated Stone

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Simulated Stone	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	Control joints approx. 8' x 8' spacing.
Location	North Wall		
Percent Coverage	60		
Typical Approximate Height	40		
Typical Approximate Width	90		

Equipment Photos



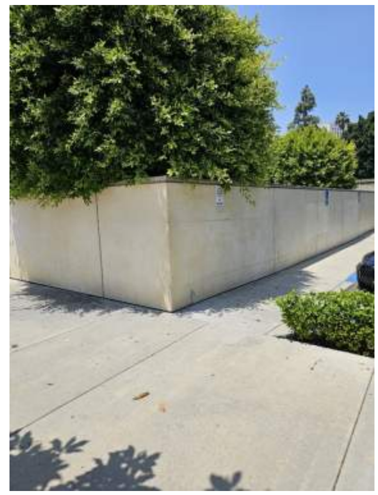



B2010.10 - Simulated Stone

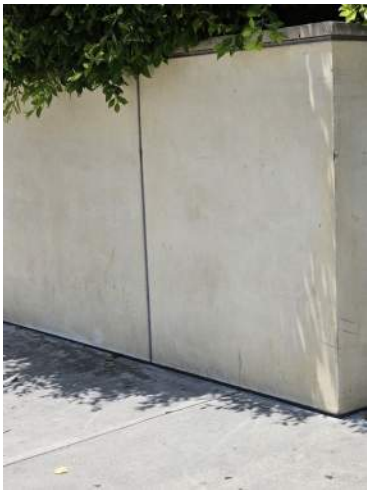
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Simulated Stone	**Quantity (EA)**	1
Location	North Exterior	**Condition Score**	2-Good
Percent Coverage	95	**Technical Notes**	45' East Wall + 94' North wall + 45' West Wall
Typical Approximate Height	6		
Typical Approximate Width	184		

Equipment Photos









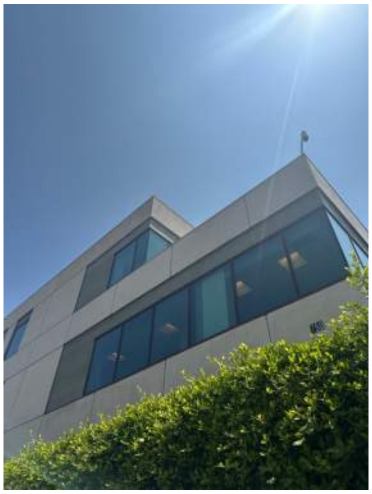

B2020.20 - Exterior Fixed Windows

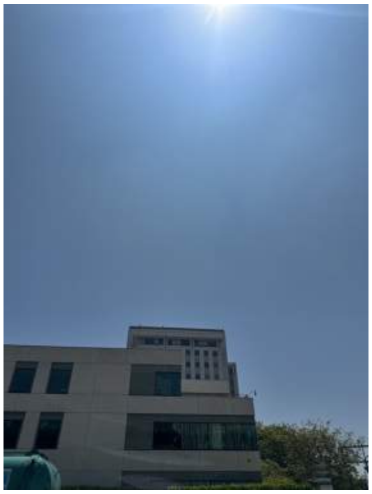
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	South, West, and North Walls
Percent Coverage	20
Typical Approximate Height	6
Typical Approximate Width	4

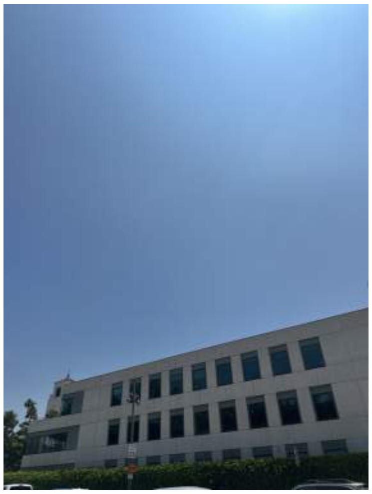
Quantity (EA)	128
Condition Score	2-Good
Technical Notes	Appear to be double pane with an aluminum frame. Count includes each individual panel for mullion openings. South Count: 38; West Count: 52; North Count: 38

Equipment Photos







B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	Appears to be an aluminum louvre.
Location	South Wall		
Percent Coverage	1		
Typical Approximate Height	1		
Typical Approximate Width	1		

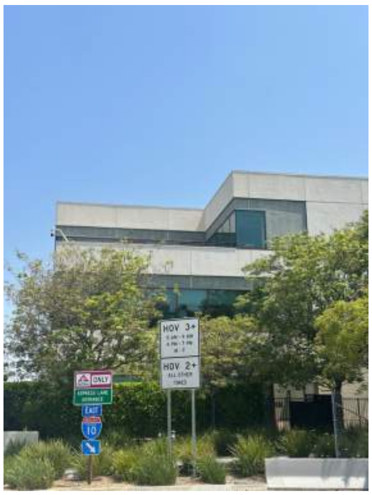
Equipment Photos


B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	South and North Walls
Percent Coverage	5
Typical Approximate Height	8
Typical Approximate Width	4

Quantity (EA)	16
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Includes storefront type openings for North and South Balconies. Count includes individual panels.

Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	7
		Condition Score	2-Good
		Technical Notes	North exterior wall doors
Location	North Exterior		
Percent Coverage	10		
Typical Approximate Height	6		
Typical Approximate Width	3		

Equipment Photos

Asset Information

NSR	3
Name	Mozaic Apartments
Address	888 North Alameda Street, Los Angeles, CA 90012
Year of Construction	2006
Year of Renovation	
Building Condition	Good
Building Construction Type	Wood Frame
Discipline	Architecture

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	South Wall
Percent Coverage	80
Typical Approximate Height	62
Typical Approximate Width	90

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos

B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	2
		Condition Score	2-Good
		Technical Notes	None
Location	South Wall		
Percent Coverage	1		
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos


B2080.30 - Exterior Protection

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2080 - Exterior Wall Appurtenances ▸ B2080.30 - Exterior Opening Protection Devices ▸ B2080.30 - Exterior Protection	**Quantity (EA)**	28
		Condition Score	2-Good
		Technical Notes	Openings with iron security bars. South Count: 5; West Count: 10; North Count: 13
Location	West and South Walls		
Percent Coverage	1		
Typical Approximate Height	3		
Typical Approximate Width	2		

Equipment Photos

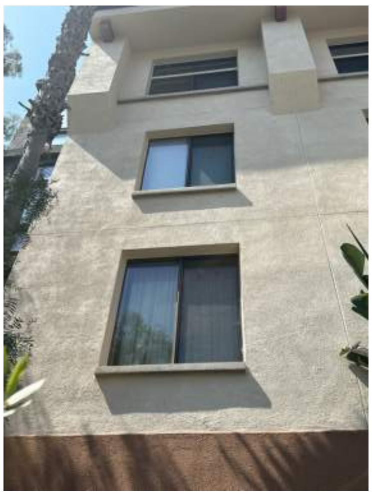



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	South Wall
Percent Coverage	15
Typical Approximate Height	8
Typical Approximate Width	6

Quantity (EA)	54
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Slides open horizontally. South Count: 10; West Count: 26; North Count: 18

Equipment Photos





B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	3
Location	South Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame. Bottom and lower panels are approx. 2 FT by 3 FT; middle panel is approx. 3.5 FT by 3 FT
Typical Approximate Height	7.5		
Typical Approximate Width	3		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	South, West, and North Walls
Percent Coverage	5
Typical Approximate Height	5.5
Typical Approximate Width	5

Quantity (EA)	18
Condition Score	2-Good
Technical Notes	Appear to be double pane with an aluminum frame. Upper panel is approx. 2 FT by 5 FT; Lower panel is approx. 3.5 FT by 5 FT and slides open horizontally. South Wall Count: 5, West Wall Count: 7, North Wall Count: 6

Equipment Photos



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	West Wall
Percent Coverage	70
Typical Approximate Height	62
Typical Approximate Width	215

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos







MOZAIC

B2050.10 - Sliding Glass Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Sliding Glass Doors
Location	West and North Walls
Percent Coverage	10
Typical Approximate Height	8
Typical Approximate Width	6

Quantity (EA)	44
Condition Score	2-Good
Technical Notes	Appear to be double pane with an aluminum frame. West Count: 16; North Count: 28

Equipment Photos






B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	West Wall
Percent Coverage	70
Typical Approximate Height	62
Typical Approximate Width	257

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos





B2020.10 - Exterior Operating Windows

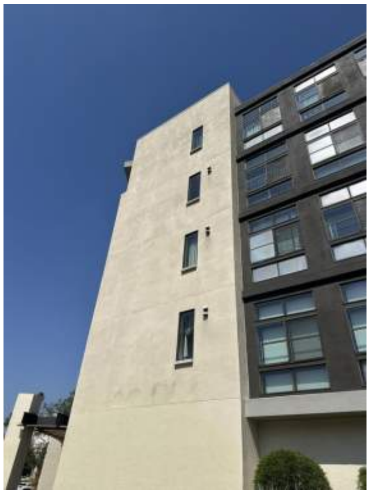
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	2
		Condition Score	2-Good
		Technical Notes	Appears to be double pane with an aluminum frame.
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	7.5		
Typical Approximate Width	7.5		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	4
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appear to be double pane with an aluminum frame
Typical Approximate Height	6		
Typical Approximate Width	1.5		

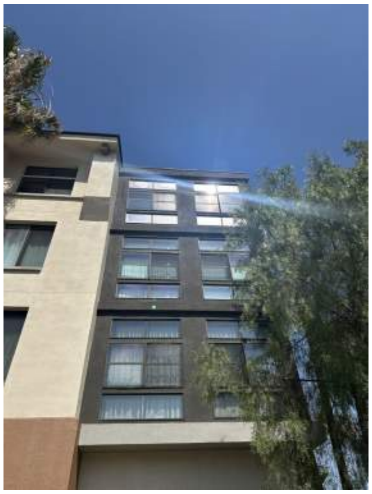
Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	64
Location	South, West, and North Walls	**Condition Score**	2-Good
Percent Coverage	20	**Technical Notes**	Appear to be double pane with an aluminum frame. Fixed panels 2 FT by 5 FT; Operable panels 3.5 FT by 5 FT. South Count: 6; West Count: 30; North Count: 28
Typical Approximate Height	5.5		
Typical Approximate Width	5		

Equipment Photos




Asset Information

NSR	6
Name	Chinatown Senior Lofts
Address	808 North Spring Street, Los Angeles, CA 90012
Year of Construction	1916
Year of Renovation	2013
Building Condition	Good
Building Construction Type	Reinforced Concrete Frame

Discipline	Architecture

B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete
Location	South Wall
Percent Coverage	70
Typical Approximate Height	134
Typical Approximate Width	110

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos




B2070.50 - Exterior Vents

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents
Location	South Wall
Percent Coverage	1
Typical Approximate Height	3
Typical Approximate Width	17

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	8 total openings, height and width is an average of total area

Equipment Photos









B2050.20 - Exterior Utility Doors

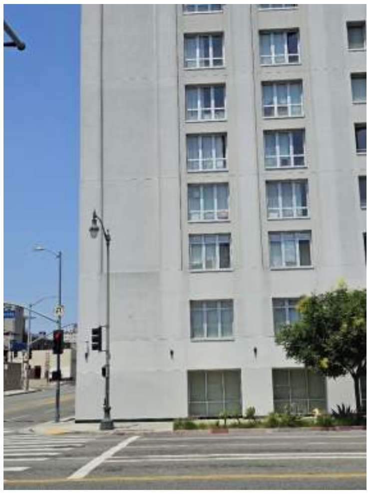
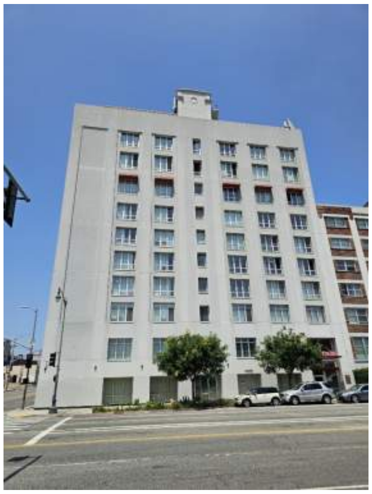
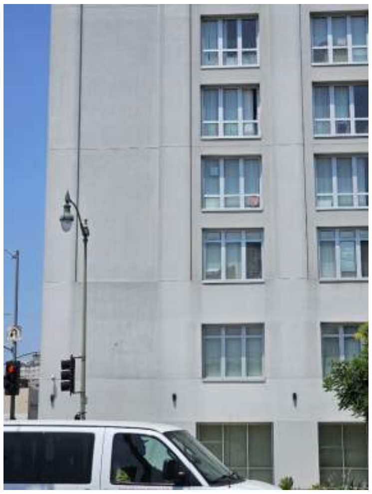
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	2
Location	South Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Vision panel on one door, 4" x 24"
Typical Approximate Height	6.5		
Typical Approximate Width	3		

Equipment Photos


B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	East Wall		
Percent Coverage	60		
Typical Approximate Height	134		
Typical Approximate Width	110		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	East Wall
Percent Coverage	1
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	2
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame.

Equipment Photos


B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double doors with metal astragal
Typical Approximate Height	7		
Typical Approximate Width	6		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	8
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame. 4 are visible, and 4 were not visible behind a fence and hedge.
Typical Approximate Height	8		
Typical Approximate Width	9		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	16		
Typical Approximate Width	9		

Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	1		
Typical Approximate Width	3		

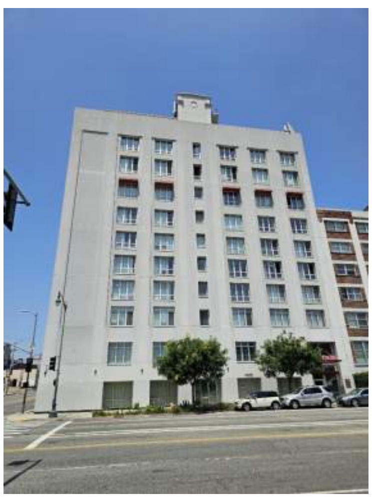
Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	93
Location	South and East Walls	**Condition Score**	2-Good
Percent Coverage	30	**Technical Notes**	Appears to be double pane with an aluminum frame, Left and Right Panels swing open inward. Excludes 3rd floor windows.
Typical Approximate Height	8		
Typical Approximate Width	8		

Equipment Photos



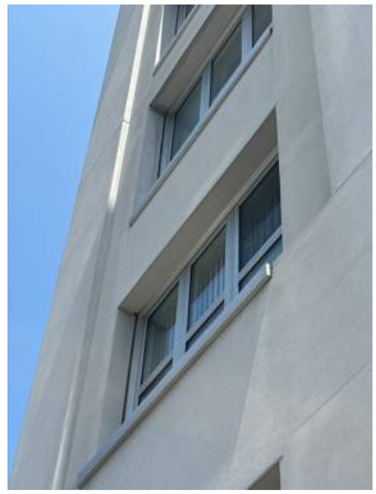



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	6
Location	South Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be double pane with an aluminum frame. Panels swing open inward. Only includes 3rd floor.
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos

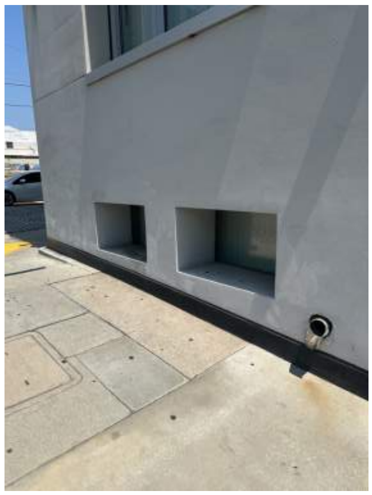




B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	4
		Condition Score	2-Good
		Technical Notes	Appears to be double pane.
Location	South Wall		
Percent Coverage	1		
Typical Approximate Height	3		
Typical Approximate Width	3		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	7
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	East Wall
Percent Coverage	1
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	2
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Top two floors, middle row.

Equipment Photos

B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	40	**Technical Notes**	None
Typical Approximate Height	73		
Typical Approximate Width	80		

Equipment Photos



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry
Location	East Wall
Percent Coverage	25
Typical Approximate Height	9
Typical Approximate Width	10

Quantity (EA)	30
Condition Score	2-Good
Technical Notes	Windows account for 50% of the area, approximately

Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	East Wall		
Percent Coverage	1		
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	4
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame. Left and right panels swing open inward. Fourth floor windows only.
Typical Approximate Height	7		
Typical Approximate Width	8		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame. Each panel slides open vertically. Third floor windows only.
Typical Approximate Height	8		
Typical Approximate Width	8		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame. Each panel slides open vertically. Second floor windows only.
Typical Approximate Height	9		
Typical Approximate Width	8		

Equipment Photos

B2020.10 - Exterior Operating Windows

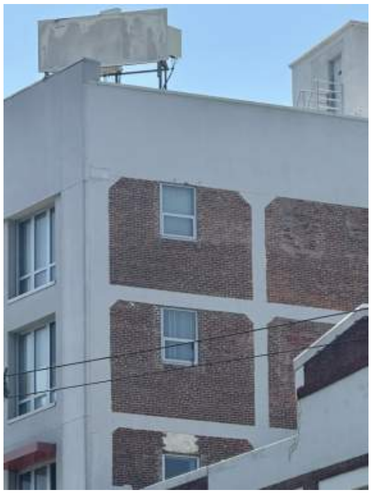
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	16
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame. Each panel slides open vertically. 5, 6, and 7 Floor windows only.
Typical Approximate Height	7		
Typical Approximate Width	8		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
		Condition Score	2-Good
		Technical Notes	Appears to be double pane with an aluminum frame. Bottom panel swings open outward.
Location	North Wall		
Percent Coverage	1		
Typical Approximate Height	3		
Typical Approximate Width	2		

Equipment Photos



Asset Information

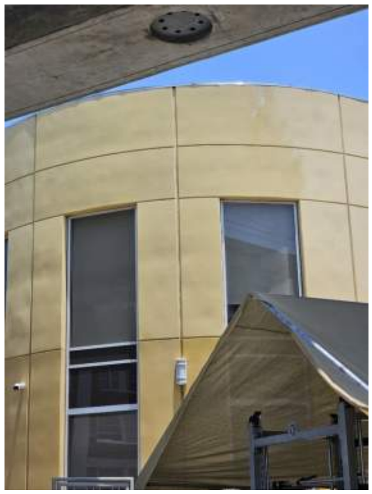
NSR	7
Name	Homeboy Industries
Address	130 Bruno Street, Los Angeles, CA 90012
Year of Construction	2007
Year of Renovation	2008
Building Condition	Good
Building Construction Type	Reinforced Concrete Frame

Discipline	Architecture

B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	South Wall		
Percent Coverage	80		
Typical Approximate Height	30		
Typical Approximate Width	105		

Equipment Photos

B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	4
Location	South and North Walls	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	8		
Typical Approximate Width	3		

Equipment Photos



B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	West Wall
Percent Coverage	2
Typical Approximate Height	8
Typical Approximate Width	6

Quantity (EA)	3
Condition Score	2-Good
Technical Notes	Appears to be double pane double doors with an aluminum frame.

Equipment Photos




B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	North Wall
Percent Coverage	1
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame.

Equipment Photos

B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete	**Quantity (EA)**	1
Location	North Wall	**Condition Score**	2-Good
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	35		
Typical Approximate Width	100		

Equipment Photos



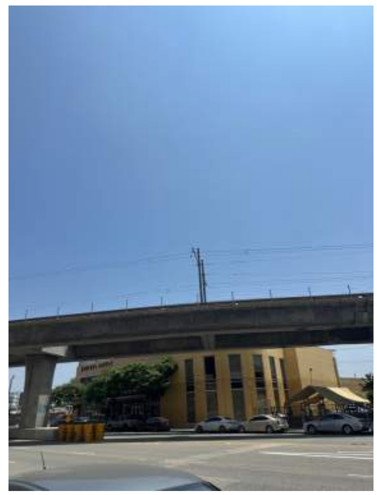

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts
Location	West Wall
Percent Coverage	40
Typical Approximate Height	30
Typical Approximate Width	4

Quantity (EA)	28
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. 6 individual panels at the yellow rounded corner, 14 mullion panels at the center entrance, and 8 mullion panels at the rounded cafe entrance.

Equipment Photos

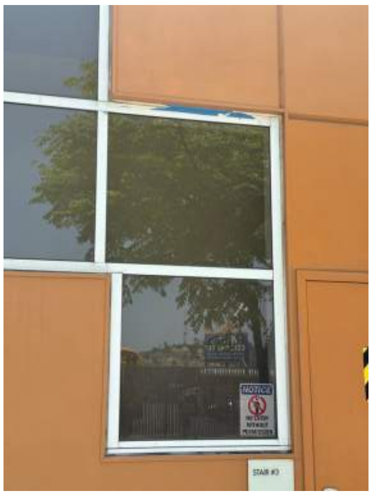


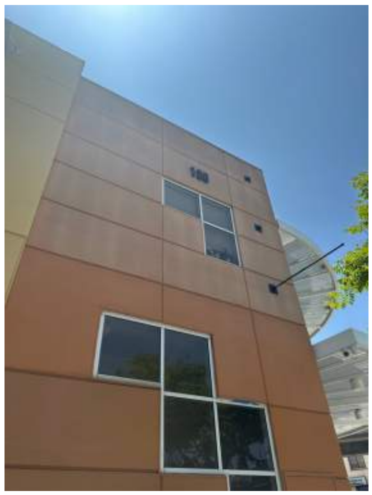



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	8
Location	North Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	3		
Typical Approximate Width	3		

Equipment Photos





B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	4
Location	North Wall	**Condition Score**	2-Good
Percent Coverage	40	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	30		
Typical Approximate Width	10		

Equipment Photos

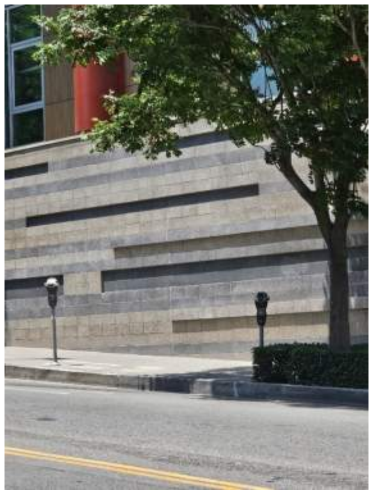
Asset Information

NSR	9
Name	Blossom Plaza
Address	900 North Broadway, Los Angeles, CA 90012
Year of Construction	2016
Year of Renovation	
Building Condition	Good
Building Construction Type	Concrete and Wood Frame
Discipline	Architecture

B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	South Building South Wall		
Percent Coverage	10		
Typical Approximate Height	20		
Typical Approximate Width	290		

Equipment Photos

B2010.30 - Fabricated Faced Panel Assemblies

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.40 - Fabricated Exterior Wall Assemblies ▸ B2010.30 - Fabricated Faced Panel Assemblies
Location	South Building South Wall
Percent Coverage	20
Typical Approximate Height	40
Typical Approximate Width	210

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos






B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	None
Typical Approximate Height	16		
Typical Approximate Width	220		

Equipment Photos



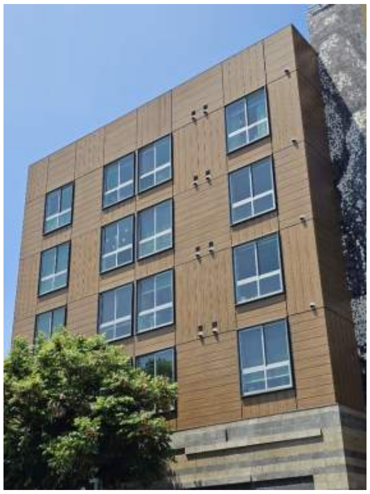


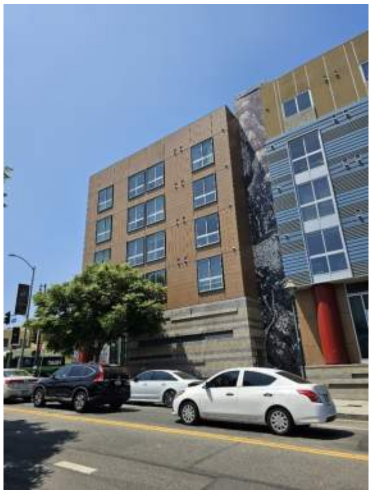
B2010.10 - Siding

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Siding
Location	South Building South Wall
Percent Coverage	5
Typical Approximate Height	60
Typical Approximate Width	50

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Appears to be wood composite veneer

Equipment Photos



B2010.10 - Masonry Veneer

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Masonry Veneer	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	Ceramic tile finish
Location	South Building South Wall		
Percent Coverage	5		
Typical Approximate Height	78		
Typical Approximate Width	6		

Equipment Photos



B2010.10 - Siding

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Siding
Location	South Building South Wall
Percent Coverage	1
Typical Approximate Height	17
Typical Approximate Width	54

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Appears to be wood composite veneer

Equipment Photos





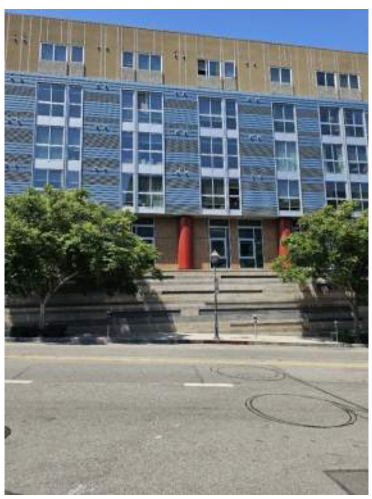

B2010.10 - Wall Panels (Metal)

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Wall Panels (Metal)	**Quantity (EA)**	8
		Condition Score	2-Good
		Technical Notes	None
Location	South Building South Wall		
Percent Coverage	2		
Typical Approximate Height	14		
Typical Approximate Width	3		

Equipment Photos







B2070.50 - Exterior Vents

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents	**Quantity (EA)**	140
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	92 hood vents 48 louver vents
Typical Approximate Height	1		
Typical Approximate Width	0.5		

Equipment Photos






B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	16
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	30	**Technical Notes**	Middle three floors only, quadrant style. Count is for each column; 3 panels in each 35 FT column (48 EA). Appears to be double pane with a metal frame. One of the top panels on each floor slides open horizontally.
Typical Approximate Height	35		
Typical Approximate Width	6		

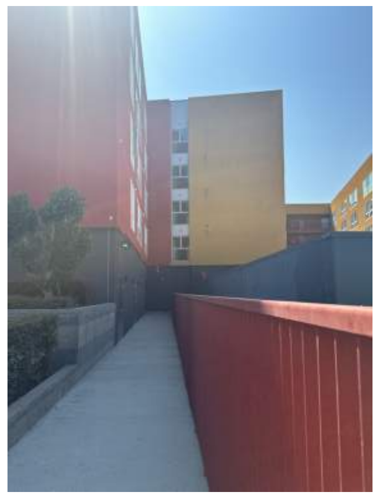
Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	12
Location	South Building East Wall; North Building East and North Walls	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	Appears to be double pane with an aluminum frame. One panel per floor possibly slides open horizontally. South Building East Wall Count: 4 North Building East Wall Count: 4, North Wall Count: 4
Typical Approximate Height	8		
Typical Approximate Width	5		

Equipment Photos





B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts
Location	South Building East Wall Plaza Level
Percent Coverage	10
Typical Approximate Height	12
Typical Approximate Width	110

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Width includes east facing and north facing store fronts up to the red bridge on the plaza level. Appears to be double pane with an aluminum frame.

Equipment Photos




B2020.10 - Exterior Operating Windows

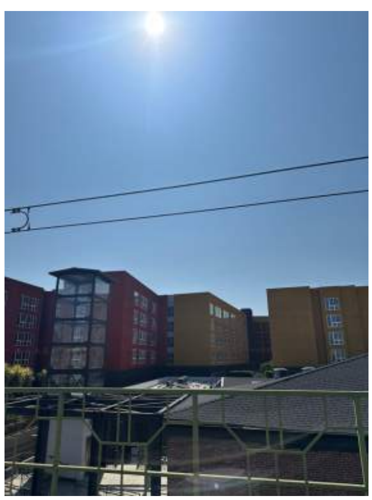
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	South Building North Wall; North Building South, East, and North Walls
Percent Coverage	30
Typical Approximate Height	8
Typical Approximate Width	6

Quantity (EA)	180
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. One panel per unit swings open outward. Only includes openings until the red bridge between North and South Buildings. South Building North Wall Count: 24 North Building South Wall count: 52, North Wall Count: 100, East Wall Count: 4

Equipment Photos










B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts
Location	North Building South Wall
Percent Coverage	20
Typical Approximate Height	12
Typical Approximate Width	65

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Width includes wrap around corner and up until red bridge between towers. Appears to be double pane with an aluminum frame.

Equipment Photos


B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	4
Location	North Building East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame. One panel per unit slides open horizontally.
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos

B2010.30 - Fabricated Faced Panel Assemblies

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.40 - Fabricated Exterior Wall Assemblies ▸ B2010.30 - Fabricated Faced Panel Assemblies
Location	South Building East Wall
Percent Coverage	30
Typical Approximate Height	54
Typical Approximate Width	30

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

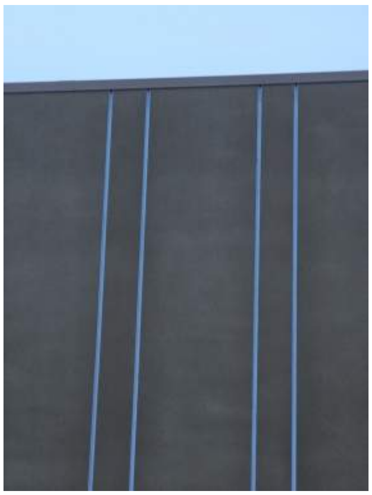
Equipment Photos


B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	South Building East Wall
Percent Coverage	10
Typical Approximate Height	16
Typical Approximate Width	35

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

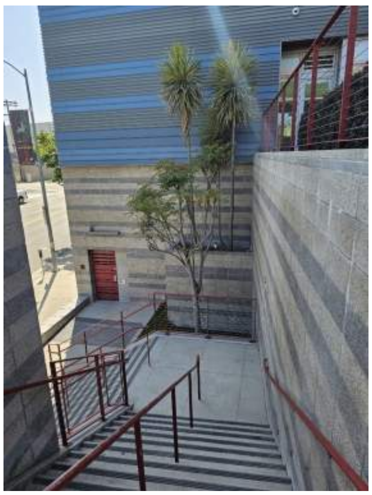
Equipment Photos



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	South Building East Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	None
Typical Approximate Height	18		
Typical Approximate Width	24		

Equipment Photos



B2010.10 - Wall Panels (Metal)

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Wall Panels (Metal)
Location	South Building East Wall
Percent Coverage	1
Typical Approximate Height	4
Typical Approximate Width	5

Quantity (EA)	5
Condition Score	2-Good
Technical Notes	None

Equipment Photos



B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	South Building East and North Wall; North Building South Wall
Percent Coverage	1
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	7
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. South Building East Wall Count: 2, North Wall Count: 3 North Building South Wall Count: 2

Equipment Photos



B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers
Location	South Building East Wall
Percent Coverage	1
Typical Approximate Height	1.5
Typical Approximate Width	3

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

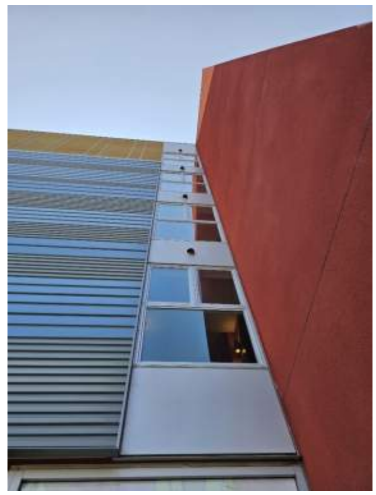
Equipment Photos

B2070.50 - Exterior Vents

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents	**Quantity (EA)**	4
		Condition Score	2-Good
		Technical Notes	None
Location	South Building East Wall		
Percent Coverage	1		
Typical Approximate Height	0.5		
Typical Approximate Width	0.5		

Equipment Photos

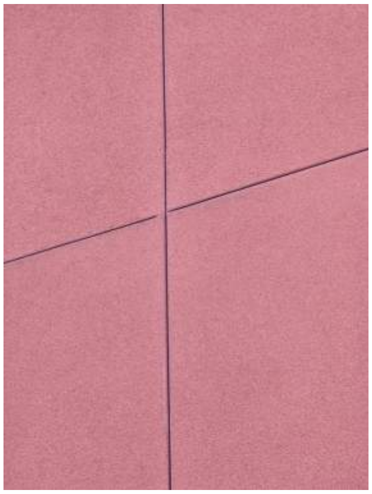




B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	South Building East Wall		
Percent Coverage	40		
Typical Approximate Height	60		
Typical Approximate Width	25		

Equipment Photos



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	South Building North Wall		
Percent Coverage	40		
Typical Approximate Height	60		
Typical Approximate Width	90		

Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
Location	South Building North Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Vision panel 4" x 24"
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	2
Location	South Building North Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	1.5		
Typical Approximate Width	1		

Equipment Photos



B2070.50 - Exterior Vents

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents
Location	South Building North Wall
Percent Coverage	1
Typical Approximate Height	0.5
Typical Approximate Width	0.5

Quantity (EA)	36
Condition Score	2-Good
Technical Notes	24 hood vents and 12 louvers

Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	16
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Top floor only. Appears to be double panel with aluminum frame and decorative panel covering bottom half. One of the panels slides open horizontally.
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	4
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	Top floor only. Appears to be double pane with aluminum frame and decorative panel covering bottom half. Swings open outward.
Typical Approximate Height	8		
Typical Approximate Width	3		

Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	South Building South Wall
Percent Coverage	2
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	4
Condition Score	2-Good
Technical Notes	Middle three floors only, single column (not quadrant style). Count is for each column of 3 units (12 EA). Appears to be double pane with an aluminum frame. Swings open outward.

Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	16
		Condition Score	2-Good
		Technical Notes	Appears to be double pane with an aluminum frame. One panel slides open horizontally.
Location	South Building South Wall		
Percent Coverage	5		
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	15
Location	South Building South Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	First floor only. Appears to be double pane with an aluminum frame. Middle square panel appears to swing open outward.
Typical Approximate Height	10		
Typical Approximate Width	5		

Equipment Photos



B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers
Location	South Building South Wall
Percent Coverage	1
Typical Approximate Height	3
Typical Approximate Width	5

Quantity (EA)	15
Condition Score	2-Good
Technical Notes	Appears to be aluminum frame and grilles. Above each first floor window column.

