# RECON

#### Noise Analysis for the Alvarado Creek Specific Plan Project San Diego, California

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- 1: Noise Measurement Data
- 2: Carrier Specifications Sheet
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# Acronyms

# **Executive Summary**

The Alvarado Creek Specific Plan Project (project) site is located in the city of La Mesa, California, south of Alvarado Road and Interstate 8 (I-8) and north and east of Alvarado Creek. The site is developed with the San Diego RV (recreational vehicle) Resort. The project would construct one six-story building and three eight-story buildings with a total of 846 multi-family dwelling units and amenities on the 12-acre site.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, noise levels due to vehicle and trolley traffic were calculated and evaluated against City of La Mesa (City) noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent receivers from future on-site sources and construction activity was assessed. Where impacts were identified, measures have been identified to comply with the City's noise standards. A summary of the findings is provided below.

# **Construction Noise**

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Construction noise would potentially result in short-term impacts to surrounding properties. Proximate residential developments include the La Cuesta Apartments, Colony Mobile Plaza, Comanche Hills Apartments, and single family residences are located south of the project site (across Alvarado Creek and the San Diego Metropolitan Transit System Green Line). The Colony Park Project proposes additional apartments to the south of the project (immediately west of Colony Mobile Plaza).

As calculated in this analysis, construction noise levels would range from 61 to 68 one-hour equivalent A-weighted decibels  $[dB(A) L_{eq}]$  at the adjacent residential property lines. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary and would not be considered adverse. Additionally, construction activities are not anticipated to exceed 75 dB(A) L<sub>eq</sub>. According to Section 10.80.100 of the La Mesa Municipal Code, construction activities are prohibited between the hours of 10:00 p.m. and 7:00 a.m. and on Sundays. Construction activities would generally occur over the period between 7:00 a.m. and 5:00 p.m. on weekdays. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

# Noise Compatibility

The main source of noise at the project site is vehicle traffic on I-8 and Alvarado Road. Additional noise is generated by trolley traffic on the adjacent San Diego Metropolitan Transit System Green Line. For multi-family residential uses, community noise equivalent levels (CNEL) up to 65 dB(A) are considered normally acceptable, and noise levels up to 70 CNEL are considered conditionally acceptable. Where exterior noise levels would not conform to compatibility standards, the City requires a noise insulation features that reduce interior noise levels to less than 45 CNEL be included in the design.

As calculated in this analysis, exterior noise levels are projected to reach up to 80 CNEL at proposed outdoor use areas and at building façades. Noise abatement measure NOI-1 requires that the project incorporate design features that reduce interior noise levels at all habitable rooms to 45 CNEL or less and outlines noise insulation features that would achieve this requirement. With incorporation of abatement measure NOI-1, the project would comply with City interior noise compatibility standards.

Exterior use areas associated with the project include podium level courtyards and rooftop sky decks. City exterior noise compatibility standards require that projects minimize the effects of noise by incorporating noise reduction features to reduce noise levels at multifamily outdoor use areas to 65 CNEL. Noise abatement measure NOI-2 requires that the project incorporate design features that reduce exterior noise levels at outdoor use areas to 65 CNEL or less and outlines the design of noise barriers that would achieve this requirement. With incorporation of abatement measure NOI-2, the project would comply with City exterior noise compatibility standards.

# **Off-site Traffic Noise Increases**

Ambient noise levels along Alvarado Road are primarily attributable to vehicle traffic on I-8 rather than vehicle traffic on Alvarado Road itself. The project would contribute to substantial traffic volume increases on Alvarado Road; however vehicle traffic on I-8 would be anticipated to remain dominant due to the relative speed of vehicle traffic. Ambient noise increases would be anticipated to be less than 3 dB(A).

# **On-site Generated Noise**

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential complex, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the La Mesa Municipal Code or result in a substantial permanent increase in existing noise levels.

Additionally, the project would include heating, ventilating, and air conditioning (HVAC) units with a roof-mounted condenser unit for each apartment, which could exceed the City standards. On-site generated noise sources were modeled and resulting noise levels were predicted at the project site property lines. On-site generated noise levels would range from 35 to 45 dB(A)  $L_{eq}$ . The most restrictive noise level limits are 55 dB(A)  $L_{eq}$  during daytime hours and 50 dB(A)  $L_{eq}$  at night, thus noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

# Vibration

Because of the proximity to trolley operations on the adjacent railroad tracks, the project could expose the proposed residential uses to groundborne vibration and noise. The analysis of vibration impacts follows the guidance provided in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment document. Based on the procedure outlined in the document, trolley pass-bys were estimated to generate a vibration level of 67 vibration decibels (VdB) at the location of future residences. Trolley vibration levels would not exceed the FTA's impact criteria of 72 VdB for frequent events. Thus, vibration impacts due to railroad operations would be less than significant.

# **1.0** Introduction

# 1.1 **Project Description**

The Alvarado Creek Specific Plan Project (project) site is a master plan for a multi-family "transit-oriented development" on approximately 12 acres located south of Interstate 8 (I-8) along Alvarado Road generally between 70th Street on the west and Guava Avenue on the east within the city of La Mesa. Figure 1 shows the project site's regional location.

The project is proposed by the property owner, RV Communities, which has operated an RV (recreational vehicle) campground on the site since 1998. Prior to 1998, the site was operated as a mobile-home park since the 1950's. Figure 2 shows an aerial photograph of the project vicinity.

Generally, the land use and development standards in the Specific Plan outline a "formbased" development concept for multi-family housing on each of the development parcels (i.e., Buildings 1, 2, 3, and 4).

Building 1 would include five floors of residential wood frame construction atop a 1-level concrete parking garage with an attached café. The upper floors of Building 1 would include studio, one-bedroom, and two-bedroom units. A patio area would be located above the proposed café and a "sky decks" would be located at each the western and eastern end of the sixth floor.

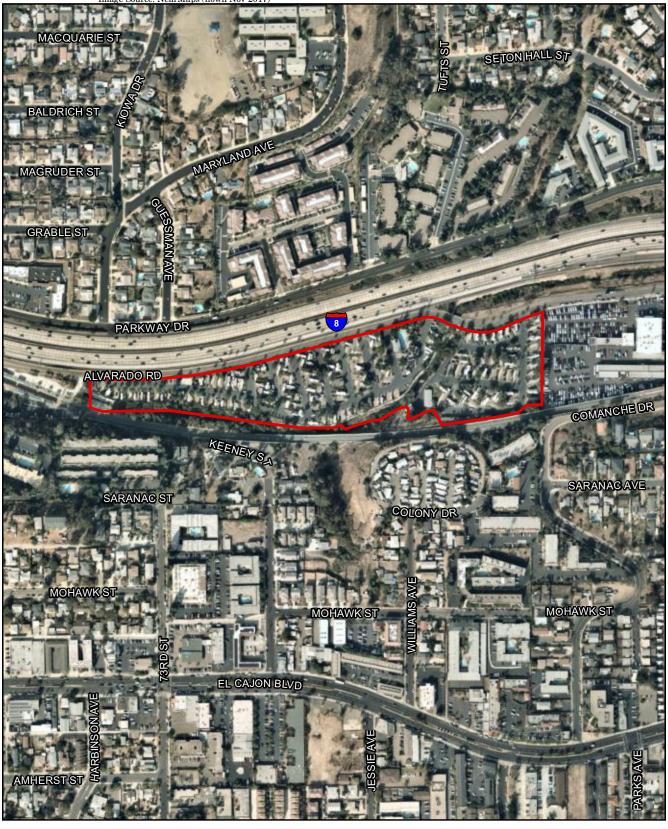
Buildings 2, 3, and 4 would include five floors of residential wood frame construction atop a 3-level concrete parking garage podium with an attached leasing office for each building and several liner units along the southern building façades. The upper floors of Buildings 2, 3, and 4 would include loft, studio, one-bedroom, and two-bedroom units and the podium story would include site amenities such as courtyards with swimming pools. Buildings 2, 3, and 4 would each include interior project amenity spaces and active outdoor spaces on the podium level. Additional sky decks would be located atop the western corner of Building 2 and atop both the northwestern and northeastern corners of Buildings 3 and 4.



✤ Project Location

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#### FIGURE 1 Regional Location





Project Boundary

RECON M:\JOBS2\4167.2\common\_gis\fig2\_nos.mxd 2/5/2018 sab FIGURE 2 Project Location on Aerial Photograph Overall the project would include a total of 846 multi-family dwelling units. Units in Building 1 (60 units), Building 3 (307 units) and Building 4 (303 units) would be marketrate housing, while units in Building 2 (176 units) would be dedicated student housing. Figure 3 shows the proposed site plan.

### **1.2** Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

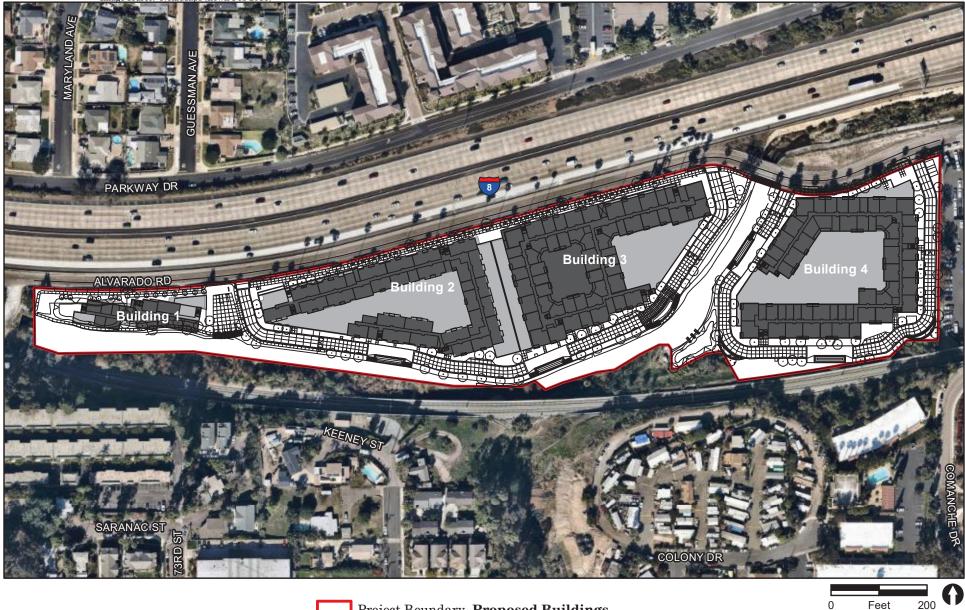
Additionally, in technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as  $L_{pw}$ , is the energy converted into sound by the source. The  $L_{pw}$  is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the one-hour equivalent noise level ( $L_{eq}$ ), the community noise equivalent level (CNEL), and the sound exposure level (SEL). The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and an additional 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night. The SEL is a noise level over a stated period of time or event and normalized to one second.

Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Image source: NearMaps (flown Feb 2018)





Project Boundary **Proposed Buildings** 

- Site Plan Lines

Podium-Level

**Residential Upper Floors** 

FIGURE 3 Site Plan

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of  $1.5 \, dB(A)$  per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

# 2.0 Applicable Standards

# 2.1 California Code of Regulations

Interior noise levels for habitable rooms are regulated also by Title 24 of the California Code of Regulations California Noise Insulation Standards. Title 24, Chapter 12, Section 1207.4, of the California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room within a residential structure. A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 California Code of Regulations 1207).

### 2.2 Federal Transit Administration and Federal Railroad Administration

Although the FTA standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the Transit Noise and Vibration Impact Assessment (FTA 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects.

Table 1 presents vibration impact criteria that account for variation in receptor types as well as the frequency of events. The project proposes residential uses and the land use would fall under Category 2 and the adjacent San Diego Metropolitan Transit System (SDMTS) Green Line trolley service involves frequent events.

Table 1 Groundborne Vibration and Noise Impact Criteria								
	Groundbo	rne Vibration I	Impact Levels	Groundborne Noise Impact Level				
	Frequent	Occasional	Infrequent	Frequent	Occasional	Infrequent		
Land Use Category	Events <sup>1</sup>	$Events^2$	$Events^3$	$Events^1$	$Events^2$	Events <sup>3</sup>		
Category 1: Buildings where vibration would interfere with interior operations.	$65 \ \mathrm{VdB^4}$	$65~{ m VdB^4}$	$65~{ m VdB^4}$	N/A <sup>4</sup>	N/A <sup>4</sup>	$N/A^4$		
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA		
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA		

VdB = vibration decibels; N/A = Not Applicable; dBA = A-weighted decibels SOURCE: FTA 2006.

<sup>1</sup> "Frequent Events" is defined as more than 70 vibration events of the same source per day.

 $^2$  "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

 $^3$  "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.

<sup>4</sup>This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning system and stiffened floors.

