



Mei Wu Acoustics

Experts in acoustics, noise and vibration

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Subject: Franklin Templeton Construction Noise – San Mateo
MWA Project – 16089

Mei Wu Acoustics (MWA) is pleased to present this report containing noise control recommendations for the new construction project on Franklin Templeton’s San Mateo, CA campus.

1. Project Description

This project consists of the construction of two new four-story buildings on the Franklin Templeton campus located at 1 Franklin Parkway in San Mateo, California. These are two identical office buildings of approximately 120,000 square feet each. Each building also includes one level of below-ground parking. The two new buildings are designated Buildings 950 & 930. Building 950 is to the north and Building 930 is to the south.

In addition to the construction of the two buildings, this project includes the paving of a new surface parking lot and of driveways through the campus, as well as various landscaping work.

2. Project Criteria

The project must adhere to the San Mateo General Plan and San Mateo Municipal Code. The relevant excerpts from the two documents are included below:

a. San Mateo General Plan – Noise Element

GOAL 2: Minimize unnecessary, annoying, or unhealthful noise.

POLICIES:

N 2.1: Noise Ordinance. Continue implementation and enforcement of the City's existing noise control ordinance: a) which prohibits noise that is annoying or injurious to neighbors of normal sensitivity, making such activity a public nuisance, and b) restricts the hours of construction to minimize noise impact.

Implementation of N 2.1: Noise Ordinance.

Noise nuisances, as defined in the City's Municipal Code, are abated through a standardized enforcement process, which includes referral to the Housing and Advisory Appeals Board. This includes noise generated by building construction and equipment at unauthorized times.

Enforcement of a noise control ordinance can reduce nuisance noise generated by commercial uses or from residential sources such as amplified music, parties, leaf blowers, or barking dogs. Construction activities also generate substantial short-term noise impacts, which can be limited to specified hours and days of the week.

b. San Mateo Municipal Code – Title 7: Health, Sanitation, and Public Nuisances
Chapter 7.30 Noise Regulations

7.30.060 Special Provisions

(e) Construction. Construction, alteration, repair or land development activities which are authorized by a valid city permit shall be allowed on weekdays between the hours of seven a.m. and seven p.m., on Saturdays between the hours of nine a.m. and five p.m., and on Sundays and holidays between the hours of noon and four p.m., or at such other hours as may be authorized or restricted by the permit, if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding 90 dB at a distance of 25 feet. If the device is housed within a structure or trailer on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible.

(2) The noise level at any point outside of the property plane of the project shall not exceed 90 dB.

(3) The operation of leaf blowers shall additionally comply with Chapter 10.80, Operation of Leaf Blowers. (Ord. 2013-13 § 9; Ord. 2004-16 § 1)

c. Summary of Noise Codes

The General Plan requires that the hours allowed for construction in the Municipal code be followed, but does not provide specific regulations regarding the limitation of construction noise.

The Municipal Code allows construction activities to occur between 7AM and 7PM on weekdays, between 9AM and 5PM on Saturdays, and between 12PM and 4PM on Sundays and Holidays. Other hours may be permitted or restricted according to the exact language of the construction permit. We assume the hours defined herein as the expected hours of construction of this project.

Additionally, during construction, one of the following conditions must be satisfied:

- No piece of equipment may produce a noise level exceeding 90 dB at a distance of 25 feet.
- The noise level at or outside any property line may not exceed 90 dB.

3. Site Plan

The project calls for the construction of two new four-story buildings. The site plan is shown below in Figure 1.