Equipment Photos

B2010.10 - Cement Plastering

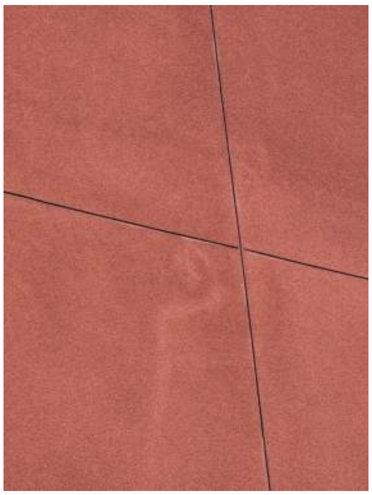
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	North Building South Red Wall	**Condition Score**	2-Good
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	56		
Typical Approximate Width	25		

Equipment Photos


B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	North Building East Red Wall		
Percent Coverage	80		
Typical Approximate Height	56		
Typical Approximate Width	35		

Equipment Photos



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	North Building North Red Wall		
Percent Coverage	80		
Typical Approximate Height	56		
Typical Approximate Width	72		

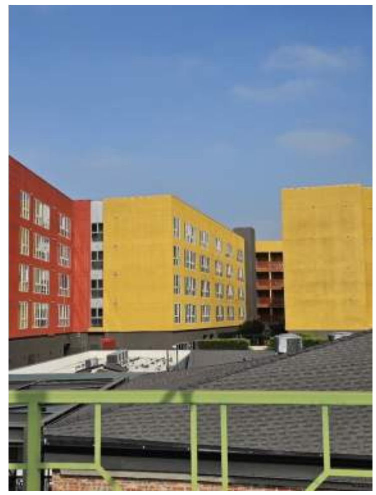
Equipment Photos

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	North Building East Yellow Wall	**Condition Score**	2-Good
Percent Coverage	95	**Technical Notes**	None
Typical Approximate Height	56		
Typical Approximate Width	98		

Equipment Photos





B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	North Building North Yellow Wall	**Condition Score**	2-Good
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	56		
Typical Approximate Width	146		

Equipment Photos



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	North Building South Yellow Wall	**Condition Score**	2-Good
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	56		
Typical Approximate Width	150		

Equipment Photos

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	North Building North Yellow/Red Wall
Percent Coverage	60
Typical Approximate Height	56
Typical Approximate Width	144

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos



Asset Information

NSR	11
Name	Capitol Milling
Address	1231 North Spring Street, Los Angeles, CA 90012
Year of Construction	1888
Year of Renovation	1978, 2020
Building Condition	Good
Building Construction Type	Masonry

Discipline	Architecture

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	South Wall
Percent Coverage	5
Typical Approximate Height	8
Typical Approximate Width	6

Quantity (EA)	3
Condition Score	2-Good
Technical Notes	None

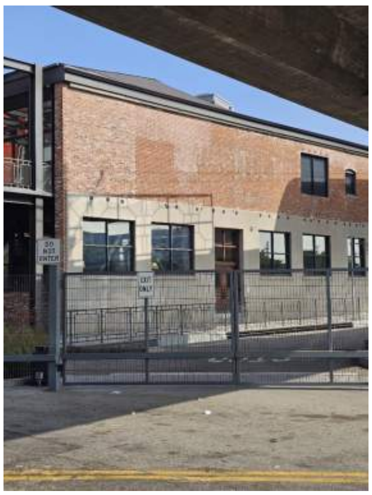
Equipment Photos

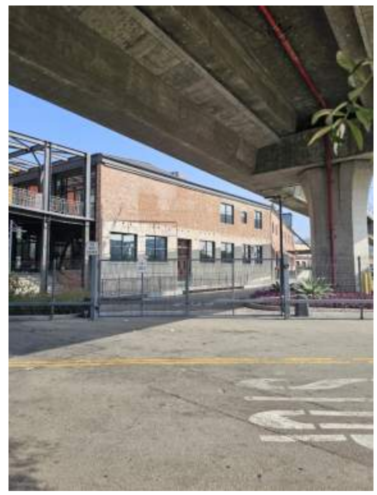
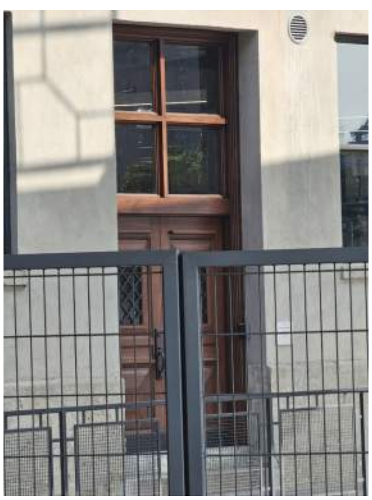

B2010.20 - Cast-In-Place Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Cast-In-Place Concrete
Location	East Wall
Percent Coverage	10
Typical Approximate Height	20
Typical Approximate Width	80

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos



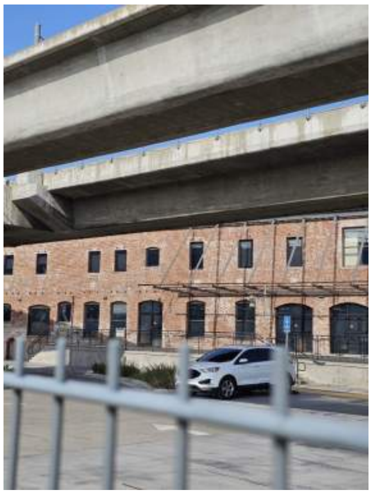



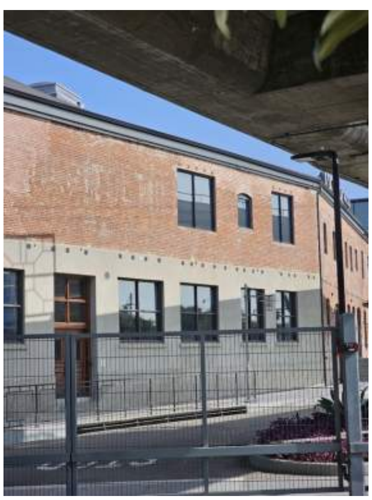
B2010.20 - Unit Masonry

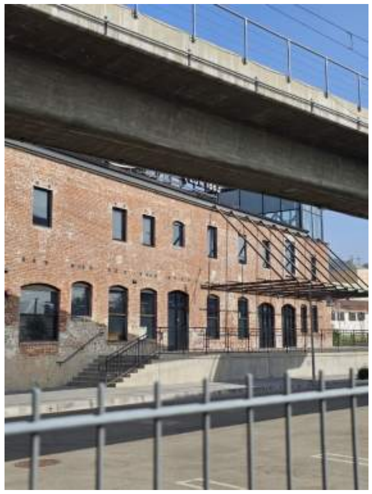
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry
Location	East Wall
Percent Coverage	75
Typical Approximate Height	35
Typical Approximate Width	235

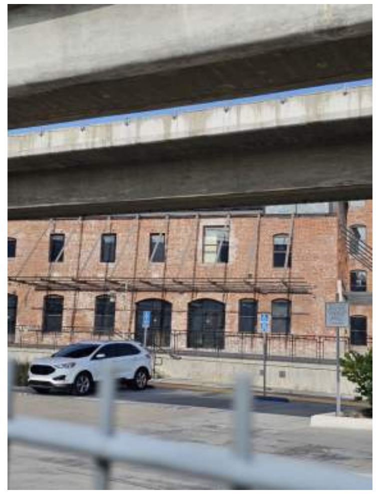
Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos









B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	Appears to be wood door with glazing
Location	East Wall		
Percent Coverage	1		
Typical Approximate Height	7		
Typical Approximate Width	6		

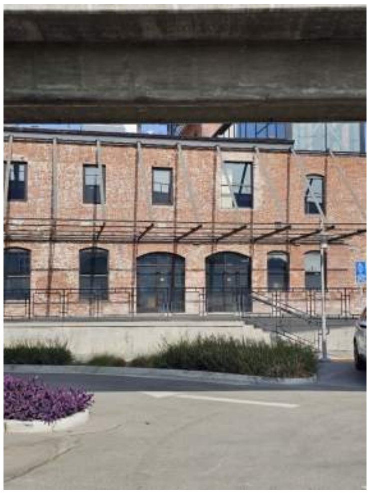
Equipment Photos



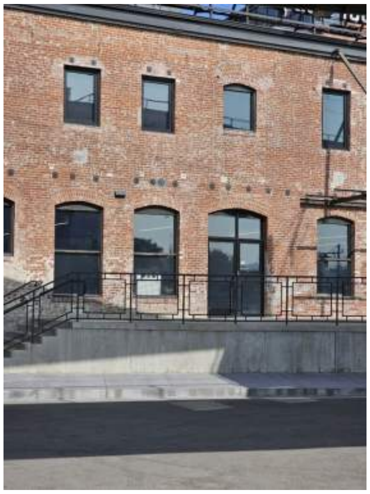
B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	3
		Condition Score	2-Good
		Technical Notes	Appears to be aluminum frame with glazing
Location	East Wall		
Percent Coverage	1		
Typical Approximate Height	9		
Typical Approximate Width	3		

Equipment Photos



B2020.20 - Exterior Fixed Windows

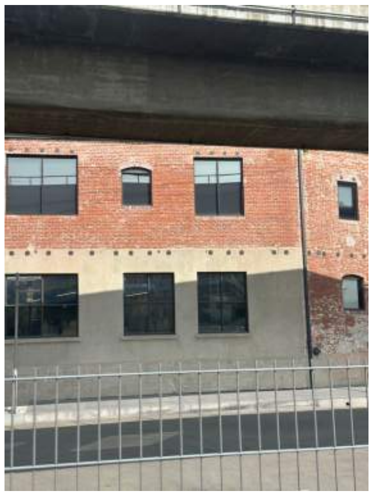
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	6		
Typical Approximate Width	4		

Equipment Photos


B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	2
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	6		
Typical Approximate Width	4		

Equipment Photos



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be single pane with a wood frame.
Typical Approximate Height	4		
Typical Approximate Width	4		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	8
Location	East and North Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame. East Wall Count: 4, North Wall Count: 4 (difficult to see)
Typical Approximate Height	2		
Typical Approximate Width	2		

Equipment Photos

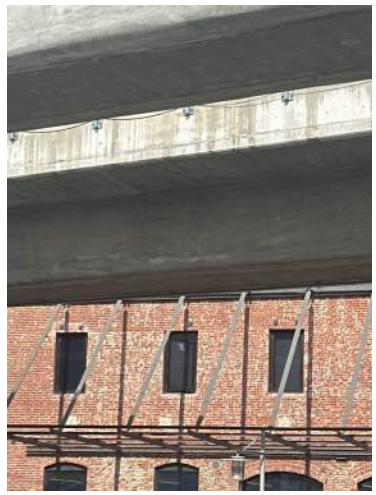



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	6
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame. Swings open outward on hinges on the left side.
Typical Approximate Height	3		
Typical Approximate Width	2		

Equipment Photos






B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	3		
Typical Approximate Width	2		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	East Wall
Percent Coverage	1
Typical Approximate Height	7
Typical Approximate Width	6

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Appears to be aluminum double doors with glazing

Equipment Photos




B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry
Location	North Wall
Percent Coverage	80
Typical Approximate Height	45
Typical Approximate Width	100

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos

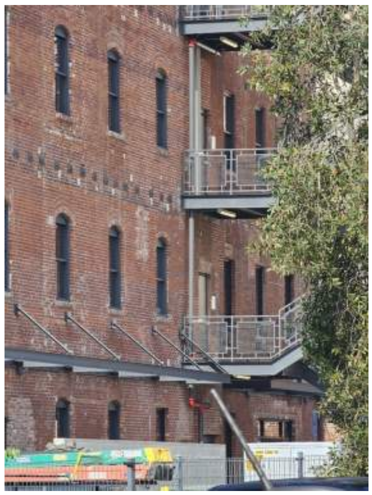




B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	4
		Condition Score	2-Good
		Technical Notes	None
Location	North Wall		
Percent Coverage	1		
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos

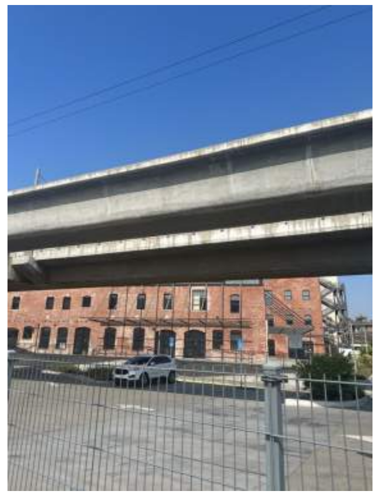




B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	2
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wooden frame.
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos






B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	8
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	6		
Typical Approximate Width	4		

Equipment Photos



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	3
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	4		
Typical Approximate Width	3		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	5
Location	East and North Walls	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Panels next to doors may open outward. Appears to be double pane with an aluminum frame. East Wall Count: 3, North Wall Count:2
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	2
Location	East and North Walls	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	Panels next to doors may open outward. Appears to be double pane with an aluminum frame. East Wall Count: 1, North Wall Count: 1
Typical Approximate Height	10		
Typical Approximate Width	12		

Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	10
		Condition Score	2-Good
		Technical Notes	None
Location	East Wall		
Percent Coverage	1		
Typical Approximate Height	0.7		
Typical Approximate Width	0.7		

Equipment Photos





B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts
Location	South Wall Ground Level
Percent Coverage	90
Typical Approximate Height	30
Typical Approximate Width	40

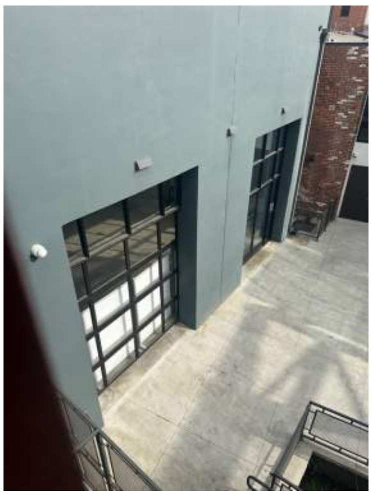
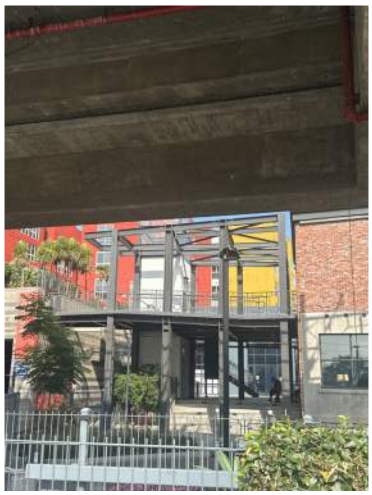
Quantity (EA)	2
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame.

Equipment Photos

B2050.10 - Sliding Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Sliding Storefronts	**Quantity (EA)**	1
Location	East Wall Ground Level	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Storefront door that appears to slide up. Appears to be single pane with an aluminum frame.
Typical Approximate Height	15		
Typical Approximate Width	12		

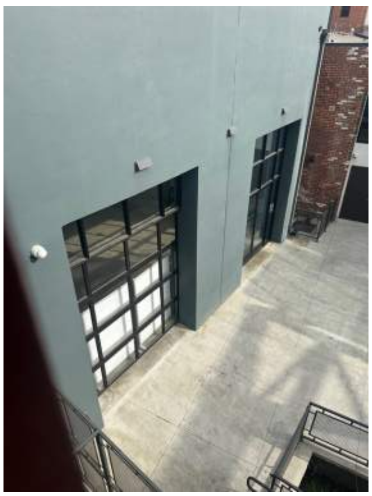
Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	1
Location	East Wall Ground Level	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	15		
Typical Approximate Width	10		

Equipment Photos



B2020.20 - Exterior Fixed Windows

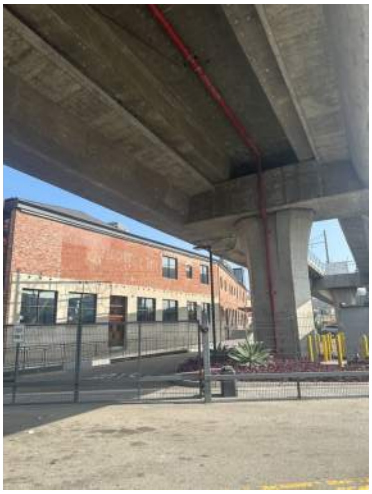
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	6
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	6		
Typical Approximate Width	6		

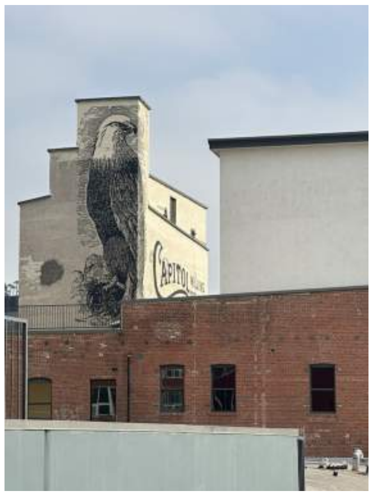
Equipment Photos




B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	10
Location	South Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with a wood frame.
Typical Approximate Height	4		
Typical Approximate Width	3		

Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	30
Location	North and East Walls	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be double pane with a wood frame. Slides open vertically.
Typical Approximate Height	4		
Typical Approximate Width	3		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	2
Location	Top Floors	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Includes the two top floor storefront assemblies. Higher Assembly: 20' height x40'x50' Lower Assembly: 20' height x20'x60'
Typical Approximate Height	20		
Typical Approximate Width	110		

Equipment Photos


Asset Information

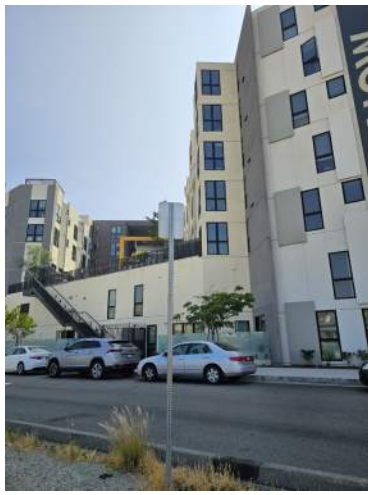
NSR	12
Name	Llewellyn Apartments
Address	1101 North Main Street, Los Angeles, CA 90012
Year of Construction	2021
Year of Renovation	
Building Condition	Good
Building Construction Type	Concrete and Wood Frame
Discipline	Architecture

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	West Wall
Percent Coverage	80
Typical Approximate Height	84
Typical Approximate Width	700

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos



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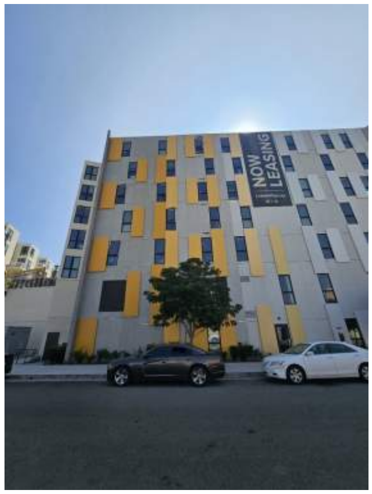
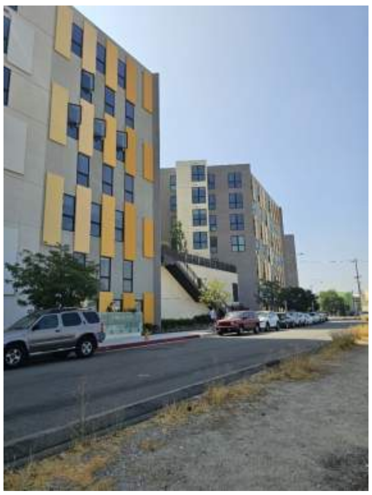
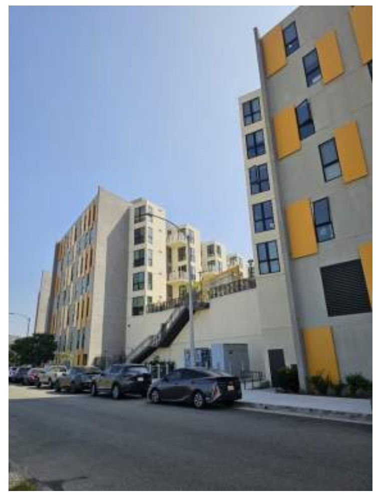
Llewellyn.la


NOW
LEASING


NOW
LEASING



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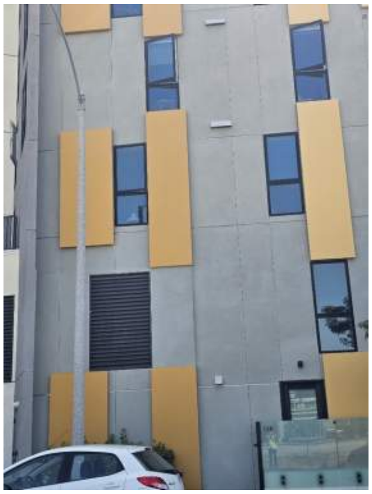
LEASING

B2010.10 - Wall Panels (Metal)

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Wall Panels (Metal)	**Quantity (EA)**	102
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	None
Typical Approximate Height	11		
Typical Approximate Width	3.5		

Equipment Photos






B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	West, North, and South Walls
Percent Coverage	25
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	428
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. West Wall Count: 155 North Wall Count: 163 South Wall Count: 110

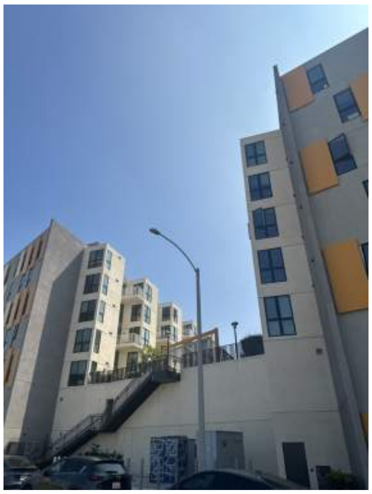
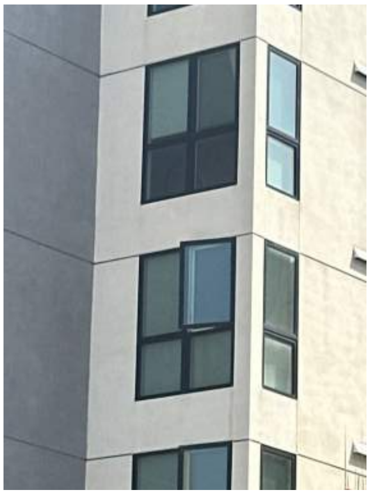
Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	West, North, and South Walls
Percent Coverage	5
Typical Approximate Height	8
Typical Approximate Width	5

Quantity (EA)	256
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Both top panels swing open outward. West Wall Count: 107 North Wall Count: 87 South Wall Count: 62

Equipment Photos

B2050.10 - Balanced Door Entrances

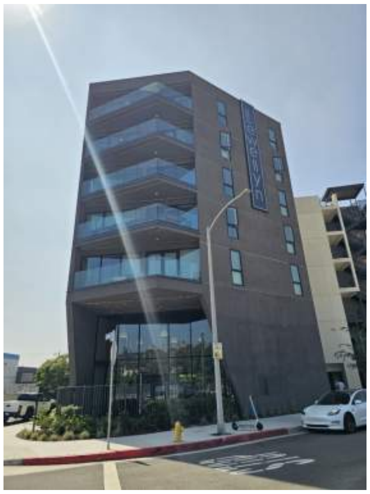
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	8
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be aluminum frame with glazing
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	6
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be aluminum frame double doors with glazing
Typical Approximate Height	7		
Typical Approximate Width	6		

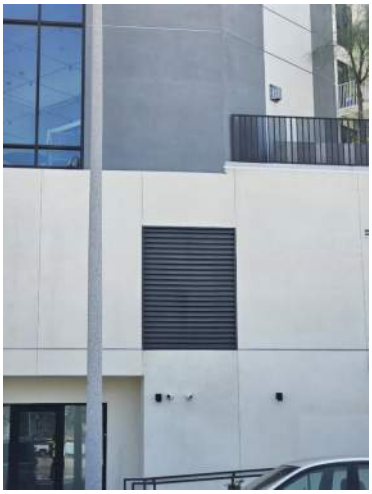
Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	6
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	5		
Typical Approximate Width	4		

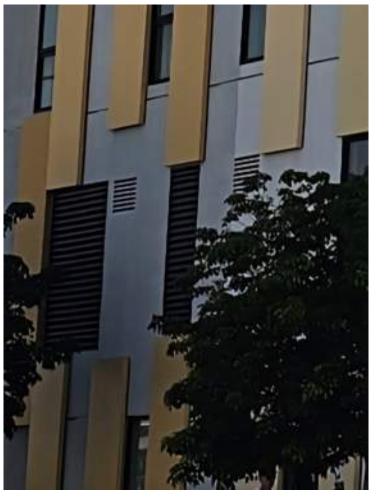
Equipment Photos




B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	5		
Typical Approximate Width	2		

Equipment Photos



B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	5
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	1.5		
Typical Approximate Width	2		

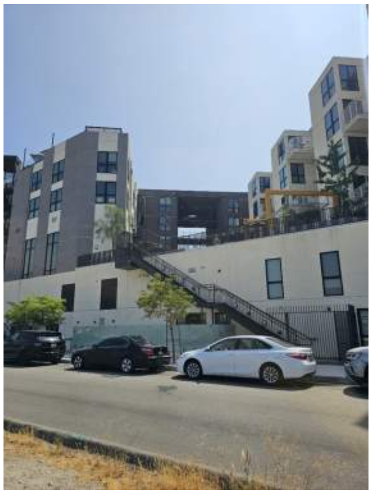
Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	4
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	1		
Typical Approximate Width	2		

Equipment Photos

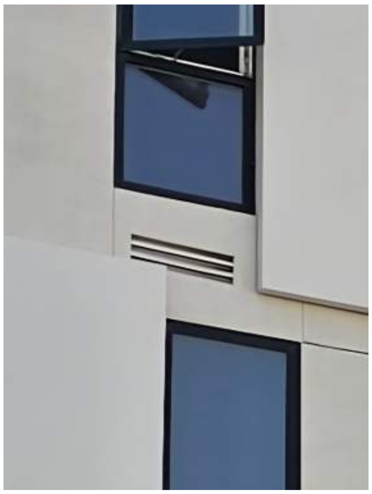




B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	15
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	0.5		
Typical Approximate Width	1.5		

Equipment Photos



B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	28
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	0.5		
Typical Approximate Width	0.5		

Equipment Photos

B2070.50 - Exterior Vents

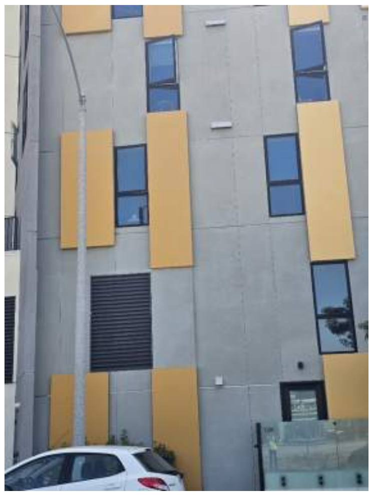
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents	**Quantity (EA)**	17
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	0.5		
Typical Approximate Width	1		

Equipment Photos

B2070.50 - Exterior Vents

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.50 - Exterior Vents	**Quantity (EA)**	9
		Condition Score	2-Good
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	0.5		
Typical Approximate Width	0.5		

Equipment Photos

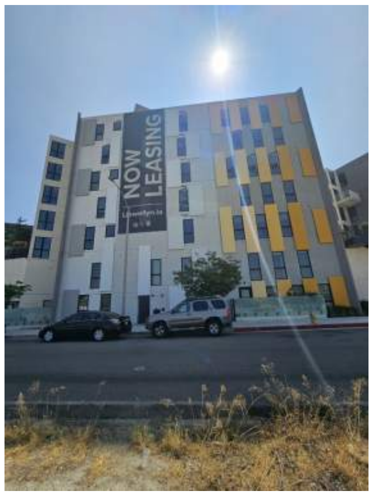




B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors
Location	West Wall
Percent Coverage	1
Typical Approximate Height	7
Typical Approximate Width	3

Quantity (EA)	10
Condition Score	2-Good
Technical Notes	None

Equipment Photos

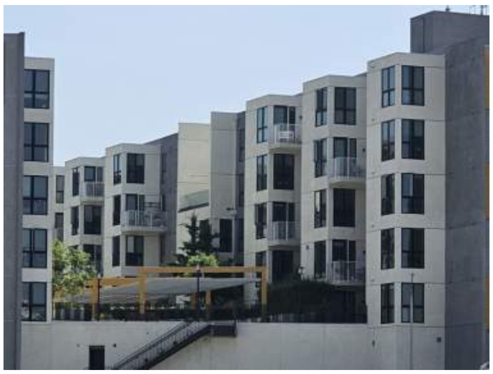


B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	North Wall (Longest Finger)
Percent Coverage	70
Typical Approximate Height	45
Typical Approximate Width	270

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos

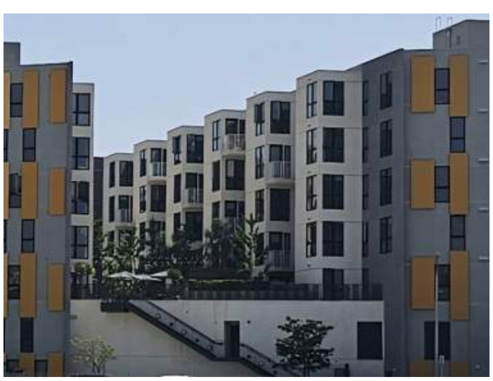



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	North Wall (Second Longest Finger)
Percent Coverage	70
Typical Approximate Height	45
Typical Approximate Width	200

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

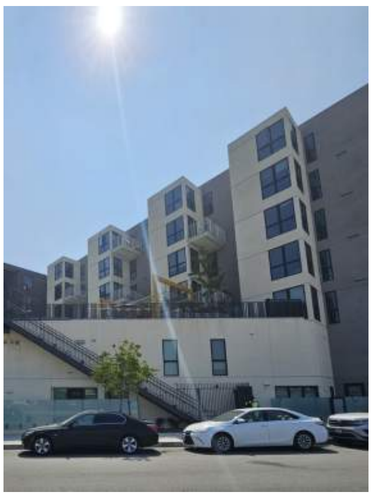
Equipment Photos

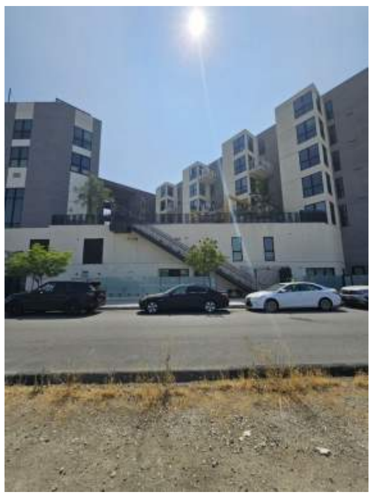



B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	North Wall (Second Shortest Finger)	**Condition Score**	2-Good
Percent Coverage	70	**Technical Notes**	None
Typical Approximate Height	45		
Typical Approximate Width	125		

Equipment Photos

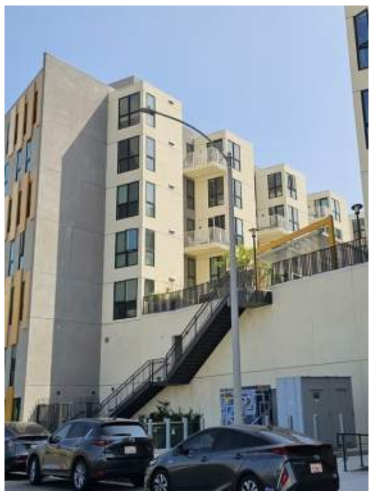




B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	South Wall (Second Longest Finger)	**Condition Score**	2-Good
Percent Coverage	70	**Technical Notes**	None
Typical Approximate Height	45		
Typical Approximate Width	240		

Equipment Photos

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering
Location	South Wall (Second Shortest Finger)
Percent Coverage	70
Typical Approximate Height	45
Typical Approximate Width	170

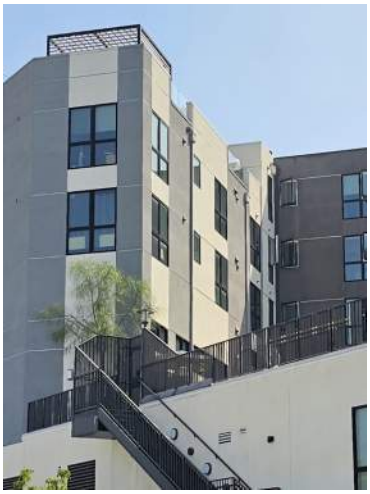
Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

Equipment Photos

B2010.10 - Cement Plastering

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Plastering	**Quantity (EA)**	1
Location	South Wall (Shortest Finger)	**Condition Score**	2-Good
Percent Coverage	70	**Technical Notes**	None
Typical Approximate Height	45		
Typical Approximate Width	60		

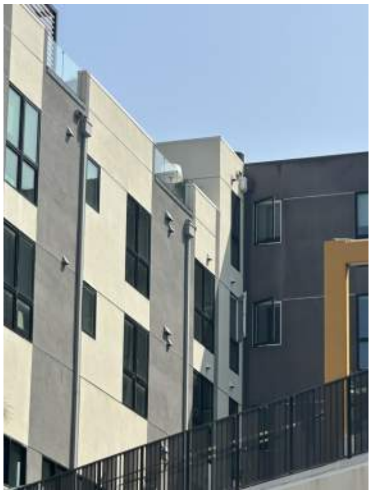
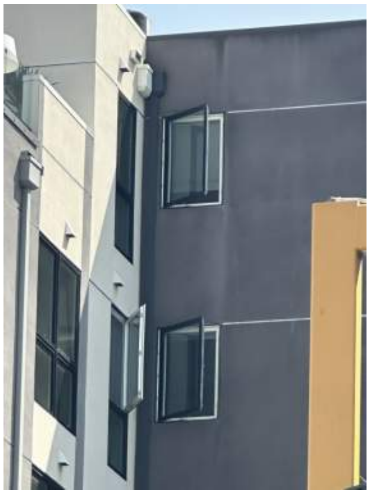
Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	91
Location	West, North, and South Walls	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame. Swings open outward horizontally. West Wall Count: 5 North Wall Count: 48 South Wall Count: 38
Typical Approximate Height	4		
Typical Approximate Width	3		

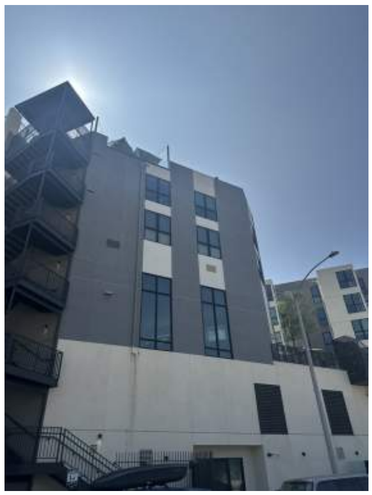
Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	2
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	16		
Typical Approximate Width	5		

Equipment Photos



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	20
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be double frame with an aluminum frame. Count includes individual panels; 3 panels on each floor are mullion.
Typical Approximate Height	8		
Typical Approximate Width	4		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	1
Location	West Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	25		
Typical Approximate Width	25		

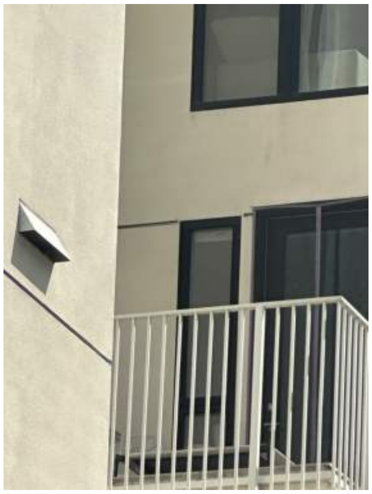
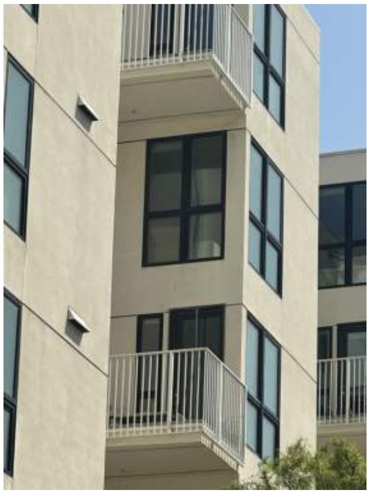
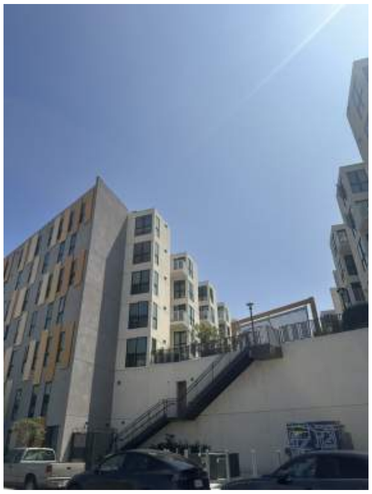
Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	North and South Walls
Percent Coverage	5
Typical Approximate Height	8
Typical Approximate Width	3

Quantity (EA)	69
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Sidelight window panel with each door is 8' x 2'. North Wall Count: 39, South Wall Count: 30

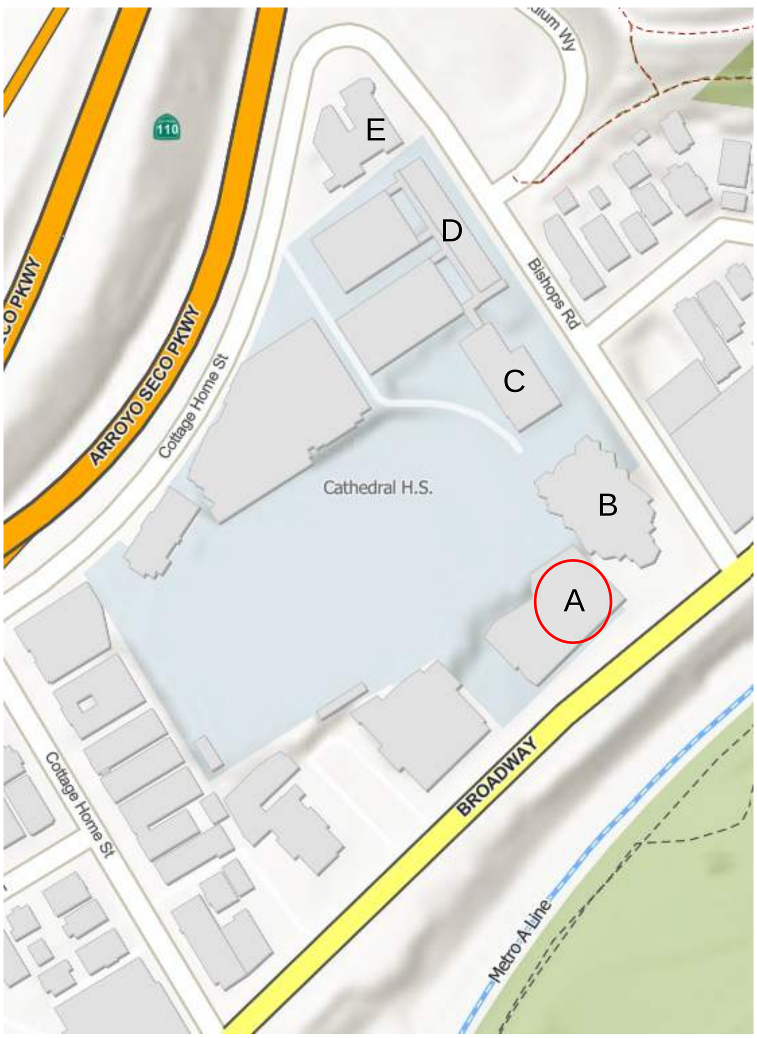
Equipment Photos

Asset Information

NSR	16a
Name	Cathedral High School
Address	1253 Bishops Road, Los Angeles, CA 90012
Year of Construction	1960
Year of Renovation	2019
Building Condition	Good
Building Construction Type	Masonry
Discipline	Architecture

Location Plan

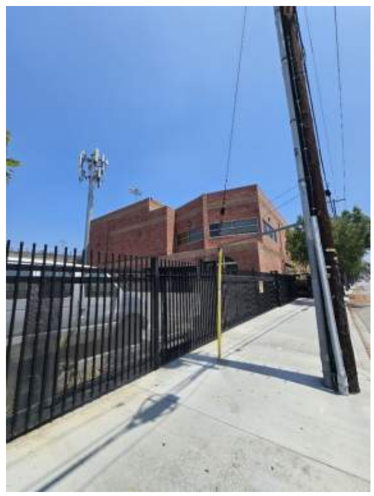


B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry
Location	Building A West Wall
Percent Coverage	80
Typical Approximate Height	30
Typical Approximate Width	90

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	None

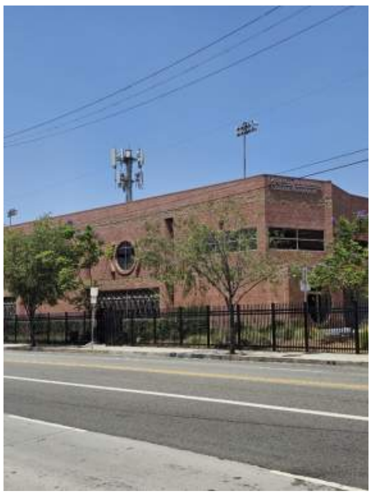
Equipment Photos

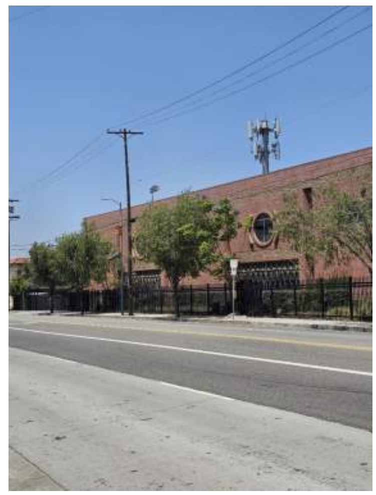




B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building A South Wall	**Condition Score**	2-Good
Percent Coverage	80	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	150		

Equipment Photos

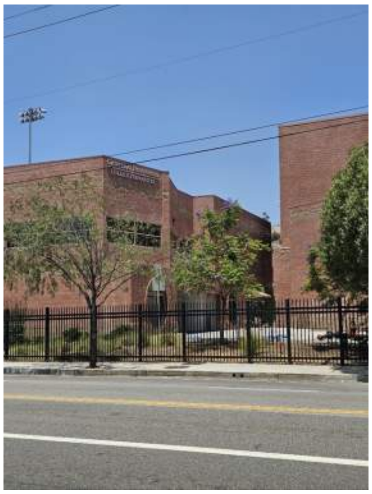




B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building A East Wall	**Condition Score**	2-Good
Percent Coverage	80	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	95		

Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	Vision glass 4" x 24"
Location	Building A West Wall		
Percent Coverage	1		
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos

B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
Location	Building A East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Double doors
Typical Approximate Height	7		
Typical Approximate Width	6		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	Building A South, East, and North Walls
Percent Coverage	5
Typical Approximate Height	4
Typical Approximate Width	5
Quantity (EA)	18
Condition Score	2-Good
Technical Notes	Appears to be double pane with an aluminum frame. Each opening has varying number of mullion panels; pictured are openings with approx. 1, 2, and 3 panels.