<sup>5</sup>Vibration-sensitive equipment is generally not sensitive to groundborne noise.

#### 2.3 La Mesa General Plan

The Noise Element of the City's General Plan establishes acceptable noise compatibility noise levels for various land uses. For multi-family residential uses, exterior noise levels up to 65 CNEL are considered "normally acceptable" and noise levels up to 70 CNEL are considered "conditionally acceptable." According to the Noise Element, in conditionally acceptable areas, "new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design." It further states that "conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice" (City of La Mesa 2012). The Noise Element also specifies an interior noise standard of 45 CNEL for multi-family uses.

The Noise Element similarly states that exterior noise levels between 70 and 75 CNEL are considered "normally unacceptable" and that noise levels above 75 CNEL are considered "clearly unacceptable." Where exterior noise levels are normally unacceptable, "a detailed analysis of noise reduction requirements must be made and needed noise insulation features must be included in the design."

# 2.4 La Mesa Municipal Code

#### 2.4.1 Stationary Noise

Section 10.80.040 of the La Mesa Municipal Code sets noise limits for on-site generated noise. The Code states that "the noise level to be observed in all measurements shall be that specified for the zone applicable to the property adjoining that on which the noise is generated and closest to the noise source." The applicable noise limits are summarized in Table 2.

Table 2 La Mesa Municipal Code Noise Level Limits					
Zone or Land Use Designation	Time of Day	Sound Level [dB(A) L <sub>eq</sub> ]			
R1 (Urban Residential) and	7:00 a.m. to 10:00 p.m.	55			
R2 (Medium Low Density Residential)	10:00 p.m. to 7:00 a.m.	50			
R3 (Multiple Unit Residential) and	7:00 a.m. to 10:00 p.m.	60			
RB (Residential Business)	10:00 p.m. to 7:00 a.m.	55			
C (General Commercial), CN (Neighborhood Commercial),	7:00 a.m. to 10:00 p.m.	65			
CD (Downtown Commercial), and CM (Light Industrial and Commercial Service)	10:00 p.m. to 7:00 a.m.	60			
M (Industrial Service and Manufacturing)	Anytime	70			
$dB(A)L_{eq}$ = one-hour equivalent A-weighted decibels.					

The project includes a Specific Plan that outlines a development concept for multi-family housing on the 12-acre site. The intensity of proposed multi-family in-fill development would not fit into the existing land use zoning categories. For the purposes of this analysis, the proposed development was translated to the nearest equivalent zoning category, which would be Multiple Unit Residential (R3).

Zoning designations for adjoining properties to the south include Urban Residential (R1) and Multiple Unit Residential (R3). The zoning designation for the adjoining property to the west is Light Industrial and Commercial Service (CM).

#### 2.4.2 Construction Noise

Section 10.80.100 of the La Mesa Municipal Code states:

It shall be unlawful for any person within a residential zone or CN [Neighborhood Commercial] zone, or within a radius of five hundred feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction-type devices between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day or on Sundays unless a special permit authorizing the activity has been duly obtained from the chief building official. No permit shall be required to perform emergency work as defined in this chapter.

# **3.0 Existing Conditions**

Existing noise levels at the project site were measured on February 1, 2018, using Larson-Davis LxT Sound Expert Sound Level Meter, serial number 3829. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds
Height of Instrument:	5 feet above ground level

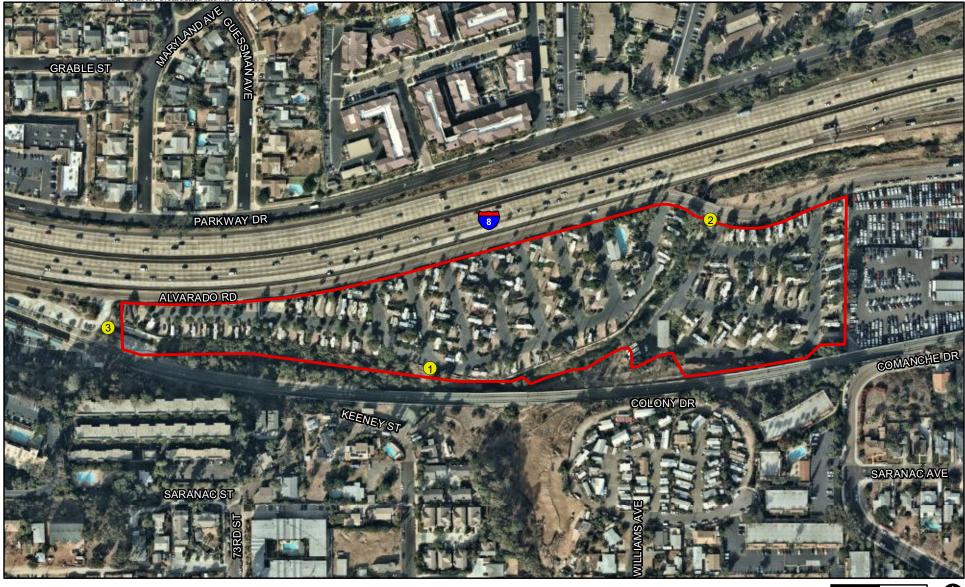
The meter was calibrated before and after each measurement. Three 15-minute noise level measurements were made in the vicinity of the project site, as summarized in Table 3. The locations of the noise level measurements are shown on Figure 4, and the noise measurement data are contained in Attachment 1.

	Table 3         Noise Measurements								
Measurement	Measurement Location Time Noise Sources Leq								
1	On the project site,	11:44 a.m.–11:59 a.m.	Vehicle traffic on I-8,	64.1					
1	300 feet south of I-8	11.44 a.m.–11.59 a.m.	trolley.	04.1					
2	Along Alvarado Road,	12:16 p.m.–12:31 p.m.	Vehicle traffic on I-8,	72.4					
2	120 feet south of I-8	12:16 p.m.=12:51 p.m.	Alvarado Road						
3	70th Street Trolley Station,		Vehicle traffic on I-8,	70.2					
J	115 feet south of I-8	12:50 p.m.–1:05 p.m.	trolley, bus						
I-8 = Interstate 8	8; L <sub>eq</sub> = one-hour equivalent sou	und level							
Note: Noise mea	surement data is contained in	Attachment 1.							

Measurement 1 was located between the proposed location of Building 2 and Alvarado Creek, and approximately 300 feet south of I-8. The main source of noise at this location was vehicle traffic on I-8. Secondary sources of noise included trolley pass-bys and bird vocalizations. During the 15-minute measurement period, one westbound trolley and one eastbound trolley passed the project site.

Measurement 2 was located north of the proposed location of Building 4, at the southeast corner of the intersection of Alvarado Road and Alvarado Creek, and approximately 120 feet south of I-8. The main source of noise at this location was vehicle traffic on I-8. Secondary sources of noise included vehicle traffic on I-8. Traffic counts of eastbound I-8 were taken concurrently with Measurement 2; during the 15-minute period vehicle traffic on I-8 included 1,464 passenger vehicles, 20 medium trucks, 14 heavy trucks, 2 buses, and five motorcycles.

Measurement 3 was located west of the proposed location of Building 1, at the eastern end of the 70th Street Trolley Station, and approximately 115 feet south of I-8. The main source of noise at this location was vehicle traffic on I-8. Secondary sources of noise included trolley pass-bys and horns, trolley crossing bells, and bus activity.





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Feet

0

250

# 4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential (SoundPlan), version 4.1 (Navcon Engineering 2018). SoundPLAN calculates noise propagation based on algorithms and reference levels published by various government agencies, such as the FTA, Federal Highway Administration (FHWA), and the International Standards Organization (ISO). The model uses various input parameters, such as distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, sources, and barriers were input into the model using three-dimensional coordinates. The model outputs include noise level contours and noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground or floor elevation, which represents the average height of the human ear.

### 4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 80 to 90 dB(A)  $L_{eq}$  at a distance of 50 feet (FTA 2006). Table 4 summarizes typical construction equipment noise levels.

Table 4				
Typical Construction	Equipment Noise Levels			
	Noise Level at 50 Feet			
Equipment	[dB(A) L <sub>eq</sub> ]			
Air compressor	81			
Backhoe	80			
Compactor	82			
Concrete mixer	85			
Crane, derrick	88			
Dozer	85			
Grader	85			
Jack hammer	88			
Loader	85			
Paver	89			
Pump	76			
Roller	74			
Scraper	89			
Truck	88			
$dB(A)L_{eq} = one-hour equiva$	alent A-weighted decibels.			
SOURCE: Federal Transit	Administration 2006.			

During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 82 dB(A)  $L_{eq}$  at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously. Noise propagation was modeled based on ISO 9613-2–Acoustics, Attenuation of Sound during Propagation Outdoors.

### 4.2 Traffic Noise Analysis

Noise generated by future traffic was modeled using FHWA's Traffic Noise Model algorithms and reference levels. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project drawings.

The main source of traffic noise at the project site is vehicle traffic on I-8. For the purpose of the future traffic noise compatibility analysis, the noisiest condition is represented as the maximum level of service (LOS) C/minimum LOS D traffic volume. This condition represents a condition where the maximum number of vehicles are using the roadway at the maximum speed. LOS A and B categories allow full travel speed but do not have as many vehicles, while LOS E and F have a greater number of vehicles, but due to the traffic volume travel at reduced speeds, thus generating less noise. Eastbound I-8 has four mainline lanes and one auxiliary lane, and westbound I-8 has four mainline lanes. Using a capacity of 1,800 vehicles per lane per hour for mainlines and 1,200 vehicles per hour for auxiliary lines (Linscott, Law & Greenspan 2017), it was calculated that I-8 has a capacity of 15,600 vehicles per hour. The maximum LOS C/minimum LOS D volume is 80 percent of the total capacity, or 12,480 vehicles per hour.

Additional traffic noise would be generated by Alvarado Road. Based on Sam Diego Association of Governments (SANDAG) Traffic Forecast Information Center data, Alvarado Road has a future year 2035 annual average daily traffic (ADT) volume of 6,300 vehicles and a speed limit of 35 miles per hour (mph; SANDAG 2013). Peak hour traffic volumes on I-8 were modeled as 10 percent of the total ADT.

The vehicle classification mix for I-8 was obtained from Caltrans truck counts. Based on these truck counts, I-8 carries 96.8 percent automobiles, 2.0 percent medium trucks, and 1.2 percent heavy trucks (Caltrans 2015). Truck counts are not available for local roadways; Alvarado Road was also modeled with the same vehicle classification mix as I-8. Table 5 summarizes the vehicle traffic parameters used for modeling on-site noise levels.

Table 5 Traffic Parameters							
				Vehi	cle Mix (Per	ccent)	
		Volume			Medium	Heavy	
Roadway	Lanes	(vehicles/hour)	Speed	Autos	Trucks	Trucks	
Westbound Interstate 8	4 Mainline	5,760	65	96.8	2.0	1.2	
Eastbound Interstate 8	4 Mainline 1 Auxiliary	6,720	65	96.8	2.0	1.2	
Alvarado Road	2 lanes	6,300	35	96.8	2.0	1.2	

# 4.3 Trolley Noise Analysis

The SDMTS trolley Green Line is located south of the project site. Noise generated by the trolley was modeled using the SoundPLAN program. SoundPLAN calculates trolley noise levels based on trolley speed, length, and the number of pass-bys that occur during the daytime, evening, and nighttime hours. The trolleys were modeled at 30 mph. This speed is based on the distances between trolley stations and the average timing between stations obtained from published trolley schedules. Adjacent to the project site, there are 96 daytime pass-bys, 18 evening pass-bys, and 23 nighttime pass-bys on weekdays. There are fewer trolley pass-bys on Saturdays and Sundays, therefore, the worst-case weekday scenario was modeled.

#### 4.4 **On-site Generated Noise Analysis**

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential complex, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources is anticipated to violate the La Mesa Municipal Code or result in a substantial permanent increase in existing noise levels. However, the project would include heating residential heating, ventilation, and air conditioning (HVAC) units with a roof-mounted condenser unit for each apartment. The condensers mounted on the roofs have the potential to produce noise in excess of City limits (see Table 2).

It is not known at this time which manufacturer, brand, or model of unit or units would be selected for use in the project. For the purposes of this analysis, to determine what general noise levels the HVAC units would generate, it was assumed that the rooftop units would be similar to a 5-ton Carrier 25HHA4 units with a sound power level of 72 dB(A). The unit specification sheets are included in Attachment 2.

Roof-mounted condenser units would be clustered on the roof; with each condenser unit array having between 6 and 52 units (most commonly 8 units per array). Each condenser unit array was modeled as a point source 0.5 meters above the rooftop height with a composite sound power level between 79.8 and 89.3 dB(A), depending on the number of units in the array.