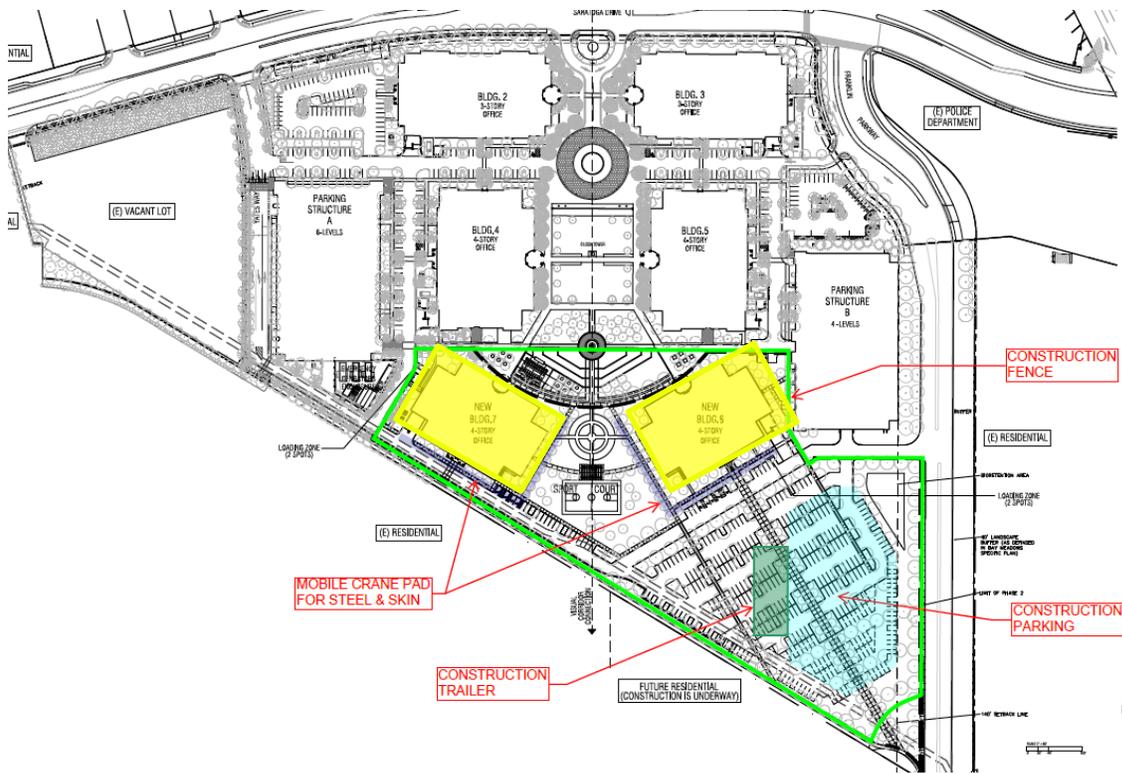


Figure 1: Site Plan. Construction fence perimeter shown in green. Locations of new buildings marked in yellow.

Construction activities are expected to include the following:

- Excavate below the new building pad areas and re-compact to rebuild the sub-base
- Place new basement slab for below-ground parking.
- Place new concrete footings and slab on grade.
- Construct new steel framed building structures.
- Pave an above-ground parking lot at the southern end of the construction site.
- Pave driveways to connect new buildings and parking lot to roadways.

Our analysis assumes no pile driving or other usage of heavy impact tools. If this is not case, further study of mitigation measures will be required. **Please notify MWA if these types of equipment will be used on this project.**

The sensitive receivers nearest to the new construction can be seen below in Figure 2. These sensitive receivers are as follows:

1. **Franklin Templeton Campus** – Previously existing buildings on the Franklin Templeton campus will be exposed to construction noise. The two closest buildings to the new construction are known as Buildings 4 & 5 and are approximately 65 feet from the new construction at their closest points.
2. **Residential: Bay Meadows** – A neighborhood of newly built townhomes. The property line between Franklin Templeton and the Bay Meadows Townhomes is about 25 feet away from the closest construction activity - paving near Building 950.

3. **Residential: Glendale Village** – Located across Franklin Parkway from the construction site. Approximately 250 feet from the closest edge of the new parking lot that will be paved.



Figure 2: Aerial photo of project area. Construction fence outlined in green. New building locations shown in blue. New parking lot shown in red. Nearby sensitive receivers labeled on photo.

4. Construction Noise Analysis

The San Mateo Municipal Code limits the noise level from any piece of equipment to 90 dBA at a distance of 25 ft or 90 dBA at the property line. Table 1 contains data about the sound level produced at 25 ft. for various pieces of construction equipment.^{1,2} This table also includes sound level data from previous MWA construction/demolition noise studies.