Equipment Photos




B2020.20 - Exterior Fixed Windows

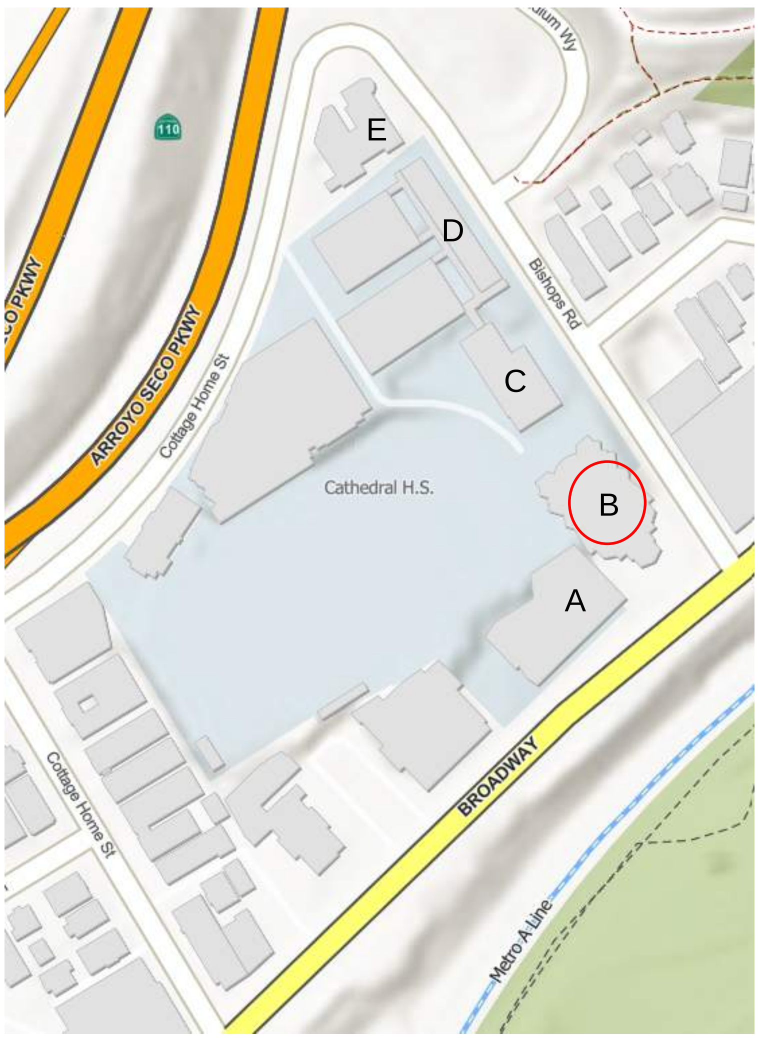
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	Building A East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos


Asset Information

NSR	16b
Name	Cathedral High School
Address	1253 Bishops Road, Los Angeles, CA 90012
Year of Construction	
Year of Renovation	2019
Building Condition	Good
Building Construction Type	Masonry
Discipline	Architecture

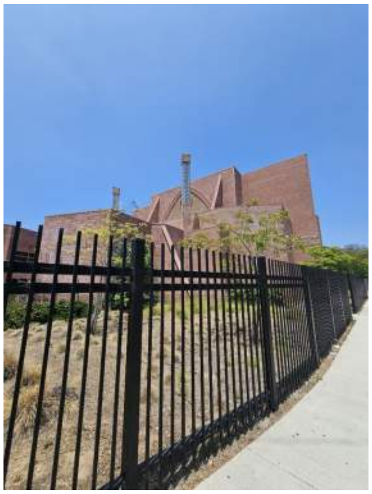
Location Plan



B2010.10 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Unit Masonry	**Quantity (EA)**	1
Location	Building B South Wall	**Condition Score**	2-Good
Percent Coverage	99	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	105		

Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	3
Location	Building B South, East, and North Walls	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Vision panel 4" x 24" South Wall Count: 1, East Wall Count: 1, North Wall Count: 1
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos





B2010.10 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Unit Masonry	**Quantity (EA)**	1
Location	Building B East Wall	**Condition Score**	2-Good
Percent Coverage	99	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	200		

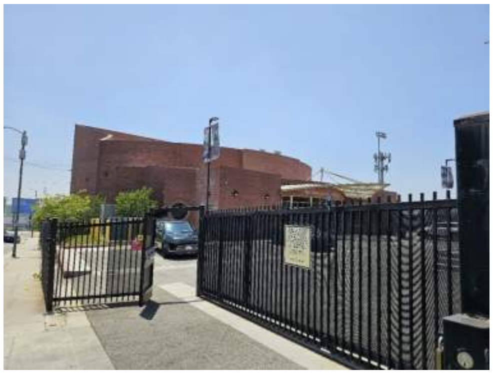
Equipment Photos



B2010.10 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Unit Masonry	**Quantity (EA)**	1
Location	Building B North Wall	**Condition Score**	2-Good
Percent Coverage	90	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	200		

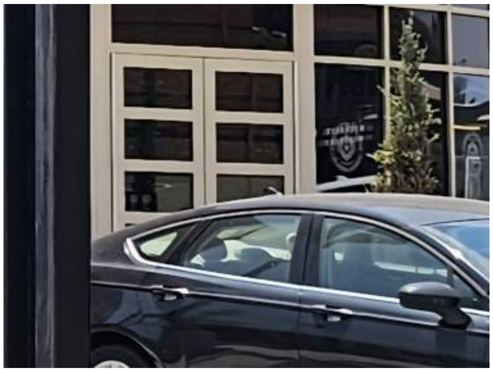
Equipment Photos

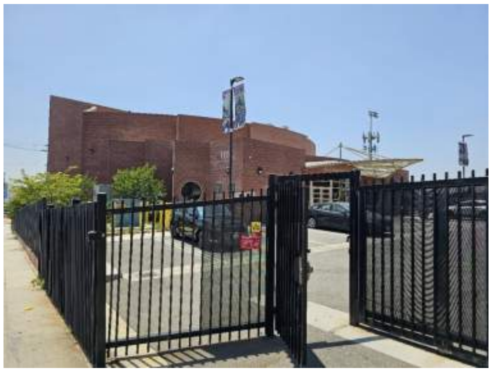


B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	2
Location	Building B North Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame. Double doors.
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos





B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	1
Location	Building B South Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame
Typical Approximate Height	10		
Typical Approximate Width	8		

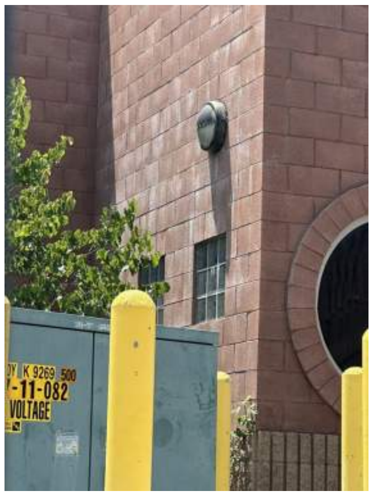
Equipment Photos


B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	Building B North Wall
Percent Coverage	1
Typical Approximate Height	3
Typical Approximate Width	3

Quantity (EA)	4
Condition Score	2-Good
Technical Notes	Glass block glazing.

Equipment Photos



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	Building B North Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be double pane with an aluminum frame
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos

B2020.30 - Storefronts

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.30 - Exterior Window Wall ▸ B2020.30 - Storefronts	**Quantity (EA)**	1
Location	Building B North Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be double pane with an aluminum frame.
Typical Approximate Height	12		
Typical Approximate Width	33		

Equipment Photos

B2020.20 - Exterior Fixed Windows

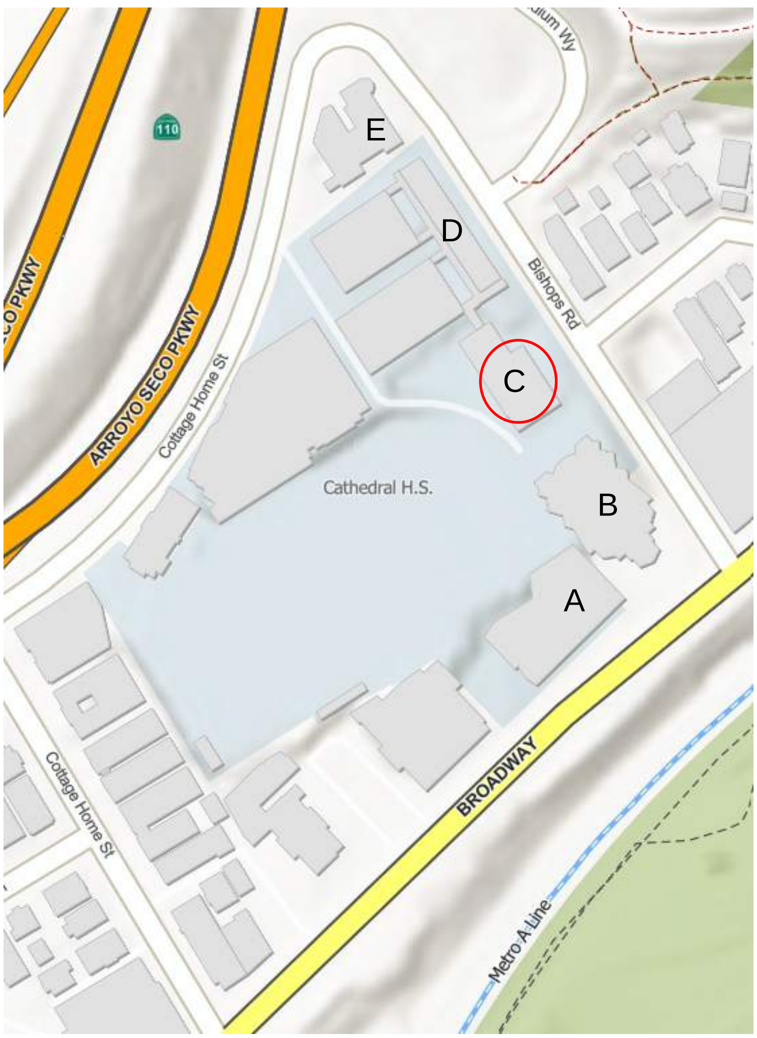
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	2
		Condition Score	2-Good
		Technical Notes	Appears to be double pane with an aluminum frame. Ticket booth.
Location	Building B North Wall		
Percent Coverage	2		
Typical Approximate Height	6		
Typical Approximate Width	6		

Equipment Photos

Asset Information

NSR	16c
Name	Cathedral High School
Address	1253 Bishops Road, Los Angeles, CA 90012
Year of Construction	1960
Year of Renovation	
Building Condition	Good
Building Construction Type	Masonry
Discipline	Architecture

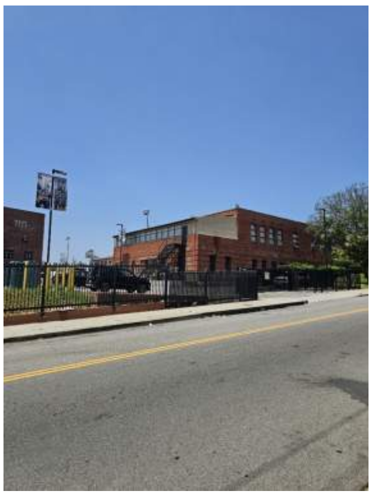
Location Plan



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building C South Wall	**Condition Score**	2-Good
Percent Coverage	50	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	60		

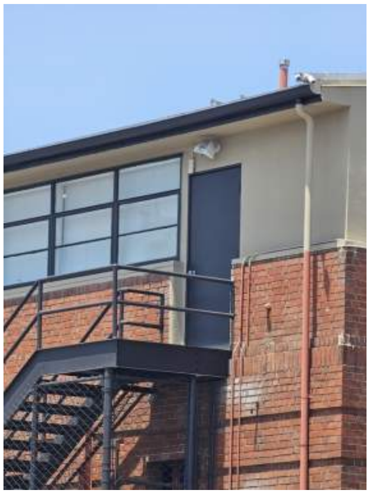
Equipment Photos



B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building C South Wall		
Percent Coverage	2		
Typical Approximate Height	5		
Typical Approximate Width	60		

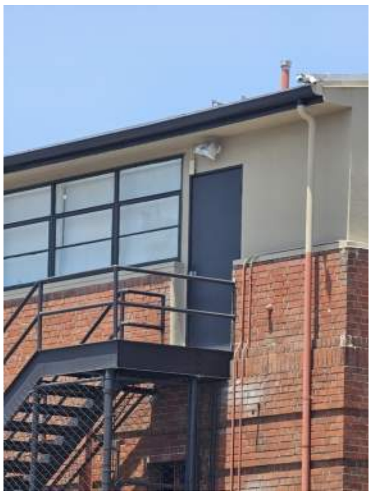
Equipment Photos



B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building C South Wall		
Percent Coverage	1		
Typical Approximate Height	8		
Typical Approximate Width	3		

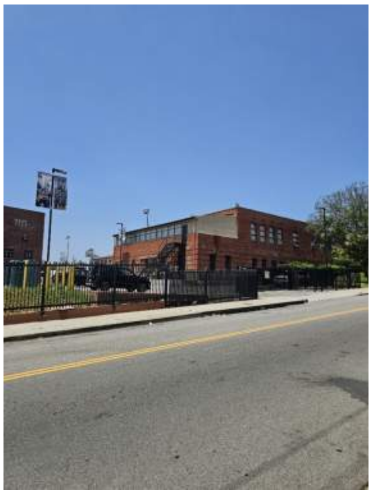
Equipment Photos



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building C East Wall	**Condition Score**	2-Good
Percent Coverage	90	**Technical Notes**	None
Typical Approximate Height	30		
Typical Approximate Width	125		

Equipment Photos

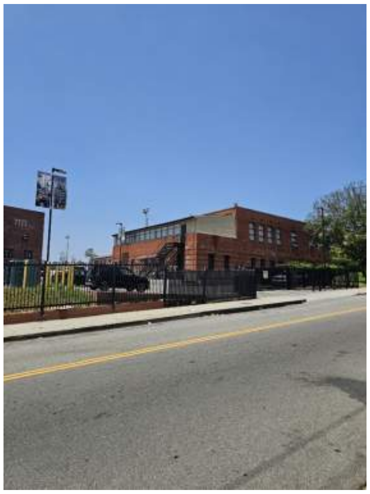


B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building C East Wall		
Percent Coverage	4		
Typical Approximate Height	6		
Typical Approximate Width	16		

Equipment Photos





B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
Location	Building C East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Double doors with two vision panels 12" x 12" and transom window 3' X 6'; appears to be single pane wood frame.
Typical Approximate Height	8		
Typical Approximate Width	6		

Equipment Photos

B2020.20 - Exterior Fixed Windows

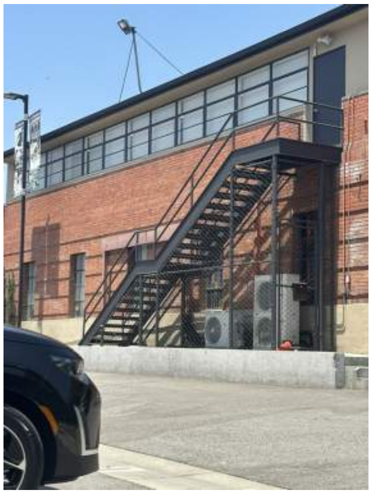
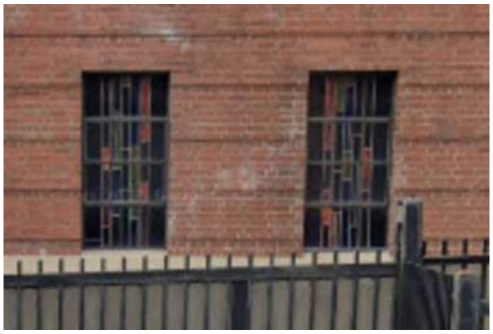
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	Building C South Wall	**Condition Score**	2-Good
Percent Coverage	25	**Technical Notes**	Appears to be single pane with a wood frame
Typical Approximate Height	4		
Typical Approximate Width	48		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	Building C South and East Walls
Percent Coverage	10
Typical Approximate Height	6
Typical Approximate Width	2
Quantity (EA)	16
Condition Score	2-Good
Technical Notes	Appears to be single pane with a wood frame. All three panels of each unit appeared to open outward and upward. Some openings have stained glass; some openings have metal security screens. South Wall Count: 3 non-stained with no screen, 2 stained with no cover East Wall Count: 6 non-stained with security screen, 3 non-stained with no screen, 2 stained no with screen

Equipment Photos


B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
Location	Building C East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be single pane with a wood frame. All three panels of each unit appeared to open outward and upward.
Typical Approximate Height	6		
Typical Approximate Width	3		

Equipment Photos



B2020.10 - Exterior Operating Windows

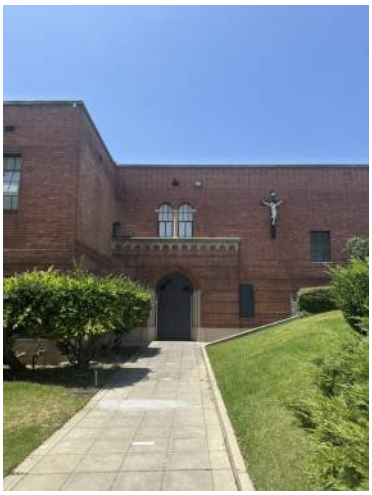
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	2
		Condition Score	2-Good
		Technical Notes	Appears to be single pane with a wood frame. Bottom panels appear to slide open vertically.
Location	Building C East Wall		
Percent Coverage	1		
Typical Approximate Height	5		
Typical Approximate Width	2		

Equipment Photos


B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	Building C East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be single pane with a wood frame.
Typical Approximate Height	4		
Typical Approximate Width	3		

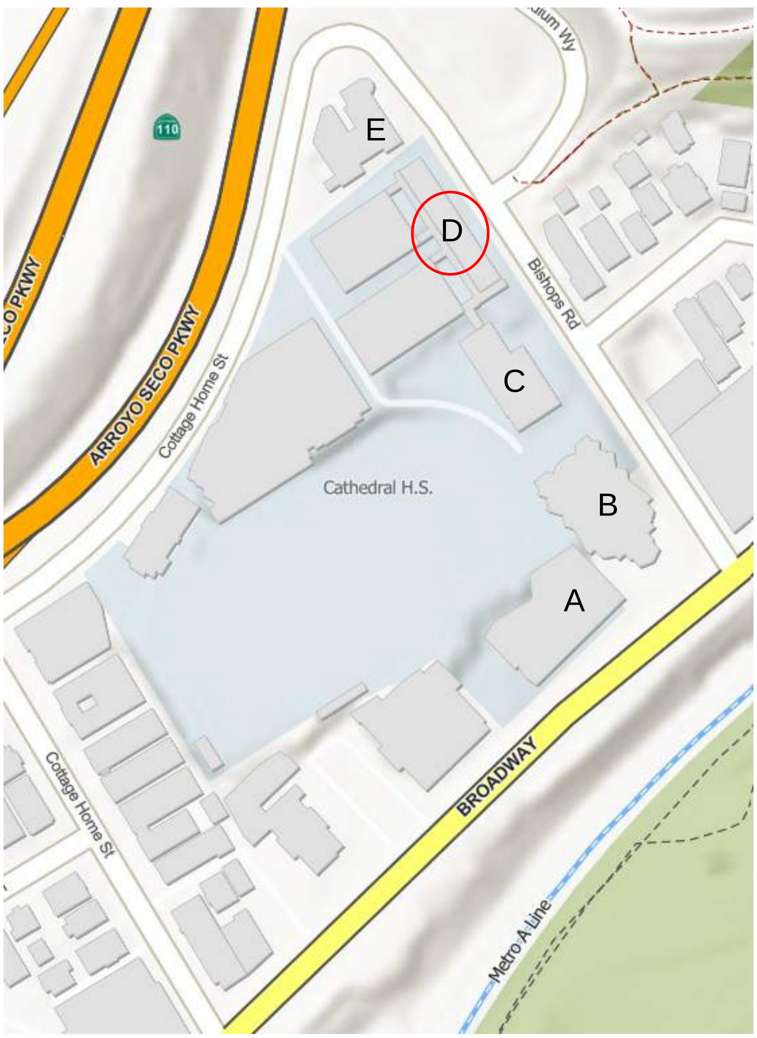
Equipment Photos



Asset Information

NSR	16d
Name	Cathedral High School
Address	1253 Bishops Road, Los Angeles, CA 90012
Year of Construction	1960
Year of Renovation	
Building Condition	Good
Building Construction Type	Masonry
Discipline	Architecture

Location Plan



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building D South Wall		
Percent Coverage	10		
Typical Approximate Height	3		
Typical Approximate Width	16		

Equipment Photos

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building D South Wall		
Percent Coverage	70		
Typical Approximate Height	17		
Typical Approximate Width	32		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances
Location	Building D South Wall
Percent Coverage	8
Typical Approximate Height	7
Typical Approximate Width	6

Quantity (EA)	1
Condition Score	2-Good
Technical Notes	Likely appears to be aluminum frame double doors with sidelights that are approx. 6' X 4'.

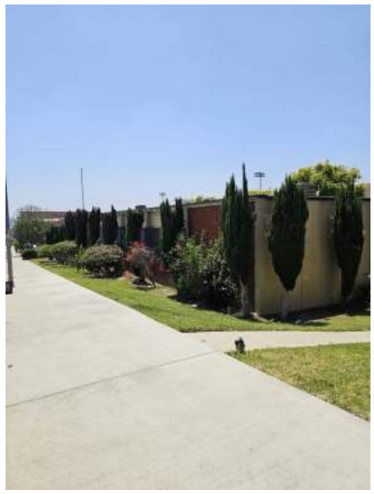
Equipment Photos



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building D East Wall	**Condition Score**	2-Good
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	9		
Typical Approximate Width	178		

Equipment Photos

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building D East Wall		
Percent Coverage	10		
Typical Approximate Height	3		
Typical Approximate Width	130		

Equipment Photos



B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building D North Wall		
Percent Coverage	100		
Typical Approximate Height	12		
Typical Approximate Width	30		

Equipment Photos


B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	1
Location	Building D South Wall	**Condition Score**	2-Good
Percent Coverage	2	**Technical Notes**	Appears to be single pane with an aluminum frame.
Typical Approximate Height	4		
Typical Approximate Width	7		

Equipment Photos

B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	4
Location	Building D East Wall	**Condition Score**	2-Good
Percent Coverage	40	**Technical Notes**	Appears to be single pane with an aluminum frame and covered with perforated metal security screen.
Typical Approximate Height	6		
Typical Approximate Width	13		

Equipment Photos

B2020.20 - Exterior Fixed Windows

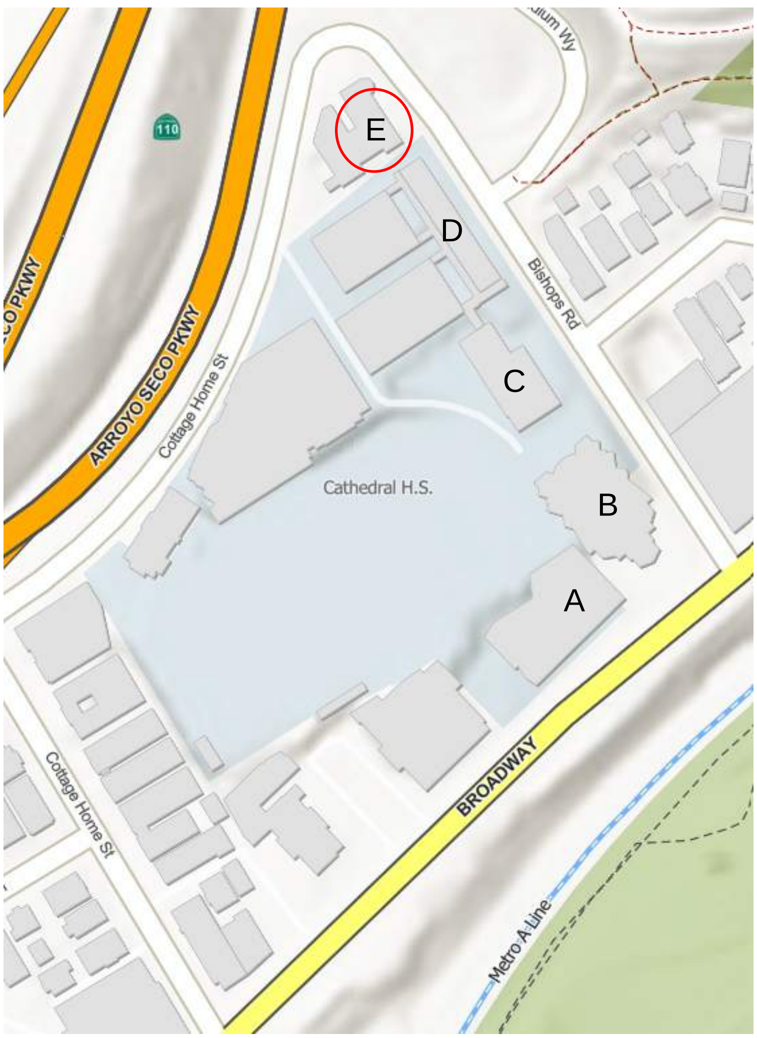
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows	**Quantity (EA)**	4
Location	Building D East Wall	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be single pane with an aluminum frame and covered with perforated metal security screen.
Typical Approximate Height	3		
Typical Approximate Width	13		

Equipment Photos

Asset Information

NSR	16e
Name	Cathedral High School
Address	1253 Bishops Road, Los Angeles, CA 90012
Year of Construction	1930
Year of Renovation	
Building Condition	Good
Building Construction Type	Masonry
Discipline	Architecture

Location Plan



B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building E South Wall	**Condition Score**	2-Good
Percent Coverage	90	**Technical Notes**	None
Typical Approximate Height	24		
Typical Approximate Width	88		

Equipment Photos


B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building E East Wall	**Condition Score**	2-Good
Percent Coverage	80	**Technical Notes**	None
Typical Approximate Height	24		
Typical Approximate Width	95		

Equipment Photos




B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
Location	Building E East Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Double wooden doors with glazing and a transom window 2.5' X 5'; appears to be single pane wood frame.
Typical Approximate Height	8		
Typical Approximate Width	5		

Equipment Photos



B2010.20 - Precast Concrete

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Precast Concrete	**Quantity (EA)**	1
Location	Building E East Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	None
Typical Approximate Height	24		
Typical Approximate Width	10		

Equipment Photos

B2010.20 - Unit Masonry

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.20 - Exterior Wall Construction ▸ B2010.20 - Unit Masonry	**Quantity (EA)**	1
Location	Building E North Wall	**Condition Score**	2-Good
Percent Coverage	40	**Technical Notes**	None
Typical Approximate Height	24		
Typical Approximate Width	61		

Equipment Photos


B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	2-Good
		Technical Notes	None
Location	Building E North Wall		
Percent Coverage	40		
Typical Approximate Height	24		
Typical Approximate Width	31		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
Location	Building E North Wall	**Condition Score**	2-Good
Percent Coverage	5	**Technical Notes**	Appears to be wood door with single pane glazing.
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos



B2020.10 - Exterior Operating Windows

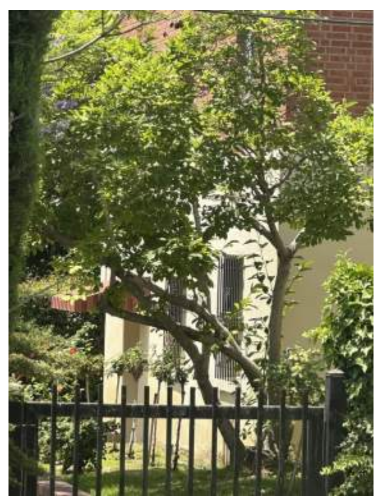
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	Building E South, East, and North Walls
Percent Coverage	10
Typical Approximate Height	6
Typical Approximate Width	3

Quantity (EA)	34
Condition Score	2-Good
Technical Notes	Appears to be single pane with a wood frame. Bottom panel slides open upward. Two on South Wall appear to have iron protective bars. South Wall Count: 14, East Wall Count: 7, North Wall Count: approx. 13 (difficult to view)

Equipment Photos





B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	14
Location	Building E South and East Walls	**Condition Score**	2-Good
Percent Coverage	10	**Technical Notes**	Appears to be single pane with a wood frame. Bottom panel slides open upward. South Wall Count: 6, East Wall Count: 8
Typical Approximate Height	7		
Typical Approximate Width	3		

Equipment Photos



B2020.20 - Exterior Fixed Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.20 - Exterior Fixed Windows
Location	Building E East Wall
Percent Coverage	5
Typical Approximate Height	8
Typical Approximate Width	2

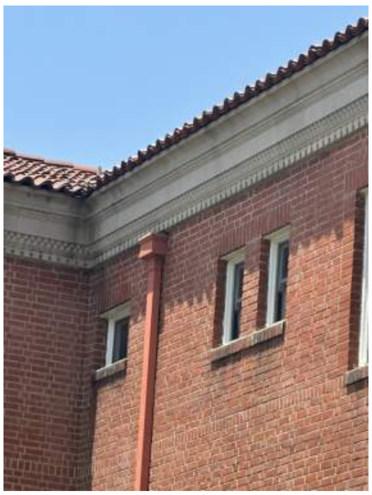
Quantity (EA)	8
Condition Score	2-Good
Technical Notes	Appears to be single pane stained with a wood frame.