Rooftop features such as parapet walls typically provide noise attenuation. As the height and orientation of rooftop features has not been finalized, all rooftops were conservatively modeled as flat, with no features to obstruct noise propagation. For a worst-case analysis, it was assumed that the air handling units would be continuously operated at maximum capacity.

# 4.5 Trolley Vibration

Because of the proximity to trolley operations on the adjacent railroad tracks, the project could expose the residential uses to groundborne vibration and noise levels equal to or in excess of the levels shown in Table 1. The analysis of vibration impacts to future residences follows the guidance provided in the FTA's Transit Noise and Vibration Impact Assessment document (FTA 2006). The analysis follows the general assessment procedure outlined in the document. The general level of assessment uses generalized data to develop a curve of vibration level as a function of distance from the track. The vibration levels at specific buildings are estimated and adjustments are applied to account for factors such as track support system, vehicle speed, type of building, and track and wheel condition. The FTA has developed base curves for three standard transportation systems: locomotive-powered passenger or freight trains, rapid transit or light rail vehicles, and rubber-tired vehicles.

Typical ground-surface vibration levels calculated by the FTA assume equipment is in good condition and travels at speeds of 50 mph for the rail systems (locomotive freight and rapid transit or light rail vehicles) and 30 mph for buses (rubber-tired vehicles). The levels of groundborne vibration and noise vary approximately as 20 times the logarithm of speed. This means that doubling, or halving, train speed would increase, or decrease, the vibration levels approximately 6 decibels. As discussed in Section 4.3, trolleys (light rail vehicles) were modeled at 30 mph in the vicinity of the project. Thus, to determine the vibration level at the project site, the FTA generalized ground surface vibration curves were used and then adjusted for speed using the following equation:

 $adjustment (VdB) = 20 \times log \frac{speed}{speed_{ref}}$ 

Where,

speed = speed of trolley = 30 mphspeed<sub>ref</sub> = reference speed = 50 mph

# 5.0 Future Acoustical Environment and Impacts

# 5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding properties. Proximate residential developments include the La Cuesta Apartments, Colony Mobile Plaza, Comanche Hills Apartments, and single-family residences are located south of the project site (across Alvarado Creek and the SDMTS Green Line). The Colony Park Project proposes additional apartments to the south of the project (immediately west of Colony Mobile Plaza).

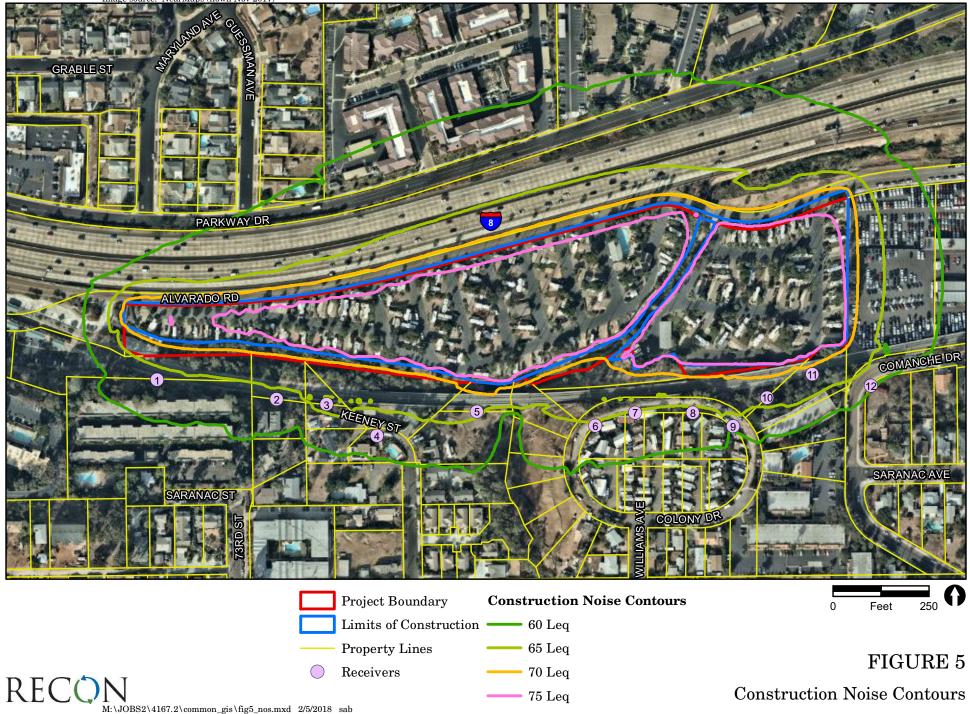
The Bob Stall Chevrolet car dealership is east of the project site and the 70th Street Trolley Station is west of the site; these uses are not noise sensitive. Additional residential uses are located north of the project site across I-8; however construction noise would not be anticipated to exceed ambient traffic noise at these residences.

A variety of noise-generating equipment would be used during the construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels would be lower when taking into account the equipment usage factors. The loudest phase of construction would be the grading/excavation phase and would include dozers, loaders, and excavators. Construction noise levels were calculated assuming up to nine pieces of heavy equipment being active simultaneously.

Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. Average hourly noise levels due to simultaneous activity would be 86.8 dB(A) L<sub>eq</sub> at 50 feet, or a sound power level of approximately 118.4 dB(A). To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. The total sound energy of the area source was modeled with all pieces of equipment operating simultaneously. Noise levels were modeled at a series of 12 receivers located at the adjacent property lines. The results are summarized in Table 6. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 3.

	Table 6Construction Noise Levels				
		Noise Level			
Receiver	Property Description	[dB(A) L <sub>eq</sub> ]			
1	Creaser & Warwick Apartments	64			
2	5107 73rd Street Units	64			
3	North end of Keeney Street	65			
4	5084 Keeney Street	62			
5	5061 Keeney Street	66			
6		64			
7	Colony Mobile Plaza	64			
8		64			
9		61			
10	Comonoho Hillo Anontmonto	66			
II         Comanche Hills Apartments		68			
12	7570 Saranac Avenue	61			
$dB(A)L_{eq} = one-$	hour equivalent A-weighted decibels.				

Image source: NearMaps (flown Nov 2017)



As shown, construction noise levels at adjacent residential property lines would range from 61 to 68 dB(A)  $L_{eq}$ . Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary and would not be considered adverse. Additionally, construction activities are not anticipated to exceed 75 dB(A) $L_{eq}$ . According to Section 10.80.100 of the La Mesa Municipal Code, construction activities are prohibited between the hours of 10:00 p.m. and 7:00 a.m. and on Sundays. Construction activities would generally occur over the period between 7:00 a.m. and 5:00 p.m. on weekdays. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

### 5.2 Transportation Noise Compatibility

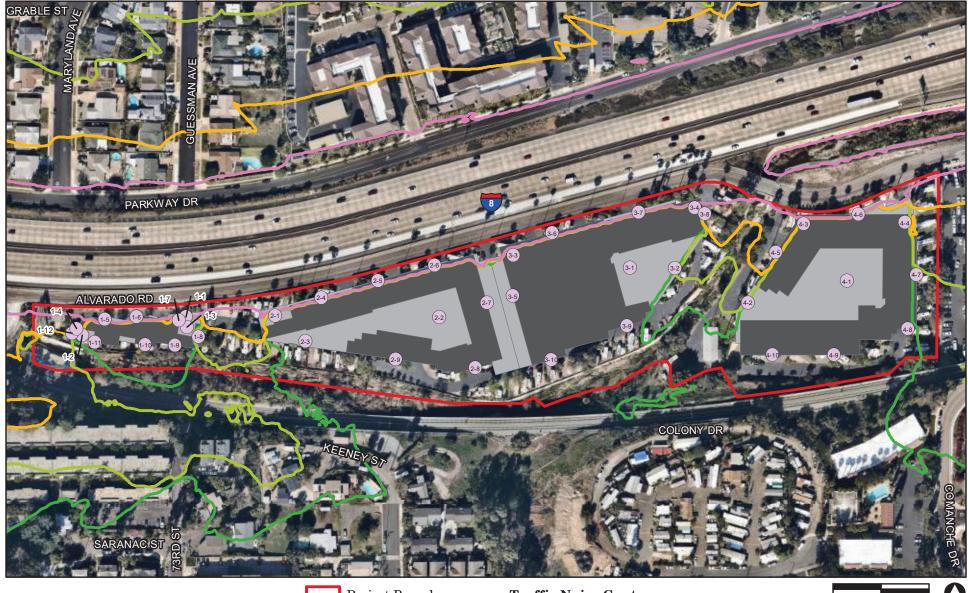
On-site traffic noise contours were developed using the SoundPLAN program. Noise level contours were modeled at the ground-floor level. These contours take into account shielding provided by proposed buildings, topography, and proposed grading. Future vehicle traffic noise contours are shown in Figure 6. SoundPLAN data are contained in Attachment 3. As shown in Figure 6, first-floor exterior noise levels are projected to range from approximately 60 to 75 CNEL across the project site.

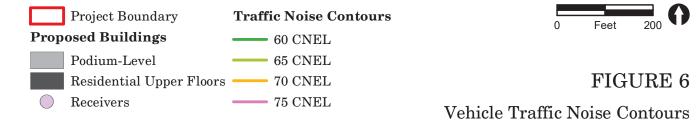
To refine the noise analysis and determine noise levels at outdoor use areas (patio above café, podium level courtyards, and top-floor sky decks) and building façades, exterior noise levels were calculated at a series of receiver locations throughout the project site. No specific receiver locations were modeled for the concrete parking garage podiums (one story for Building 1 and three stories for Buildings 2, 3, and 4) because they would not include noise-sensitive areas. Modeled receiver locations are shown in Figure 6. Table 7 summarizes the projected future traffic noise levels at the 41 modeled receivers.

Daytime noise contours due to trolleys were developed using the SoundPLAN program. Noise level contours were modeled at the first-floor level. These contours take into account shielding provided by proposed buildings, topography, and proposed grading. Future trolley noise contours are shown in Figure 7. Noise levels were also modeled at the 41 specific receiver locations discussed in Section 5.2.1. Table 8 summarizes the projected future trolley noise levels at the 41 modeled receivers. SoundPLAN data are contained in Attachment 3. As shown, trolley noise levels are projected to be 60 CNEL or less at all modeled receivers.

Vehicle traffic and trolley noise levels were summed to calculate combined transportation noise levels. Table 9 summaries the combined vehicle traffic and trolley noise levels at the modeled receivers.

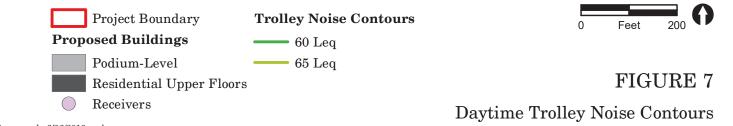
Image source: NearMaps (flown Feb 2018)





	Future Vehicle	Traffic N				
				Noise Leve	el (CNEL)	
		Second	Third	Fourth	Fifth	Sixth
Receiver	Description	Floor	Floor	Floor	Floor	Floor
1-1	Building 1 Patio Above Café	80				
1-2	Building 1 Western Sky Deck					70
1-3	Building 1 Eastern Sky Deck					75
1-4	Building 1 Façade North	78	78	78	78	
1-5	Building 1 Façade North	79	80	80	79	79
1-6	Building 1 Façade North	79	80	80	80	79
1-7	Building 1 Façade North	78	79	79	79	78
1-8	Building 1 Façade East	71	73	73	73	73
1-9	Building 1 Façade South	33	35	37	41	46
1-10	Building 1 Façade South	36	35	38	41	46
1-11	Building 1 Façade South	72	72	72	72	71
1-12	Building 1 Façade West	75	75	75	75	
		Fourth	Fifth	Sixth	Seventh	Eight
		Floor	Floor	Floor	Floor	Floor
2-1	Building 2 Western Sky Deck					68
2-2	Building 2 Podium Courtyard	35				
2-3	Building 2 Podium Periphery	35				
2-4	Building 2 Façade North	79	79	79	78	78
2-5	Building 2 Façade North	79	79	79	79	78
2-6	Building 2 Façade North	79	79	79	79	78
2-7	Building 2 Façade East	62	67	69	70	70
2-8	Building 2 Façade South	30	36	36	37	40
2-9	Building 2 Façade South	31	32	33	38	40
3-1	Building 3 Podium Courtyard	58				
3-2	Building 3 Podium Periphery	67				
3-3	Building 3 Western Sky Deck					67
3-4	Building 3 Eastern Sky Deck					71
3-5	Building 3 Façade West	64	68	70	69	70
3-6	Building 3 Façade West Building 3 Façade North	79	79	79	79	78
3-7	Building 3 Façade North	79	79	79	73 78	78
3-8	Building 3 Façade Northeast	75	75	75	75	75
3-9	Building 3 Façade East	55	56	53	47	44
3-10	Building 3 Façade South	44	45	45	43	44
<u></u>	Building 4 Podium Courtyard	36	40	40	40	42
4-1 4-2	Building 4 Podium Courtyard Building 4 Podium Periphery	68				
4-2	Building 4 Western Sky Deck					70
4-3	Building 4 Western Sky Deck					70
	Building 4 Façade Northwest	73	73	73	79	73
$\frac{4-5}{4-6}$	Building 4 Façade North	75	75 76	75	73 76	<u>75</u> 76
4-6		68	68			
	Building 4 Façade East			69	<u>69</u>	69
4-8	Building 4 Façade South	38	39	41	42	44
4-9	Building 4 Façade South	29	30	32	34	41
4-10	Building 4 Façade South	28	30	31	34	39