¹ *Traffic Noise and Vibration Impact Assessment*. Federal Transit Administration, May 2006 (report number FTA-VA-90-1003-06)

² *Roadway Construction Noise Model User Guide*. U.S. Department of Transportation, August 2012. http://www.fhwa.dot.gov/enviroMent/noise/construction_noise/rcnm/rcnm01.cfm

Equipment highlighted in Table 1 must not exceed 90 dBA at the property line and therefore must either be utilized at a distance greater than 25 ft from the property line or must have its noise controlled by a barrier. Equipment not highlighted in the table may be used at any location on the property for the construction.

Equipment	Noise Level at 25 ft [dBA]
Air Compressor	87
Backhoe	86
Ballast Equalizer	88
Ballast Tamper	89
Compactor	88
Concrete Mixer	91
Concrete Pump	88
Concrete Vibrator	82
Dozer	91
Generator	87
Grader	91
Impact Wrench	91
Jack Hammer	94
Loader	91
Paver	83
Pile Driver (Impact)	107
Pneumatic Tool	91
Pump	82
Roller	80
Scarifier	89
Scraper	90
Shovel	83
Truck	82
Excavator	87

Table 1: Noise levels at 25 ft for various pieces of construction equipment

5. Recommended Mitigation

Pieces of equipment listed below in Table 2 are those that produce a sound level in excess of 90 dB at a distance of 25 ft. In order to meet code requirements, these pieces of equipment must be located a certain minimum distance away from property lines. The particular distance required for each piece of equipment is shown in the second column of Table 2.

The construction activity that will be taking place closest to a sensitive receiver is paving of the driveway near Building 950. This activity will, at times, occur within 25 feet of the property line separating Franklin Templeton from the Bay Meadows townhomes. Department of Transportation data recorded from testing of 9 different paving machines shows the average

sound level from the paver at a distance of 25 ft. to be 83 dBA³. This level is within the allowable limits of San Mateo Municipal Code.

Other construction activities on this project will occur far enough from property lines that they do not pose a risk of violating San Mateo Municipal Code requirements. Pile driving and other usage of high impact tools will be an exception. These types of activities are at risk of violating municipal code requirements no matter where they are located on the project site. **Please alert MWA if these types of equipment will be used so that we may conduct further study.**

Equipment	Minimum Distance to Property Line [ft]
Concrete Mixer	28
Dozer	28
Grader	28
Impact Wrench	28
Jack Hammer	39
Loader	28
Pile Driver (Impact)	177
Pneumatic Tool	28

Table 2: Minimum distance from various pieces of equipment to nearest property line.

Additional strategies to mitigate noise disturbances include:

Specific to This Project:

- There will not be issues with code compliance regarding noise impact to the existing buildings on Franklin Templeton’s campus. However, construction activities may generate high enough noise levels in these buildings to cause complaints.
 - If desired, some noise impact to the existing buildings may be mitigated with a barrier. However, due to the height of the existing buildings, the top floors of these buildings will be exposed to construction noise even with a barrier. Please inform MWA if recommendations for a barrier are desired.
- Trucking and loading: Route trucks so that they travel through the site from south to north. Trucks should enter the site by making a right turn off of Franklin Parkway, then exit the site via Yates Way. Routing trucks in this direction will place the trucks as far as possible from any residences they pass, minimizing the noise impact to the residences. See Figure 3 below.
- Construction activities may only occur during the hours allowed in the San Mateo Municipal Code. See Section 2 of this report for a summary of allowable construction hours.

³ *Roadway Construction Noise Model User Guide*. U.S. Department of Transportation, August 2012. http://www.fhwa.dot.gov/environMent/noise/construction_noise/rcnm/rcnm01.cfm



Figure 3: Truck route to and from site.

General Guidelines

- Use construction materials as a makeshift barrier. Materials storage, piles of dirt, parked construction vehicles, etc. may be positioned between a loud noise source and sensitive receiver to provide slight noise attenuation to the sensitive receiver.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from property lines and sensitive receptors.
- Utilize “quiet” air compressors and other stationary noise sources where such technology exists.
- Designate a “disturbance coordinator” who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g. noise generation outside of allowed hours, faulty muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include in it the notice sent to neighbors regarding the construction schedule.

This concludes our report. Please contact Mei Wu Acoustics if you have any questions or comments regarding its content.

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