Equipment Photos


B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	3
Location	Building E South Wall	**Condition Score**	2-Good
Percent Coverage	1	**Technical Notes**	Appears to be single pane with a wood frame. Bottom panel slides open upward.
Typical Approximate Height	2		
Typical Approximate Width	1		

Equipment Photos



Asset Information

NSR	17N
Name	Low-Rise Residential - North
Address	455 Savoy Street, Los Angeles, CA 90012
Year of Construction	NA
Year of Renovation	
Building Condition	Fair
Building Construction Type	Stucco Over Wood Frame
Discipline	Architecture

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	3-Fair
		Technical Notes	None
Location	West Wall		
Percent Coverage	90		
Typical Approximate Height	20		
Typical Approximate Width	105		

Equipment Photos

B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	2
Location	West Wall	**Condition Score**	3-Fair
Percent Coverage	1	**Technical Notes**	Louvers in door. One door has an iron security screen.
Typical Approximate Height	6		
Typical Approximate Width	2.5		

Equipment Photos



B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	3
Location	West Wall	**Condition Score**	3-Fair
Percent Coverage	1	**Technical Notes**	None
Typical Approximate Height	0.5		
Typical Approximate Width	1		

Equipment Photos

B2010.10 - Cement Stucco

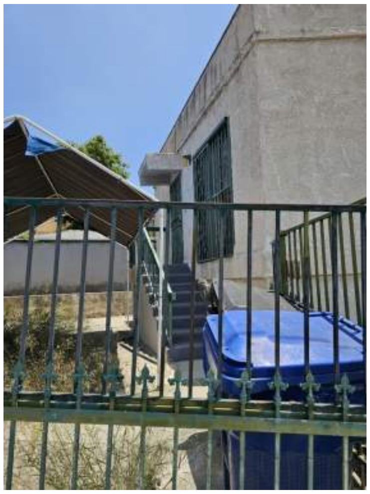
Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	3-Fair
		Technical Notes	None
Location	North Wall		
Percent Coverage	90		
Typical Approximate Height	20		
Typical Approximate Width	22		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	3
Location	North, West, and South Walls	**Condition Score**	3-Fair
Percent Coverage	5	**Technical Notes**	Appears to be wooden doors with iron security screens.
Typical Approximate Height	8		
Typical Approximate Width	3.5		

Equipment Photos


B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	3-Fair
		Technical Notes	None
Location	South Wall		
Percent Coverage	90		
Typical Approximate Height	20		
Typical Approximate Width	33		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
Location	North, West, and South Walls	**Condition Score**	3-Fair
Percent Coverage	1	**Technical Notes**	Appears to be single pane with an aluminum frame and iron security screen; slides open horizontally. North Wall Count: 1, West Wall Count: 3, South Wall Count: 1
Typical Approximate Height	8		
Typical Approximate Width	4		

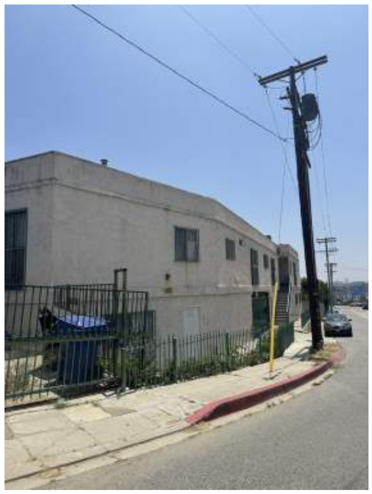
Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	2
Location	West Wall	**Condition Score**	3-Fair
Percent Coverage	1	**Technical Notes**	Appears to be single pane with an aluminum frame and iron security screen. Slides open horizontally
Typical Approximate Height	4		
Typical Approximate Width	4		

Equipment Photos


B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	19
Location	West, South, and East Walls	**Condition Score**	3-Fair
Percent Coverage	5	**Technical Notes**	Appears to be single pane with an aluminum frame and iron security screen. Slides open horizontally. West Wall Count: 5, South Wall Count: 3, East Wall Count: 8
Typical Approximate Height	3		
Typical Approximate Width	4		

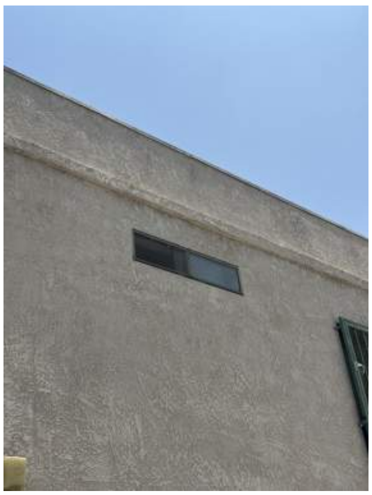
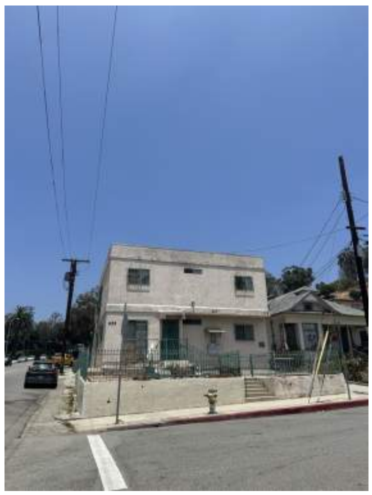
Equipment Photos



B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	5
Location	West, South, and East Walls	**Condition Score**	3-Fair
Percent Coverage	5	**Technical Notes**	Appears to be single pane with an aluminum frame. Slides open horizontally. West Wall Count: 1, South Wall Count: 2, East Wall Count: 2
Typical Approximate Height	1		
Typical Approximate Width	4		

Equipment Photos


Asset Information

NSR	17S 430
Name	Low-Rise Residential - South
Address	430 Savoy Street, Los Angeles, CA 90012
Year of Construction	1927
Year of Renovation	1978
Building Condition	Poor
Building Construction Type	Wood Siding/ Wood Frame
Discipline	Architecture

B2010.10 - Siding

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Siding	**Quantity (EA)**	1
Location	North Wall	**Condition Score**	4-Poor
Percent Coverage	60	**Technical Notes**	None
Typical Approximate Height	12		
Typical Approximate Width	24		

Equipment Photos



B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
Location	North Wall	**Condition Score**	4-Poor
Percent Coverage	15	**Technical Notes**	Appears to be a wooden door with an iron security door on the exterior.
Typical Approximate Height	8		
Typical Approximate Width	3		

Equipment Photos

B2010.10 - Siding

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Siding	**Quantity (EA)**	1
		Condition Score	4-Poor
		Technical Notes	None
Location	West Wall		
Percent Coverage	90		
Typical Approximate Height	24		
Typical Approximate Width	35		

Equipment Photos

B2050.20 - Exterior Utility Doors

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.20 - Exterior Utility Doors	**Quantity (EA)**	1
Location	West Wall	**Condition Score**	4-Poor
Percent Coverage	5	**Technical Notes**	Screen door on exterior
Typical Approximate Height	6.5		
Typical Approximate Width	2.5		

Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	1
		Condition Score	4-Poor
		Technical Notes	None
Location	West Wall		
Percent Coverage	1		
Typical Approximate Height	1		
Typical Approximate Width	1		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	9
Location	West and East Walls	**Condition Score**	4-Poor
Percent Coverage	10	**Technical Notes**	Appears to be single pane with a wood frame. Slides open vertically. East Wall Count: 4, West Wall Count: 5
Typical Approximate Height	4		
Typical Approximate Width	3		

Equipment Photos




B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	East Wall
Percent Coverage	5
Typical Approximate Height	3
Typical Approximate Width	3

Quantity (EA)	2
Condition Score	4-Poor
Technical Notes	Appears to be single pane with a wood frame. Window on the right is louvered. Window on the left appears to have two panels slide open vertically.

Equipment Photos


B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows
Location	North Wall
Percent Coverage	10
Typical Approximate Height	4
Typical Approximate Width	4

Quantity (EA)	2
Condition Score	4-Poor
Technical Notes	Appears to be single pane with a wood frame. Both panels of each window appear to swing open outward.

Equipment Photos

B2010.10 - Siding

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Siding	**Quantity (EA)**	1
Location	East Wall	**Condition Score**	4-Poor
Percent Coverage	80	**Technical Notes**	None
Typical Approximate Height	24		
Typical Approximate Width	40		

Equipment Photos

B2070.10 - Exterior Louvers

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2070 - Exterior Louvers and Vents ▸ B2070.10 - Exterior Louvers ▸ B2070.10 - Exterior Louvers	**Quantity (EA)**	2
Location	East Wall	**Condition Score**	4-Poor
Percent Coverage	5	**Technical Notes**	Appears to have mesh screens.
Typical Approximate Height	3		
Typical Approximate Width	3		

Equipment Photos

Asset Information

NSR	17S
Name	Low-Rise Residential - South
Address	438 Savoy Street, Los Angeles, CA 90012
Year of Construction	1927
Year of Renovation	1978
Building Condition	Fair
Building Construction Type	Wood Siding/ Wood Frame
Discipline	Architecture

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	3-Fair
		Technical Notes	None
Location	North Wall		
Percent Coverage	60		
Typical Approximate Height	20		
Typical Approximate Width	24		

Equipment Photos

B2050.10 - Balanced Door Entrances

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2050 - Exterior Doors and Grilles ▸ B2050.10 - Exterior Entrance Doors ▸ B2050.10 - Balanced Door Entrances	**Quantity (EA)**	1
Location	North Wall	**Condition Score**	3-Fair
Percent Coverage	10	**Technical Notes**	Appears to be wooden door with an iron security screen
Typical Approximate Height	8		
Typical Approximate Width	3		

Equipment Photos

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	2
		Condition Score	3-Fair
		Technical Notes	None
Location	West and East Walls		
Percent Coverage	70		
Typical Approximate Height	24		
Typical Approximate Width	70		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	11
		Condition Score	3-Fair
		Technical Notes	Appears to be single pane with an aluminum frame and iron security screens on the first floor. Slides open horizontally.
Location	West and North Walls		
Percent Coverage	10		
Typical Approximate Height	3		
Typical Approximate Width	6		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	1
Location	ADU North Wall	**Condition Score**	3-Fair
Percent Coverage	10	**Technical Notes**	Appears to be single pane with a vinyl frame. Slides open horizontally.
Typical Approximate Height	4		
Typical Approximate Width	2		

Equipment Photos

B2010.10 - Cement Stucco

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2010 - Exterior Walls ▸ B2010.10 - Exterior Wall Veneer ▸ B2010.10 - Cement Stucco	**Quantity (EA)**	1
		Condition Score	3-Fair
		Technical Notes	None
Location	ADU North Wall		
Percent Coverage	70		
Typical Approximate Height	12		
Typical Approximate Width	6		

Equipment Photos

B2020.10 - Exterior Operating Windows

Uniformat	B - SHELL ▸ B20 - EXTERIOR VERTICAL ENCLOSURES ▸ B2020 - Exterior Windows ▸ B2020.10 - Exterior Operating Windows ▸ B2020.10 - Exterior Operating Windows	**Quantity (EA)**	1
Location	West Wall	**Condition Score**	3-Fair
Percent Coverage	1	**Technical Notes**	Appears to be single pane with an aluminum frame and iron security screen. Slides open horizontally
Typical Approximate Height	3		
Typical Approximate Width	4		

Equipment Photos

Appendix 2 Construction Noise Calculation Inputs

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz)							Sum of OBCF (dBA)
				62.5	125	250	500	1000	2000	4000	
1 B	Alameda Station - Foundations and Columns	Concrete Mixer Truck	53.9	31.7	32.3	37.4	42.6	46.2	52.4	38.6	53.9
		Concrete Mixer Truck	53.9	31.7	32.3	37.4	42.6	46.2	52.4	38.6	53.9
		Concrete Pump Truck	53.5	28.0	34.3	38.7	46.2	49.0	48.9	41.4	53.5
		Crane	47.9	29.5	33.7	38.6	40.9	43.0	42.1	34.6	47.9
		Flat Bed Truck	49.4	35.7	35.8	38.9	43.5	43.5	41.2	41.3	49.4
		Gradall	52.1	27.4	36.5	40.0	41.4	49.6	44.8	40.6	52.1
		Pickup Truck	43.8	22.4	29.3	36.4	34.4	38.1	37.9	35.0	43.8
		Vacuum Excavator (Vac-truck)	60.4	36.0	47.1	39.6	50.0	52.2	56.4	55.2	60.4
		Vacuum Street Sweeper	50.6	28.6	33.7	35.2	46.6	45.8	43.0	36.8	50.6
		Vibrating Hopper	56.7	6.4	16.0	28.8	36.7	41.1	50.2	55.4	56.7
		Vibrating Hopper	56.7	6.4	16.0	28.8	36.7	41.1	50.2	55.4	56.7
		Warning Horn	42.9	0.0	0.0	18.2	33.6	36.8	38.0	37.8	42.9
		Warning Horn	43.0	0.0	0.8	18.3	33.7	36.9	38.1	37.9	43.0
		Warning Horn	43.0	0.0	0.8	18.3	33.7	36.9	38.1	37.9	43.0
		Welder / Torch	42.7	10.7	21.8	30.3	34.7	38.9	37.1	31.9	42.7
		Aggregate OBCF at Receiver (dBA, SPL):		41.3	48.5	48.0	54.7	57.4	60.7	60.4	65.1
		Unweighted for Model Input (dBZ, SPL):		67.5	64.6	56.6	57.9	57.4	59.5	59.4	70.8
3a & 3b	Alameda Station - Deck Shoring, Cribbing, and Erection	Compressor (air)	72.5	55.5	56.2	56.1	64.3	68.4	67.6	61.6	72.5
		Concrete Mixer Truck	59.5	37.3	37.9	43.0	48.2	51.8	58.0	44.2	59.5
		Concrete Mixer Truck	59.5	37.3	37.9	43.0	48.2	51.8	58.0	44.2	59.5
		Crane	57.8	39.4	43.6	48.5	50.8	52.9	52.0	44.5	57.8
		Flat Bed Truck	55.0	41.3	41.4	44.5	49.1	49.1	46.8	46.9	55.0
		Gradall	78.2	53.5	62.6	66.1	67.5	75.7	70.9	66.7	78.2
		Pickup Truck	69.8	48.4	55.3	62.4	60.4	64.1	63.9	61.0	69.8
		Pneumatic Tools	78.6	51.9	61.0	64.0	65.0	66.5	71.2	76.8	78.6
		Pneumatic Tools	78.6	51.9	61.0	64.0	65.0	66.5	71.2	76.8	78.6
		Vacuum Street Sweeper	56.3	34.3	39.4	40.9	52.3	51.5	48.7	42.5	56.3
		Ventilation Fan	83.6	59.8	45.6	77.8	46.6	80.8	45.6	76.8	83.6
		Warning Horn	69.0	6.7	26.8	44.3	59.7	62.9	64.1	63.9	69.0
		Warning Horn	55.4	-6.9	13.2	30.7	46.1	49.3	50.5	50.3	55.4
		Warning Horn	69.0	6.7	26.8	44.3	59.7	62.9	64.1	63.9	69.0
		Warning Horn	69.0	6.7	26.8	44.3	59.7	62.9	64.1	63.9	69.0
		Welder / Torch	74.8	42.8	53.9	62.4	66.8	71.0	69.2	64.0	74.8
		Welder / Torch	74.8	42.8	53.9	62.4	66.8	71.0	69.2	64.0	74.8
		Welder / Torch	74.8	42.8	53.9	62.4	66.8	71.0	69.2	64.0	74.8
		Welder / Torch	74.8	42.8	53.9	62.4	66.8	71.0	69.2	64.0	74.8
		Aggregate OBCF at Receiver (dBA, SPL):		63.1	67.9	79.0	75.8	83.7	79.5	82.3	87.9
		Unweighted for Model Input (dBZ, SPL):		89.3	84.0	87.6	79.0	83.7	78.3	81.3	93.4

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz) 62.5	125	250	500	1000	2000	4000	Sum of OBCF (dBA)
3a T & 3b T	Alameda Station - Deck Shoring, Cribbing, and Erection	Compressor (air)	76.8	59.8	60.5	60.4	68.6	72.7	71.9	65.9	76.8
		Concrete Mixer Truck	69.1	46.9	47.5	52.6	57.8	61.4	67.6	53.8	69.1
		Concrete Mixer Truck	69.1	46.9	47.5	52.6	57.8	61.4	67.6	53.8	69.1
		Crane	67.3	48.9	53.1	58.0	60.3	62.4	61.5	54.0	67.3
		Flat Bed Truck	64.6	50.9	51.0	54.1	58.7	58.7	56.4	56.5	64.6
		Gradall	82.5	57.8	66.9	70.4	71.8	80.0	75.2	71.0	82.5
		Pickup Truck	74.1	52.7	59.6	66.7	64.7	68.4	68.2	65.3	74.1
		Pneumatic Tools	82.8	56.1	65.2	68.2	69.2	70.7	75.4	81.0	82.8
		Pneumatic Tools	82.8	56.1	65.2	68.2	69.2	70.7	75.4	81.0	82.8
		Vacuum Street Sweeper	65.9	43.9	49.0	50.5	61.9	61.1	58.3	52.1	65.9
		Ventilation Fan	87.1	63.3	49.1	81.3	50.1	84.3	49.1	80.3	87.1
		Warning Horn	73.3	11.0	31.1	48.6	64.0	67.2	68.4	68.2	73.3
		Warning Horn	64.9	2.6	22.7	40.2	55.6	58.8	60.0	59.8	64.9
		Warning Horn	73.3	11.0	31.1	48.6	64.0	67.2	68.4	68.2	73.3
		Warning Horn	73.3	11.0	31.1	48.6	64.0	67.2	68.4	68.2	73.3
		Welder / Torch	78.2	46.2	57.3	65.8	70.2	74.4	72.6	67.4	78.2
		Welder / Torch	78.2	46.2	57.3	65.8	70.2	74.4	72.6	67.4	78.2
		Welder / Torch	78.2	46.2	57.3	65.8	70.2	74.4	72.6	67.4	78.2
		Welder / Torch	78.2	46.2	57.3	65.8	70.2	74.4	72.6	67.4	78.2
		Aggregate OBCF at Receiver (dBA, SPL):		67.1	72.1	82.6	79.8	87.4	83.7	86.3	91.8
		Unweighted for Model Input (dBZ, SPL):		93.3	88.2	91.2	83.0	87.4	82.5	85.3	97.3
6	Alpine Tower - Structural Steel	Compressor (air)	55.2	38.2	38.9	38.8	47.0	51.1	50.3	44.3	55.2
		Concrete Mixer Truck	67.0	44.8	45.4	50.5	55.7	59.3	65.5	51.7	67.0
		Concrete Mixer Truck	67.0	44.8	45.4	50.5	55.7	59.3	65.5	51.7	67.0
		Crane	57.8	39.4	43.6	48.5	50.8	52.9	52.0	44.5	57.8
		Flat Bed Truck	62.5	48.8	48.9	52.0	56.6	56.6	54.3	54.4	62.5
		Gradall	75.1	50.4	59.5	63.0	64.4	72.6	67.8	63.6	75.1
		Pickup Truck	66.7	45.3	52.2	59.3	57.3	61.0	60.8	57.9	66.7
		Pneumatic Tools	61.7	35.0	44.1	47.1	48.1	49.6	54.3	59.9	61.7
		Pneumatic Tools	61.7	35.0	44.1	47.1	48.1	49.6	54.3	59.9	61.7
		Vacuum Street Sweeper	63.8	41.8	46.9	48.4	59.8	59.0	56.2	50.0	63.8
		Ventilation Fan	58.4	34.6	20.4	52.6	21.4	55.6	20.4	51.6	58.4
		Warning Horn	65.9	0.0	23.7	41.2	56.6	59.8	61.0	60.8	65.9
		Warning Horn	55.3	0.0	13.1	30.6	46.0	49.2	50.4	50.2	55.3
		Warning Horn	65.9	0.0	23.7	41.2	56.6	59.8	61.0	60.8	65.9
		Warning Horn	65.9	0.0	23.7	41.2	56.6	59.8	61.0	60.8	65.9
		Welder / Torch	49.5	17.5	28.6	37.1	41.5	45.7	43.9	38.7	49.5
		Welder / Torch	49.5	17.5	28.6	37.1	41.5	45.7	43.9	38.7	49.5

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz) 62.5	125	250	500	1000	2000	4000	Sum of OBCF (dBA)
		Welder / Torch	49.5	17.5	28.6	37.1	41.5	45.7	43.9	38.7	49.5
		Welder / Torch	49.5	17.5	28.6	37.1	41.5	45.7	43.9	38.7	49.5
			Aggregate OBCF at Receiver (dBA, SPL):	55.1	61.3	65.7	68.6	74.2	73.0	69.8	78.4
			Unweighted for Model Input (dBZ, SPL):	81.3	77.4	74.3	71.8	74.2	71.8	68.8	84.5
6 T	Alpine Tower - Foundations and Columns	Concrete Mixer Truck	64.5	42.3	42.9	48.0	53.2	56.8	63.0	49.2	64.5
		Concrete Mixer Truck	64.5	42.3	42.9	48.0	53.2	56.8	63.0	49.2	64.5
		Concrete Pump Truck	64.1	38.6	44.9	49.3	56.8	59.6	59.5	52.0	64.1
		Crane	61.8	43.4	47.6	52.5	54.8	56.9	56.0	48.5	61.8
		Flat Bed Truck	60.0	46.3	46.4	49.5	54.1	54.1	51.8	51.9	60.0
		Gradall	68.5	43.8	52.9	56.4	57.8	66.0	61.2	57.0	68.5
		Pickup Truck	61.1	39.7	46.6	53.7	51.7	55.4	55.2	52.3	61.1
		Vacuum Excavator (Vac-truck)	71.0	46.6	57.7	50.2	60.6	62.8	67.0	65.8	71.0
		Vacuum Street Sweeper	61.3	39.3	44.4	45.9	57.3	56.5	53.7	47.5	61.3
		Vibrating Hopper	73.1	22.8	32.4	45.2	53.1	57.5	66.6	71.8	73.1
		Vibrating Hopper	73.1	22.8	32.4	45.2	53.1	57.5	66.6	71.8	73.1
		Warning Horn	59.3	0.0	17.1	34.6	50.0	53.2	54.4	54.2	59.3
		Warning Horn	60.3	0.0	18.1	35.6	51.0	54.2	55.4	55.2	60.3
		Warning Horn	60.3	0.0	18.1	35.6	51.0	54.2	55.4	55.2	60.3
		Welder / Torch	59.1	0.0	38.2	46.7	51.1	55.3	53.5	48.3	59.1
			Aggregate OBCF at Receiver (dBA, SPL):	52.9	60.2	61.5	66.8	70.6	73.5	75.6	78.9
			Unweighted for Model Input (dBZ, SPL):	79.1	76.3	70.1	70.0	70.6	72.3	74.6	83.0
7	Alpine Tower - Foundations and Columns	Concrete Mixer Truck	70.1	47.9	48.5	53.6	58.8	62.4	68.6	54.8	70.1
		Concrete Mixer Truck	70.1	47.9	48.5	53.6	58.8	62.4	68.6	54.8	70.1
		Concrete Pump Truck	69.6	44.1	50.4	54.8	62.3	65.1	65.0	57.5	69.6
		Crane	56.9	38.5	42.7	47.6	49.9	52.0	51.1	43.6	56.9
		Flat Bed Truck	65.6	51.9	52.0	55.1	59.7	59.7	57.4	57.5	65.6
		Gradall	63.7	39.0	48.1	51.6	53.0	61.2	56.4	52.2	63.7
		Pickup Truck	63.9	42.5	49.4	56.5	54.5	58.2	58.0	55.1	63.9
		Vacuum Excavator (Vac-truck)	76.6	52.2	63.3	55.8	66.2	68.4	72.6	71.4	76.6
		Vacuum Street Sweeper	66.8	44.8	49.9	51.4	62.8	62.0	59.2	53.0	66.8
		Vibrating Hopper	68.3	18.0	27.6	40.4	48.3	52.7	61.8	67.0	68.3
		Vibrating Hopper	68.3	18.0	27.6	40.4	48.3	52.7	61.8	67.0	68.3
		Warning Horn	54.5	0.0	12.3	29.8	45.2	48.4	49.6	49.4	54.5
		Warning Horn	63.1	0.8	20.9	38.4	53.8	57.0	58.2	58.0	63.1
		Warning Horn	63.1	0.8	20.9	38.4	53.8	57.0	58.2	58.0	63.1
		Welder / Torch	54.3	22.3	33.4	41.9	46.3	50.5	48.7	43.5	54.3
			Aggregate OBCF at Receiver (dBA, SPL):	57.3	64.5	63.6	70.6	73.0	76.3	74.4	80.3
			Unweighted for Model Input (dBZ, SPL):	83.5	80.6	72.2	73.8	73.0	75.1	73.4	86.5

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz)							Sum of OBCF (dBA)
				62.5	125	250	500	1000	2000	4000	
9	Chinatown/State Park Station - Foundations and Columns	Concrete Mixer Truck	57.9	35.7	36.3	41.4	46.6	50.2	56.4	42.6	57.9
		Concrete Mixer Truck	57.9	35.7	36.3	41.4	46.6	50.2	56.4	42.6	57.9
		Concrete Pump Truck	57.5	32.0	38.3	42.7	50.2	53.0	52.9	45.4	57.5
		Crane	45.8	27.4	31.6	36.5	38.8	40.9	40.0	32.5	45.8
		Flat Bed Truck	53.4	39.7	39.8	42.9	47.5	47.5	45.2	45.3	53.4
		Gradall	52.5	27.8	36.9	40.4	41.8	50.0	45.2	41.0	52.5
		Pickup Truck	37.0	15.6	22.5	29.6	27.6	31.3	31.1	28.2	37.0
		Vacuum Excavator (Vac-truck)	64.4	40.0	51.1	43.6	54.0	56.2	60.4	59.2	64.4
		Vacuum Street Sweeper	54.7	32.7	37.8	39.3	50.7	49.9	47.1	40.9	54.7
		Vibrating Hopper	57.1	6.8	16.4	29.2	37.1	41.5	50.6	55.8	57.1
		Vibrating Hopper	57.1	6.8	16.4	29.2	37.1	41.5	50.6	55.8	57.1
		Warning Horn	43.3	0.0	1.1	18.6	34.0	37.2	38.4	38.2	43.3
		Warning Horn	36.2	0.0	-6.0	11.5	26.9	30.1	31.3	31.1	36.2
		Warning Horn	36.2	0.0	-6.0	11.5	26.9	30.1	31.3	31.1	36.2
		Welder / Torch	43.1	11.1	22.2	30.7	35.1	39.3	37.5	32.3	43.1
		Aggregate OBCF at Receiver (dBA, SPL):		45.0	52.2	50.7	58.2	60.6	64.1	62.4	68.1
		Unweighted for Model Input (dBZ, SPL):		71.2	68.3	59.3	61.4	60.6	62.9	61.4	74.3
9 T	Chinatown/State Park Station - Foundations and Columns	Concrete Mixer Truck	57.8	35.6	36.2	41.3	46.5	50.1	56.3	42.5	57.8
		Concrete Mixer Truck	57.8	35.6	36.2	41.3	46.5	50.1	56.3	42.5	57.8
		Concrete Pump Truck	57.4	31.9	38.2	42.6	50.1	52.9	52.8	45.3	57.4
		Crane	55.6	37.2	41.4	46.3	48.6	50.7	49.8	42.3	55.6
		Flat Bed Truck	53.3	39.6	39.7	42.8	47.4	47.4	45.1	45.2	53.3
		Gradall	62.4	37.7	46.8	50.3	51.7	59.9	55.1	50.9	62.4
		Pickup Truck	47.0	25.6	32.5	39.6	37.6	41.3	41.1	38.2	47.0
		Vacuum Excavator (Vac-truck)	64.3	39.9	51.0	43.5	53.9	56.1	60.3	59.1	64.3
		Vacuum Street Sweeper	54.6	32.6	37.7	39.2	50.6	49.8	47.0	40.8	54.6
		Vibrating Hopper	67.0	16.7	26.3	39.1	47.0	51.4	60.5	65.7	67.0
		Vibrating Hopper	67.0	16.7	26.3	39.1	47.0	51.4	60.5	65.7	67.0
		Warning Horn	53.2	0.0	11.0	28.5	43.9	47.1	48.3	48.1	53.2
		Warning Horn	46.2	0.0	4.0	21.5	36.9	40.1	41.3	41.1	46.2
		Warning Horn	46.2	0.0	4.0	21.5	36.9	40.1	41.3	41.1	46.2
		Welder / Torch	53.0	21.0	32.1	40.6	45.0	49.2	47.4	42.2	53.0
		Aggregate OBCF at Receiver (dBA, SPL):		46.1	53.4	54.5	60.0	63.9	67.0	69.3	72.4
		Unweighted for Model Input (dBZ, SPL):		72.3	69.5	63.1	63.2	63.9	65.8	68.3	76.4
11	Chinatown/State Park Station - Foundations and Columns	Concrete Mixer Truck	66.3	44.1	44.7	49.8	55.0	58.6	64.8	51.0	66.3
		Concrete Mixer Truck	66.3	44.1	44.7	49.8	55.0	58.6	64.8	51.0	66.3
		Concrete Pump Truck	65.9	40.4	46.7	51.1	58.6	61.4	61.3	53.8	65.9
		Crane	57.0	38.6	42.8	47.7	50.0	52.1	51.2	43.7	57.0

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz) 62.5	125	250	500	1000	2000	4000	Sum of OBCF (dBA)
		Flat Bed Truck	61.8	48.1	48.2	51.3	55.9	55.9	53.6	53.7	61.8
		Gradall	63.8	39.1	48.2	51.7	53.1	61.3	56.5	52.3	63.8
		Pickup Truck	41.2	19.8	26.7	33.8	31.8	35.5	35.3	32.4	41.2
		Vacuum Excavator (Vac-truck)	72.8	48.4	59.5	52.0	62.4	64.6	68.8	67.6	72.8
		Vacuum Street Sweeper	63.0	41.0	46.1	47.6	59.0	58.2	55.4	49.2	63.0
		Vibrating Hopper	68.4	18.1	27.7	40.5	48.4	52.8	61.9	67.1	68.4
		Vibrating Hopper	68.4	18.1	27.7	40.5	48.4	52.8	61.9	67.1	68.4
		Warning Horn	54.6	0.0	12.4	29.9	45.3	48.5	49.7	49.5	54.6
		Warning Horn	40.4	0.0	0.0	15.7	31.1	34.3	35.5	35.3	40.4
		Warning Horn	40.4	0.0	0.0	15.7	31.1	34.3	35.5	35.3	40.4
		Welder / Torch	54.4	22.4	33.5	42.0	46.4	50.6	48.8	43.6	54.4
		Aggregate OBCF at Receiver (dBA, SPL):		53.5	60.8	59.6	66.8	69.5	72.9	72.4	77.2
		Unweighted for Model Input (dBZ, SPL):		79.7	76.9	68.2	70.0	69.5	71.7	71.4	82.9
12	Chinatown/State Park Station - Structural Steel	Compressor (air)	49.5	32.5	33.2	33.1	41.3	45.4	44.6	38.6	49.5
		Concrete Mixer Truck	61.0	38.8	39.4	44.5	49.7	53.3	59.5	45.7	61.0
		Concrete Mixer Truck	61.0	38.8	39.4	44.5	49.7	53.3	59.5	45.7	61.0
		Crane	47.8	29.4	33.6	38.5	40.8	42.9	42.0	34.5	47.8
		Flat Bed Truck	56.5	42.8	42.9	46.0	50.6	50.6	48.3	48.4	56.5
		Gradall	66.6	41.9	51.0	54.5	55.9	64.1	59.3	55.1	66.6
		Pickup Truck	58.2	36.8	43.7	50.8	48.8	52.5	52.3	49.4	58.2
		Pneumatic Tools	65.2	38.5	47.6	50.6	51.6	53.1	57.8	63.4	65.2
		Pneumatic Tools	65.2	38.5	47.6	50.6	51.6	53.1	57.8	63.4	65.2
		Vacuum Street Sweeper	57.8	35.8	40.9	42.4	53.8	53.0	50.2	44.0	57.8
		Ventilation Fan	52.1	28.3	14.1	46.3	15.1	49.3	14.1	45.3	52.1
		Warning Horn	57.4	0.0	15.2	32.7	48.1	51.3	52.5	52.3	57.4
		Warning Horn	45.4	0.0	3.2	20.7	36.1	39.3	40.5	40.3	45.4
		Warning Horn	57.4	0.0	15.2	32.7	48.1	51.3	52.5	52.3	57.4
		Warning Horn	57.4	0.0	15.2	32.7	48.1	51.3	52.5	52.3	57.4
		Welder / Torch	43.2	1.0	22.3	30.8	35.2	39.4	37.6	32.4	43.2
		Welder / Torch	43.2	2.0	22.3	30.8	35.2	39.4	37.6	32.4	43.2
		Welder / Torch	43.2	3.0	22.3	30.8	35.2	39.4	37.6	32.4	43.2
		Welder / Torch	43.2	4.0	22.3	30.8	35.2	39.4	37.6	32.4	43.2
		Aggregate OBCF at Receiver (dBA, SPL):		48.8	55.0	59.1	61.9	66.5	66.8	67.4	72.4
		Unweighted for Model Input (dBZ, SPL):		75.0	71.1	67.7	65.1	66.5	65.6	66.4	78.2
12 T	Chinatown/State Park Station - Foundations and Columns	Concrete Mixer Truck	60.6	38.4	39.0	44.1	49.3	52.9	59.1	45.3	60.6
		Concrete Mixer Truck	60.6	38.4	39.0	44.1	49.3	52.9	59.1	45.3	60.6
		Concrete Pump Truck	60.2	34.7	41.0	45.4	52.9	55.7	55.6	48.1	60.2
		Crane	57.6	39.2	43.4	48.3	50.6	52.7	51.8	44.3	57.6

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz)							Sum of OBCF (dBA)
				62.5	125	250	500	1000	2000	4000	
		Flat Bed Truck	56.1	42.4	42.5	45.6	50.2	50.2	47.9	48.0	56.1
		Gradall	64.4	39.7	48.8	52.3	53.7	61.9	57.1	52.9	64.4
		Pickup Truck	57.5	36.1	43.0	50.1	48.1	51.8	51.6	48.7	57.5
		Vacuum Excavator (Vac-truck)	67.1	42.7	53.8	46.3	56.7	58.9	63.1	61.9	67.1
		Vacuum Street Sweeper	57.4	35.4	40.5	42.0	53.4	52.6	49.8	43.6	57.4
		Vibrating Hopper	68.9	18.6	28.2	41.0	48.9	53.3	62.4	67.6	68.9
		Vibrating Hopper	68.9	18.6	28.2	41.0	48.9	53.3	62.4	67.6	68.9
		Warning Horn	55.1	0.0	12.9	30.4	45.8	49.0	50.2	50.0	55.1
		Warning Horn	56.7	0.0	14.5	32.0	47.4	50.6	51.8	51.6	56.7
		Warning Horn	56.7	0.0	14.5	32.0	47.4	50.6	51.8	51.6	56.7
		Welder / Torch	55.0	0.0	34.1	42.6	47.0	51.2	49.4	44.2	55.0
		Aggregate OBCF at Receiver (dBA, SPL):		48.9	56.2	57.5	62.8	66.6	69.5	71.4	74.8
		Unweighted for Model Input (dBZ, SPL):		75.1	72.3	66.1	66.0	66.6	68.3	70.4	79.0
16a, 16b, 16c, 16d, 16e	Broadway Junction - Decking and Shoring	Compressor (air)	54.1	37.1	37.8	37.7	45.9	50.0	49.2	43.2	54.1
		Concrete Mixer Truck	56.0	33.8	34.4	39.5	44.7	48.3	54.5	40.7	56.0
		Concrete Mixer Truck	56.0	33.8	34.4	39.5	44.7	48.3	54.5	40.7	56.0
		Crane	54.8	36.4	40.6	45.5	47.8	49.9	49.0	41.5	54.8
		Flat Bed Truck	51.5	37.8	37.9	41.0	45.6	45.6	43.3	43.4	51.5
		Gradall	62.4	37.7	46.8	50.3	51.7	59.9	55.1	50.9	62.4
		Pickup Truck	54.0	32.6	39.5	46.6	44.6	48.3	48.1	45.2	54.0
		Pneumatic Tools	66.4	39.7	48.8	51.8	52.8	54.3	59.0	64.6	66.4
		Pneumatic Tools	66.4	39.7	48.8	51.8	52.8	54.3	59.0	64.6	66.4
		Vacuum Street Sweeper	52.8	30.8	35.9	37.4	48.8	48.0	45.2	39.0	52.8
		Ventilation Fan	63.4	39.6	25.4	57.6	26.4	60.6	25.4	56.6	63.4
		Warning Horn	53.1	0.0	10.9	28.4	43.8	47.0	48.2	48.0	53.1
		Warning Horn	52.3	0.0	10.1	27.6	43.0	46.2	47.4	47.2	52.3
		Warning Horn	53.1	0.0	10.9	28.4	43.8	47.0	48.2	48.0	53.1
		Warning Horn	53.1	0.0	10.9	28.4	43.8	47.0	48.2	48.0	53.1
		Welder / Torch	54.6	22.6	33.7	42.2	46.6	50.8	49.0	43.8	54.6
		Welder / Torch	54.6	22.6	33.7	42.2	46.6	50.8	49.0	43.8	54.6
		Welder / Torch	54.6	22.6	33.7	42.2	46.6	50.8	49.0	43.8	54.6
		Welder / Torch	54.6	22.6	33.7	42.2	46.6	50.8	49.0	43.8	54.6
		Aggregate OBCF at Receiver (dBA, SPL):		47.6	54.0	60.7	60.4	65.8	65.2	68.3	72.2
		Unweighted for Model Input (dBZ, SPL):		73.8	70.1	69.3	63.6	65.8	64.0	67.3	77.5
17Na & 17Nb	Broadway Junction - Decking and Shoring	Compressor (air)	53.5	36.5	37.2	37.1	45.3	49.4	48.6	42.6	53.5
		Concrete Mixer Truck	49.1	26.9	27.5	32.6	37.8	41.4	47.6	33.8	49.1
		Concrete Mixer Truck	49.1	26.9	27.5	32.6	37.8	41.4	47.6	33.8	49.1
		Crane	47.0	28.6	32.8	37.7	40.0	42.1	41.2	33.7	47.0

1. Draft EIR Appendix M Noise and Vibration Report, Appendix B.1 Construction Noise Calculation Sheets

Receiver ID	Worst-Case Noise Component & Phase	Equipment Roster for Phase	Construction Noise Level with Mitigation (dBA, SPL)[1]	OBCF Spectrum of Piece of Equipment (Hz)							Sum of OBCF (dBA)
				62.5	125	250	500	1000	2000	4000	
		Flat Bed Truck	44.6	30.9	31.0	34.1	38.7	38.7	36.4	36.5	44.6
		Gradall	66.1	41.4	50.5	54.0	55.4	63.6	58.8	54.6	66.1
		Pickup Truck	57.7	36.3	43.2	50.3	48.3	52.0	51.8	48.9	57.7
		Pneumatic Tools	65.2	38.5	47.6	50.6	51.6	53.1	57.8	63.4	65.2
		Pneumatic Tools	65.2	38.5	47.6	50.6	51.6	53.1	57.8	63.4	65.2
		Vacuum Street Sweeper	45.9	23.9	29.0	30.5	41.9	41.1	38.3	32.1	45.9
		Ventilation Fan	57.5	33.7	19.5	51.7	20.5	54.7	19.5	50.7	57.5
		Warning Horn	56.9	0.0	14.7	32.2	47.6	50.8	52.0	51.8	56.9
		Warning Horn	44.5	0.0	2.3	19.8	35.2	38.4	39.6	39.4	44.5
		Warning Horn	56.8	0.0	14.6	32.1	47.5	50.7	51.9	51.7	56.8
		Warning Horn	56.8	0.0	14.6	32.1	47.5	50.7	51.9	51.7	56.8
		Welder / Torch	48.7	16.7	27.8	36.3	40.7	44.9	43.1	37.9	48.7
		Welder / Torch	48.7	16.7	27.8	36.3	40.7	44.9	43.1	37.9	48.7
		Welder / Torch	48.7	16.7	27.8	36.3	40.7	44.9	43.1	37.9	48.7
		Welder / Torch	48.7	16.7	27.8	36.3	40.7	44.9	43.1	37.9	48.7
		Aggregate OBCF at Receiver (dBA, SPL):		46.3	54.1	58.9	60.0	65.8	64.6	67.3	71.5
		Unweighted for Model Input (dBZ, SPL):		72.5	70.2	67.5	63.2	65.8	63.4	66.3	76.6
17S	Broadway Junction - Demo	Backhoe	64.8	42.7	46.4	53.3	58.5	59.6	59.2	54.7	64.8
		Hydra Break Ram	71.1	32.1	46.3	52.2	59.2	66.4	66.0	65.4	71.1
		Chain Saw	67.8	39.8	51.9	51.4	56.8	59.0	61.2	65.0	67.8
		Concrete Saw	73.7	40.7	57.3	56.8	61.5	64.4	67.2	71.0	73.7
		Dozer	68.9	47.7	58.1	59.3	61.2	62.8	64.1	56.2	68.9
		Dump Truck	63.7	41.7	50.5	54.4	57.9	57.4	58.1	51.3	63.7
		Dump Truck	63.7	41.7	50.5	54.4	57.9	57.4	58.1	51.3	63.7
		Dump Truck	63.7	41.7	50.5	54.4	57.9	57.4	58.1	51.3	63.7
		Dump Truck	63.7	41.7	50.5	54.4	57.9	57.4	58.1	51.3	63.7
		Dump Truck	63.7	41.7	50.5	54.4	57.9	57.4	58.1	51.3	63.7
		Excavator	67.9	51.9	56.3	58.3	61.9	62.5	60.9	56.2	67.9
		Excavator	67.9	51.9	56.3	58.3	61.9	62.5	60.9	56.2	67.9
		Jackhammer	73.0	41.8	50.9	58.9	63.5	67.5	67.3	67.7	73.0
		Pickup Truck	56.3	34.9	41.8	48.9	46.9	50.6	50.4	47.5	56.3
		Pickup Truck	56.3	34.9	41.8	48.9	46.9	50.6	50.4	47.5	56.3
		Vacuum Street Sweeper	51.3	29.3	34.4	35.9	47.3	46.5	43.7	37.5	51.3
		Warning Horn	61.3	0.0	19.1	36.6	52.0	55.2	56.4	56.2	61.3
		Welder / Torch	61.2	29.2	40.3	48.8	53.2	57.4	55.6	50.4	61.2
		Aggregate OBCF at Receiver (dBA, SPL):		57.0	64.8	67.5	71.3	73.7	74.2	74.5	80.0
		Unweighted for Model Input (dBZ, SPL):		83.2	80.9	76.1	74.5	73.7	73.0	73.5	86.7

1. Draft EIR Appendix M Noise and Vibration Report, Appendix 2.1 Construction Noise Calculation Sheets

Appendix 3 Sound Insulation Survey Report

LA ART PROJECT SOUND INSULATION SURVEY
LOS ANGELES, CA
FACADE NOISE REDUCTION MEASUREMENTS

Prepared For: AECOM

Sent via email: chris.kaiser@aecom.com
September 16, 2025

Prepared by: Resonance Acoustics
Randy Waldeck, PE
Aditya Balani
610 E. Franklin Avenue
El Segundo, CA 90245

Resonance Project No. 25051.01

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1.0 Project Description

Facade noise reduction (NR) measurements were performed at three buildings considered to be representative of residential units predicted to be impacted by construction noise from the LA ART Project (buildings were identified by AECOM).