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Table 8							
Trolley Noise Levels							
		Exterior Noise Level (CNEL)					
		Second	Third	Fourth	Fifth	Sixth	
Receiver	Description	Floor	Floor	Floor	Floor	Floor	
1-1	Building 1 Patio Above Café	44					
1-2	Building 1 Western Sky Deck					53	
1-3	Building 1 Eastern Sky Deck					40	
1-4	Building 1 Façade North	38	38	39	40		
1-5	Building 1 Façade North	35	36	36	37	38	
1-6	Building 1 Façade North	34	35	35	36	38	
1-7	Building 1 Façade North	41	41	42	42	41	
1-8	Building 1 Façade East	54	55	55	55	55	
1-9	Building 1 Façade South	58	58	58	58	58	
1-10	Building 1 Façade South	58	59	59	58	58	
1-11	Building 1 Façade South	59	59	59	59	59	
1-12	Building 1 Façade West	56	56	56	56		
		Fourth	Fifth	Sixth	Seventh	Eighth	
		Floor	Floor	Floor	Floor	Floor	
2-1	Building 2 Western Sky Deck					44	
2-2	Building 2 Podium Courtyard	36					
2-3	Building 2 Podium Periphery	57					
2-4	Building 2 Façade North	35	35	35	36	36	
2-5	Building 2 Façade North	34	35	35	35	36	
2-6	Building 2 Façade North	34	34	34	35	35	
2-0	Building 2 Façade East	46	46	48	49	$\frac{50}{50}$	
2-7	Building 2 Façade South	57	58	58	43 58	58	
2-8	Building 2 Façade South	58	58	58	58	57	
3-1	Building 3 Podium Courtyard	45					
3-1	Building 3 Podium Periphery	40 50					
3-3						39	
3-3	Building 3 Western Sky Deck					43	
	Building 3 Eastern Sky Deck						
3-5	Building 3 Façade West	45	47	48	49	49	
3-6	Building 3 Façade North	32	32	32	33	34	
3-7	Building 3 Façade North	31	31	32	32	33	
3-8	Building 3 Façade Northeast	34	32	33	35	36	
3-9	Building 3 Façade East	53	55	55	55	56	
3-10	Building 3 Façade South	56	57	57	57	57	
4-1	Building 4 Podium Courtyard	33					
4-2	Building 4 Podium Periphery	47					
4-3	Building 4 Western Sky Deck					39	
4-4	Building 4 Eastern Sky Deck					46	
4-5	Building 4 Façade Northwest	41	41	42	42	43	
4-6	Building 4 Façade North	25	26	27	29	32	
4-7	Building 4 Façade East	52	52	53	53	53	
4-8	Building 4 Façade South	58	58	58	58	58	
4-9	Building 4 Façade South	60	60	59	59	59	
4-10	Building 4 Façade South	58	59	59	59	58	
	nmunity Noise Equivalent Level	<i>a</i> .					
"" denotes where the receiver does not exist on a floor (e.g. sky decks only exist on the top floor)							

	Combined Vehicle Tra	Fable 9 ffic and T	rollev Ne	ise Lovol	S	
				Noise Level		
		Second	Third	Fourth	Fifth	Sixth
Receiver	Description	Floor	Floor	Floor	Floor	Floor
	Building 1 Patio Above Café	80			FIOOP	Floor
$\frac{1-1}{1-2}$	U					70
	Building 1 Western Sky Deck					
1-3	Building 1 Eastern Sky Deck					75
1-4	Building 1 Façade North	78	78	78	78	
1-5	Building 1 Façade North	79	80	80	79	79
1-6	Building 1 Façade North	79	80	80	80	79
1-7	Building 1 Façade North	78	79	79	79	78
1-8	Building 1 Façade East	71	73	73	73	73
1-9	Building 1 Façade South	58	58	58	58	58
1-10	Building 1 Façade South	58	59	59	59	59
1-11	Building 1 Façade South	72	72	72	72	72
1-12	Building 1 Façade West	75	75	75	75	
		Fourth	Fifth	Sixth	Seventh	Eight
		Floor	Floor	Floor	Floor	Floor
2-1	Building 2 Western Sky Deck					68
2-2	Building 2 Podium Courtyard	39				
2-3	Building 2 Podium Periphery	57				
2-4	Building 2 Façade North	79	79	79	78	78
2-5	Building 2 Façade North	79	79	79	79	78
2-6	Building 2 Façade North	79	79	79	79	78
2-7	Building 2 Façade East	62	67	69	70	70
2-8	Building 2 Façade South	57	58	58	58	58
2-9	Building 2 Façade South	58	58	58	58	58
3-1	Building 3 Podium Courtyard	58				
3-2	Building 3 Podium Periphery	67				
3-3	Building 3 Western Sky Deck					67
3-4	Building 3 Eastern Sky Deck					71
3-4						
	Building 3 Façade West	64	68 70	70	69 70	70
3-6	Building 3 Façade North	79	79	79	79 <b>7</b> 9	78
3-7	Building 3 Façade North	79	79	79	78	78
3-8	Building 3 Façade Northeast	75	75	75	75	75
3-9	Building 3 Façade East	57	58	57	56	56
3-10	Building 3 Façade South	57	57	58	58	57
4-1	Building 4 Podium Courtyard	38				
4-2	Building 4 Podium Periphery	68				
4-3	Building 4 Western Sky Deck					70
4-4	Building 4 Eastern Sky Deck					70
4-5	Building 4 Façade Northwest	73	73	73	73	73
4-6	Building 4 Façade North	76	76	76	76	76
4-7	Building 4 Façade East	68	68	69	69	69
4-8	Building 4 Façade South	58	58	58	58	58
4-9	Building 4 Façade South	60	60	59	59	59
4-10	Building 4 Façade South	58	59	59	59	58
	nmunity Noise Equivalent Level					

#### 5.2.1 City Noise Compatibility Standards

As discussed in Section 2.1, for multi-family residential uses, exterior noise levels up to 65 CNEL are clearly acceptable. Exterior noise levels up to 70 CNEL are considered conditionally acceptable and conventional construction with fresh air supply systems or air conditioning will normally suffice. The project would include HVAC units for each apartment, therefore, noise exposure levels up to 70 CNEL are considered conditionally acceptable.

Exterior noise levels at Building 1 would be considered conditionally acceptable at the western sky deck (70 CNEL) and along the eastern half of the southern building façade (58 to 70 CNEL). Without mitigation, exterior noise levels along the northern, western, and eastern façades, as well as the western half of the southern façade would exceed noise compatibility standards (71 to 80 CNEL). Additionally, without mitigation exterior noise levels at the patio above the café (80 CNEL) and eastern sky deck (75 CNEL) would exceed noise compatibility standards.

Exterior noise levels at Building 2 would be considered acceptable in the podium courtyard (39 CNEL) and at the periphery of the podium level (57 CNEL) and would be considered conditionally acceptable at the western sky deck (68 CNEL), and along southern and eastern building façades (57 to 70 CNEL). Without mitigation, exterior noise levels along the northern façades would exceed noise compatibility standards (79 to 80 CNEL).

Exterior noise levels at Building 3 would be considered acceptable in the podium courtyard (58 CNEL) and would be considered conditionally acceptable at the periphery of the podium level (67 CNEL), at the western sky deck (67 CNEL), and along western, southern, and eastern building façades (56 to 70 CNEL). Without abatement, exterior noise levels along the northern and northeastern façades (75 to 80 CNEL) and at the eastern sky deck (71 CNEL) would exceed noise compatibility standards.

Exterior noise levels at Building 4 would be considered acceptable in the podium courtyard (38 CNEL) and would be considered conditionally acceptable at the periphery of the podium level (68 CNEL), at both sky decks (70 CNEL), and along southern and eastern building façades (58 to 69 CNEL). Without abatement, exterior noise levels along the northern and northwestern façades (73 to 76 CNEL) would exceed noise compatibility standards.

Where exterior noise levels are normally unacceptable, "a detailed analysis of noise reduction requirements must be made and needed noise insulation features must be included in the design." These noise insulation features must reduce interior noise levels to less than 45 CNEL be included in the design. As shown in Table 9, transportation noise levels at the northern, western, and eastern façades, as well as the western half of the southern façade of Building 1; at the northern façade of building 2; at the northern and northeastern façades of Building 3; and at the northern and northwestern façades of Building 4 would range from 71 to 80 CNEL. Based on studies conducted by the FHWA, standard wood frame construction would achieve an exterior-to-interior noise reduction of 25 dB(A) (FHWA 2011). Thus, interior noise levels for units along these building façades would reach 55 CNEL and would exceed interior noise standards.

As clarified by Noise Element Policy NS-1.1.3, noise compatibility standards also require that projects minimize the effects of noise by incorporating noise reduction features to reduce exterior noise levels at multi-family outdoor use areas to 65 CNEL (i.e. clearly acceptable). As shown in Table 9, transportation noise levels at the patio above the café in Building 1 (80 CNEL); the sky decks in Building 1 (70 and 75 CNEL), Building 2 (68 CNEL), Building 3 (67 and 71 CNEL), and Building 4 (70 CNEL); and at the periphery of the podium levels in Building 3 (67 CNEL) and Building 4 (68 CNEL) would thereby exceed the standard of 65 CNEL.

#### 5.2.2 Noise Abatement

The following abatement measures would be required to achieve consistency with City noise compatibility standards:

**NOI-1:** Sound-Attenuating Windows and Doors

Prior to the issuance of a construction permit, the project applicant or agent thereof, shall demonstrate to the satisfaction of the City Community Development Department staff that site design would incorporate design features that reduce interior noise levels at all habitable rooms to 45 CNEL or less.

Construction shall incorporate sound-attenuating features for walls comprising the northern, western, and eastern façades of Building 1, as well as the western half of the southern façade. Construction for walls comprising the northern façades of Building 2, 3, and 4, the northeastern façade of Building 3, and the northwestern façade of Building 4 with components that achieve a combined sound transmission class rating of 35 would be anticipated to reduce interior noise levels at all habitable rooms to 45 CNEL or less. The walls requiring a combined sound transmission class rating of 35 are identified in Figure 8 of this report. Alternative noise reduction measures may also be substituted to reduce interior noise levels at all habitable rooms to 45 CNEL or less.

**NOI-2:** Outdoor Use Area Sound Walls

Prior to the issuance of a construction permit, the project applicant or agent thereof, shall demonstrate to the satisfaction of the City Community Development Department staff that site design would incorporate design features that reduce exterior noise levels at all outdoor use areas to 65 CNEL or less.

Incorporation of sound walls will reduce exterior noise levels at outdoor use areas to 65 CNEL or less. Sound walls would need to be a sufficient height of above floorlevel, be free of gaps, and be constructed of a material with a minimum weight of two pounds per square foot (e.g. masonry, acrylic glass, or combination). Heights would need to be 12-feet for walls encompassing the patio above the café in Building 1, 6-feet for the walls encompassing the eastern sky deck in Building 1, and 5-feet for walls encompassing the remaining sky decks and podium periphery. The location of sound walls are identified in Figure 8 of this report. Alternative noise reduction measures may also be substituted to reduce exterior noise levels at outdoor use areas to 65 CNEL or less. Image source: NearMaps (flown Feb 2018)



Residential Upper Floors === 5-Foot Sound Wall

Abatement Measures

RECON M:\JOBS2\4167.2\common\_gis\fig8\_nos.mxd 6/25/2018 sab The recommended height for the wall encompassing the patio above the café in Building 1 may be infeasible. The recommended 12-foot wall height would be required to reduce noise levels at the elevation of standing receivers (5 feet above floor) to 65 CNEL. A reduced, 10-foot wall height would be required reduce noise levels at the elevation of seated receivers (3 feet above floor) to 65 CNEL. In the event this area is repurposed and would no longer be a residential outdoor use area, sound walls would no longer be required.

#### 5.2.3 Reduced Transportation Noise Levels

With incorporation of abatement measure NOI-1 the interior noise level at all habitable rooms would be reduced to levels that comply with the City interior noise compatibility standards. Prescriptive actions which may achieve the required noise level reduction include design features that achieve a composite sound transmission class rating of 35 through sound-attenuating components such as windows, doors, finish (such as stucco or wood siding), wall assembly (i.e., framing), etc. Exterior noise levels of 80 CNEL would thereby be reduced to interior noise levels of 45 CNEL. With incorporation of abatement measure NOI-1 the project would comply with the City interior noise compatibility standards.

With incorporation of abatement measure NOI-2 the exterior noise level at all outdoor use areas (patio above café, podium-level courtyards, and rooftop sky decks) would be reduced to levels that comply with the City exterior noise compatibility standards. Prescriptive actions which may achieve the required noise level reduction include incorporation of sound walls around outdoor use areas at the periphery of the podium levels and the sky decks of each building. Noise levels were remodeled with incorporation of sound walls around these outdoor use areas. Table 10 summarizes the projected transportation noise levels after incorporation of NOI-2. As shown, reduced transportation noise levels at outdoor use areas would range from 37 to 65 CNEL, which would comply with the City exterior noise compatibility standards. With incorporation of abatement measure NOI-2 the project would comply with the City exterior noise compatibility standards.

### 5.3 Off-site Traffic Noise Increases

The project site is accessed exclusively via Alvarado Road, thus project-generated traffic would contribute to increased traffic noise levels along Alvarado Road. Trip generation rates from the Institute of Transportation Engineers' 9th Edition Trip Generation Handbook indicate that mid-rise apartment buildings typically generate 6.65 trips per weekday per dwelling unit (Institute of Transportation Engineers 2012). Therefore, the project would generate approximately 5,626 ADT and would thereby approximately double the existing and forecasted (2035) traffic volumes on Alvarado Road (SANDAG 2013).

Ambient noise levels along Alvarado Road are primarily attributable to vehicle traffic on I-8 rather than vehicle traffic on Alvarado Road itself. The project would contribute to substantial traffic volume increases on Alvarado Road; however vehicle traffic on I-8 would be anticipated to remain dominant due to the relative volume and speed of vehicle traffic (vehicles on I-8 typically travel at 65 mph and the speed limit for Alvarado Road is 35 mph). Although the project would contribute to increase traffic volumes along Alvarado Road, ambient noise increases would be anticipated to be less than 3 dB(A).

Table 10							
Reduced Transportation Noise Levels							
			1	Noise Leve	el (CNEL)		
		Second	Third	Fourth	Fifth	Sixth	
Receiver	Description	Floor	Floor	Floor	Floor	Floor	
1-1	Building 1 Patio Above Café	65					
1-2	Building 1 Western Sky Deck					63	
1-3	Building 1 Eastern Sky Deck					65	
1-4	Building 1 Façade North	78	78	78	78		
1-5	Building 1 Façade North	79	80	80	79	79	
1-6	Building 1 Façade North	79	80	80	80	79	
1-7	Building 1 Façade North	63	76	79	79	78	
1-8	Building 1 Façade East	70	72	73	73	73	
1-9	Building 1 Façade South	58	58	58	58	58	
1-10	Building 1 Façade South	58	59	59	59	59	
1-11	Building 1 Façade South	72	72	72	72	72	
1-12	Building 1 Façade West	75	75	75	75		
		Fourth	Fifth	Sixth	Seventh	Eighth	
		Floor	Floor	Floor	Floor	Floor	
1	Building 2 Western Sky Deck					63	
2	Building 2 Podium Courtyard	39					
3	Building 2 Podium Periphery	57					
4	Building 2 Façade North	79	79	79	78	78	
5	Building 2 Façade North	79	79	79	79	78	
6	Building 2 Façade North	79	79	79	79	78	
7	Building 2 Façade East	62	67	69	70	70	
8	Building 2 Façade South	57	58	58	58	58	
9	Building 2 Façade South	58	58	58	58	58	
10	Building 3 Podium Courtyard	56					
11	Building 3 Podium Periphery	61					
12	Building 3 Western Sky Deck					61	
13	Building 3 Eastern Sky Deck					64	
14	Building 3 Façade West	64	68	70	69	70	
15	Building 3 Façade North	79	79	79	79	78	
16	Building 3 Façade North	79	79	79	78	78	
17	Building 3 Façade Northeast	75	75	75	75	75	
18	Building 3 Façade East	57	59	59	58	56	
19	Building 3 Façade South	57	57	58	58	58	
20	Building 4 Podium Courtyard	37					
21	Building 4 Podium Periphery	60					
22	Building 4 Western Sky Deck					64	
23	Building 4 Eastern Sky Deck					63	
24	Building 4 Façade Northwest	73	73	73	73	73	
25	Building 4 Façade North	76	76	76	76	76	
26	Building 4 Façade East	68	68	69	69	69	
20	Building 4 Façade South	58	58	58	58	58	
28	Building 4 Façade South	60	60	59	59	59	
20	Building 4 Façade South	58	59	59	59	58	
Z5     Dunuing 4 Façade South     36     35     35     35       CNEL = Community Noise Equivalent Level							
	"" denotes where the receiver does not exist on a floor (e.g. sky decks only exist on the top floor)						
uchouse where the receiver does not exist on a noor (c.g. sky decks only exist on the top 10001)							

### 5.4 On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential complex, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources is anticipated to violate the La Mesa Municipal Code or result in a substantial permanent increase in existing noise levels.

Additionally, the project would include HVAC units with a roof-mounted condenser unit for each apartment, which could exceed the City standards. Using the on-site noise source parameters discussed in Section 4.4, noise levels were modeled at a series of 12 receivers located at the property line.

The location of each condenser unit array was obtained from the roof plan drawings for the project. Noise generated by HVAC equipment would occur on an intermittent basis, primarily during the day and evening hours and less frequently during the nighttime hours. For a worst-case analysis, it was assumed that the HVAC units would operate continuously. Modeled receivers and the locations of the HVAC units are shown in Figure 9. Modeled data is included in Attachment 3. Future projected noise levels are summarized in Table 11.

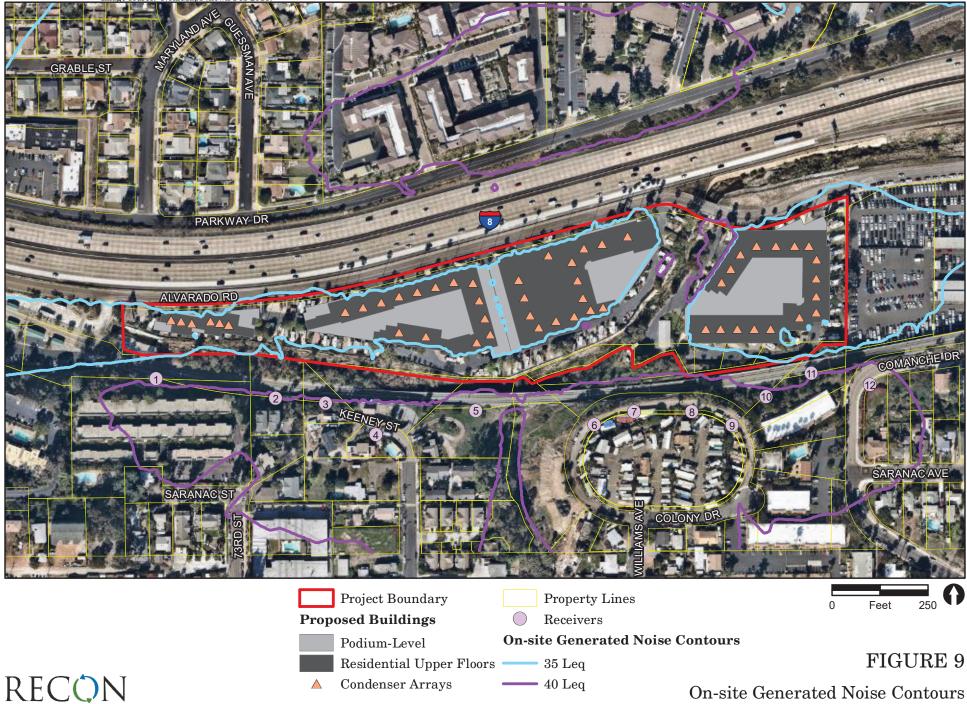
Table 11 Heating, Ventilation, and Air Conditioning Noise Levels						
		Noise Level	Noise Level Limit [dB(A) L <sub>eq</sub> ]			
Receiver	Property Description	[dB(A) L <sub>eq</sub> ]	Daytime	Nighttime		
1	Creaser & Warwick Apartments	39	60	55		
2	5107 73rd Street Units	40	60	55		
3	North end of Keeney Street	41	55	50		
4	5084 Keeney Street	44	55	50		
5	5061 Keeney Street	42	60	55		
6		45	55	50		
7	Colony Mobile Plaza	45	55	50		
8	Colony Mobile Plaza	45	55	50		
9		44	55	50		
10	Comonsha Hills Anorthments	41	60	55		
11	Comanche Hills Apartments	39	60	55		
12	7570 Saranac Avenue	41	55	50		
dB(A)L <sub>eq</sub> = one-hour equivalent A-weighted decibels.						

As shown, on-site generated noise levels would range from 35 to 45 dB(A)  $L_{eq}$  at the adjacent property lines. Noise levels would not exceed the applicable Noise Ordinance limits.

### 5.5 Trolley Vibration

Trolley pass-bys generate certain peak vibration levels. As discussed previously, to determine the vibration level at the project site, the FTA generalized ground surface vibration curves (modeled at a reference speed of 50 mph) were used and then adjusted for speed using the equation shown in Section 5.5. Figure 10 shows the FTA generalized ground surface vibration curves.

age source: NearMaps (flown Feb 2018)



M:\JOBS2\4167.2\common\_gis\fig9\_nos.mxd 6/25/2018 sab

**On-site Generated Noise Contours** 

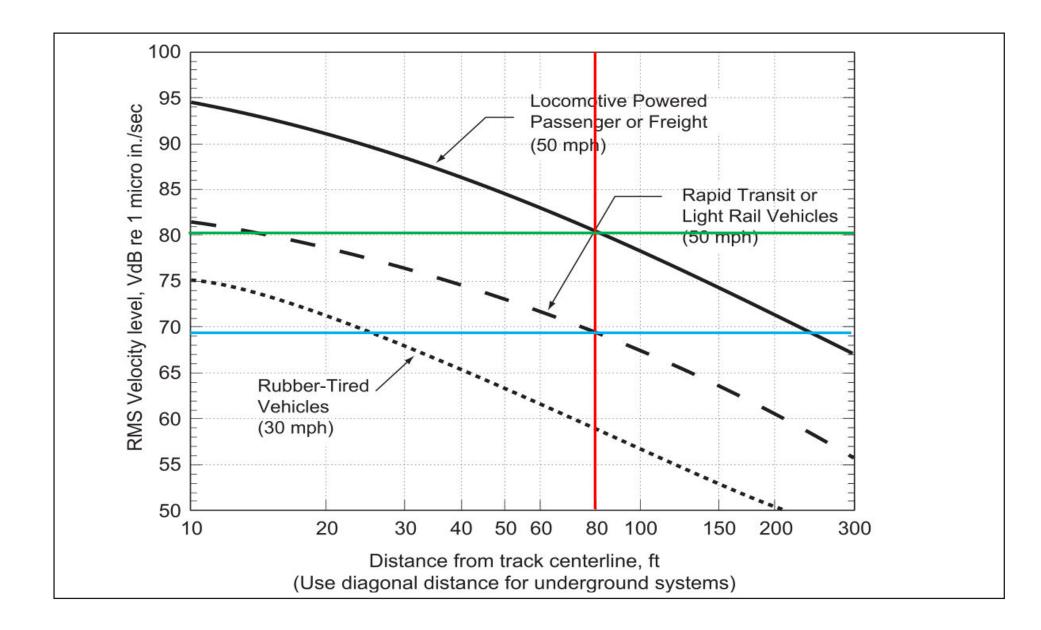


FIGURE 10 Reference Vibration Levels

The closest proposed building façade (Building 4 southern façade) is approximately 65 feet from the railroad centerline. As shown on Figure 10, at 65 feet, trolleys traveling at 50 mph would generate a vibration of 71 vibration decibels (VdB). Adjusting these levels for speed results in an estimated vibration level of 67 VdB for trolleys. As shown in Table 1, the groundborne vibration impact criteria for Category 2 residential uses is 72 VdB for frequent events, which is defined as more than 70 vibration events of the same source per day. The trolley vibration level of 67 VdB would not exceed the impact criteria of 72 VdB. Thus, vibration levels at the project site would be less than the impact criteria, and vibration impacts would be less than significant.