The three buildings were selected based on their construction dates, window assembly age, and/or window assembly type to approximate the real-world performance of window assemblies currently installed at the noise-sensitive receptors identified in the project Final Environmental Impact Report (FEIR) to experience significant and unavoidable impacts from construction noise.

This report provides the results of the facade measurements conducted on July 9, 2025 and July 22, 2025. Definitions of acoustical terms used in this report can be found in **Appendix A**.

2.0 Measurements Methodology

Measurements were conducted on July 9, 2025 and July 22, 2025. Measurements were performed at the following 3 locations:

- Mozaic at Union Station Apartments - 888 N Alameda Street, Los Angeles, CA 90012 (NSR 3) – Unit 121 – July 9, 2025
- 430 Savoy Street, Los Angeles, CA 90012 – July 9, 2025
- Chinatown Senior Lofts - 808 N Spring Street, Los Angeles, CA 90012 (NSR 6) – Unit 106 – July 22, 2025

The buildings and units were identified by AECOM. For each residential unit, measurements were conducted in up to 2 rooms, as follows:

- Ext 1 - Exterior Facade/Window
  Used solely for the determination of facade/window noise reduction (NR).
- Int 1 - Interior Spatial Average
  Used for the determination of overall facade (including window assembly) NR and determination of ambient sound levels.
- Int 2 - Interior Spot Measurements at Facade Elements
  Used to determine the relative performance of the individual facade elements.
- Int 3 - Interior Spatial Average at Use Area further from Facade assessment location
  Not a part of the formal sound insulation testing procedure, this is used to generically characterize the exterior noise reduction in spaces/rooms that are set back (far from) the exterior facade.

Sound insulation measurements were conducted following methods outlined in the American Society for Testing and Materials (ASTM) Standard E966-18a[1] and SAE International ARP6973A[2] Facade Testing Standard. Measurements were conducted within a single, representative unit for each building. Digital photographs of pertinent window assemblies and the instrumentation at its measurement location relative to the space/sources were taken. In addition, the field data information was noted on field data sheets; technicians noting critical testing information such as

[1] ASTM E966-18a: American Society of Testing and Materials. International Standard Designation: E966 – 18a. "Standard Guide for Field Measurements of Airborne Sound Attenuation of Building Facades and Facade Elements."
[2] ARP6973 Rev A: SAE International Aerospace Recommended Practice: "Aircraft Noise Level Reduction Measurement of Building Facades" Dated 05/2025.

test equipment used, calibration settings, start and stop testing times, physical description of the home, window and door descriptions as well as other noteworthy conditions that may influence the test results. Weather conditions were also noted.

The measurement equipment included Type 1 Larson Davis 831 sound level meters meeting requirements of ANSI S1.43 and measuring in one-third octave bands from 50 Hz to 10 kHz. All sound level meters and calibrators were calibrated by a laboratory within one year of the survey. In addition, while on site the meters were calibrated prior to and after use with a reference sound source, and all meters were time-synced. The measurement effort was conducted by staff with direct experience measuring noise insulation in support of the LAX Residential Sound Insulation Program.

A Mackie SRM450 loudspeaker was used to generate the exterior sound exposure on the test facade. The height, distance to the facade, and angle of incidence of the loudspeaker was selected based on facade width to ensure a uniform exposure over the entire facade. Because the tested units are on the second story, the loudspeaker was placed on a tripod extended above ground and an extension pole was used for the microphone[3]. The target sound level at the exterior facade of the room to be tested was approximately 95 dBA to distinguish the sound level being tested from ambient noise levels.

The overall duration of measurement in each room within a unit was approximately 2 minutes. During the measurements, there were no resident activities, no television, HVAC (Air Conditioning) and/or appliances in operation, and windows were closed.

For the 430 Savoy Street unit, two sets of measurements were taken. The bedroom window has cracks and openings in the window frame. The first measurement set was taken with the existing conditions. The second measurement set was taken with the gaps and openings caulked.

Below are photos of the measurement setup are on the following page.

[3] Although the tested units are on the second story, they are on the lowest floor of the buildings with residential units.

Figure 1: Exterior Measurements – Mozaic at Union Station Apartments

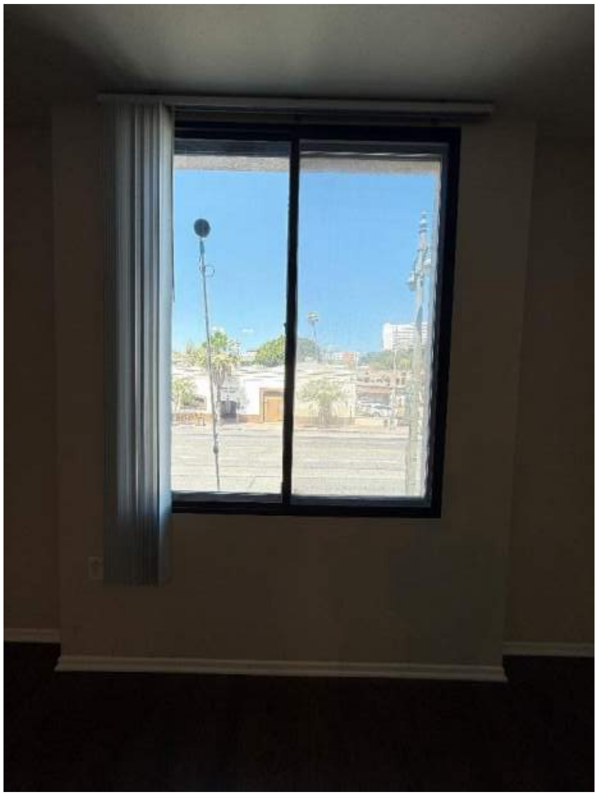


Figure 2: Interior of unit 121 – Mozaic at Union Station Apartments

Figure 3: Exterior Measurements – 430 Savoy Street

Figure 4: Interior Measurements – 430 Savoy Street

Figure 5: Exterior Measurements – Chinatown Senior Lofts

Figure 6: Interior Measurements – Chinatown Senior Lofts

3.0 Weather

Based on a review of online weather data for July 9, 2025 and July 22, 2025 between the hours of 9am and 1pm, the temperature ranged from 82°F to 92°F and averaged 86°F. The wind varied from 1 to 3 mph with an average wind speed of 2 mph. Based on a review of the noise levels during this period, wind noise did not affect the measurements.

4.0 Results

4.1 Mozaic at Union Station Apartments - Unit #121

Figure 7: Measurements at Mozaic (N.T.S.)

Table 1: NR Measurement Results - Mozaic

		Frequency (Hz)							
		63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
LR 1	Interior Measured Ambient	49	43	38	34	31	31	29	24
	Exterior Measured Spectrum with flush to glass correction	86	87	87	86	81	85	84	81
	Interior Measured Spectrum with Ambient Subtracted	62	60	59	51	41	39	31	21
	Resultant Noise Reduction	24	27	28	35	40	46	53	60
LR 2	Interior Measured Ambient	52	44	39	31	29	27	24	22
	Exterior Measured Spectrum with flush to glass correction	86	87	87	86	81	85	84	81
	Interior Measured Spectrum with Ambient Subtracted	61	59	57	49	41	39	33	25
	Resultant Noise Reduction	24	28	30	37	39	46	51	56
Kitchen	Interior Measured Ambient	41	34	30	23	20	20	18	20
	Exterior Measured Spectrum with flush to glass correction	86	87	87	86	81	85	84	81
	Interior Measured Spectrum with Ambient Subtracted	54	56	53	47	39	37	31	22
	Resultant Noise Reduction	32	31	34	39	41	47	53	59

4.2 430 Savoy Street

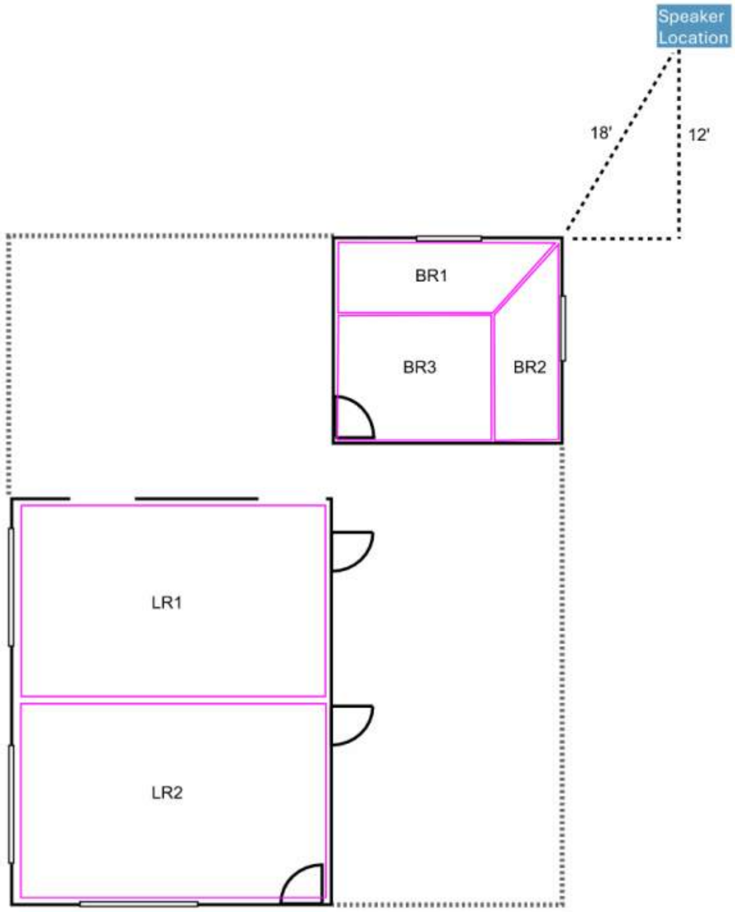


Figure 8: Measurements at 430 Savoy Street (N.T.S.)

Table 2: NR Measurement Results – 430 Savoy Street (No Caulking)

No Caulking on Windows		Frequency (Hz) 63	125	250	500	1000	2000	4000	8000
BR 1	Interior Measured Ambient	52	47	42	34	30	25	24	21
	Exterior Measured Spectrum with flush to glass correction	81	83	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	71	72	75	71	66	62	62	59
	Resultant Noise Reduction	10	12	9	13	16	21	23	22
BR 2	Interior Measured Ambient	51	44	42	35	31	25	24	21
	Exterior Measured Spectrum with flush to glass correction	81	83	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	74	72	75	71	66	62	62	59
	Resultant Noise Reduction	7	12	9	13	16	21	23	22
BR 3	Interior Measured Ambient	49	40	37	31	27	22	23	20
	Exterior Measured Spectrum with flush to glass correction	81	83	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	72	70	74	70	65	62	62	58
	Resultant Noise Reduction	9	13	10	14	17	22	23	22
LR 1	Interior Measured Ambient	50	47	40	34	32	27	32	21
	Exterior Measured Spectrum with flush to glass correction	81	83	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	70	67	65	62	57	54	56	50
	Resultant Noise Reduction	12	17	19	22	25	30	29	30
LR 2	Interior Measured Ambient	53	50	42	35	31	26	28	21
	Exterior Measured Spectrum with flush to glass correction	81	83	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	71	66	63	61	55	53	55	49
	Resultant Noise Reduction	11	17	21	23	26	31	30	32

Table 3: NR Measurement Results – 430 Savoy Street (With Caulking)

With Window gaps Caulked		Frequency (Hz) 63	125	250	500	1000	2000	4000	8000
BR 1	Interior Measured Ambient	52	47	42	34	30	25	24	21
	Exterior Measured Spectrum with flush to glass correction	81	84	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	72	71	75	70	66	62	62	59
	Resultant Noise Reduction	9	12	9	14	16	22	23	22
BR 2	Interior Measured Ambient	51	44	42	35	31	25	24	21
	Exterior Measured Spectrum with flush to glass correction	81	84	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	73	71	75	70	65	61	62	58
	Resultant Noise Reduction	7	12	9	14	16	22	23	23
BR 3	Interior Measured Ambient	49	40	37	31	27	22	23	20
	Exterior Measured Spectrum with flush to glass correction	81	84	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	72	70	74	70	64	61	62	58
	Resultant Noise Reduction	9	14	10	14	17	22	23	23
LR 1	Interior Measured Ambient	50	47	40	34	32	27	32	21
	Exterior Measured Spectrum with flush to glass correction	81	84	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	69	65	64	62	56	53	56	50
	Resultant Noise Reduction	12	18	20	22	26	30	29	31
LR 2	Interior Measured Ambient	53	50	42	35	31	26	28	21
	Exterior Measured Spectrum with flush to glass correction	81	84	84	84	82	83	85	81
	Interior Measured Spectrum with Ambient Subtracted	69	65	63	61	55	52	54	48
	Resultant Noise Reduction	11	18	21	23	27	31	30	33

4.3 Chinatown Senior Lofts - Unit #106

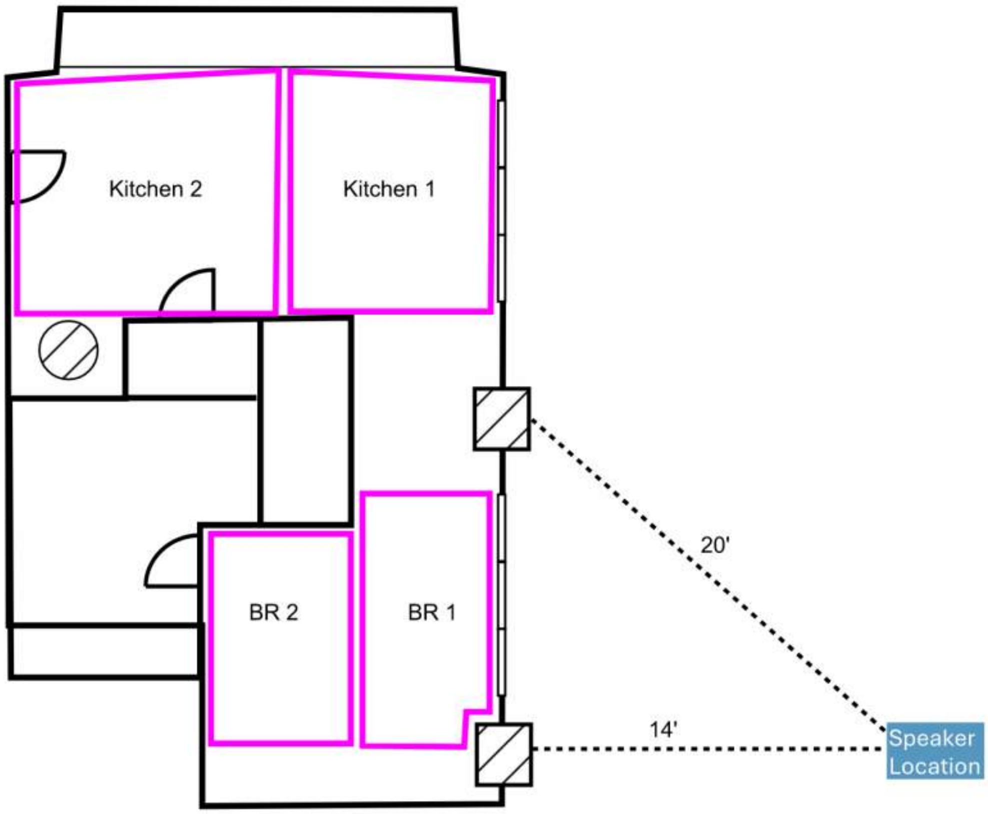


Figure 9: Measurements at Chinatown (N.T.S.)

Table 4: NR Measurement Results – Chinatown Senior Lofts

		Frequency (Hz)							
		63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Kitchen 1	Interior Measured Ambient	44	42	36	27	26	22	19	20
	Exterior Measured Spectrum with flush to glass correction	88	90	88	88	84	85	87	83
	Interior Measured Spectrum with Ambient Subtracted	60	66	64	53	43	46	42	32
	Resultant Noise Reduction	28	24	24	35	40	39	46	50
Kitchen 2	Interior Measured Ambient	41	41	37	33	31	32	33	27
	Exterior Measured Spectrum with flush to glass correction	88	90	88	88	84	85	87	83
	Interior Measured Spectrum with Ambient Subtracted	56	63	62	52	41	45	40	29
	Resultant Noise Reduction	32	27	26	36	42	40	47	54
BR 1	Interior Measured Ambient	48	48	40	33	30	30	28	25
	Exterior Measured Spectrum with flush to glass correction	88	90	88	88	84	85	87	83
	Interior Measured Spectrum with Ambient Subtracted	63	65	65	54	43	45	41	32
	Resultant Noise Reduction	25	25	23	34	41	40	46	51
BR 2	Interior Measured Ambient	50	43	39	31	28	31	29	24
	Exterior Measured Spectrum with flush to glass correction	88	90	88	88	84	85	87	83
	Interior Measured Spectrum with Ambient Subtracted	61	63	62	52	41	44	40	30
	Resultant Noise Reduction	27	27	26	36	43	41	47	53

This concludes our Facade Noise Reduction Measurement Report for the LA ART Project. Please do not hesitate to contact us with questions.

Appendix A: Definitions of Acoustical Terms

- **A-Weighted Sound Level (dBA):** A standard frequency weighting that filters the microphone signal in a manner which compares relative loudness of various sounds. A-weighting is standardized by the American National Standards Institute (ANSI). A 10-dB increase in sound level is generally perceived to be approximately twice as loud. All noise data in this report are A-weighted.

- **Ambient noise:** also known as background noise or ambient sound, refers to the all-encompassing sound present in a given environment, encompassing various sources both near and far, but excluding the primary sound of interest.

- **ARP6973 Rev A:** SAE International Aerospace Recommended Practice: "Aircraft Noise Level Reduction Measurement of Building Facades" Dated 05/2025

- **ASTM E966-18a:** American Society of Testing and Materials. International Standard Designation: E966 – 18a. "Standard Guide for Field Measurements of Airborne Sound Attenuation of Building Facades and Facade Elements."

- **Community Noise Equivalent Level (CNEL):** A metric for the 24-hour A-weighted average noise level. The CNEL metric accounts for the increased sensitivity of people to noise during the evening and nighttime hours. From 7 pm to 10 pm, sound levels are penalized by 5 dB; from 10 pm to 7 am, sound levels are penalized by 10 dB. A 10 dB increase in sound level is perceived by people to be twice as loud.

- **Day/Night Average Sound Level (L_{dn} or DNL):** A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a 10 dB penalty applied to noise occurring during the nighttime hours (10 pm to 7 am) to account for the increased sensitivity of people during sleeping hours. A 10 dB increase in sound level is perceived by people to be twice as loud.

- **Decibel (dB):** The most generally used logarithmic scale for describing sound levels. A decibel value denotes the ratio between two quantities that are proportional to power; the decibel value is ten times the logarithm (to the base 10) of this ratio. The term "Sound Level," "Noise Level" and "Sound Pressure Level" (SPL) all imply a standardized reference level near the threshold of human hearing (0 decibels).

- **L_{eq}:** The time-weighted average noise level during the stated measurement period.

- **Noise Reduction (NR)** – The difference in sound pressure level between any two points along the path of sound propagation. As an example, noise reduction is the term used to describe the difference in sound pressure levels between the inside and outside of an enclosure. Noise reduction is usually expressed as a function of full octave or one-third octave bands.

- **Sound Pressure Level (SPL):** A numerical value representing the total measured pressure difference (in pascals) compared to a reference sound pressure of 20 micro-pascals. SPL values in dBA are related to the perceived loudness of a sound source at some distance.

- **Weather Underground:** All detailed weather data was obtained from Weather Underground: https://www.wunderground.com/

Appendix B: Staff Resumes

RESONANCE ACOUSTICS

RESUME

RANDY WALDECK, PE, LEED AP

Principal

Years of Experience | 24

Randy D. Waldeck, PE, LEED® AP, is an expert in architectural, environmental, aviation, and mechanical equipment noise and vibration control. His wide breadth of experience includes consulting on over 800 architectural, transit, and environmental projects. Randy has provided acoustical expertise for the following types of projects: condominiums, single-family homes, mixed-use, transportation (air, rail, and roadway), hotels and resorts, offices, medical facilities, industrial-use facilities, federal buildings, educational facilities, and restaurants.

Education

California Polytechnic State University, San Luis Obispo, CA, B.S. Industrial Technology

Licenses/Accreditations

CA: M.E. No. 34245

LEED® AP: No. 7D57F15BFF

Affiliations

National Council of Acoustical Consultants (NCAC), Member

Institute of Noise Control Engineering (INCE), Associate Member

Acoustical Society of America Full Member

Urban Land Institute Member

Publications

"Outdoor Entertainment Noise" TCN Special Session, Acoustical Society of America Conference, San Diego, CA, 2019

"ACRP 02-51: Evaluation of Facade Acoustical Measurements," National Academy of Sciences, Washington, D.C., 2016

Representative Experience

Metro Blue Line Rehabilitation, Long Beach, CA
Metro Purple Line Construction Noise and Vibration Phases 1-3, LA, CA
Metro Crenshaw LAX Line Construction Noise and Vibration, Los Angeles, CA
Metro Division 20 Construction Noise and Vibration Analysis, Los Angeles, CA
Metro Expo Line Phase 2 Noise Analysis, Los Angeles, CA
LA County Regional Planning, Universal Studios Quarterly Noise Monitoring, LA, CA
Santa Clara Valley Transportation Authority (VTA), Facade Sound Insulation Program
Fresno-Yosemite International Airport SMART Program, Fresno, CA
City of Inglewood, Residential Sound Insulation Program, Inglewood, CA
Los Angeles World Airports (LAWA), LAX Residential Sound Insulation Program
San Francisco International Airport (SFO) Noise Insulation Program, San Francisco, CA
General Mitchell International Airport Area Noise Management Program, Milwaukee, WI
Norman Y. Mineta San Jose International Airport Acoustical Treatment Program (ACT)
Great Falls International Airport Residential Sound Insulation Program, Great Falls, MT
Phoenix Sky Harbor International Airport Sound Insulation Mitigation Services, Phoenix, AZ
Hilo International Airport Keaukaha Subdivision Airport Noise Attenuation, Hilo, HI
SFMTA Parking Enforcement Office TI, San Francisco, CA
SFDPW Southeast Health Center Expansion, San Francisco, CA
San Francisco GSA Central Shops, San Francisco, CA
San Francisco Emergency Operations Center, San Francisco, CA
San Francisco General Hospital Helipad Feasibility Study, San Francisco, CA
GSA Region 9 IDIQ, CA, AZ, NV, HI
GSA Adaptable Workplace Laboratory, Washington, D.C.
GSA Workplace 20/20 Program projects:
- U.S. Coast Guard, Oakland, CA
- John C. Kluczynski Federal Building, Chicago, IL
- Federal Building, San Francisco, CA

EBMUD San Pablo Dam Seismic Upgrade Construction Noise Study, San Pablo, CA
UCSF Medical Center Construction Noise Study, San Francisco, CA
EBMUD San Pablo Dam Seismic Upgrade Construction Noise Study, San Pablo, CA
Lantana Media Center Expo Light Rail Noise and Vibration Study, Santa Monica, CA
EBMUD Water Treatment Plant Construction Noise Monitoring, Orinda, CA
EBMUD Claremont Tunnel Seismic Upgrade Noise Study, Oakland, CA
UC San Francisco Medical Center Construction Noise Study, San Francisco, CA

RESONANCE ACOUSTICS

RESUME

ADITYA BALANI

Director

Years of Experience | 19

Aditya is a highly experienced acoustical consultant in the design and construction industry. He has managed projects successfully on time and within budget for a broad range of facility types including corporate facilities, conference spaces, recording studios, screening rooms, sound stages, residential, theaters, hotels, auditoriums, performing arts spaces, educational facilities, civic buildings, healthcare, places of worship, laboratories and R&D centers. Adi's strong analytical, team leadership, problem solving, detail oriented, and organizational skills are proven in team management and motivation. Adi is responsible for all aspects of a project, including business development, project management, acoustical engineering, and field services.

Education

Pennsylvania State University, M.Eng, Acoustics

University of Mumbai, B. Eng, Computer Engineering

Affiliations

National Council of Acoustical Consultants (NCAC), Member

Institute of Noise Control Engineering (INCE)

Acoustical Society of America (ASA)

Audio Engineering Society (AES)

AIA | LA Affiliate Member

Publications

"Cost cutting measures for successful sound critical facility design", Entertainment Technology Asia, Jan / Feb 2010

Aditya Balani, R. Lee Culver, David L. Bradley, Eric G. Paterson, Xiao Di and Robert F. Kunz "Coupled hydrodynamic ship wake and PE□ based acoustic propagation model," J. Acoust. Soc. Am. Vol. 113, Issue 4, April 2003

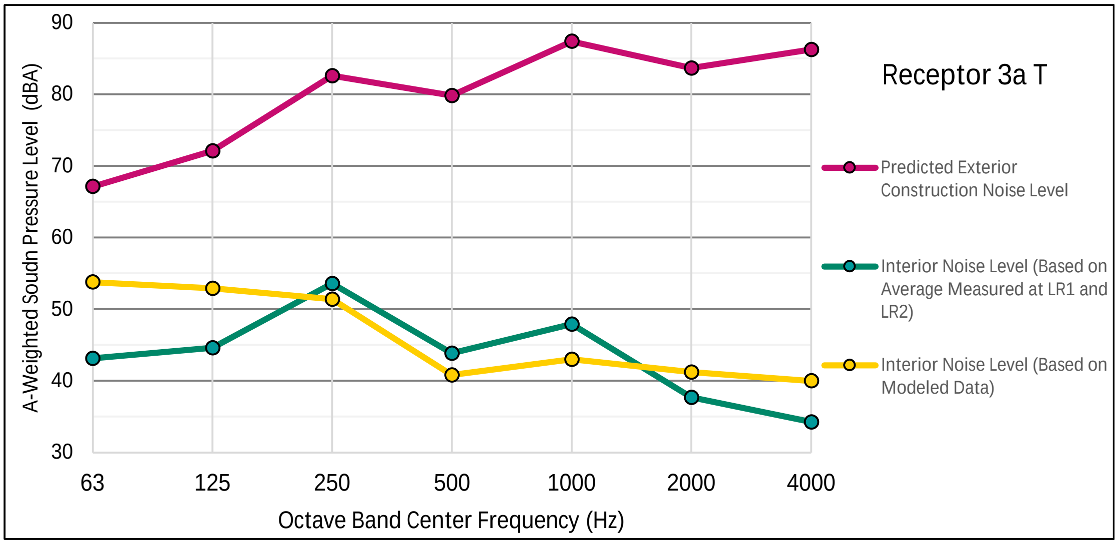
Representative Experience

Metro Purple Line Construction Noise and Vibration, Phases 1-3, Los Angeles, CA
Metro Division 20 Construction Noise and Vibration Analysis, Los Angeles, CA
LA County Regional Planning, Universal Studios Quarterly Noise Monitoring, LA, CA
Fresno-Yosemite International Airport SMART Program, Fresno, CA
City of Inglewood, Residential Sound Insulation Program, Inglewood, CA
Los Angeles World Airports (LAWA), LAX Residential Sound Insulation Program
SFMTA Parking Enforcement Office TI, San Francisco, CA
SFDPW Southeast Health Center Expansion, San Francisco, CA
967 Mission Street, Affordable Housing, San Francisco, CA
SFDPW 1550 Evans Avenue Community Building, San Francisco, CA
SFDPW Zuckerberg SF General Hospital Surge & Rehabilitation, San Francisco, CA
4200 Geary Boulevard, Affordable Senior Housing, San Francisco, CA
Mission Bay South Block 9, San Francisco, CA
Mission Bay South Block 9A, San Francisco, CA
Transbay Block 2 East & West, San Francisco, CA
Potrero Terrace Block B Affordable Housing, San Francisco, CA
LADPW River Supply Conduit 5 & 6 Noise & Vibration Monitoring, Los Angeles, CA
Transbay Block 6 Construction Noise and Vibration Monitoring, San Francisco, CA
GSA Region 9 IDIQ, CA, AZ, NV, HI
Expo OMF Phase II Noise and Vibration Monitoring, Santa Monica, CA
Tri Dam Power Plant, OSHA Noise Study, Strawberry, CA
California High Speed Rail Vibration and EMI Study, Multiple Cities, CA
Staff of Life Noise Study, Santa Cruz, CA
Audience Audio Labs Traffic Noise Study, Mountain View, CA
Tracy Army Depot Generator Noise and Vibration Measurements, Tracy, CA
University of Washington Sound Transit Vibration Monitoring, Seattle, WA
Calaveras Dam Replacement Construction Noise Monitoring, Sunol, CA
St. Luke's Hospital Noise and Vibration Monitoring, San Francisco, CA
VA Palo Alto Medical Center Noise Monitoring, Palo Alto, CA
El Cerrito High School Stadium Noise Study and Noise Monitoring, El Cerrito, CA
1076 Howard, Construction Noise and Vibration Monitoring, San Francisco, CA
Rancho Cucamonga Fire District, Rancho Cucamonga, CA
Transbay Block 7, San Francisco, CA
Hunter's View Block 10, San Francisco, CA

Appendix 4 Comparison of Measured and Modeled Transmission Loss

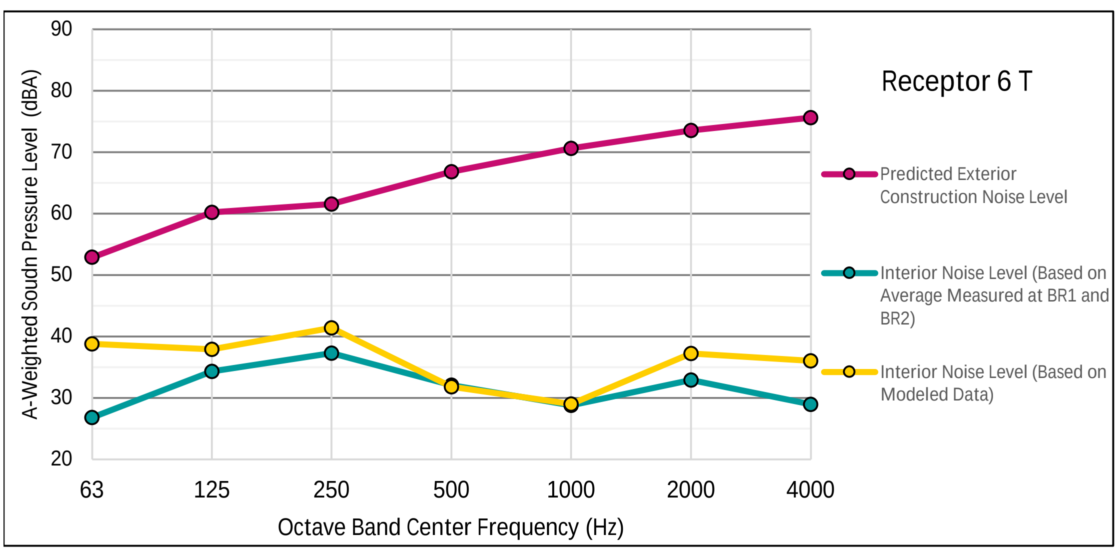
Receptor 3a T (Mozaic Apartments)

Condition	63	125	250	500	1000	2000	4000	dBA
Predicted Exterior Construction Noise Level	67.1	72.1	82.6	79.8	87.4	83.7	86.3	**91.8**
Interior Noise Level (Based on Average Measured at LR1 and LR2)	43.1	44.6	53.6	43.8	47.9	37.7	34.3	**55.7**
Interior Noise Level (Based on Modeled Data)	53.8	52.9	51.4	40.8	43.0	41.2	40.0	**58.0**



Receptor 6 T (Chinatown Senior Lofts)

Condition	63	125	250	500	1000	2000	4000	dBA
Predicted Exterior Construction Noise Level	52.9	60.2	61.5	66.8	70.6	73.5	75.6	**78.9**
Interior Noise Level (Based on Average Measured at BR1 and BR2)	26.8	34.3	37.3	32.0	28.8	32.9	28.9	**41.3**
Interior Noise Level (Based on Modeled Data)	38.8	37.9	41.4	31.8	29.0	37.2	36.0	**45.9**



Appendix 5 Interior Noise Level Calculation Reports

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
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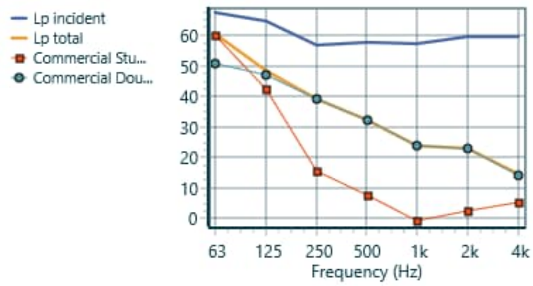
Job Name:
Job No.: Initials:chris.kaiser
Date:8/12/2025
File Name:1 B_OITC.inz



Receptor 1 B

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	67.5	64.6	56.6	57.9	57.4	59.5	59.4	65.1
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 435 ft²	26.4	26.4	26.4	26.4	26.4	26.4	26.4	
Element sound level contribution	60	42	15	8	-1	2	5	34.7
Element 2 , STL	-24	-25	-25	-33	-41	-44	-53	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 326 ft²	25.1	25.1	25.1	25.1	25.1	25.1	25.1	
Element sound level contribution	51	47	39	32	24	23	14	36.0
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	61	48	39	32	24	23	14	38.4
Level difference								LpAinc - LpARev,T0
D2m,nT	10.0	19.5	20.7	28.7	36.7	39.7	48.2	26.7

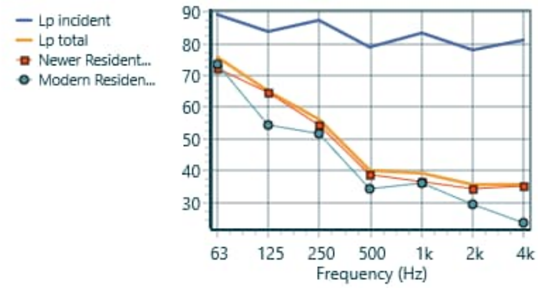
** Element descriptions:

#1: Commercial Stucco Façade
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 6 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Commercial Double Pane Storefront

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:3a_OITC.inz



Receptor 3a

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	89.3	84.0	87.6	79.0	83.7	78.3	81.3	87.9
Path								
Element 1 , STL	-21	-23	-37	-44	-51	-48	-50	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 142 ft²	21.5	21.5	21.5	21.5	21.5	21.5	21.5	
Element sound level contribution	72	65	54	39	37	34	35	52.2
Element 2 , STL	-17	-31	-37	-46	-49	-50	-59	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 78 ft²	18.9	18.9	18.9	18.9	18.9	18.9	18.9	
Element sound level contribution	74	54	52	34	36	30	24	49.4
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	76	65	56	40	39	35	35	54.1
Level difference								LpAinc - LpARev,T0
D2m,nT	16.6	22.0	34.4	42.0	47.6	46.0	49.0	33.9

** Element descriptions:

#1: Newer Residential Stucco Wall

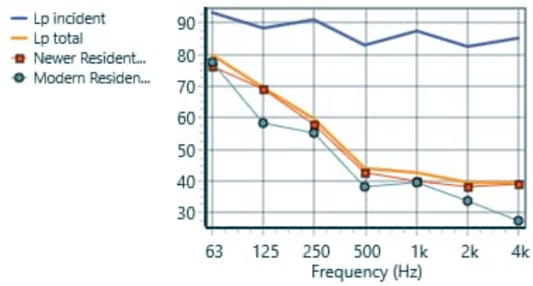
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Timber stud (5.98 in x 1.77 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Triple Pane Glass

Glazing (Triple):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.33 in Laminated Glass(PVB 0.030")
- Cavity: : 5 in
- Pane 3: 1 x 0.282 in Laminated Glass(PVB 0.030")
- Warning: **Triple glazing has not been validated with glazing thickness > 7.5 mm or width > 300mm**
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 10.5 lb/ft², Mass-air-mass resonant frequency = : 59 Hz, 217 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:3a T_OITC.inz



Receptor 3a T

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	93.3	88.2	91.2	83.0	87.4	82.5	85.3	91.8
Path								
Element 1 , STL	-21	-23	-37	-44	-51	-48	-50	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 142 ft²	21.5	21.5	21.5	21.5	21.5	21.5	21.5	
Element sound level contribution	76	69	58	43	40	38	39	56.2
Element 2 , STL	-17	-31	-37	-46	-49	-50	-59	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 78 ft²	18.9	18.9	18.9	18.9	18.9	18.9	18.9	
Element sound level contribution	78	58	55	38	40	34	28	53.4
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	80	69	60	44	43	40	39	58.0
Level difference								LpAinc - LpARev,T0
D2m,nT	16.6	22.0	34.4	42.0	47.6	46.0	49.0	33.8

** Element descriptions:

#1: Newer Residential Stucco Wall (Wood Stud)

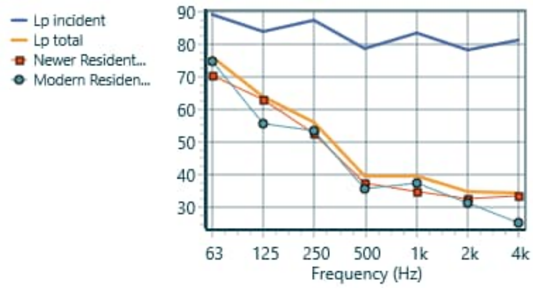
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Timber stud (5.98 in x 1.77 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Triple Pane Glass

Glazing (Triple):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.33 in Laminated Glass(PVB 0.030")
- Cavity: : 5 in
- Pane 3: 1 x 0.282 in Laminated Glass(PVB 0.030")
- Warning: **Triple glazing has not been validated with glazing thickness > 7.5 mm or width > 300mm**
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 10.5 lb/ft², Mass-air-mass resonant frequency = : 59 Hz, 217 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:3b_OITC.inz



Receptor 3b

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	89.3	84.0	87.6	79.0	83.7	78.3	81.3	87.9
Path								
Element 1 , STL	-21	-23	-37	-44	-51	-48	-50	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 98 ft²	19.9	19.9	19.9	19.9	19.9	19.9	19.9	
Element sound level contribution	70	63	53	37	35	32	33	50.6
Element 2 , STL	-17	-31	-37	-46	-49	-50	-59	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 112 ft²	20.5	20.5	20.5	20.5	20.5	20.5	20.5	
Element sound level contribution	75	56	53	36	37	31	25	51.0
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	76	64	56	40	39	35	34	53.8
Level difference								LpAinc - LpARev,T0
D2m,nT	16.1	23.2	34.6	42.6	47.5	46.6	50.4	34.1

** Element descriptions:

#1: Newer Residential Stucco Wall (Wood Stud)

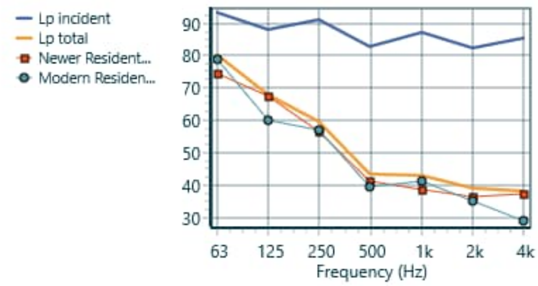
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Timber stud (5.98 in x 1.77 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Triple Pane Glass

Glazing (Triple):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.33 in Laminated Glass(PVB 0.030")
- Cavity: : 5 in
- Pane 3: 1 x 0.282 in Laminated Glass(PVB 0.030")
- Warning: **Triple glazing has not been validated with glazing thickness > 7.5 mm or width > 300mm**
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 10.5 lb/ft², Mass-air-mass resonant frequency = : 59 Hz, 217 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:3b T_OITC.inz



Receptor 3b T

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	93.3	88.2	91.2	83.0	87.4	82.5	85.3	91.8
Path								
Element 1 , STL	-21	-23	-37	-44	-51	-48	-50	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 98 ft²	19.9	19.9	19.9	19.9	19.9	19.9	19.9	
Element sound level contribution	74	67	56	41	39	37	37	54.6
Element 2 , STL	-17	-31	-37	-46	-49	-50	-59	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 112 ft²	20.5	20.5	20.5	20.5	20.5	20.5	20.5	
Element sound level contribution	79	60	57	40	41	35	29	54.9
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	80	68	60	44	43	39	38	57.8
Level difference								LpAinc - LpARev,T0
D2m,nT	16.1	23.2	34.6	42.6	47.5	46.6	50.4	34.0

** Element descriptions:

#1: Newer Residential Stucco Wall (Wood Stud)

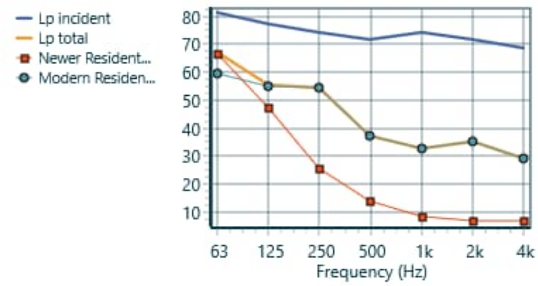
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Timber stud (5.98 in x 1.77 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Triple Pane Glass

Glazing (Triple):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.33 in Laminated Glass(PVB 0.030")
- Cavity: : 5 in
- Pane 3: 1 x 0.282 in Laminated Glass(PVB 0.030")
- Warning: **Triple glazing has not been validated with glazing thickness > 7.5 mm or width > 300mm**
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 10.5 lb/ft², Mass-air-mass resonant frequency = : 59 Hz, 217 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:6_OITC.inz



Receptor 6

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	81.3	77.4	74.3	71.8	74.2	71.8	68.8	78.4
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 76 ft²	18.8	18.8	18.8	18.8	18.8	18.8	18.8	
Element sound level contribution	66	47	25	14	8	7	7	40.8
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 64 ft²	18.1	18.1	18.1	18.1	18.1	18.1	18.1	
Element sound level contribution	60	55	55	37	33	35	29	47.7
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	67	56	55	37	33	35	29	48.5
Level difference								LpAinc - LpARev,T0
D2m,nT	17.2	25.0	22.8	37.8	44.8	39.8	42.8	29.8

** Element descriptions:

#1: Newer Residential Stucco Wall

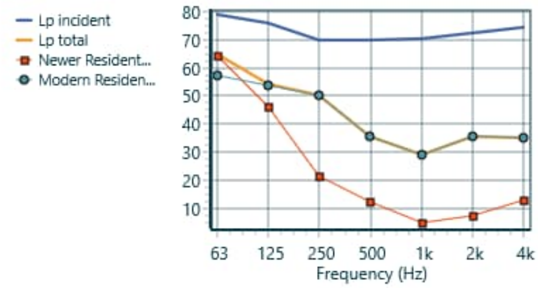
Wall (Double):

- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Double Pane Glass

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:6 T_OITC.inz



Receptor 6 T

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	79.1	76.3	70.1	70.0	70.6	72.3	74.6	78.9
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 76 ft²	18.8	18.8	18.8	18.8	18.8	18.8	18.8	
Element sound level contribution	64	46	21	12	5	7	13	38.7
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 64 ft²	18.1	18.1	18.1	18.1	18.1	18.1	18.1	
Element sound level contribution	57	54	50	35	29	36	35	45.3
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	65	54	50	35	29	36	35	46.1
Level difference								LpAinc - LpARev,T0
D2m,nT	17.2	25.0	22.8	37.8	44.8	39.8	42.8	32.8

** Element descriptions:

#1: Newer Residential Stucco Wall

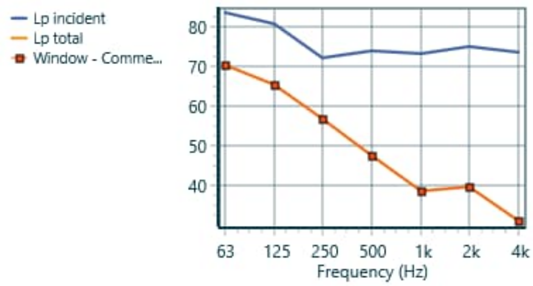
Wall (Double):

- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Double Pane Glass

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:7_OITC.inz



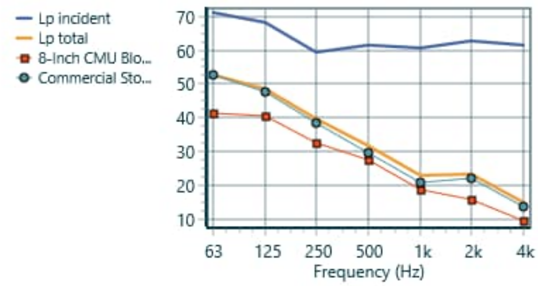
Receptor 7

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	83.5	80.6	72.2	73.8	73.0	75.1	73.4	80.3
Path								
Element 1 , STL	-23	-25	-25	-36	-44	-45	-52	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 560 ft²	27.5	27.5	27.5	27.5	27.5	27.5	27.5	
Element sound level contribution	70	65	57	48	39	40	31	53.6
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	70	65	57	48	39	40	31	53.6
Level difference								LpAinc - LpARev,T0
D2m,nT	16.4	18.4	18.4	29.4	37.4	38.4	45.4	26.7

** Element descriptions:
#1: Window - Commercial Storefront Double Pane

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:9_OITC.inz



Receptor 9

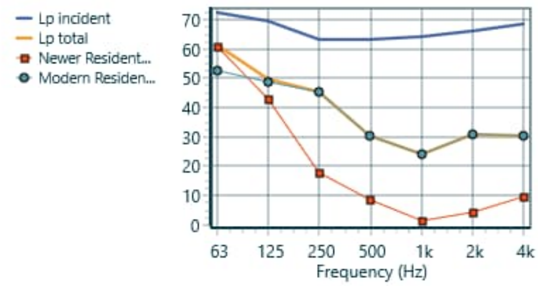
	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	71.2	68.3	59.3	61.4	60.6	62.9	61.4	68.1
Path								
Element 1 , STL	-33	-31	-30	-37	-45	-50	-55	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 120 ft²	20.8	20.8	20.8	20.8	20.8	20.8	20.8	
Element sound level contribution	41	40	32	27	19	16	9	29.7
Element 2 , STL	-23	-25	-25	-36	-44	-45	-52	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 160 ft²	22.0	22.0	22.0	22.0	22.0	22.0	22.0	
Element sound level contribution	53	48	39	30	21	22	14	35.7
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	53	48	40	32	23	23	15	36.7
Level difference								LpAinc - LpARev,T0
D2m,nT	21.5	23.1	22.9	32.8	40.8	42.9	49.4	31.4

** Element descriptions:
#1: 8-Inch CMU Block (Hollow)

#2: Commercial Storefront Double Pane

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:9 T_OITC.inz



Receptor 9 T

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	72.3	69.5	63.1	63.2	63.9	65.8	68.3	72.4
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 167 ft²	22.2	22.2	22.2	22.2	22.2	22.2	22.2	
Element sound level contribution	61	43	18	9	1	4	10	35.3
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 96 ft²	19.8	19.8	19.8	19.8	19.8	19.8	19.8	
Element sound level contribution	52	49	45	30	24	31	30	40.2
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	61	50	45	30	24	31	30	41.5
Level difference								LpAinc - LpARev,T0
D2m,nT	14.0	23.0	21.0	36.0	43.0	38.0	41.0	31.0

** Element descriptions:

#1: Newer Residential Stucco Wall

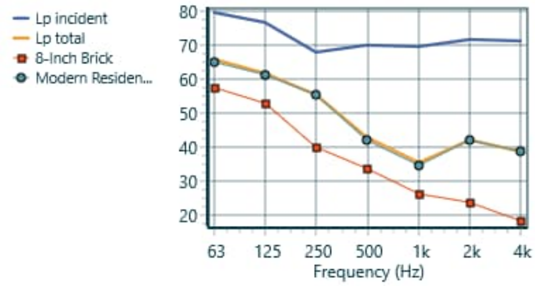
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Modern Residential Double Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:11_OITC.inz



Receptor 11

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	79.7	76.9	68.2	70.0	69.5	71.7	71.4	77.2
Path								
Element 1 , STL	-36	-38	-42	-50	-57	-62	-67	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 1482 ft²	31.7	31.7	31.7	31.7	31.7	31.7	31.7	
Element sound level contribution	58	53	40	34	26	24	18	39.9
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 318 ft²	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
Element sound level contribution	65	61	56	42	35	42	39	51.2
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	66	62	56	43	35	42	39	51.5
Level difference								LpAinc - LpARev,T0
D2m,nT	17.1	18.2	15.7	30.2	37.2	32.8	35.8	25.8

** Element descriptions:

#1: 8-Inch Brick

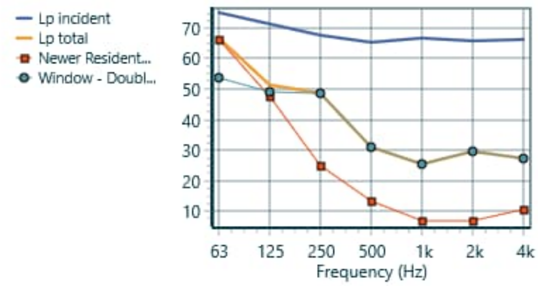
Wall (Single):
- Panel 1: 1 x 8 in Brick
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 66.6 lb/ft²

#2: Modern Residential Double Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:12_OITC.inz



Receptor 12

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	75.0	71.1	67.7	65.1	66.5	65.6	66.4	72.4
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 324 ft²	25.1	25.1	25.1	25.1	25.1	25.1	25.1	
Element sound level contribution	66	47	25	13	7	7	11	40.8
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 72 ft²	18.6	18.6	18.6	18.6	18.6	18.6	18.6	
Element sound level contribution	54	49	49	31	25	29	27	41.8
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	67	51	49	31	25	29	27	44.3
Level difference								LpAinc - LpARev,T0
D2m,nT	11.5	22.9	22.3	37.2	44.2	39.3	42.2	28.1

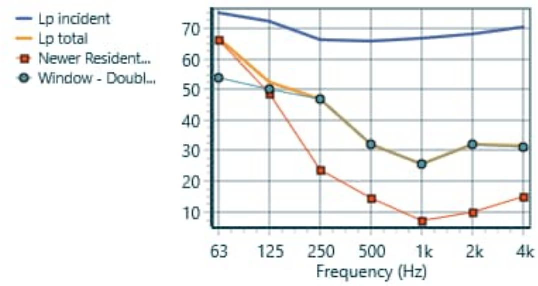
** Element descriptions:

#1: Newer Residential Stucco Wall
Wall (Double):
• Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
• Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
• Panel 2: 1 x 0.626 in Type X Gypsum Board
• Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Window - Double-Pane Glass
Glazing (Double):
• Pane 1: 1 x 0.25 in Glass
• Cavity: : 0.5 in
• Pane 2: 1 x 0.25 in Glass
• Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.: Initials:CK
Date:8/12/2025
File Name:12 T_OITC.inz



Receptor 12 T

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	75.1	72.3	66.1	66.0	66.6	68.3	70.4	74.8
Path								
Element 1 , STL	-16	-31	-50	-59	-67	-66	-63	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 324 ft²	25.1	25.1	25.1	25.1	25.1	25.1	25.1	
Element sound level contribution	66	49	23	14	7	10	15	41.0
Element 2 , STL	-22	-23	-20	-35	-42	-37	-40	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 72 ft²	18.6	18.6	18.6	18.6	18.6	18.6	18.6	
Element sound level contribution	54	50	47	32	25	32	31	41.7
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	67	52	47	32	26	32	31	44.4
Level difference								LpAinc - LpARev,T0
D2m,nT	11.5	22.9	22.3	37.2	44.2	39.3	42.2	30.4

** Element descriptions:

#1: Newer Residential Stucco Wall

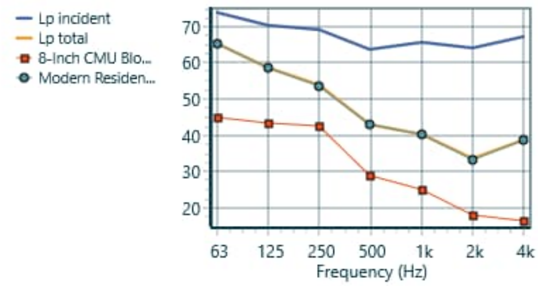
Wall (Double):
- Panel 1: 1 x 0.394 in Sand/Cement render (plaster) + 1 x 0.5 in DensDeck Roof Board® Georgia Pa
- Frame: Steel Stud (0.55mm) (6.02 in x 1.5 in), Stud spacing 16 in , Cavity Width 6 in + 5.984 in Fibreglass (10kg/m3) 60mm
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 7.85 lb/ft², Mass-air-mass resonant frequency = 52 Hz

#2: Window - Double-Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:16a_OITC.inz



Receptor 16a

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	73.8	70.1	69.3	63.6	65.8	64.0	67.3	72.2
Path								
Element 1 , STL	-33	-31	-31	-39	-45	-50	-55	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 156 ft²	21.9	21.9	21.9	21.9	21.9	21.9	21.9	
Element sound level contribution	45	43	43	29	25	18	17	35.9
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 64 ft²	18.1	18.1	18.1	18.1	18.1	18.1	18.1	
Element sound level contribution	65	58	54	43	40	33	39	49.5
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	65	59	54	43	40	33	39	49.7
Level difference								LpAinc - LpARev,T0
D2m,nT	11.8	14.7	18.5	23.6	28.7	33.7	31.8	22.5

** Element descriptions:

#1: 8-Inch CMU Block (Hollow)

Wall (Single):
- Panel 1: 1 x 8 in CMU Hollow (95 lb/ft³)
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 32.3 lb/ft²

#2: Modern Residential Double Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:16b_OITC.inz

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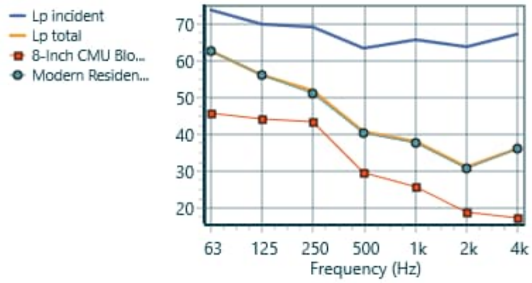


Receptor 16b

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	73.8	70.1	69.3	63.6	65.8	64.0	67.3	72.2
Path								
Element 1 , STL	-33	-31	-31	-39	-45	-50	-55	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 188 ft²	22.7	22.7	22.7	22.7	22.7	22.7	22.7	
Element sound level contribution	46	44	43	30	26	19	17	36.7
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 36 ft²	15.6	15.6	15.6	15.6	15.6	15.6	15.6	
Element sound level contribution	63	56	51	40	38	31	36	47.0
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	63	56	52	41	38	31	36	47.4
Level difference								LpAinc - LpARev,T0
D2m,nT	14.2	17.0	20.6	26.0	31.0	36.0	34.2	24.8

** Element descriptions:

#1: 8-Inch CMU Block (Hollow)

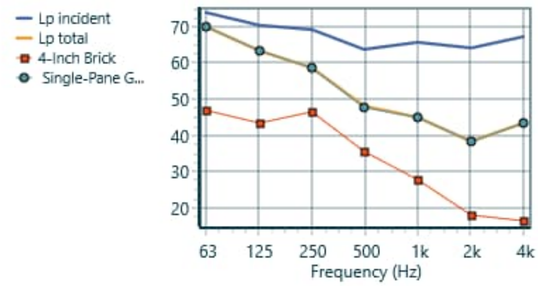
Wall (Single):
- Panel 1: 1 x 8 in CMU Hollow (95 lb/ft³)
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 32.3 lb/ft²

#2: Modern Residential Double Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics
Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:16c_OITC.inz



Receptor 16c

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	73.8	70.1	69.3	63.6	65.8	64.0	67.3	72.2
Path								
Element 1 , STL	-34	-34	-30	-35	-45	-53	-58	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 308 ft²	24.9	24.9	24.9	24.9	24.9	24.9	24.9	
Element sound level contribution	47	43	46	36	28	18	16	39.7
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 192 ft²	22.8	22.8	22.8	22.8	22.8	22.8	22.8	
Element sound level contribution	70	63	58	48	45	38	43	54.3
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	70	63	59	48	45	38	43	54.4
Level difference								LpAinc - LpARev,T0
D2m,nT	7.0	10.0	13.8	18.8	23.9	29.0	27.0	17.8

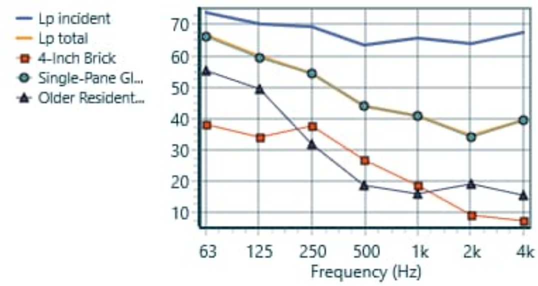
** Element descriptions:

#1: 4-Inch Brick

#2: Single-Pane Glass
Glazing (Double):
• Pane 1: 1 x 0.25 in Glass
• Cavity: : 0.5 in
• Pane 2: 1 x 0.25 in Glass
• Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics
Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:16d_OITC.inz



Receptor 16d

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	73.8	70.1	69.3	63.6	65.8	64.0	67.3	72.2
Path								
Element 1 , STL	-34	-34	-30	-35	-45	-53	-58	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 39 ft²	15.9	15.9	15.9	15.9	15.9	15.9	15.9	
Element sound level contribution	38	34	37	27	19	9	7	30.7
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 78 ft²	18.9	18.9	18.9	18.9	18.9	18.9	18.9	
Element sound level contribution	66	59	55	44	41	34	40	50.3
Element 3 , STL	-18	-20	-37	-44	-49	-44	-51	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 51 ft²	17.1	17.1	17.1	17.1	17.1	17.1	17.1	
Element sound level contribution	55	49	32	19	16	19	16	35.3
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	66	60	55	44	41	34	40	50.5
Level difference								LpAinc - LpARev,T0
D2m,nT	10.6	13.5	17.8	22.8	27.9	32.8	30.9	21.6

** Element descriptions:

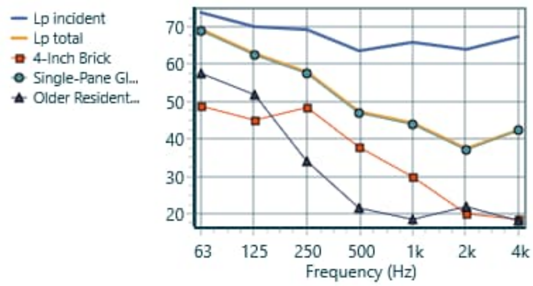
#1: 4-Inch Brick

#2: Single-Pane Glass
Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

#3: Older Residential Stucco Wall
Wall (Double):
- Panel 1: 1 x 0.866 in Stucco + 1 x 0.25 in Plywood
- Frame: Timber stud (3.54 in x 1.77 in), Stud spacing 24 in , Cavity Width 3.54 in + (Empty cavity)
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 11 lb/ft², Mass-air-mass resonant frequency = 68 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:16e_OITC.inz



Receptor 16e

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	73.8	70.1	69.3	63.6	65.8	64.0	67.3	72.2
Path								
Element 1 , STL	-34	-34	-30	-35	-45	-53	-58	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 474 ft²	26.8	26.8	26.8	26.8	26.8	26.8	26.8	
Element sound level contribution	49	45	48	38	30	20	18	41.6
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 156 ft²	21.9	21.9	21.9	21.9	21.9	21.9	21.9	
Element sound level contribution	69	62	58	47	44	37	43	53.4
Element 3 , STL	-18	-20	-37	-44	-49	-44	-51	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 90 ft²	19.5	19.5	19.5	19.5	19.5	19.5	19.5	
Element sound level contribution	58	52	34	21	19	22	18	37.8
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	69	63	58	47	44	37	43	53.7
Level difference								LpAinc - LpARev,T0
D2m,nT	7.6	10.5	14.4	19.4	24.8	29.7	27.9	18.4

** Element descriptions:

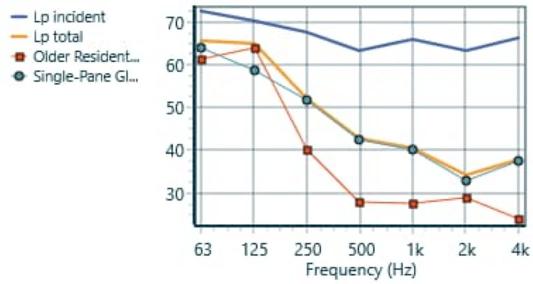
#1: 4-Inch Brick

#2: Single-Pane Glass
Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

#3:
Wall (Double):
- Panel 1: 1 x 0.866 in Stucco + 1 x 0.25 in Plywood
- Frame: Timber stud (3.54 in x 1.77 in), Stud spacing 24 in , Cavity Width 3.54 in + (Empty cavity)
- Panel 2: 1 x 0.626 in Type X Gypsum Board
- Details: Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 11 lb/ft², Mass-air-mass resonant frequency = 68 Hz

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:17Na_OITC.inz



Receptor 17Na

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	72.5	70.2	67.5	63.2	65.8	63.4	66.3	71.5
Path								
Element 1 , STL	-20	-15	-36	-44	-47	-43	-51	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 435 ft²	26.4	26.4	26.4	26.4	26.4	26.4	26.4	
Element sound level contribution	61	64	40	28	27	29	24	48.2
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 64 ft²	18.1	18.1	18.1	18.1	18.1	18.1	18.1	
Element sound level contribution	64	59	52	43	40	33	38	48.7
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	66	65	52	43	40	34	38	51.5
Level difference								LpAinc - LpARev,T0
D2m,nT	9.9	8.4	18.5	23.7	28.6	32.2	31.6	20.0

** Element descriptions:

#1: Older Residential Stucco Wall

#2: Single-Pane Glass

Glazing (Double):
- Pane 1: 1 x 0.25 in Glass
- Cavity: : 0.5 in
- Pane 2: 1 x 0.25 in Glass
- Details: Energy-based model, Panel Size 8.9 ft x 13.1 ft, Partition surface mass = 6.32 lb/ft², Mass-air-mass resonant frequency = : 189 Hz

Outdoor To Indoor Sound Transmission

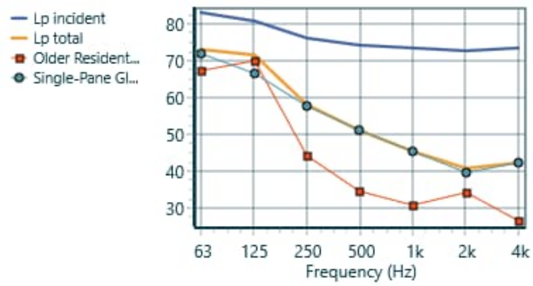
Receptor 17Nb

Predictive modeling of interior noise for homes of this era is unreliable and may overpredict the performance of the building façade. Therefore, instead of modeling the façade noise reduction at 451 Savoy Street, the calculation of interior noise levels from construction relies on the measured façade noise reduction data collected at the older single-family home at 430 Savoy Street.

Condition	Octave Band (Hz) Sound Pressure Level (dBA)							Overall dBA
	62.5	125	250	500	1000	2000	4000	
Predicted Worst-Case Construction Phase Noise Level at the Receptor Façade	46.3	54.1	58.9	60.0	65.8	64.6	67.3	**71.5**
Noise Reduction at 430 Savoy (Resonance Acoustics - Measurement BR1)	-10.4	-11.7	-9.0	-13.2	-15.8	-21.2	-22.5	N/A
Resulting Interior Noise Level from Construction	35.9	42.4	49.9	46.8	50.0	43.4	44.8	**55.0**

Outdoor To Indoor Sound Transmission (v10.0.6)

Margin of error is generally within ±3 dB
AECOM - Key No. 4821
Job Name:Los Angeles Aerial Rapid Transit Project
Job No.:60606325 Initials:CK
Date:8/10/2025
File Name:17S_OITC.inz



Receptor 17S

	Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	83.2	80.9	76.1	74.5	73.7	73.0	73.5	80.0
Path								
Element 1 , STL	-20	-15	-36	-44	-47	-43	-51	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 156 ft²	21.9	21.9	21.9	21.9	21.9	21.9	21.9	
Element sound level contribution	67	70	44	35	31	34	27	54.4
Element 2 , STL	-9	-12	-16	-21	-26	-31	-29	
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 36 ft²	15.6	15.6	15.6	15.6	15.6	15.6	15.6	
Element sound level contribution	72	67	58	51	46	40	42	55.7
Receiver								
Room volume (-10LogV), 1200.00 ft³	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	-19.8	
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	16	16	16	16	16	16	16	
Room sound level	73	72	58	51	46	41	42	58.1
Level difference								LpAinc - LpARev,T0
D2m,nT	13.0	12.3	21.1	26.2	31.2	35.3	34.2	21.9

** Element descriptions:

#1: Older Residential Stucco Wall

#2: Single-Pane Glass

Appendix 6 Staff Curricula Vita

Christopher J. Kaiser, INCE Bd. Cert.

Acoustics & Noise Control Specialist

Key Skills
Building Acoustics
Noise Control Design
Community Noise & Policy Development
Noise Control Design

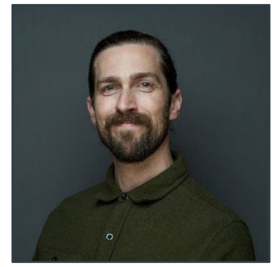
Years of Experience
14

Years with AECOM
14

Education
BA, Acoustics, Columbia College Chicago, 2011

Professional Associations
Institute of Noise Control Engineering (INCE-USA) Board-Certified
Acoustical Society of America (ASA) Full Member

Trainings and Certifications
Datakustik CandaA Advanced
Datakustik CadnaA Expert Industry



Professional History

Mr. Kaiser is acoustics and noise control engineer with an educational background in environmental and architectural acoustics and vibration. He has extensive experience in preparing project-level and programmatic acoustic assessments for a variety of residential, educational, commercial, industrial, and community plan projects for both public and private clients. His primary specialties include building acoustics, developing complex predictive sound models, CEQA/NEPA noise and vibration impact assessment, and LEED acoustic analysis. Mr. Kaiser plays a key role in AECOM's delivery of bespoke acoustical design and noise abatement to assist project sponsors in achieving compliance with stringent performance and/or permitting criteria.

Selected project experience

Middlesex HDD Crossing Noise Study and Construction Noise Mitigation Plan, UPI/Enbridge, Middlesex County, NJ. Conducted 3-D noise modeling for two HDD sites in extreme proximity to existing noise-sensitive land uses. Developed detailed construction noise mitigation plan to prescribe best practices and noise barrier geometries and performance requirements to meet regulatory thresholds. Construction activity noise was continuously monitored through use of an unmanned noise monitoring system wirelessly transmitting live sound data and audio to a network server. Noise summary reports were provided to FERC on a weekly basis.

Downtown West Development Construction Noise and Vibration Reduction Plan and Construction Noise Monitoring, Google, San Jose, CA. Provided 3-D noise modeling and community construction noise and vibration impact assessments for an intensive multi-phase multi-year effort for the twenty-billion-dollar development which included an array of temporary noise barriers and other construction noise control measures to reduce potential annoyance from adjacent residential land uses. Provided continuous remote noise control monitoring for the construction contractor that provided remote access, live audio listening, and event sound recording to continuously monitor construction noise levels during construction. Project received no noise complaints while active.

Velsicol Superfund Site Construction Noise and Vibration Monitoring, US Environmental Protection Agency, St Louis, MI. Prepared detailed construction noise and vibration monitoring plan for a multi-year remediation project. Providing ongoing remote (web-connected) construction noise monitoring at the nearest sensitive land uses.

Walton and Lonsbury Superfund Site Construction Noise and Vibration Monitoring, US Environmental Protection Agency, Attleboro, MA. Prepared detailed construction noise and vibration monitoring plan for a multi-year remediation project. Providing ongoing daily construction noise monitoring and remote (web-connected) vibration monitoring at nearest sensitive land uses.

Los Angeles Clippers Arena/Inglewood Basketball and Entertainment Center, Wilson Meany, Inglewood, CA. Provided 3-D noise modeling and CEQA-driven community noise impact assessment to the developer for the proposed construction and operation of a new professional basketball arena and outdoor entertainment plaza. Analysis included the performance of baseline noise surveys, predictive noise and vibration modeling of project construction, and predictive noise modeling of future traffic, concert events (stationary noise sources and crowd speech), and sporting events (stationary noise sources, broadcast trailers, crowd speech). As part of the analysis, several measures for noise control were identified to ensure project construction and operation would not adversely affect surrounding residential land uses.