## 6.0 Conclusions

## 6.1 Construction Noise

As shown in Table 6, construction noise levels would range from 61 to 68 dB(A)  $L_{eq}$  at the adjacent residential property lines. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities are not anticipated to exceed 75 dB(A) $L_{eq}$ . According to Section 10.80.100 of the La Mesa Municipal Code, construction activities are prohibited between the hours of 10:00 p.m. and 7:00 a.m. and on Sundays. Construction activities would generally occur over the period between 7:00 a.m. and 5:00 p.m. on weekdays. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

## 6.2 Noise Compatibility

The main source of noise at the project site is vehicle traffic on I-8 and Alvarado Road. Additional noise is generated by trolley traffic on the adjacent Green Line. For multi-family residential uses, exterior noise levels up to 65 CNEL are considered normally acceptable, and noise levels up to 70 CNEL are considered conditionally acceptable. Where exterior noise levels would not conform to compatibility standards, the City requires a noise insulation features that reduce interior noise levels to less than 45 CNEL be included in the design.

As shown in Table 9, exterior noise levels are projected to reach up to 80 CNEL at proposed outdoor use areas and at building façades. Noise abatement measure NOI-1 requires that the project incorporate design features that reduce interior noise levels at all habitable rooms to 45 CNEL or less and outlines noise insulation features that would achieve this requirement. With incorporation of abatement measure NOI-1, the project would comply with City interior noise compatibility standards.

City exterior noise compatibility standards require that projects minimize the effects of noise by incorporating noise reduction features to reduce noise levels at multi-family outdoor use areas to 65 CNEL. Noise abatement measure NOI-2 requires that the project incorporate design features that reduce exterior noise levels at outdoor use areas to 65 CNEL or less and outlines the design of noise barriers that would achieve this requirement. With incorporation of abatement measure NOI-2, the project would comply with City exterior noise compatibility standards.

## 6.3 Off-site Traffic Noise Increases

Ambient noise levels along Alvarado Road are primarily attributable to vehicle traffic on I-8 rather than vehicle traffic on Alvarado Road itself. The project would contribute to substantial traffic volume increases on Alvarado Road; however vehicle traffic on I-8 would be anticipated to remain dominant due to the relative speed of vehicle traffic. Ambient noise increases would be anticipated to be less than 3 dB(A).

## 6.4 On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential complex, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources is anticipated to violate the La Mesa Municipal Code or result in a substantial permanent increase in existing noise levels.

Additionally, the project would include HVAC units with a roof-mounted condenser unit for each apartment, which could exceed the City standards. On-site generated noise sources were modeled and resulting noise levels were predicted at the project site property lines. As shown, on-site generated noise levels would range from 35 to 45 dB(A)  $L_{eq}$ . The most restrictive noise levels limits are 55 dB(A)  $L_{eq}$  during daytime hours and 50 dB(A)  $L_{eq}$  at night, thus noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

## 6.5 Vibration

Because of the proximity to trolley operations on the adjacent railroad tracks, the project could expose the proposed residential uses to groundborne vibration and noise. As discussed in Section 4.5, this analysis of vibration impacts follows the guidance provided in the FTA's Transit Noise and Vibration Impact Assessment document. Based on the procedure outlined in the document, trolley pass-bys were estimated to generate a vibration level of 67 VdB at the location of future residences. Trolley vibration levels would not exceed the FTA's impact criteria of 72 VdB for frequent events.

## 7.0 References Cited

California Department of Transportation (Caltrans)

- 2013 Technical Noise Supplement. November.
- 2015 Annual Average Daily Truck Traffic on the California State Highway System. Compiled by Traffic Data Branch. Accessed at http://www.dot.ca.gov/trafficops/census/docs/2015\_aadt\_truck.pdf.

### Federal Highway Administration (FHWA)

- 2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December 2011.
- Federal Transit Administration (FTA)
  - 2006 Transit Noise and Vibration Impact Assessment. Office of Planning and Environment. FTA-VA-90-1003-06. May 2006.
- Institute of Transportation Engineers (ITE)
  - 2012 Trip Generation Handbook. 9th Edition.
- La Mesa, City of
  - 2012 City of La Mesa 2012 Centennial General Plan. Adopted July 9, 2013. Resolution 2013-059.
- Linscott, Law & Greenspan Engineers (LLG)
  - 2017 Transportation Report for the San Diego River Park, Soccer City and Qualcomm Stadium Redevelopment Specific Plan. February 17, 2017.
- Navcon Engineering, Inc.
  - 2018 SoundPLAN Essential version 4.1.

San Diego Association of Governments (SANDAG)

2013 Transportation Forecast Information Center. Series 13 Traffic Volume Forecast. Accessed at http://gis.sandag.org/tficsr13/. Forecasts adopted October 2013.

## ATTACHMENTS

## **ATTACHMENT 1**

## Noise Measurement Data

Summary Filename	LxT_Data.019						
Serial Number Model Firmware Version	3829 SoundExpert™ LxT						
User Location	2.301						
Job Description Note							
Measurement Description Start Stop	2018/02/01 11:44:12 2018/02/01 11:59:29						
Duration Run Time	0:15:17.4						
Pause	0:00:00.0						
Pre Calibration Post Calibration	2018/02/01 11:42:34 None						
Calibration Deviation							
Overall Settings RMS Weight	A Weighting						
Peak Weight Detector	A Weighting Slow						
Preamp Microphone Correction	PRMLxT1L Off						
Integration Method OBA Range	Linear Normal						
OBA Bandwidth OBA Freq. Weighting	1/1 and 1/3 A Weighting						
OBA Max Spectrum Overload	At Lmax 122.0	dB	с	Z			
Under Range Peak Under Range Limit	A 78.3 26.1		75.3 25.3	80.3 dB 32.1 dB			
Noise Floor	16.3		16.1	22.1 dB			
Results LAeq	64.1	dB					
LAE EA	93.7 262.567						
LApeak (max) LASmax	2018/02/01 11:58:27 2018/02/01 11:54:43		83.0 dB 69.3 dB				
LASmin SEA	2018/02/01 11:44:19 -99.9	dB	61.1 dB				
LAS > 85.0 dB (Exceedence Counts / Duration) LAS > 115.0 dB (Exceedence Counts / Duration)	0 0		0.0 s 0.0 s				
LApeak > 135.0 dB (Exceedence Counts / Duration) LApeak > 137.0 dB (Exceedence Counts / Duration)			0.0 s 0.0 s 0.0 s				
LApeak > 140.0 dB (Exceedence Counts / Duration) Community Noise		LDav 07:00		aht 22:00-07:00 Lden	LDav 07:00-19:00	LEvening 19:00-22	2:00 LNight 22:00-07:00
LCeq	64.1 71.1		64.1	-99.9 64.1	64.1		99.9 -99.9
LAeq LCeq - LAeq	64.1 7.0						
LAleq LAeq	64.7 64.1						
LAleq - LAeq # Overloads	0.6 0	dB					
Overload Duration # OBA Overloads	0.0 0						
OBA Overload Duration	0.0	S					
Statistics LAS5.00							
1 4 5 10 00	65.6 65.1						
LAS10.00 LAS33.30 LAS50.00	65.1 64.3	dB dB					
	65.1	dB dB dB dB					
LAS33.30 LAS50.00 LAS66.60 LAS90.00	65.1 64.3 64.0 63.5	dB dB dB dB					
LAS33.30 LAS56.00 LAS66.60 LAS90.00 Calibration History Preamp	65.1 64.3 64.0 63.5 62.7 Date	dB dB dB dB					
LAS33.30 LAS50.00 LAS66.60 LAS90.00 Calibration History Preamp Direct Direct	65.1 64.3 64.0 063.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:35:22	dB dB dB dB dB	-26.0 -26.0				
LAS33.30 LAS56.00 LAS66.60 LAS90.00 Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L	65.1 64.3 64.0 63.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:59:36 2018/02/01 11:42:29 2018/02/01 11:42:59	dB dB dB dB dB	-26.0 -26.0 -28.3 -28.3				
LAS33.30 LAS56.60 LAS96.60 LAS90.00 Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	65.1 64.3 64.0 63.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:35:22 2018/02/01 11:42:29 2018/01/24 13:40:06 2018/01/03 13:59:50	dB dB dB dB dB	-26.0 -26.0 -28.3 -28.3 -28.4 -28.3				
LAS33.30 LAS50.00 LAS66.60 LAS90.00 Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	65.1 64.3 64.0 63.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:59:36 2018/01/24 14:54:59 2018/01/24 14:54:59 2018/01/24 14:54:59 2018/01/03 11:48:39:50 2018/01/03 11:48:39:50 2018/01/03 11:48:39	dB dB dB dB dB	-26.0 -28.3 -28.3 -28.4 -28.3 -28.3 -28.3 -28.4				
LAS33.30 LAS56.60 LAS96.60 LAS90.00 Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	65.1 64.3 64.0 63.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:55:22 2018/02/01 11:42:29 2018/01/24 14:54:59 2018/01/03 13:59:50 2018/01/03 11:48:39 2017/12/06 14:48:33 2017/12/06 14:43:307	dB dB dB dB dB	-26.0 -28.3 -28.3 -28.4 -28.3 -28.3 -28.4 -28.3 -28.4 -28.3 -28.4				
LAS33.30 LAS56.60 LAS66.60 LAS90.00 Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	65.1 64.3 64.0 64.0 63.5 62.7 <b>Date</b> 2017/01/31 6:59:36 2017/01/31 6:35:22 2018/01/24 13:40:06 2018/01/24 13:40:06 2018/01/24 13:40:06 2018/01/03 11:48:39 2017/12/06 15:04:18	dB dB dB dB dB	-26.0 -28.3 -28.3 -28.4 -28.3 -28.3 -28.4 -28.3 -28.4 -28.3				

Summary Filename Serial Number Model Firmware Version User Location Job Description Note Measurement Description Start Stop Duration Run Time Pause	LxT_Data.020 3829 SoundExpert™ LxT 2.301 2018/02/01 12:15:58 2018/02/01 12:31:00 0:15:02.6 0:15:02.6 0:00:00.0				
Pre Calibration Post Calibration Calibration Deviation	2018/02/01 12:13:19 None 				
Overall Settings RMS Weight Peak Weight Detector Preamp Microphone Correction Integration Method OBA Range OBA Bandwidth OBA Freq. Weighting OBA Max Spectrum Overload	A Weighting A Weighting Slow PRMLxT1L Off Linear Normal 1/1 and 1/3 A Weighting At Lmax 122.0 dB	с	z		
Under Range Peak Under Range Limit Noise Floor	78.2 26.1 16.3	75.2 25.3 16.1	80.2 dB 32.1 dB 22.0 dB		
Results LAeq LAE EA LApeak (max) LASmax LASmin SEA	72.4 dB 102.0 dB 1.757 mF 2018/02/01 12:19:09 2018/02/01 12:19:10 2018/02/01 12:23:12 -99.9 dB	'a²h 92.2 dB 76.7 dB 68.2 dB			
LAS > 85.0 dB (Exceedence Counts / Duration) LAS > 115.0 dB (Exceedence Counts / Duration) LApeak > 135.0 dB (Exceedence Counts / Duration) LApeak > 137.0 dB (Exceedence Counts / Duration) LApeak > 140.0 dB (Exceedence Counts / Duration)	0 0 0 0	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s			
Community Noise LCeq LAeq LCeq - LAeq LAleq LAleq LAleq - LAeq # Overloads Overload Duration # OBA Overloads OBA Overload Duration Statistics	Ldn LE 72.4 77.2 dB 72.4 dB 4.7 dB 73.0 dB 72.4 dB 0.6 dB 0 0.0 s 0 0.0 s	72.4	ght 22:00-07:00 Lden L -99.9 72.4	Day 07:00-19:00 LEve 72.4	aning 19:00-22:00 LNight 22:00-07:00 -99.9 -99.9 -99.9
LAS5.00 LAS10.00 LAS33.30 LAS50.00 LAS66.60 LAS90.00	74.5 dB 73.9 dB 72.7 dB 72.3 dB 71.8 dB 70.4 dB				
Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	Date 2017/01/31 6:59:36 2017/01/31 6:35:22 2018/02/01 12:13:17 2018/02/01 11:59:51 2018/02/01 11:42:29 2018/01/24 13:40:06 2018/01/03 13:59:50 2018/01/03 11:48:39 2017/12/06 15:04:18 2017/12/06 14:48:23 2017/12/06 14:48:23 2017/12/06 14:48:23	dB re. 1V/Pa -26.0 -26.0 -28.3 -28.3 -28.3 -28.3 -28.3 -28.4 -28.3 -28.4 -28.3 -28.4 -28.3 -28.4 -28.3			