Beacon Offshore Wind Project, On-Shore Converter Station Facilities, Equinor, Queens NY and Waterford, CT. Conducted analysis of construction and operational noise for five candidate on-shore substation sites for a large offshore wind energy facility. Study included conducting baseline noise measurements and intensive 3-D modeling of construction activities, horizontal directional drilling activities, and future project operational noise. Prepared noise technical report and the pertinent BOEM COP section.

Simulator Training Center, United States Air Force, Confidential Location. Provided acoustical support for a proposed joint test and training center for the U.S. Air Force. Tasks include acoustical analysis and assessment of proposed large simulator spaces, acoustically sensitive rooms, meeting rooms, and an auditorium. Analysis areas include large-area SCIF design, source-specific noise control solutions for simulator spaces, speech intelligibility assessment, and HVAC noise assessment.

Building 19 Renovation, NASA/USGS, Ames Research Center, Moffat Field, CA. Provided acoustical consultation through the design process. Analysis included the calculation, assessment, and mitigation for interior speech privacy and inter-space sound transmission, interior finishes as they relate to acoustic reverberation and speech intelligibility, and HVAC system design (e.g., radiated noise from plenum and duct noise transmission). Spaces analyzed included private offices, conference rooms, an auditorium/media room, and an electronics laboratory.

New Mexico Department of Public Safety Reality-Based Training Facility, Santa Fe, NM. Providing ongoing acoustic analysis including baseline noise study of shooting range noise to inform the design of the building shell for adequate noise control. Conducting analysis of sound transmission between spaces to reduce distraction from loud training exercises. Providing recommendations on HVAC duct path design and interior finishes. The facility features office spaces, classrooms, virtual reality training rooms, and high bay dynamic training rooms. Training facility also includes an outdoor shooting range.

Rotational Uninterruptable Power Supply Noise Study, NASA, Ames Research Center, Moffat Field, CA. Provided analysis and conceptual noise control design for existing RUPS unit enclosures. Study included analysis of measurement data, prescription of a variety of conceptual noise control measure options, and the estimation of future noise levels within the RUPS enclosures with noise control measures implemented.

LA28 Summer Olympics Structures, International Olympic Committee, Los Angeles, CA. Providing ongoing interior acoustical analyses for various venue spaces including HVAC noise calculation, outdoor-indoor sound transmission class calculations, and community noise impact assessment.

Boston Logan International Airport Terminal B and E Expansions, Boston Logan International Airport, Boston, Massachusetts
Developed detailed 3-D acoustic model to design and test a variety of ceiling materials and public address loudspeaker system layouts to meet multiple acoustical performance criteria throughout the terminal space including both gates, commons areas, and TSA screening areas. Prepared detailed graphics detailing the results of acoustic modeling and acoustical performance for the various design options.

CCAD Center for Creative Collaboration, Columbus College of Art and Design, Columbus, OH. Providing ongoing support for the development of a variety of maker spaces utilizing existing school campus buildings. Acoustic assessment includes developing solutions for noise control between noise-generating (e.g., wood shops) and noise-sensitive (classroom) spaces.

Child Development Center, Naval Facilities Engineering Systems Command – Mid-Atlantic, Norfolk, VA. Providing ongoing calculations and assessment of interior acoustic performance including outdoor-indoor noise control, assessment of interior finishes and reverberation, assessment of partition details as they relate to speech privacy between adjacencies, HVAC noise assessment, and noise mitigation design.

San Jose Mineta International Airport Remote Transmitter/Receiver, Air Traffic Control Tower, and Base Building Project, Federal Aviation Administration, San Jose, CA. Current providing acoustic consultation for early design stages for the FAA. Acoustic effort will include the analysis of sound transmission from exterior noise sources and sound from adjacent spaces, analysis of reverberation within acoustically sensitive spaces, and the analysis of HVAC-related noise within spaces.

Barry Molnaa, PMP, LEED AP

EPP Practice Operations Lead—WEST Region

Mr. Molnaa is the Environmental Planning & Permitting (EPP) Practice Operations Lead (POL) for the West Region at AECOM. In that capacity he shares responsibility for the profit & loss (P&L) and overall operational performance of the EPP West business unit. The EPP business unit is a business unit overseeing Environmental Planning & Permitting including projects focused on NEPA, CEQA, and various environmental studies throughout the western United States. He oversees a team of over 500 technical professionals specializing in environmental planning. The western region extends from Ohio to Hawaii and from the US/Mexico border to the northernmost US states (including Alaska). His core responsibilities fall under the broad categories of driving project delivery performance, proposal approval and pricing support, resource management, risk assessment and management, process improvement, P&L forecasting and budgeting, daily operational troubleshooting, performance reporting, margin improvement initiatives, and performance improvement planning.

The POL has an important role to continuously assess and improve the commercial acumen and project management capabilities of the project managers in the Practice and support the nomination and training of new PMs and deputy PMs. This role also serves as a supervisor for the portfolio delivery leads (PDLs) and recruiter of new PDL-talent from across the business.

Prior to his role as EPP POL, Mr. Molnaa was the Risk and Profitability Lead for the West Region at AECOM. In that role he assisted in implementing the regional project management strategy, assessing overall project management; PM training and certification; PM tools training; troubleshooting projects; leading the review process; and participating in the Healthy Start process for critical projects. Mr. Molnaa was critical in improving the overall project delivery and has improved the overall pool of project managers.

The following is a summary of the project management and technical work Mr. Molnaa has been involved with over the past thirty years.

Program Management, CVOC and Metals Plume

Provided project management and senior technical oversight for a turbine manufacturing and test facility that had releases of chlorinated solvents and metals over the course of operation for the past 50+ years. The site had transferred operators over the years and was owned by the local municipality. Regulatory oversight was provided by a Consolidated Working Group (CWG) consisting of the California Department of Toxic Substances Control (DTSC); the Regional Water Quality Control Board (RWQCB); Federal Department of Fish and Game; the local port authority; the Office of Environmental Health & Hazard Assessment (OEHHA) and the PRPs. The site was

Education

M.P.M., Project Management, Keller Graduate School of Management, CA 1999

B.A. Biology, California State University, Fullerton, 1982 under the RCRA Permit closure program. A RCRA Facility Audit had been completed. The RCRA Facility Investigation (RFI) was approved by DTSC and the CWG. A Baseline Risk Assessment has been submitted for approval. The next phase of work will be preparation of a Corrective Measures Study Workplan.

Additional activities at the site included several interim removal actions and ongoing groundwater monitoring. A comprehensive soil gas study was also conducted to evaluate the risk to on-site workers from potential vapor migration to indoor air.

Technology Development, Aquifer Restoration Project

Provided project and technical management for development of ion exchange technologies to remove perchlorate from drinking water. The site is currently being regulated by the RWQCB through several Clean up & Abatement Orders. The project included an evaluation of existing technologies, conducting field-scale pilot testing; developing an economic model, and preparing conceptual designs. Several innovative treatment methods were evaluated during the course of the project. In addition to developing the technology, it was necessary to understand the permitting and licensing requirements for each technology as it was being developed. The successful implementation of the project has led to the selection of a cost-effective treatment method for removing perchlorate from drinking water.

CERCLA Feasibility Study

Served as technical lead for the preparation of a Feasibility Study for treatment of soil and groundwater at a Superfund site in southern California. Soil and groundwater at the site contained elevated levels of DDT and the by-products of DDT production. The site is bordered by residential neighborhoods and light industry and receives a high level of regulatory and public scrutiny. The FS evaluated conventional and emerging technologies for treating DDT and chlorobenzene. Ultimately, the FS recommended construction of an earthen cap, installation of a soil vapor extraction system and hydraulic containment at the remedy. Corrective measures will be implemented following completion of interim measures addressing off-site issues. EPA Region IX has requested that contaminated soil from the adjacent properties be transported to the site and addressed as part of the complete remedy. The FS corrective measures were selected to address this request.

CERCLA Feasibility Study

Served as Technical lead for preparation of a Feasibility Study to address soil contaminated with PCBs and lead at a Superfund site in southern California. The site is an active light-industrial complex that had previously been used as a transformer storage facility. Past practices had contaminated soil at the site with high levels of PCBs and lead. The site was surrounded by residential neighborhoods and there was significant public pressure to implement a remedy that was protective of the public.

The FS reviewed corrective measures in accordance with the NCP guidelines. Residents near the site were concerned that any remedy would disperse the PCBs and lead throughout the neighborhood. To address these concerns, the FS recommended construction of a cap to prevent further dust from leaving the site. The FS was approved and the remedy was successfully implemented without significantly impacting the on-site businesses or the neighboring residents.

Regulatory Interface and Compliance

Conducted regulatory interface activities for a Superfund project that includes treatment of groundwater for the removal of chlorinated hydrocarbons. The 9,000 gpm system delivers the treated water to a municipality for use as drinking water. Regulatory interface activities have included negotiating DHS permit conditions for the treatment plant, developing compliance plans for various inorganic (chrome) and organic (TCP) constituents not regulated under the Consent Decree, and meeting with EPA to discuss progress with the remediation. These efforts have successfully addressed issues regarding new constituents (specifically chrome and TCP) that were detected in groundwater. The plans developed to address these issues were approved by DHS and EPA with minimal comment. Successful implementation of the plans has allowed the system to operate without interruption.

On-call Environmental Services

Managed the on-call environmental services contract for the Port of Los Angeles (POLA). The scope of services contracted under this agreement include: preliminary site assessments (Phase I), remedial investigations/site characterizations (Phase II), remedial feasibility studies and action plans, site closure plans and reports, environmental compliance audits, regulatory agency coordination, third party review of environmental documents, oversight management of remediation work and data generation and transfer. This contract was awarded in 1999 and, to-date, thirteen projects have been successfully completed. The projects have included Phase I and Phase II assessments, environmental compliance audits, preparation of remediation plans, and oversight of remediation activities. This project has exceeded the MBE/WBE requirements of POLA.

Remediation and Redevelopment

Managed the installation of an in situ soil vapor extraction system in conjunction with property redevelopment. The site was a former oilfield that had been contaminated by a pipeline release of refined gasoline. The site was sold and retail buildings were scheduled for construction. The installation of the remediation system was coordinated with construction of retail buildings to facilitate occupancy of the stores. The remediation system is currently operating without impacting the retail outlets. The project required the development of an integrated team consisting of the former land owner, current land owner, developer, and City officials. The remediation effort is regulated by the City fire department and construction activities were regulated by the City building and safety department. Considerable negotiation between these two departments was required to facilitate co-construction of the remediation system and retail stores.

Closure SVE System

Successfully negotiated closure of a soil vapor extraction system with DTSC. The system had been operated by another consultant for a period of two years prior to taking over management of the project. Within 9 months, closure of the soil vapor extraction system had been granted by DTSC. The initial contamination had been discovered during the course of conducting a RCRA facility investigation. Two abandoned dry wells were removed and subsequent investigation found elevated levels of chlorinated hydrocarbons in soil and groundwater. The closure negotiation included conducting subsurface modeling of residual chlorinated hydrocarbons to determine if exposure pathways posed significant risks to human and environmental receptors. It was demonstrated that any residual concentrations would not migrate to indoor workspaces or impact groundwater. Through extended negotiations with the DTSC and discussions with their toxicologists, the modeling was validated and closure granted. The negotiations were complicated by the fact that both DTSC and RWQCB have oversight responsibilities. In an earlier agreement, DTSC granted oversight of the groundwater to RWQCB. Since the soil and groundwater remediation efforts are linked by the fact that residual soil contamination can impact groundwater, both agencies had to agree to the closure criteria. Efforts are now focusing on groundwater at the site. A Remedial Alternatives Evaluation was conducted to determine the best approach to treat the plume, which extends more that 8,000 feet downgradient from the site.

Technology Selection and Site Redevelopment, Former Refinery and Oil Production Facility

Participated in remedy selection and management of redevelopment project for former refinery and oil production site. Project involves treating petroleum-based hydrocarbons and sulfur-bearing compounds, such as mercaptans, thiophenes, and sulfides, to levels acceptable for redeveloping the land for residential use. The target constituents impacted a 9-acre area and extended to groundwater at a depth of 75 feet below ground surface. The system consists of approximately 375 vapor extraction wells connected to six different vapor treatment systems.

Technology Selection and Remediation, Chemical Distribution Center

Participated in remedy selection and management of vapor extraction system for treatment of chlorinated organic compounds for a site with 46 underground and 71 aboveground storage tanks. Releases from the tanks have impacted soil and groundwater over a 10-acre area.

Technology Selection and Remediation, Publication Distribution Center

Participated in remedy selection and management of dual-phase, high-vacuum extraction system at a publication distribution center. The hydrocarbon plume extends off-site, approximately 1,250 feet under adjacent property and busy city streets. The remediation system is designed to control off-site migration and remove source material. The system uses innovative vacuum mechanisms to generate very high (>25" Hg) vacuums to remove volatile hydrocarbons from fine-grained soils.

Remediation System Design and Construction Management

Designed and managed the construction of an innovative fixed-film bioreactor for treating groundwater containing high concentrations of gasoline and BTEX. This system is capable of meeting more stringent NPDES requirements.

Remediation System Design and Construction Management

Designed and managed construction of a permanent, aboveground bioremediation facility for heavy petroleum-contaminated soil at a Los Angeles refinery. The RWQCB Waste Discharge Permit for the facility was obtained in 2 months with no amendments required. Through innovative system management and utilization of refinery facility capital and human resources, treatment costs were lowered from $70 per ton to approximately $20 per ton. Overall cost reduction resulted in savings of approximately $3 million for the customer.

Microbial Inoculum Development

Developed microbial inoculums for enhancing wastewater treatment and degrading troublesome organic compounds. Microbial consortia will increase biological oxygen demand (BOD) removal, enhance anaerobic digester performance, treat high carbohydrate wastes, degrade petroleum hydrocarbons, and denitrify treated effluent from an oil refinery wastewater treatment system.

Regional Biotreatment Center Design, Nevada

Provided technical support and design for a regional biotreatment center for petroleum-contaminated soil, classified as nonhazardous. Once treated, the soil was used as fill material at the local landfill. The biotreatment facility consisted of four 1,000-cubic-yard treatment cells, constructed with berms and two monitoring wells at each end. Final construction of the cells was completed in August 1989; operation began the following month.

Regulatory Liaison, Midwest

Served as regulatory liaison for introduction of bioremediation into the Midwest. Responsible for conducting seminars on biological treatment alternatives for various federal, state, and local regulatory agencies in Kansas, Missouri, Oklahoma, and Texas.

Academic/Teaching Experience

Mr. Molnaa serves as an instructor for both Environmental Engineering and Project Management through UCLA Extension since 1994 and at Loyola Marymount University in Los Angeles since 2004. Mr. Molnaa developed the Certificate Program in Project Management currently offered by UCLA Extension that provides a means for students to earn a certificate of proficiency in project management upon successful completion of the program. A summary of courses follows.

Project Management Overview

This one-day seminar provides a general introduction to project management as presented in the context of *PMI's A Guide to the Project Management Body of Knowledge (PMBOK(r) Guide)--2004 edition*, as well as an overview of the general roles and responsibilities of project managers. The course is designed for those with a general interest in the field of project management and/or a specific interest in the position of project manager. Topics include general management versus project management; scope, schedule, and budget management; project quality and risk management; effective communication; and integrated change control.

Fundamentals of Project Management

This course integrates project management theory with practical approaches to establish a fundamental knowledge base to use in a contemporary dynamic business environment. Project management concepts are explored from planning and selection through all aspects of the project life cycle. Practical techniques are developed to organize and control non-routine activities in order to properly manage and schedule quality, budget, and performance objectives.

Project Management

This course is part of a dual-degree program at Loyola Marymount University in Los Angeles. Students are offered the opportunity to earn a degree in Systems Engineering and an MBA in the program. This course integrates the fundamentals of project management with the technical aspects of systems engineering. The course is similar to the Fundamentals of Project Management course described above in that it integrates project management theory with practical approaches to establish a fundamental knowledge base to use in a contemporary dynamic business environment.

Leadership for Project Management

Project managers must lead. Leadership can be developed and is essential to the success of any project. Not only must project managers lead, they also must develop and encourage others to do so. This course focuses on identifying individuals' leadership and management skills, and integrating these skills into a project environment. Specific methods of motivation and empowerment are demonstrated using assignments designed to help project managers (or future project managers) define their own character. Lectures cover personality typing, organizational behavior, effective communication, and developing leadership traits.

Managing Quality

Project managers and team members must manage project and product quality to meet customer requirements and project objectives. This course discusses when and how to use a variety of quantitative tools for planning, assuring, and controlling quality. The techniques presented are aligned to international standards, Six Sigma methods, and the philosophies of Deming, Juran, Crosby, et al.

Risk Analysis and Project Management

Risk management is a key task for project managers in any project. This course helps project managers to understand and apply advanced tools and techniques for evaluating risk associated with various stages of the project life cycle. Analytical methods for the evaluation on the selection of projects, the development of project cost estimates, analysis of the financial costs and benefits of projects, and the financial control of the project are covered. Topics include project estimating, project financial analysis, project stimulation, project risk analysis and management, project budgeting, and cost/schedule integration. The course provides a methodology for a systematic approach to risk management and discusses project risk management in the context of the project management task as a whole.

Groundwater Monitoring, Protection, and Cleanup

This course provides an examination of theoretical and practical groundwater hydrology, water quality monitoring techniques, sampling methods, drilling techniques, and containment procedures for groundwater. It includes discussion of cleanup practices and the various methods available for choosing particular monitoring or containment procedures, interpretation of data, fate of pollutants in groundwater, and regulatory perspectives.

Environmental Aspects of Soils Engineering and Geology

This course provides environmental professionals with a basic understanding of geological and engineering characteristics that affect the migration of contaminants in subsurface environments and the manner in which these factors influence mitigation and remediation decisions. Lectures emphasize geological and engineering concepts relevant to defining the nature of subsurface environments and how these principles govern the acquisition, interpretation, presentation, and reporting of site data, as well as recommendations for remediation.

Remediation Methods and Technologies

This course presents a survey of the remediation process utilized at sites impacted by a variety of hazardous substances. The remediation process is examined in detail--from initial considerations and permitting through construction operations and maintenance, to site closure and the post-closure monitoring. The course's primary emphasis is on volatile organic compounds (VOCs). Remediation technologies are discussed in light of advantages, disadvantages, economic considerations, and regulatory realities.

Publications and Presentations

"Bioremediation: A Powerful and Resilient Companion Technology," Pollution Engineering, October 1999.

"Evaluation of Fixed-Film and Activated Sludge Bioreactors: A Comparative Study," presented at the In Situ and On-Site Bioreclamation Symposium, San Diego, California, April 1995.

"A Model to Calculate Optimum Particle Size for Above Ground Bioremediation Soil Treatment Cells," presented at the In Situ and On-Site Bioreclamation Symposium, San Diego, California, April 1995.

"The Use of Sparge Curtains for Contaminant Plume Control," presented at the HAZMAT WEST 94, Long Beach, California, November 1994.

"Bioremediation of Petroleum Contaminated Soils Using Indigenous Bacteria," presented at the Ventura Economic Development Association, Ventura, California, February 1992.

"Bioremediation Design Strategies," presented at the East Coast Conference on

Hydrocarbon Contaminated Soils and Groundwater, Amherst, Massachusetts, September 1991.

"On-Site Remediation of Organically Impacted Soils on Oilfield Properties," presented at the Second Annual West Coast Conference on Hydrocarbon Contaminated Soils and Groundwater, Newport Beach, California, March 1991.

AECOM

James E. Phillips, M.S., FASA

Principal Engineer, Acoustics, Noise and Vibration Control

Education

MS, Acoustics, Pennsylvania State University, 1989
BS, Aerospace Engineering, Pennsylvania State University, 1986

Years of Experience

With AECOM	<1
Total	36

Professional Associations

Acoustical Society of America (Fellow of the Society)

- San Francisco Bay Area Regional Chapter
- Medals & Awards Committee, 2016-2024 (Chair 2021-2024)
- Technical Committee on Noise (Chair 2018-2021)
- Technical Committee on Structural Acoustics and Vibration (Chair 2012-2015)

Institute of Noise Control Engineers

National Council of Acoustical Consultants (President 2016-2018)

Mr. Phillips has over 36 years of professional experience and broad knowledge in noise and vibration analysis and control techniques. Mr. Phillips' projects have involved transit system noise and vibration assessment, building vibration assessment and control, and acoustical design of interior spaces. He has developed techniques for assessing floor vibration in buildings resulting from human activities and from traffic and transit and has been involved in the design and verification of building vibration mitigation techniques incorporated into structural designs. His work has included the prediction of noise and vibration levels in structural-acoustic systems using Finite Element Analysis (FEA) and Experimental Modal Analysis (EMA). His experience with information system software includes ArcGIS, Revit BIM, and Bluebeam Revu. He has worked on a variety of project types including multi- and single-family residential, office and commercial, fitness, medical, research, performing arts and transportation. He has presented many papers on these topics, including building vibration analysis and control, for which he has been recognized when he was elected Fellow of the Acoustical Society of America (ASA) in 2014. He is a past president of the National Council of Acoustical Consultants, past chair of the ASA Structural Acoustics and Vibration Technical Committee, and past chair of the ASA Technical Committee on Noise.

Experience

Intertek **2020-2025**
Principal Consultant

Developed vibration measurement and analysis capabilities for a newly formed acoustical consulting team within the company, including acquiring software and measurement equipment, developing procedures and training staff. Lead consultant on all vibration measurement and analysis projects for the acoustical consulting team. Worked on a variety of projects that included modeling of outdoor sound propagation to noise sensitive receivers. Conducted detailed analysis of vibration within buildings generated by human activities such as walking and exercising using Finite Element Analysis (FEA) techniques. Coordinated base isolation design for a new center for performing and cinematic arts at a publicly funded university within a metropolitan area.

Wilson Ihrig **1998-2020**
Principal

Developed vibration measurement and analysis capabilities for a newly formed acoustical consulting team within the company, including acquiring software and measurement equipment, developing procedures and training staff. Lead consultant on all vibration measurement and analysis projects for the acoustical consulting team. Worked on a variety of projects that included modeling of outdoor sound propagation to noise sensitive receivers. Conducted detailed analysis of vibration within buildings generated by human activities such as walking and exercising using Finite Element Analysis (FEA) techniques.

The Aerospace Corporation **1992-1998**
Senior Member of the Technical Staff

Provided engineering consulting to the Space and Missile Systems Center of the U.S. Air Force in the area of launch vehicle and space vehicle sound, vibration, and shock environments; processed and analyzed acoustic, vibration, and shock telemetry data from launch vehicles; designed, planned, and conducted full-scale acoustic and vibration laboratory tests, predicted launch vehicle and space vehicle vibration responses during launch through data analysis and analytical modeling utilizing Statistical Energy Analysis (SEA), FEA, and Boundary Element Methods (BEM).

Syscon Corporation **1991-1992**
Senior Systems Engineer

Performed work under contract with the Dynamic Environments Group at the Jet Propulsion Laboratory, Pasadena, CA; conducted computer analysis (SEA, FEA) of spaceflight hardware.

McDonnell Douglas Corporation **1989-1991**
Engineer Scientist

Designed, planned, and conducted acoustic and vibration tests in the laboratory and on board aircraft, in flight and on the ground. Experience in sound intensity measurements, modal analysis, active noise cancellation system assessment, sidewall transmission loss tests, and acoustic reverberation time measurements.

Sample Project Experience*

255 Berry Condominiums, San Francisco, CA
FEA analysis of parking garage generated vibration in adjacent residential floor slabs of condominiums on same level.

979 Broadway, Burlingame, CA
Treadmills in a second-floor fitness center were causing retail displays in a ground floor store below to visibly shake. Used FEA to model the building and vibration. Vibration measurements in the existing building were used to calibrate the model. The FEA model was used to verify that disconnecting the ground floor partition from the fitness room floor above would reduce the vibration to acceptable levels without modification to the structure or the fitness room floor.

9735 Washington Boulevard, Brick and Machine, Culver City, CA
Projected ground-borne vibration from construction of a commercial development project into vibration sensitive areas within an existing hospital adjacent to the project site utilizing empirical methods and a detailed FEA analysis of the hospital foundation and soil. Provided mitigation and monitoring recommendations to control construction generated vibration to acceptable levels within the hospital.

Abaxis, Clean Room Noise, Union City, CA
Noise measurements inside production clean room, recommendations to

reduce noise with existing equipment and after installation of an additional production line.

Advocate Health Care ACL Laboratories Relocation, Rosemont, IL
Supervised floor vibration measurements inside existing healthcare facility to address relocation of vibration sensitive DNA sequencer. Developed vibration “heat map” of proposed area for new laboratory to guide owner in selecting a location for the sequencer.

Bay Area Rapid Transit (BART) San Francisco International Airport Extension Preliminary Engineering, San Francisco, CA
During the construction phase, assisted with vibration monitoring at historic cemetery buildings and structures, and medical and office buildings adjacent to the cut and cover tunnel.

Bay Area Rapid Transit (BART) Transbay Tube Seismic Upgrade Safety Program, CA
Developed a finite element model of the BART tube structure and surrounding fill soils to evaluate potential stress distributions and estimate peak particle velocities during a vibratory soil densification process used to improve the seismic stability of the tube structure against liquefaction during a major earthquake.

Capital One Performing Arts Center, Tysons Corner, VA
Event center including a 1,500-seat auditorium located over parking garage and loading dock for a large chain grocery store located within the building block. Assessment of potential ground-borne noise from large trucks traveling on adjacent streets and structure-borne noise from semi-trucks within the loading dock and entrance ramp. Development and review of vibration isolation for the auditorium with the goal to reduce structure-borne noise generated by semi-trucks moving in and out of the sublevel loading dock and structure-borne noise generated by a rooftop park and beer garden, including bocce courts.

Compass Data Center, IAD Leesburg, VA
Modeled outdoor sound propagation from future data centers. Assisted design team in developing sound mitigation incorporated into chiller equipment design. Verified mitigation with the propagation model and field measurements.

Dallas Fort Worth International Airport, Terminal D Automated People Mover (APM) Vibration Mitigation, TX
FEA of vibration and structure-borne noise generated by new rubber tired APM located on top of new Terminal D Building above roof level; vibration isolation design for guideway; and measurement of APM generated baseline vibration levels on elevated structures at existing systems.

Dr. Phillips Center for the Performing Arts, Orlando, FL
1,700-seat mixed form hall that will host symphony, opera and ballet performances in the center of downtown Orlando. Conducted measurement and analysis of ambient ground vibration from heavy street traffic adjacent to the undeveloped site, which indicated that vibration isolation would be needed to meet the project goals for background noise within the completed hall. Development and review of building vibration isolation to reduce traffic generated ground-borne noise to below the threshold of hearing.

Edmonton Southeast & West Light Rail Transit, Alberta, Canada
Vibration and ground-borne noise impact study for proposed light rail transit system adjacent to noise sensitive performing art centers. Study included measurements of the vibration characteristics from the proposed alignment to vibration and noise sensitive performance spaces within the buildings. Provided conceptual design recommendations for the alignment track structure to mitigate potential ground-borne noise impacts at the performing art centers.

Fitness Floor Vibration Assessment in 3-Story Commercial Building, Boston, MA
Supervised floor vibration measurements and conducted FEA analysis of fitness center generated vibration within a commercial building with medical offices on upper floor.

Fitness Floor Vibration Assessment in High-rise Office Building, Chicago, IL
New columns had been added between floors in a high-rise office to increase the load bearing capacity of an office floor for dense paper file storage. The space above included a corporate fitness room. The addition of the columns resulted in vibration complaints in the office from treadmills being used in the fitness room above. An FEA model was developed to assess the effectiveness of vibration mitigation for the treadmills. Measurements of treadmill generated vibration in the existing office and fitness room were used to calibrate the model. The FEA results were used to guide the remodeling of the fitness room to mitigate the floor vibration.

Hollywood Presbyterian Medical Center, Los Angeles, CA
FEA analysis of automobile generated vibration and in vibration sensitive areas of a hospital replacement project. Assessment and recommendations to control rooftop mechanical equipment vibration in operating rooms on the top floor.

Kaiser Medical Office Building, Redwood City, CA
FEA analysis of parking garage generated vibration and footfall vibration in vibration sensitive areas of future medical office building, including MRI. MEG, and optical surgery. Worked with project structural engineer in developing structural design modifications to reduce floor vibration to acceptable levels.

Kiewit Office Expansion, Concord, CA
Measured exterior and interior highway noise, reviewed building design and provided recommendations to achieve acceptable office interior noise levels.

LAM Research Semi-Conductor Facility, Tainan Science Park, Tainan, Taiwan
Measurement of traffic generated ground vibration at site of planned semi-conductor facility. Measurements conducted at multiple locations at three different depths in the soil.

LA Metro, East Side Light Rail Transit, Los Angeles, CA (2001)
Prediction of ground-borne noise and vibration expected from operations at-grade and in subway utilizing soil vibration propagation characteristics determined from field measurements and geo-technical profile data. Developed rail fastener recommendations to meet structure-borne noise and vibration criteria.

Lawrence Berkeley National Laboratory, Seismic Upgrade Projects, Berkeley, CA (2008)
Projection of noise and vibration impacts on LBNL activities and surrounding community from demolition and construction during campus-wide seismic upgrades of laboratory facilities.

Menlo Square Mixed-Use Project, Menlo Park, CA
Site survey for noise/ground-borne vibration from trains, base building acoustical review including HVAC noise/vibration, sound insulation review of partitions/floor/ceiling assemblies.

NTT Data Centers CH2 – CH4, Itasca, IL
Acoustical study for new data center projects. Modeled outdoor propagation of sound from future data centers to surrounding community and provided sound mitigation recommendations to meet project sound limits at noise sensitive receivers.

Oakland International Airport, Parking Garage and Office Building, CA
FEA analysis of floor vibration from cars and mitigation design services for proposed multi-story building.

Palo Alto Medical Foundation, Sunnyvale Medical Office Building, Sunnyvale, CA
Used FEA to analyze floor vibration response to cars in sub-level parking garage below MRI.

Phoenix Sky Harbor Airport, Consolidated Rental Car Facility, Phoenix, AZ
FEA analysis and recommendations for garage floor excited by cars and buses.

Place des Arts Concert Hall, Montreal, Canada
Conducted site noise and vibration evaluation for new concert hall.

Port of Vancouver/Clark Public Utilities Plant, Freight Train Assessment, WA
Conducted a vibration study to provide projected vibration levels at the Utilities Plant from future rail traffic. Work included measurements of the existing ambient ground vibration throughout the plant, as well as ground vibration generated by freight train operations.

Port of Vancouver, Millennium Bulk Terminals NEPA/SEPA Noise & Vibration Study, WA
Supervision and coordination of noise and vibration analysis that included: identifying noise receptors; identifying and characterizing project noise sources; conducting a baseline noise survey to characterize the existing noise environment; developing a computer model for noise prediction; comparing predicted noise levels with existing noise levels, local ordinances, and applicable regulations to assess impact with respect to NEPA/SEPA.

Port of Vancouver, Terminal 5 Bulk Handling Facility, Vancouver, WA
Community noise and vibration assessments for proposed facility and freight railroad line serving the transfer facility. The study included extensive ambient noise and vibration surveys at residential and commercial receptors adjacent to the facility. Evaluated impacts at the

receptors based on Washington State and City of Vancouver noise standards.

Rocky Mountain Laboratories, Building #7, Hamilton, M
Vibration control for mechanical equipment adjacent to laboratories. Reviewed existing structures and interviewed current users of the adjacent laboratories for information in potentially vibration sensitive equipment in those areas and whether there were any existing vibration related issues. Reviewed structural and mechanical drawings and provided vibration control recommendations to avoid disrupting activity in the adjacent laboratories.

Sanford Consortium for Regenerative Medicine, San Diego, CA
Evaluation of structural floor vibration response to footsteps and mechanical excitation using FEA in a future medical research center. Evaluated design change recommendations to reduce floor vibration to project design criteria.

San Francisco Mission Bay West Life Sciences Building, CA
Projected and evaluated floor vibration related to nearby freeway and street traffic and trains on the adjacent railroad. Predicted floor vibration levels inside the building, developed a computer simulation of the building structure using the measured ground vibration data as input to the FEA model.

Sand Hill Road Expansion, Palo Alto, CA
Conducted pre-construction noise survey along roadway expansion project to document existing noise conditions and estimate the noise impact of completed project. Measurements conducted inside apartment units and outside to determine noise reduction properties of existing structures.

Santa Clara VTA/BART Silicon Valley Rapid Transit Extension, San Jose, CA
Prediction of ground vibration from operations on planned BART extension with segments at grade, within retained cut, on embankment, and on aerial structure. The effort included measurements of the vibration propagation characteristics from the proposed alignment to adjacent properties including measurements inside existing residential buildings. Determined need for and type of vibration mitigation to achieve criteria and conducted numerical analysis to verify effectiveness.

Santa Clara Valley Transportation Authority, Station PA Ambient Noise Test, San Jose, CA
Conducted ambient noise survey at 16 Light Rail Transit station platforms to assist in station PA system design.

Sound Transit, Lynnwood Link EIS, Lynnwood, WA
Prediction of ground vibration from operations on planned on LRT extension. The effort included measurements of the vibration propagation characteristics from the proposed alignment to adjacent properties including measurements. Determined need for and type of vibration mitigation to achieve project vibration criteria. Wrote the vibration technical report for inclusion with the Draft Environmental Impact Statement and provided responses to public comments.

Stanford University, Clark Center, Palo Alto, CA
Measurement of traffic generated and ambient ground vibration at site of future vibration sensitive University research facility. Evaluation of

structural design with respect to floor vibration using FEA. Measurement of structural floor vibration on existing structure in response to footsteps and mechanical excitation by shaker and instrumented impact hammer. Results of measurements used to confirm the FEA model of new building floor.

Starwest Botanicals Mill Noise, Sacramento, CA
Assessed noise exposure of employees within a spice milling facility per OSHA guidelines and provided engineering control recommendations to reduce exposure to levels acceptable without further engineering controls.

Sun Microsystems, Cooling Tower Vibration, Menlo Park, CA
Vibration control for rooftop cooling towers causing sympathetic vibration of monitors in ground floor conference room.

The Urban School Gymnasium, San Francisco, CA
New gymnasium addition including a rooftop activity area over the gymnasium and a classroom mezzanine. Developed an FEA model to assess potential feelable vibration from aerobic activities on the rooftop area. Results of the FEA model used to justify reducing the size of the large steel girder supports for the rooftop area, as originally proposed by the structural engineer.

Tony LaRusa's Animal Rescue Foundation, Walnut Creek, CA
Conducted exterior noise study, made projections of noise from animals at site, and noise from project equipment, made interior noise control recommendations, shell design recommendations.

Transbay Transit Center, San Francisco, CA
Using FEA, predicted structure-borne noise and vibration within the Transit Center within occupied spaces immediately below an elevated floor driven upon by intercity buses. Assessed and guided structural design modifications to reduce structure-borne noise and vibration to acceptable levels, and assisted in the design of vibration isolation for hanging column supports to reduce transmission of bus generated vibration.

University of California, Davis, Center for Mind and Brain, Davis, CA
Evaluation of existing structure for new vibration sensitive University research facility. Measurement of structural floor vibration on existing structure in response to instrumented impact hammer. Results of measurements used to confirm FEA model of building floor for assessing effectiveness of vibration mitigation retrofits.

University of California, Santa Cruz, College In-Fill Apartments, Santa Cruz, CA
Title 24 and building construction consulting services for addition of apartment style student housing to accommodate 140-160 students in each of three campus sites. Typical buildings are four stories including laundry and community spaces.

University of Colorado, Pharmaceutical Research Center, Aurora, CO
Projection of light rail vibration at future research center.

USAF Launch Vehicle Acoustic Environments
Predicted propagation of sound during liftoff of launch vehicles such as the Titan IV, Atlas II, and Delta II for the Space and Missile Systems Center of the United States Air Force. Conducted independent research

into vibration response of launch vehicles to acoustic and vibration environments during liftoff and during flight through the earth's atmosphere.

Walnut Creek-San Ramon Valley East Bay Municipal Utility District Improvements Broadway Micro-tunneling
Noise and vibration monitoring and consulting for waterline tunneling. Long term vibration monitoring conducted at residences adjacent to the tunneling.

Walter Payton College Prep High School Annex, Chicago, IL
New gymnasium addition including rooftop basketball courts over classrooms. Developed an FEA model to assess potential feelable vibration and structure-borne noise. Modeled several floating floor constructions to assess their effectiveness to reduce vibration, including calibration of the model based on vibration measurements that had been conducted with construction mock-ups in the nearly completed building. Results of the model were used to select the most effective approach to reducing vibration.

WMATA Rail Tunnel Analysis, Washington, DC
Analysis of pressure data inside tunnel and near the tunnel portal measured to observe portal boom phenomena and predict the effectiveness of mitigation techniques.