Summary Filename Serial Number Model Firmware Version User Location Job Description Note	LxT_Data.021 3829 SoundExpert™ LxT 2.301			
Measurement Description Start Stop Duration Run Time Pause	2018/02/01 12:50:06 2018/02/01 13:05:15 0:15:08.9 0:15:08.9 0:00:00.0			
Pre Calibration Post Calibration Calibration Deviation	2018/02/01 12:49:00 None 			
Overall Settings RMS Weight Peak Weight Detector Preamp Microphone Correction Integration Method OBA Range OBA Bandwidth OBA Freq. Weighting OBA Max Spectrum Overload	A Weighting A Weighting Slow PRMLxT1L Off Linear Normal 1/1 and 1/3 A Weighting At Lmax 121.9 dB			
Under Range Peak Under Range Limit Noise Floor	A 78.2 26.1 16.3	<b>C</b> 75.2 25.3 16.1	<b>Z</b> 80.2 dB 32.1 dB 22.0 dB	
Results LAeq LAE EA LApeak (max) LASmax LASmin SEA	70.2 dB 99.8 dB 1.065 mPa <sup>2</sup> h 2018/02/01 12:51:13 2018/02/01 12:53:49 2018/02/01 12:58:50 -99.9 dB	90.3 dB 75.6 dB 66.7 dB		
LAS > 85.0 dB (Exceedence Counts / Duration) LAS > 115.0 dB (Exceedence Counts / Duration) LApeak > 135.0 dB (Exceedence Counts / Duration) LApeak > 137.0 dB (Exceedence Counts / Duration) LApeak > 140.0 dB (Exceedence Counts / Duration)	0 0 0	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s		
Community Noise LCeq LAeq LCeq - LAeq LAleq LAeq LAleq - LAeq # Overloads Overload Duration # OBA Overload Duration	Ldn LDay 70.2 76.2 dB 70.2 dB 5.9 dB 70.9 dB 70.2 dB 0.7 dB 0 0.0 s 0 0.0 s	07:00-22:00 LNight 2 70.2	2:00-07:00 Lden LDay 07:00- -99.9 70.2	19:00         LEvening         19:00-22:00         LNight         22:00-07:00         70.0         70.2         -99.9
Statistics LAS5.00 LAS10.00 LAS33.30 LAS50.00 LAS66.60 LAS90.00	71.9 dB 71.5 dB 70.6 dB 70.1 dB 69.6 dB 68.7 dB			
Calibration History Preamp Direct Direct PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L PRMLxT1L	Date         c           2017/01/31         6:59:36         2017/01/31         6:35:22           2018/02/01         12:48:59         2018/02/01         12:32:13           2018/02/01         12:32:13         2018/02/01         12:35:11           2018/02/01         11:45:95         2018/02/01         11:45:29           2018/02/01         11:42:29         2018/01/24         13:40:06           2018/01/24         13:40:06         2018/01/03         11:48:39           2017/12/06         15:04:18         2017/12/06         14:48:23	dB re. 1V/Pa -26.0 -28.2 -28.3 -28.3 -28.3 -28.3 -28.3 -28.3 -28.4 -28.3 -28.3 -28.4 -28.3 -28.4 -28.3		

## **ATTACHMENT 2**

## **Carrier Specifications Sheet**

### 38HDR Performance<sup>™</sup> Series Air Conditioner with Puron<sup>®</sup> Refrigerant 1–1/2 to 5 Nominal Tons



## **Product Data**



Carrier's Air Conditioners with Puron<sup>®</sup> refrigerant provide a collection of features unmatched by any other family of equipment. The 38HDR has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star<sup>®</sup> criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star<sup>®</sup> guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

### **INDUSTRY LEADING FEATURES / BENEFITS**

### **Energy Efficiency**

• 13 - 15 SEER/10.9 - 12.5 EER

### Sound

• Levels as low as 68 dBA

### **Design Features**

- New aesthetics
- Small footprint, same as old model and "stackable"
- WeatherArmor<sup>™</sup> cabinet
  - All steel cabinet construction
  - Baked on powder paint
  - Mesh coil guard

### **Reliability, Quality and Toughness**

- Scroll compressor
- Crankcase Heater standard on sizes 030-060
- Factory-supplied filter drier
- High pressure switch
- Low pressure switch
- Line lengths up to 250' (76.2 m)
- Low ambient operation (down to -20°F/-28.9°C) with low ambient accessories.

#### **MODEL NUMBER NOMENCLATURE** 8 2 4 5 6 7 9 10 1 3 11 12 13 Ν Ν А А A/N Ν Ν A/N A/N A/N Ν Ν Ν 3 8 н D R 0 8 А 0 0 3 0 1 Product HDR = Horizontal Discharge **Cooling Capacity** Variations Open Open Voltage Minor Series **Condensing Unit** Series 3=208/230-1 0=Not 0=Not 0, 1, 2... 38=AC/HP Major Model 1,000 Btuh Nominal A=Standard 5=208/230-3 Defined Defined 6=460/3



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

**CERTIFIED**<sub>77</sub>



QMI-SAI Global





This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow all manufacturing refrigerant charging and air flow instructions. Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.

### PHYSICAL DATA

UNIT 38HDR	018	024	030	036	048	060
NOMINAL CAPACITY (Tons)	1.5	2.0	2.50	3.0	4.0	5.0
OPERATING WEIGHT Ib (kg)	155 (70.3)	180 (81.6)	200 (90.7)	218 (98.9)	284 (128.8)	294 (133.4)
REFRIGERANT TYPE			R-	410A		
METERING DEVICE				ΓXV		
CHARGE lb (kg)	6.3 (2.86)	6.0 (2.73)	8.7 (3.95)	8.7 (3.95)	11.5 (5.23)	12.0 (5.45)
COMPRESSOR			•			
Туре			S	croll		
Oil Charge (POE – oz)	25.0	25.0	25.0	25.0	42.0	42.0
Crankcase Heater (watts)	—	—	40	40	40	40
OUTDOOR FAN			•			•
Rpm/Cfm	840/1720	840/1720	850/3900	850/3900	850/3900	850/3900
Diameter in. (mm)	18 (457)	18 (457)	24 (610)	24 (610)	24 (610)	24 (610)
No. Blades	3	3	3	3	3	3
Motor hp (w)	1/8 (93)	1/8 (93)	1/4 (187)	1/4 (187)	1/4 (187)	1/4 (187)
OUTDOOR COIL			•			•
Face Area (sq ft)	5.8	7.3	12.1	12.1	14.1	14.1
No. Rows	2	2	2	2	2	2
FPI	20	20	20	20	20	20
HIGH PRESSURE SWITCH				•		
Cut-In (psig) Cutout (psig)	420 ± 25	420 ± 25	420 ± 25	420 ± 25	420 ± 25	420 ± 25
	650 ± 10	650 ± 10	650 ± 10	650 ± 10	650 ± 10	650 ± 10
LOW PRESSURE SWITCH						
Cut-In (psig) Cutout (psig)	45 ± 25	45 ± 25	45 ± 25	45 ± 25	45 ± 25	45 ± 25
( <del>)</del>	20 ± 5	20 ± 5	20 ± 5	20 ± 5	20 ± 5	20 ± 5
REFRIGERANT LINES						
Connection Type			-	weat		
Max. Liquid Line* (in.) OD	3/8	3/8	3/8	3/8	3/8	3/8
Rated Vapor Line† (in.) OD	5/8	5/8	3/4	3/4	7/8	1-1/8**
CONTROLS						
Control Voltage‡			. 24	1 vac		
System Voltage	208/230 v	208/230 v	208/230 v		and 3 Phase, 460 v	, 3 Phase
FINISH * See Liauid Line Sizing For Cooling Only St			0	àray		

\* See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.

† Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

‡ 24 v and a minimum of 40 va is provided in the fan coil unit.

\*\* Vapor connection size is 7/8 inch.

FPI – Fins Per Inch

POE - Polyol Ester

### **REFRIGERANT PIPING LENGTH LIMITATIONS**

### Liquid Line Sizing and Maximum Total Equivalent Lengths<sup>†</sup> for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

**Maximum Total Equivalent Length** 

See Table below for liquid line sizing and maximum lengths :

				Outd	oor Unit B	ELOW Inc	loor Unit				
Size	Liquid Line	Liquid Line	Line Vertical Separation ft (m)								or
0.20	Connection	Diam. w/ TXV	0-5 (0-1.5)	6-10 (1.8-3.0)	11-20 (3.4-6.1)	21-30 (6.4-9.1)	31-40 (9.4-12.2)	41-50 (12.5-15.2)	51–60 (15.5–18.3)	61-70 (18.6-21.3)	71-80 (21.6-24.4)
018		1/4	150	150	125	100	100	75			
AC with	3/8	5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
024		1/4	75	75	75	50	50				
AC with		5/16	250*	250*	250*	250*	250*	225*	175	125	100
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
030		1/4	30								
AC with	3/8	5/16	175	225*	200	175	125	100	75		
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with	3/8	5/16	175	150	150	100	100	100	75		
Puron	5/0	3//8	250*	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	
060 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110		

\* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

#### Maximum Total Equivalent Length Outdoor Unit ABOVE Indoor Unit

					III ADUVE I					
Size	Liquid Line	Liquid Line	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Inc Vertical Separation ft (m)							
0120	Connection	Diam. w/ TXV	25 (7.6)	26-50 (7.9-15.2)	51-75 (15.5-22.9)	76-100 (23.2-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151–175 (46.0–53.3)	176-200 (53.6-61.0)
018		1/4	175	250*	250*	250*	250*	250*	250*	250*
AC with	3/8	5/16	250*	250*	250*	250*	250*	250*	250*	250*
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*
024		1/4	100	125	175	200	225*	250*	250*	250*
AC with	3/8	5/16	250*	250*	250*	250*	250*	250*	250*	250*
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*
030		1/4	30							
AC with	3/8	5/16	250*	250*	250*	250*	250*	250*	250*	250*
Puron		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
Puron	5/6	3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

\* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

#### REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)			
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)			
5/16	0.40 (11.83)			
1/4	0.27 (7.98)			

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz (266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

### **Charging Formula:**

[(Lineset oz/ft x total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15 ft) - (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) - (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

### LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

#### AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m) Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 24.4) total	80 (24.4)

**Note:** See Long Line Guideline for details

### VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant:

Unit Nominal	Maximum Liquid Line	Vapor Line Diameters	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
Size (Btuh)	ze (Btuh) (In. OD) (I		26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101–125 (30.8–38.1)	126-150 (38.4-45.7)	151 <b>–</b> 175 (46.0 – 53.3)	176-200 (53.6-61.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
018		1/2	1	2	3	5	6	7	8	9	11
1 Stage AC with	3/8	5/8	0	1	1	1	2	2	2	3	3
Puron		3/4	0	0	0	0	1	1	1	1	1
024		5/8	0	1	2	2	3	3	4	5	5
1 Stage AC with	3/8	3/4	0	0	1	1	1	1	1	2	2
Puron		7/8	0	0	0	0	0	1	1	1	1
030		5/8	1	2	3	3	4	5	6	7	8
1 Stage AC with	3/8	3/4	0	0	1	1	1	2	2	2	3
Puron		7/8	0	0	0	0	1	1	1	1	1
036		5/8	1	2	4	5	6	8	9	10	12
1 Stage AC with	3/8	3/4	0	1	1	2	2	3	3	4	4
Puron		7/8	0	0	0	1	1	1	1	2	2
048		3/4	0	1	2	3	4	5	5	6	7
1 Stage AC with	3/8	7/8	0	0	1	1	2	2	2	3	3
Puron		1 1/8	0	0	0	0	0	0	0	1	1
060		3/4	1	2	4	5	6	7	9	10	11
1 Stage AC with	3/8	7/8	0	1	2	2	3	4	4	5	5
Puron		1 1/8	0	0	0	1	1	1	1	1	1

#### Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications

Applications in this area may be long line and may have height restrictions. See the Residential Piping and Long Line Guideline

### ACCESSORY THERMOSTATS

THERMOSTAT / SUBBASE PKG.	DESCRIPTION						
TP-PRH01-A	Programmable Thermidistat						
TP-NRH01-A	n-programmable Thermidistat						
TP-PAC01	rformance Series Programmable AC Stat						
TP-NAC01	Performance Series Non-programmable AC Stat						
TSTATCCSEN01-B	Outdoor Air Temperature Sensor						
TSTATXXBBP01	Backplate for Builder's Thermostat						
TSTATXXNBP01	Backplate for Non-Programmable Thermostat						
TSTATXXPBP01	Backplate for Programmable Thermostat						
TSTATXXCNV10	Thermostat Conversion Kit (4 to 5 wires) – 10 Pack						

### ACCESSORIES

KIT NUMBER	KIT NAME	018	024	030	036	048	060
KAACH1401AAA	Crankcase Heater	Х	Х				
Standard	Crankcase Heater			S	S	S	S
KAAFT0101AAA	Evaporator Freeze Stat	Х	Х	Х	Х	Х	Х
KAATD0101TDR	Time Delay Relay	Х	Х	Х	Х	Х	Х
KAAWS0101AAA	Winter Start Kit (for low ambient)	х	х	x	x	х	х
53DS-900086	Low Ambient Control (Puron)	х	х	x	x	х	Х
53DS-900070	Wind Baffle	Х					
53DS-900087	Wind Baffle		Х				
53DS-900071	Wind Baffle			Х	Х		
53DS-900088	Wind Baffle					Х	Х
53DS-900075	Stacking Kit	Х	Х				
53DS-900076	Stacking Kit			Х	Х	Х	Х
53DS-900077	Wall Mounting Kit	Х	Х				
53DS-900078	Wall Mounting Kit			Х	Х	Х	Х

X = Accessory, S = Standard

### ACCESSORY USAGE GUIDELINE

REQUIRED FOR LOW-AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS* (Over 80 ft. / 24.4 m)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles / 3.2 km)
Yes	Yes	No
Yes	Yes	No
Yes	No	No
Yes	Yes	Yes
No	See Longline Application Guideline	No
Yes	No	No
Yes	No	No
	COOLING APPLICATIONS (Below 55°F/12.8°C) Yes Yes Yes Yes No Yes	REQUIRED FOR LOW - AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)     LONG LINE APPLICATIONS* (Over 80 ft. / 24.4 m)       Yes     Yes       Yes     No       Yes     No

For tubing line sets between 80 and 200 ft. (24.38 and 60.96 m) and/or 35 ft. (10.7 m) vertical differential, refer to Residential Piping and Longline Guideline.