WSDOT SR99 Bored Tunnel Vibration Monitoring and Mitigation Plan, Seattle, WA
Developed a vibration monitoring and mitigation plan for the Washington State Route (SR) 99 Alaskan Way Viaduct replacement project. The work included projections of ground vibration at vibration sensitive receivers associated with tunnel portal activity and vibration from Tunnel Boring Machines (TBMs).

West Kowloon Cultural District – Xiqu Centre
Future performing arts center to be located adjacent to subway and surface street with heavy traffic. Performed evaluation of potential ground-borne noise throughout the center based on measurements conducted by others on site. Provided building isolation design services for classical Chinese theater space within the Centre.

Westfield Century City
Future redevelopment of a retail center. Used Finite Element Analysis (FEA) to estimate potential structure-borne vibration within retail areas from automobiles traveling within parking garage located on upper levels above retail and garage ramp adjacent to retail. Assisted structural engineer in selecting a design modification to mitigate automobile generated vibration in retail space.

World Trade Center, The Perelman Performing Arts Center, New York, NY
Multi-story performing arts building to be built over existing PATH trains and adjacent to NYCT subway trains. Building isolation design services participating in conceptual design through construction phases of the project.

***Work conducted with previous employer.**

Publications and Presentations

Phillips, J.E., “Verification of an acoustical model of outdoor sound propagation from a natural resource compressor station over complex topography,” Acoustical Society of America 184th Meeting, Chicago, IL, May 2023.

Phillips, J.E., “Assessment and remediation of treadmill generated vibration increased due to a building modification,” joint meeting of the Acoustical Society of America 176th Meeting and 2018 Acoustics Week in Canada, Victoria, British Columbia, Canada, November 2018.

Phillips, J.E., “Vibration isolation for world-class performance spaces, Part I: A brief history, Part II: Examples,” joint meeting of the Acoustical Society of America 176th Meeting and 2018 Acoustics Week in Canada, Victoria, British Columbia, Canada, November 2018.

Phillips, J.E. and Wong, A, “Predicting ground vibration from trains on aerial structures,”
Transportation Research Board Subcommittee ADC40 Summer Meeting, Santa Fe, NM, July
2013.

Phillips, J.E., “Vibration study to control ground-borne noise inside a new world-class performing
arts center,” Inter-noise 2012, New York, NY, August 2012.

Phillips, J.E., “Analysis and control of vibration generated by buses on elevated deck within a transit
terminal structure,” Noise-Con 2011, Portland, OR, July 2011.

Phillips, J.E., J.T. Nelson, PhD, PE, “Analysis and design of new floating slab track for special
trackwork using Finite Element Analysis (FEA),” IWRN 2010, Nagahama, Japan, October 2010.

Phillips, J.E., Analysis and design of new floating slab track for special trackwork using Finite
Element Analysis,” Noise-Con 2010, Baltimore MD, April 2010.

Phillips, J.E. “Correlation of Field Measurements for Footstep Force Pulse with FEA Model for
Vibration Response of a Building Floor,” Paper presented at the Sixteenth International Congress on
Sound and Vibration, Krakow, Poland, July 2009.

Phillips, J.E., “2-D FEA modeling to assess railroad track support modification for reducing wayside ground vibration.” Paper presented at the Institute of Noise Control Engineering Noise-Con 2007, Reno, Nevada, October 2007.

Phillips, J.E., “Analysis and control of automated people mover vibration in buildings,” Paper presented at the Institute of Noise Control Engineering Noise-Con 2007, Reno, Nevada, October 2007.

Phillips, J.E., “Analysis and control of automated people mover vibration in buildings,” Paper presented at the 2007 American Public Transportation Association 2007 Rail Conference, Toronto, June 2007.

Phillips, J.E., “Analysis and control of automated people mover vibration in buildings,” Paper presented at the 11th International Conference on Automated People Movers, Vienna, Austria, April 2007.

Phillips, J.E. and Nelson, J.T., “Measurement, analysis and control of pressure transients emitted from a rail transit tunnel portal (“portal boom”),” Paper presented at the 2006 International Congress on Noise Control Engineering, Inter-Noise 2006, Honolulu, Hawaii, December 2006.

Phillips, J.E., “Dynamic analysis of shuttle bus generated vibration in an airport rental car center with an elevated roadway,” Presentation at the 4th Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan, Honolulu, December 2006.

Phillips, J.E. and Carman, R.A., “Correlation of field measurements for footstep force pulse with finite element analysis model for determining vibration response of a building floor,” Presentation at the 4th Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan, Honolulu, December 2006.

Phillips, J.E., “Overview of noise policy in California,” Presentation at the 150th Meeting of the Acoustical Society of America, Minneapolis, Minnesota, October 2005.

Phillips, J.E., “Vibration response of buildings to rail transit ground-borne vibration,” Presentation at the 150th Meeting of the Acoustical Society of America, Minneapolis, Minnesota, October 2005.

Phillips, J.E., “Vibration mitigation design for automated people mover systems in airport terminal structures,” Presentation at the 10th International Conference on Automated People Movers, Orlando, Florida, May 2005.

Saurenman, H.J. and Phillips, J.E., “In-service tests of the effectiveness of vibration control measures on the BART rail transit system,” Paper presented at the 8th International Workshop on Railway Noise, Buxton, U.K., September 2004.

Phillips, J.E. and Wendler, B.H, 1998. “Vibro-Acoustic Assessment of a Multi-Vehicle Payload Configuration Using a Boundary Element Modeling Technique.” Paper presented at the International Society on Modal Analysis ISMA23, Leuven, Belgium, September 1998.

Phillips, J.E. and Wendler, B.H, “Vibro-Acoustic Assessment of a Multi-Vehicle Payload Configuration Using a Boundary Element Modeling Technique.” Paper presented at the 17th Aerospace Testing Seminar, Manhattan Beach, California, October 1997.

Phillips, J.E., “Vibration Testing of a Titan IV-A Instrumentation Truss with Polymer Bead Damping,” Paper presented at the 16th Aerospace Testing Seminar, Manhattan Beach, California, March 1996.

Phillips, J.E., “Statistical Energy Analysis and Its Applications,” Paper presented at the 15th Aerospace Testing Seminar, Manhattan Beach, California, October 1994.

Phillips, J.E., “Acoustic and Vibration Testing of Titan IV Compartment 2A with Viscoelastic Treatment,” Presentation at the Spacecraft and

Launch Vehicle Dynamic Environments Technical Interchange Meeting, El Segundo, California, June 1994.

Phillips, J.E., “Titan IV Acoustic, Vibration and Shock Flight Data Processing,” Presentation at the Spacecraft and Launch Vehicle Dynamic Environments Technical Interchange Meeting, El Segundo, California, June 1994.

Mathur, G.P., Gardner, B.K., Phillips, J.E. and Burgé, P.L, “An Experimental Technique of Separating Airborne and Structure-borne Noise Using Wavenumber-Frequency Spectrum.” Paper presented at the American Institute for Aeronautics and Astronautics 13th Aeroacoustics Conference, Tallahassee, Florida, October 1990.

Phillips, J.E., “The Wavenumber-Frequency Filtering Characteristics of Compliant Layers.” Master of Science Thesis, The Graduate Program in Acoustics, The Pennsylvania State University, December 1989.

Karl Metz, RA LEED AP
Asset Advisory Services West Practice Lead

Key skills	Years of experience	Years with AECOM
Project Management Asset Management Architecture MEP Coordination	20 years Architecture and Asset Managment	12+

Licensure/Affiliations
Registered Architect- California
LEED Accredited Professional
Institute of Asset Management Certificate Holder

Professional Summary
Karl is a Principal and Program Manager with more than two decades of experience in architecture, planning, design, and construction, specializing in complex, multidisciplinary projects. As a licensed California architect and asset management professional, he blends technical expertise with strategic insight to meet unique client needs that range from global corporations to public entities. Within AECOM's Global Asset Management Technical Practice Network, he advances methodologies and encourages collaboration among multidisciplinary teams. His projects include the County of Los Angeles Deferred Maintenance Program, where he oversaw software development, quality reviews, capital planning, and staff augmentation. He has also led global safety standards assessments and infrastructure reliability studies. Karl's diverse experience is built on a foundation of integrated technical and managerial skills that support his creative, solution-focused approach to meeting client objectives.

County of Los Angeles Deferred Maintenance Program Phase 3. Program Manager, Technical Lead- County of Los Angeles Deferred Maintenance Program – Phase 3 | Program Manager, Technical Lead. Beginning in 2010, AECOM was engaged to deliver county-wide deferred-maintenance services covering more than 50 million ft^2 in 3,500+ buildings across 24 departments, including high-profile venues such as the Hollywood Bowl, recreation facilities, parking structures, and surface lots. Karl managed AECOM's professional services and led quality assurance for roughly 80,000 data entries on building deficiencies and bar-coded equipment, converting the findings into an estimated $200 million portfolio of corrective projects. To help the County meet the ADA Title II mandate, he directed the development of the Accessibility Transition Plan System (ATPS), a mobile and web application that centralizes ADA transition plans for the 5,000+ buildings the County occupies, enabling real-time updates and consistent compliance monitoring. His responsibilities spanned software development oversight, quality reviews, staff augmentation, and the overall technical strategy to confirm alignment with client objectives and industry standards.

San Francisco Unified School District Proposition A 2016, 2024 Bond Programs, Peer Review Manager, Architectural Reviewer, San Francisco- Provided Party Peer Review management and Architectural disciplinary review of SFUSD construction bond projects to modernize and TK-12 buildings that focused on seismic retrofits, accessibility, and fire and life safety. The peer review program evaluated Design Development packages prior to submission to the DSA for compliance with applicable building codes and District design guidelines. Additional constructability reviews were performed during the development of the construction documents to review technical approach and compliance with applicable codes. The code reviews provided comments to related to building code compliance, life safety and egress, the Americans with Disabilities Act (ADA), the California Code of Regulations (CCR), Title 24 Standards (Title 24), and SFUSD's internal design criteria.

County of Santa Clara- Continuity of Operations Study. Project Director and Technical Lead- System Reliability Assessments for healthcare facilities, focused on redundancy and reliability in utility infrastructure and power systems. Configured custom data collection and reporting. Reports will highlight potential points of failure in assessed infrastructure and systems, prioritize assessed systems for repair and retrofit based on criticality, and provide possible resiliency and redundancy solutions. Karl oversaw the technical approach for the studies and provided leadership support on the project.

Kaiser Permanente, NPC-5 Program Phase 1. Technical Contributor- Phase 1 involved a gap-analysis and water rationing plans that the Phase 2 project team is currently implementing infrastructure strategies on all sites for meeting state mandated code compliance. NPC-5 requirement refers to availability of potable water, the industrial/ process water, and fuel to operate hospital utilities and equipment to support 72 hours of operations (96 hours in case of fuel) post natural disaster event. Karl assisted with the development of the Phase 1 technical approach and performed QAQC reviews of the reports.

Shell Global Building Safety Standards Assessments. Program Manager- AECOM is currently performing health and safety code compliance assessments for Shell in their global office portfolio. This project will assist Shell in prioritizing actions to achieve a safe working environment for their office staff worldwide. Karl provides project leadership support and technical guidance.

Africa Basketball League. Project Manager, Technical Lead- AECOM was selected by the National Basketball Association (NBA) to assist with the launch of their Africa Basketball League (BAL). The scope for this project included assessing venues in Egypt, Tunisia, Morocco, Nigeria for use by the League. As project manager, Karl coordinated the logistically complicated trip and lead multidisciplinary team in the field. The goal for this project was to evaluate each potential venue from the perspective of design professionals on behalf NBA so the League could make informed decisions on which venue would best fit their needs.

Golden 1 Center. Project Architect- AECOM was selected to be the designer of the home to the Sacramento Kings in downtown Sacramento. In addition to creating a world-class sports facility and venue, the Golden 1 center is also an anchor of Sacramento's downtown revitalization plan which includes a new public plaza, destination shopping and 250 room hotel. As a project architect, Karl developed the design, construction details, and coordination of MEP as well as the interface between the seating bowl, interiors, exterior envelope, and the adjacent practice facility. The Sacramento Kings Practice facility is innovative in that it reused the structural foundations of the previous building in order to minimize waste and reduce the construction cost of the project.

Barclays Center, Brooklyn, NY. Construction Administrator- Constructed as a design-build partnership with Hunt Construction, the 18,000 seat Barclays Center arena is the first professional sports venue is the cornerstone of the Atlantic Yards development in Brooklyn. Karl worked in the field office and expedited the communication between the design team and the construction team. He also acted as the design team representative for BIM clash detection meetings and developed rapid solutions to maintain the integrity of the design while keeping construction on schedule.

Devin Pourroy

Asset Advisory Mechanical II

Education
BS, Mechanical Engineering,
Loyola Marymount University

Professional history

Mr. Pourroy is a field team lead for AECOM's Asset Advisory Services experienced in facility, property, and building assessments. He adeptly oversees safety protocols, field coordination, quality assurance, and project development of collected data. His diverse portfolio spans commercial, educational, municipal, and federal projects throughout the United States and internationally.

Selected project experience

Army National Guard (ANG) and Defense Logistics Agency (DLA), BUILDER Sustainment Management System (SMS) Implementation, Mechanical Assessor
Performed Facility Condition Assessments of ANG and DLA facilities in Texas, Alabama, Hawaii, Colorado, and New Mexico utilizing the BUIDLER SMS developed by the U.S. Army Corps of Engineers. Responsible for assessing the condition of mechanical, plumbing, electrical, and fire alarm and suppression systems. Supported quality assurance and quality control of data collected and developed deficiency reports for the client.

Anne Arundel (AACPS) and Oakland (OUSD) School Districts, Facility Condition Assessment and Facilities Master Plan, Mechanical Assessor
Utilized AECOM's custom EAM system, AssessorGo, to conduct Facility Condition Assessments of school facilities for AACPS and OUSD. Responsible for assessing the condition of mechanical, plumbing, electrical, and fire alarm and suppression systems. AECOM provided a project planning spreadsheet detailing facility deficiencies, recommended actions, and rough order of magnitude (ROM) costs, prioritized to assist school districts in planning future capital expenditures and bonds.

County of Los Angeles Department of Public Works, Facility Condition and ADA Assessments, Energy and Waste Audits, CA, Mechanical Assessor. Performed Level 1, 2 and 3 Facility Condition Assessments and ASHRAE Level 1 Energy Audits for 120 Shops and Yards sites. Utilizing the custom EAM system developed for the County by AECOM (SAM), the team delivered reporting on building constraints, deficiencies, prioritized opportunities, and anticipated service life in a central capital planning tool for planning of spending on deferred maintenance/system renewals with a longer time horizon attached.

Pomona Fairplex-California Fair Association, Facility Condition Assessments, Mechanical Assessor. Performed Level 1 and 2 Facility Condition Assessments for 1MSF of facilities. Utilizing the custom EAM system developed for the County by AECOM (SAM), the team delivered reporting on building constraints, deficiencies, prioritized opportunities, and anticipated service life in a central capital planning tool for planning of spending on deferred maintenance/system renewals with a longer time horizon attached.

Shell, Global Building Safety Standards Assessments, Mechanical Assessor. Utilizing AECOM's PlanSpend data collection and central reporting tools, AECOM is currently performing health and safety code compliance assessments for Shell in their global office portfolio. This project will assist Shell in prioritizing actions to achieve a safe working environment for their office staff worldwide.

Kellogg's- Global Headquarters Study. Generalist/Support. AECOM performed facility assessments across Kellogg's Battle Creek HQ campus establishing the current condition, estimating the costs required to address deferred maintenance needs, and developing capital plans for Kellogg's to prioritize needed replacements/improvements.

AECOM

Christian Gomez
Architecture Designer II

Key skills
Computer Aided Design
- Revit
- AutoCAD
- Rhino
- Sketchup

Adobe
- Illustrator
- Photoshop
- InDesign

Years of experience
10

Years of experience with AECOM
10

Education
Bachelors of Architecture
University of Southern California (USC),
Los Angeles, CA
Honors Graduate, Valedictorian

Years of experience with AECOM
10

Date of birth
Novemebr 25, 1986

Language skills
Spanish

Nationality
United States of America

Professional history

Christian Gomez is a planner and designer with 10 years of experience in planning and architectural design. Projects range from facilitating long-term planning workshops to building renovation and modernizations. He is an excellent communicator and visualizer with strong skills in community participation, workshop organization, management and facilitation, and briefing presentations. Christian has helped lead large groups of diverse stakeholders in a variety of design and planning exercises for federal entities, including the U.S. Air Force, Army, Navy, Marine Corps, and National Guard Bureau.

Selected project experience

Project Title: Renovation of Multiple Facilities for U.S. Marine Corps Force Japan (MARFORJ)
Client: United States Air Force,
Location: Yokota Air Base, Japan
Role: Job Captain

Conducted investigations and provided summaries to determine user organizational requirements, existing conditions, construction phasing, and a moving plan for new MARFORJ tenant and impacted tenants on Yokota Air Base. Design and engineering services were provided to define building requirements to renovate the buildings identified by the analysis of these investigations and approved by the government.

The primary buildings included buildings 445 and 4018. Additional buildings involved for tenant swing space and permanent relocation included buildings 756, 4084, 1561, 1562, and 1563. Required swing spaces were identified and included in the design package. Scope of work included new Furniture, Fixtures, & Equipment, construction phasing plan (including swing space and schedule), a Ready-to-Advertise design package (Drawing and Specifications), and a construction cost estimate.

Date: December 12, 2022 – Present

Project Title: Improve Family Housing PAIP 8B
Client: United States Army Corps of Engineers (USACE)
Location: Yokota Air Base, Japan
Role: Job Captain

The Post Acquisition Improvement Program (PAIP) 8B project includes renovation and improvements of four residential buildings, totalling 19 single-family housing units at the Yokota Air Base (AB). As family housing, each building will be designed for an occupancy and use of 24 hours per day, and 7 days per week, which further underscores the importance of reducing and simplifying maintenance efforts. These buildings include one single-family detached residence, the General Officer's Quarters (GOQ), and three buildings of town homes or garden-style units. These consist of three buildings of the 3GAW unit type. Additionally, Value Engineering (VE) strategies were implemented to meet reduced project costs.

Date: March 11, 2023 – Present

Project Title: Renovate Space Control Facilities, Buildings 1559 and 1508
Client: California Air National Guard
Location: Vandenberg Space Force Base, California
Role: Architectural Designer

Interior renovation of Building 1559 for the new 216th Space Control Mission (SPCS), including administrative spaces for squadron command and support functions, unclassified operations and training, equipment maintenance and storage spaces, and circulation and support spaces (restrooms, break room, media center, etc.). Interior renovation of Building 1508 for classified operations and training.

Date: October 31, 2019 – September 13, 2024

Project Title: Repair Maintenance Shops
Client: California Air National Guard
Location: Vandenberg Space Force Base, California
Role: Architectural Designer

Renovation of an existing 24,269 sf aircraft maintenance shop facility, including the demolition and reconfiguration of the interior partition walls to right size and appropriately configure aircraft maintenance shops to support the assigned Aircraft General Purpose, Aircraft Corrosion Control, and Non- Destructive Inspection shop functions for 18 PAA A-10 aircraft.

Date: November – December 2019

Project Title: EA-18G Maintenance Hangar
Client: Naval Facilities Engineering Command (NAVFAC) Northwest
Location: Whidbey Island, Oak Harbor, WA
Role: Architectural Designer

Construct a new 56,000 SF maintenance hangar in support of the EA-18G Growler aircraft. The facility will provide high-bay space for aircraft maintenance, maintenance shops, open bay warehouse for aircraft equipment, and administrative spaces.

Date: April – June 2018

Project Title: Aircraft Maintenance Unit (AMU) facility and Renovation to Building 913
Client: United States Army Corps of Engineers (USACE)
Location: Maricopa County, Arizona
Role: Architectural Designer

Build a combined Squadron Operations and AMU Administrative facility in support of the Joint Strike Fighter (JSF) F-35A aircraft and renovate Building 913 for AMU support functions.

Date: January – July 2018

Master planning for the U.S. Department of Defence DoD
Clients: Air Force, Army, Navy, Marine Corps, and National Guard Bureau
Location: Global
Role: Planner

Facilitated workshops and produced updated master plans for the Air Force, Army, Navy, Marine Corps, and National Guard Bureau.

Date: November 2014 – July 2021

Appendix B
Public Resources Code Section 21168.6.9

2024 California Code
Public Resources Code - PRC
DIVISION 13 - ENVIRONMENTAL QUALITY
CHAPTER 6 - Limitations
Section 21168.6.9.

Universal Citation:

CA Pub Res Code § 21168.6.9 (2024)

21168.6.9. (a) For purposes of this section, the following definitions apply:

(1) “Environmental leadership transit project” or “project” means a project to construct a fixed guideway and related fixed facilities that meets all of the following conditions:

(A) The fixed guideway operates at zero emissions.

(B) (i) If the project is more than two miles in length, the project reduces emissions by no less than 400,000 metric tons of greenhouse gases directly in the corridor of the project defined in the applicable environmental document over the useful life of the project, without using offsets.

(ii) If the project is no more than two miles in length, the project reduces emissions by no less than 50,000 metric tons of greenhouse gases directly in the corridor of the project defined in the applicable environmental document over the useful life of the project, without using offsets.

(C) The project reduces no less than 30,000,000 vehicle miles traveled in the corridor of the project defined in the applicable environmental document over the useful life of the project.

(D) The project is consistent with the applicable sustainable communities strategy or alternative planning strategy.

(E) The project is consistent with the applicable regional transportation plan.

(F) The project applicant demonstrates how it has incorporated sustainable infrastructure practices to achieve sustainability, resiliency, and climate change mitigation and adaptation goals in the project, including principles, frameworks, or guidelines as recommended by one or more of the following:

(i) The sustainability, resiliency, and climate change policies and standards of the American Society of Civil Engineers.

(ii) The Envision Rating System of the Institute for Sustainable Infrastructure.

(iii) The Leadership in Energy and Environment Design (LEED) rating system of the United States Green Building Council.

(G) The environmental leadership transit project is located wholly within the County of Los Angeles or connects to an existing transit project wholly located in the County of Los Angeles.

(H) For a project meeting the requirements of subparagraphs (A) to (G), inclusive, for which the environmental review pursuant to this division has commenced before January 1, 2022, the project applicant demonstrates that the record of proceedings is being, or has been, prepared in accordance with subdivision (f).

(2) “Fixed guideway” has the same meaning as defined in Section 5302 of Title 49 of the United States Code.

(3) “Project applicant” means a public or private entity or its affiliates that proposes an environmental leadership transit project, and its successors, heirs, and assignees.

(4) “Project labor agreement” has the same meaning as in paragraph (1) of subdivision (b) of Section 2500 of the Public Contract Code.

(5) “Skilled and trained workforce” has the same meaning as provided in Chapter 2.9 (commencing with Section 2600) of Part 1 of Division 2 of the Public Contract Code.

(b) This section applies to an environmental leadership transit project if the project applicant does all of the following:

(1) The project applicant demonstrates compliance with the requirements of Chapter 12.8 (commencing with Section 42649) and Chapter 12.9 (commencing with Section 42649.8) of Part 3 of Division 30, as applicable.

(2) (A) Except as provided in subparagraph (B), the project applicant has entered into a binding and enforceable agreement that all mitigation measures required under this division shall be conditions of approval of the project, and those conditions will be fully enforceable by the lead agency or another agency designated by the lead agency. In the case of environmental mitigation measures, the project applicant agrees, as an ongoing obligation, that those measures will be monitored and enforced by the lead agency for the life of the obligation.

(B) For a project applicant that is a public agency and is also the lead agency, the public agency conditions the approval of the environmental leadership transit project on, and performs, all mitigation measures required under this division. In the case of environmental mitigation measures, the public agency, as an ongoing obligation, shall monitor those measures for the life of the obligation.

(3) The project applicant agrees to pay the costs of the trial court and the court of appeal in hearing and deciding any case challenging a lead agency's action on an environmental leadership transit project under this division, including payment of the costs for the appointment of a special master if deemed appropriate by the court, in a form and manner specified by the Judicial Council, as provided in the California Rules of Court adopted by the Judicial Council under subdivision (d).

(4) The project applicant agrees to bear the costs of preparing the record of proceedings for the project concurrent with review and consideration of the project under this division, in a form and manner specified by the lead agency for the project.

(c) (1) (A) If the project applicant is a public agency, the project applicant of an environmental leadership transit project shall obtain an enforceable commitment that any bidder, contractor, or other entity undertaking the project will use a skilled and trained workforce to complete the project.

(B) Subparagraph (A) does not apply if either of the following are met:

(i) The project applicant has entered into a project labor agreement that will bind all contractors and subcontractors performing work on the project to use a skilled and trained workforce.

(ii) The bidder, contractor, or other entity has entered into a project labor agreement that will bind all contractors and subcontractors at every tier performing work on the project to use a skilled and trained workforce.

(2) If the project applicant is a private entity, the project applicant of an environmental leadership transit project shall do both of the following:

(A) Certify to the lead agency that either of the following is true:

(i) The entirety of the project is a public work for purposes of Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 of the Labor Code.

(ii) If the project is not in its entirety a public work and the project applicant is not required to pay prevailing wages to all construction workers under Article 2 (commencing with Section 1770) of Chapter 1 of Part 7 of Division 2 of the Labor Code, all construction workers employed on construction of the project will be paid at least the general prevailing rate of per diem wages for the type of work and geographic area, as determined by the Director of Industrial Relations pursuant to Sections 1773 and 1773.9 of the Labor Code, except that apprentices registered in programs approved by the Chief of the Division of Apprenticeship Standards may be paid at least the applicable apprentice prevailing rate. If the project is subject to this clause, then for those portions of the project that are not a public work all of the following shall apply:

(I) The project applicant shall ensure that the prevailing wage requirement is included in all contracts for the performance of all construction work.

(II) All contractors and subcontractors at every tier shall pay to all construction workers employed in the execution of the work at least the general prevailing rate of per diem wages, except that apprentices registered in programs approved by the Chief of the Division of Apprenticeship Standards may be paid at least the applicable apprentice prevailing rate.

(III) Except as provided in subclause (V), all contractors and subcontractors at every tier shall maintain and verify payroll records pursuant to Section 1776 of the Labor Code and make those records available for inspection and copying as provided by that section.

(IV) Except as provided in subclause (V), the obligation of the contractors and subcontractors at every tier to pay prevailing wages may be enforced by the Labor Commissioner through the issuance of a civil wage and penalty assessment pursuant to Section 1741 of the Labor Code, which may be reviewed pursuant to Section 1742 of the Labor Code, within 18 months after the completion of the project, or by an underpaid worker through an administrative complaint or civil action, or by a joint labor-management committee through a civil action under Section 1771.2 of the Labor Code. If a civil wage and penalty assessment is issued, the contractor, subcontractor, and surety on a bond or bonds issued to secure the payment of wages covered by the assessment shall be liable for liquidated damages pursuant to Section 1742.1 of the Labor Code.

(V) Subclauses (III) and (IV) do not apply if all contractors and subcontractors at every tier performing work on the project are subject to a project labor agreement that requires the payment of prevailing wages to all construction workers employed in the execution of the project and provides for enforcement of that obligation through an arbitration procedure.

(VI) Notwithstanding subdivision (c) of Section 1773.1 of the Labor Code, the requirement that employer payments not reduce the obligation to pay the hourly straight time or overtime wages found to be prevailing shall not apply if otherwise provided in a bona fide collective bargaining agreement covering the worker. The requirement to pay at least the general prevailing rate of per diem wages does not preclude use of an alternative workweek schedule adopted pursuant to Section 511 or 514 of the Labor Code.

(B) Certify to the lead agency that a skilled and trained workforce will be used to perform all construction work on the project. All of the following requirements shall apply to the project:

(i) The project applicant shall require in all contracts for the performance of work that every contractor and subcontractor at every tier will individually use a skilled and trained workforce to construct the project.

(ii) Every contractor and subcontractor at every tier shall use a skilled and trained workforce to construct the project.

(iii) (I) Except as provided in subclause (II), the project applicant shall provide to the lead agency, on a monthly basis while the project or contract is being performed, a report demonstrating compliance with Chapter 2.9 (commencing with Section 2600) of Part 1 of Division 2 of the Public Contract Code. A monthly report provided to the lead agency pursuant to this subclause shall be a public record under the California Public Records Act (Division 10 (commencing with Section 7920.000) of Title 1 of the Government Code) and shall be open to public inspection. A project applicant that fails to provide a monthly report demonstrating compliance with Chapter 2.9 (commencing with Section 2600) of Part 1 of Division 2 of the Public Contract Code shall be subject to a civil penalty of ten thousand dollars ($10,000) per month for each month for which the report has not been provided. Any contractor or subcontractor that fails to use a skilled and trained workforce shall be subject to a civil penalty of two hundred dollars ($200) per calendar day for each worker employed in contravention of the skilled and trained workforce requirement. Penalties may be assessed by the Labor Commissioner within 18 months of completion of the project using the same procedures for issuance of civil wage and penalty assessments pursuant to Section 1741 of the Labor Code, and may be reviewed pursuant to the same procedures in Section 1742 of the Labor Code. Penalties shall be paid to the State Public Works Enforcement Fund.

(II) Subclause (I) shall not apply if all contractors and subcontractors at every tier performing work on the project are subject to a project labor agreement that requires compliance with the skilled and trained workforce requirement and provides for enforcement of that obligation through an arbitration procedure.

(d) On or before January 1, 2023, the Judicial Council shall adopt rules of court that apply to any action or proceeding brought to attack, review, set aside, void, or annul the certification of an environmental impact report for an environmental leadership transit project or the granting of any project approval that require the action or proceeding, including any potential appeals to the court of appeal or the Supreme Court, to be resolved, to the extent feasible, within 365 calendar days of the filing of the certified record of proceedings with the court.

(e) (1) (A) The draft and final environmental impact report for an environmental leadership transit project shall include a notice in not less than 12-point type stating the following:

THIS ENVIRONMENTAL IMPACT REPORT IS SUBJECT TO SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE, WHICH PROVIDES, AMONG OTHER THINGS, THAT THE LEAD AGENCY NEED NOT CONSIDER CERTAIN COMMENTS FILED AFTER THE CLOSE OF THE PUBLIC COMMENT PERIOD, IF ANY, FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT. ANY JUDICIAL ACTION CHALLENGING THE CERTIFICATION OR ADOPTION OF THE ENVIRONMENTAL IMPACT REPORT OR THE APPROVAL OF THE PROJECT DESCRIBED IN SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE IS SUBJECT TO THE PROCEDURES SET FORTH IN THAT SECTION. A COPY OF SECTION 21168.6.9 OF THE PUBLIC RESOURCES CODE IS INCLUDED IN THE APPENDIX TO THIS ENVIRONMENTAL IMPACT REPORT.

(B) For an environmental leadership transit project for which a draft environmental impact report was issued before January 1, 2022, the lead agency shall, before February 1, 2022, or before the public hearing on the certification of the environmental impact report, whichever is earlier, provide the notice specified in subparagraph (A), in writing, to all parties that have requested notification regarding the project. The lead agency shall include that notice and the appendix required pursuant to paragraph (2) in the final environmental impact report for the project.

(C) For an environmental leadership transit project for which a final environmental impact report was issued before January 1, 2022, the lead agency shall, before February 1, 2022, or before the issuance of the notice of determination, whichever is earlier, do both of the following:

(i) Issue an addendum to the final environmental impact report containing the notice specified in subparagraph (A) and the appendix required pursuant to paragraph (2).

(ii) Provide notice, in writing, of the addendum to all parties that have requested notification regarding the project.

(2) The draft environmental impact report and final environmental impact report shall contain, as an appendix, the full text of this section.

(3) Within 10 calendar days after the release of the draft environmental impact report, the lead agency shall conduct an informational workshop to inform the public of the key analyses and conclusions of that document, as applicable.

(4) Within 10 calendar days before the close of the public comment period, the lead agency shall hold a public hearing to receive testimony on the draft environmental impact report. A transcript of the hearing shall be included as an appendix to the final environmental impact report, as applicable.

(5) (A) Within five calendar days following the close of the public comment period, a commenter on the draft environmental impact report may submit to the lead agency a written request for nonbinding mediation, as applicable. The lead agency shall participate in nonbinding mediation with all commenters who submitted timely comments on the draft environmental impact report and who requested the mediation. Mediation conducted pursuant to this paragraph shall end no later than 35 calendar days after the close of the public comment period.

(B) A request for mediation shall identify all areas of dispute raised in the comment submitted by the commenter that are to be mediated.

(C) The lead agency shall select one or more mediators who shall be retired judges or recognized experts with at least five years' experience in land use and environmental law or science, or mediation. The lead agency shall bear the costs of mediation.

(D) A mediation session shall be conducted on each area of dispute with the parties requesting mediation on that area of dispute.

(E) The lead agency shall adopt, as a condition of approval, any measures agreed upon by the lead agency and any commenter who requested mediation. A commenter who agrees to a measure pursuant to this subparagraph shall not raise the issue addressed by that measure as a basis for an action or proceeding challenging the lead agency's decision to certify the environmental impact report or to grant project approval.

(6) The lead agency need not consider written comments on the draft environmental impact report submitted after the close of the public comment period, unless those comments address any of the following:

(A) New issues raised in the response to comments by the lead agency.

(B) New information released by the lead agency subsequent to the release of the draft environmental impact report, such as new information set forth or embodied in a staff report, proposed permit, proposed resolution, ordinance, or similar documents.

(C) Changes made to the project after the close of the public comment period.

(D) Proposed conditions for approval, mitigation measures, or proposed findings required by Section 21081 or a proposed reporting or monitoring program required by paragraph (1) of subdivision (a) of Section 21081.6, if the lead agency releases those documents subsequent to the release of the draft environmental impact report.

(E) New information that was not reasonably known and could not have been reasonably known during the public comment period.

(7) The lead agency shall file the notice required by subdivision (a) of Section 21152 within five calendar days after the last initial project approval.

(f) (1) The lead agency shall prepare and certify the record of proceedings in accordance with this subdivision and in accordance with Rule 3.2205 of the California Rules of Court.

(2) No later than three business days following the date of the release of the draft environmental impact report, the lead agency shall make available to the public in a readily accessible electronic format the draft environmental impact report and all other documents relied on by the lead agency in the preparation of the draft environmental impact report. A document prepared by the lead agency after the date of the release of the draft environmental impact report that is a part of the record of proceedings shall be made available to the public in a readily accessible electronic format within five business days after the document is prepared by the lead agency.

(3) Notwithstanding paragraph (2), documents relied on by the lead agency that were not prepared specifically for the project and are copyright protected are not required to be made readily accessible in an electronic format. For those copyright protected documents, the lead agency shall make an index of the documents available in an electronic format no later than the date of the release of the draft environmental impact report, or within five business days if the document is received or relied on by the lead agency after the release of the draft environmental impact report. The index shall specify the libraries or lead agency offices in which hardcopies of the copyrighted materials are available for public review.

(4) The lead agency shall encourage written comments on the project to be submitted in a readily accessible electronic format, and shall make any such comments available to the public in a readily accessible electronic format within five calendar days of their receipt.

(5) Within seven business days after the receipt of any comment that is not in an electronic format, the lead agency shall convert that comment into a readily accessible electronic format and make it available to the public in that format.

(6) The lead agency shall indicate in the record of proceedings comments received that were not considered by the lead agency pursuant to paragraph (6) of subdivision (e) and need not include the content of the comments as a part of the record of proceedings.

(7) Within five calendar days after the filing of the notice required by subdivision (a) of Section 21152, the lead agency shall certify the record of proceedings for the approval or determination and shall provide an electronic copy of the record of proceedings to a party that has submitted a written request for a copy. The lead agency may charge and collect a reasonable fee from a party requesting a copy of the record of proceedings for the electronic copy, which shall not exceed the reasonable cost of reproducing that copy.

(8) Within 10 calendar days after being served with a complaint or a petition for a writ of mandate, the lead agency shall lodge a copy of the certified record of proceedings with the superior court.

(9) Any dispute over the content of the record of proceedings shall be resolved by the superior court. Unless the superior court directs otherwise, a party disputing the content of the record of proceedings shall file a motion to augment the record of proceedings at the time it files its initial brief.

(10) The contents of the record of proceedings shall be as set forth in subdivision (e) of Section 21167.6.

(g) This section applies only to an environmental leadership transit project that is approved by the lead agency on or before January 1, 2025.

(h) This section shall only apply to the first seven projects obtaining a certified environmental impact report and meeting the requirements of this section.

(i) This section shall remain in effect only until January 1, 2026, and as of that date is repealed.

(Amended by Stats. 2024, Ch. 80, Sec. 113. (SB 1525) Effective January 1, 2025. Repealed as of January 1, 2026, by its own provisions.)