### Accessory Description and Usage (Listed Alphabetically)

### 1. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

#### 2. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

### 3. Low-Ambient Control

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to  $-20^{\circ}$ F ( $-28.9^{\circ}$ C), it maintains condensing temperature at  $100^{\circ}$ F  $\pm 10^{\circ}$ F ( $37.8^{\circ}$ C  $\pm 5.5^{\circ}$ C).

Usage Guideline:

A Low Ambient Controller must be used when cooling operation is used at outdoor temperatures below  $55^{\circ}$ F (12.8°C).

Suggested for all commercial applications.

### 4. Outdoor Air Temperature Sensor

Designed for use with Carrier Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also

is required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

Suggested for all Carrier thermostats listed in this publication.

#### 5. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

**NOTE:** When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Accessory required to meet AHRI rating and system reliability, where indoor not equipped.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

### 6. Time-Delay Relay

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

**NOTE**: Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

Accessory required to meet AHRI rating, where indoor

not equipped.

### 7. Winter Start Control

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.

### ELECTRICAL DATA

V–PH–Hz				ESSOR	00100	or fan N	IUTUR	MIN	FUSE/CKT
	Min	Max	RLA	LRA	FLA	NEC Hp	kW Out	CKT AMPS	BKR AMPS
208/230-1-60	187	253	9.0	48.0	0.8	0.125	0.09	12.1	20
208/230-1-60	187	253	13.5	58.3	0.8	0.125	0.09	17.7	25
208/230-1-60	187	253	14.1	73.0	1.5	0.250	0.19	19.1	30
208/230-1-60	187	253	14.1	77.0	1.5	0.250	0.19	19.1	30
208/230-3-60	187	253	9.2	71.0	1.5	0.250	0.19	13.0	20
460-3-60	414	506	5.6	38.0	0.8	0.250	0.19	7.9	10
208/230-1-60	187	253	19.9	109.0	1.5	0.250	0.19	26.4	40
208/230-3-60	187	253	13.1	83.1	1.5	0.250	0.19	17.9	25
460-3-60	414	506	6.1	41.0	0.8	0.250	0.19	8.4	15
208/230-1-60	187	253	26.4	134.0	1.5	0.250	0.19	34.5	60
208/230-3-60	187	253	16.0	110.0	1.5	0.250	0.19	21.5	30
460-3-60	414	506	7.8	52.0	0.8	0.250	0.19	10.6	15
	208/230-1-60 208/230-1-60 208/230-3-60 208/230-3-60 208/230-1-60 208/230-3-60 208/230-3-60 208/230-1-60 208/230-3-60 460-3-60	208/230-1-60         187           208/230-1-60         187           208/230-1-60         187           208/230-1-60         187           208/230-1-60         187           208/230-3-60         187           208/230-3-60         187           208/230-3-60         187           208/230-1-60         187           208/230-1-60         187           208/230-3-60         187           208/230-3-60         187           208/230-1-60         187           208/230-3-60         187           460-3-60         414           208/230-3-60         187           460-3-60         414	208/230-1-60         187         253           208/230-1-60         187         253           208/230-1-60         187         253           208/230-1-60         187         253           208/230-1-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-1-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253           208/230-3-60         187         253	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	208/230-1-60         187         253         9.0         48.0           208/230-1-60         187         253         13.5         58.3           208/230-1-60         187         253         14.1         73.0           208/230-1-60         187         253         14.1         77.0           208/230-1-60         187         253         9.2         71.0           208/230-3-60         187         253         9.2         71.0           460-3-60         414         506         5.6         38.0           208/230-1-60         187         253         19.9         109.0           208/230-3-60         187         253         13.1         83.1           460-3-60         414         506         6.1         41.0           208/230-1-60         187         253         26.4         134.0           208/230-1-60         187         253         26.4         134.0           208/230-3-60         187         253         16.0         110.0	208/230-1-60 $187$ $253$ $9.0$ $48.0$ $0.8$ $208/230-1-60$ $187$ $253$ $13.5$ $58.3$ $0.8$ $208/230-1-60$ $187$ $253$ $14.1$ $73.0$ $1.5$ $208/230-1-60$ $187$ $253$ $14.1$ $77.0$ $1.5$ $208/230-3-60$ $187$ $253$ $9.2$ $71.0$ $1.5$ $208/230-3-60$ $187$ $253$ $9.2$ $71.0$ $1.5$ $208/230-3-60$ $414$ $506$ $5.6$ $38.0$ $0.8$ $208/230-1-60$ $187$ $253$ $19.9$ $109.0$ $1.5$ $208/230-3-60$ $187$ $253$ $13.1$ $83.1$ $1.5$ $460-3-60$ $414$ $506$ $6.1$ $41.0$ $0.8$ $208/230-1-60$ $187$ $253$ $26.4$ $134.0$ $1.5$ $208/230-3-60$ $187$ $253$ $16.0$ $110.0$ $1.5$ $460-3-60$ $414$ $506$ $7.8$ $52.0$ $0.8$	Image: Constraint of the system         Image: Consystem         Image: Constraint of the syst	208/230-1-60 $187$ $253$ $9.0$ $48.0$ $0.8$ $0.125$ $0.09$ $208/230-1-60$ $187$ $253$ $13.5$ $58.3$ $0.8$ $0.125$ $0.09$ $208/230-1-60$ $187$ $253$ $14.1$ $73.0$ $1.5$ $0.250$ $0.19$ $208/230-1-60$ $187$ $253$ $14.1$ $77.0$ $1.5$ $0.250$ $0.19$ $208/230-1-60$ $187$ $253$ $14.1$ $77.0$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $187$ $253$ $9.2$ $71.0$ $1.5$ $0.250$ $0.19$ $208/230-1-60$ $187$ $253$ $19.9$ $109.0$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $187$ $253$ $13.1$ $83.1$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $414$ $506$ $6.1$ $41.0$ $0.8$ $0.250$ $0.19$ $208/230-1-60$ $187$ $253$ $26.4$ $134.0$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $417$ $253$ $16.0$ $110.0$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $187$ $253$ $16.0$ $110.0$ $1.5$ $0.250$ $0.19$ $208/230-3-60$ $414$ $506$ $7.8$ $52.0$ $0.8$ $0.250$ $0.19$	208/230-1-60 $187$ $253$ $9.0$ $48.0$ $0.8$ $0.125$ $0.09$ $12.1$ $208/230-1-60$ $187$ $253$ $13.5$ $58.3$ $0.8$ $0.125$ $0.09$ $17.7$ $208/230-1-60$ $187$ $253$ $14.1$ $73.0$ $1.5$ $0.250$ $0.19$ $19.1$ $208/230-1-60$ $187$ $253$ $14.1$ $77.0$ $1.5$ $0.250$ $0.19$ $19.1$ $208/230-1-60$ $187$ $253$ $14.1$ $77.0$ $1.5$ $0.250$ $0.19$ $19.1$ $208/230-3-60$ $187$ $253$ $9.2$ $71.0$ $1.5$ $0.250$ $0.19$ $13.0$ $460-3-60$ $414$ $506$ $5.6$ $38.0$ $0.8$ $0.250$ $0.19$ $7.9$ $208/230-1-60$ $187$ $253$ $19.9$ $109.0$ $1.5$ $0.250$ $0.19$ $26.4$ $208/230-3-60$ $187$ $253$ $13.1$ $83.1$ $1.5$ $0.250$ $0.19$ $17.9$ $460-3-60$ $414$ $506$ $6.1$ $41.0$ $0.8$ $0.250$ $0.19$ $8.4$ $208/230-1-60$ $187$ $253$ $26.4$ $134.0$ $1.5$ $0.250$ $0.19$ $34.5$ $208/230-3-60$ $187$ $253$ $16.0$ $110.0$ $1.5$ $0.250$ $0.19$ $21.5$ $460-3-60$ $414$ $506$ $7.8$ $52.0$ $0.8$ $0.250$ $0.19$ $21.5$

\* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps

HACR - Heating, Air Conditioning, Refrigeration

LRA – Locked Rotor Amps

NEC - National Electrical Code

RLA - Rated Load Amps (compressor)

**NOTE**: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

### A-WEIGHTED SOUND POWER (dBA)

	Standard		Typical	Octave Band	Spectrum ( dBA	) (without tone	adjustment)	
Unit Size	Rating (dBA)	125	250	500	1000	2000	4000	8000
018-31	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024-32	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030-31	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036-31	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048-32	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060-32	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI).

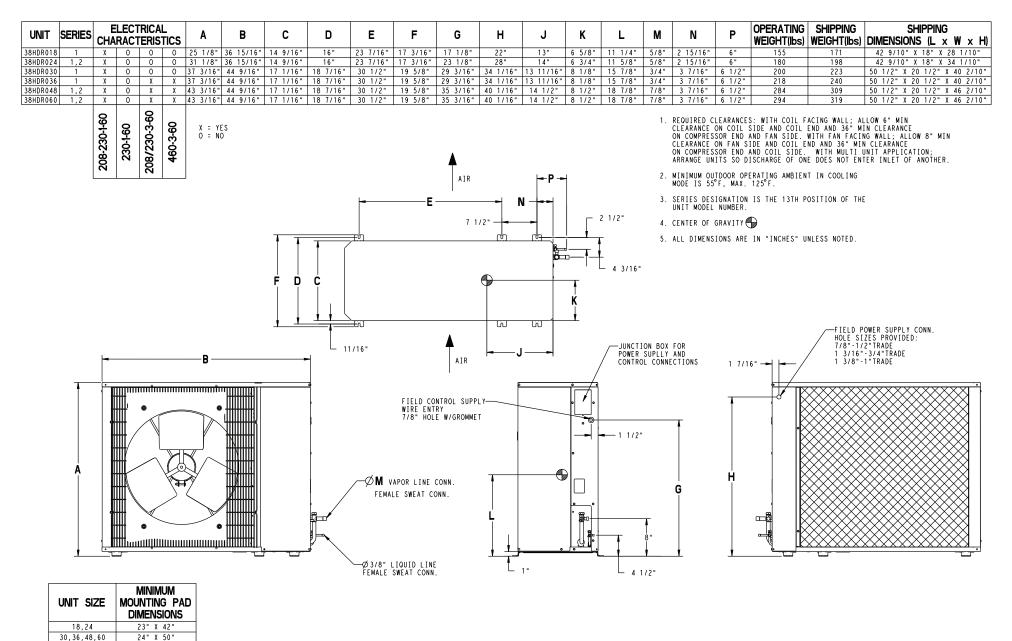
### **CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)**

UNIT SIZE-VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018-31	12 (6.7)
024-32	12 (6.7)
030-31	12 (6.7)
036-31	12 (6.7)
048-32	12 (6.7)
060-32	12 (6.7)

38HDR

### **DIMENSIONS - ENGLISH**

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### **DIMENSIONS - SI**

 18,24
 584.2 X 1066.8

 30,36,48,60
 609.6 X 1270.0

	SERIE			<b>FRICA</b> FERIS		A	В	С	D	E	F	G	н	J	к	L	м	N	P		WEIGHT(KG)	SHIPPING DIMENSIONS (L × W × H)
38HDR018	1	X	0	0	0	638.2	938.2	369.9	406.4	595.3	436.6	435.0	558.8	330.2	168.3	285.8	15.9	74.6	152.		77.7	1090.2 X 457.7 X 714.3
38HDR024 38HDR030	1,2	x X	0	0	0	790.6 944.6	938.2 1131.9	369.9 433.4	406.4	595.3 774.7	436.6 498.5	587.4 741.4	711.2 865.2	355.6 347.7	171.5 206.4	295.3 403.2	15.9 19.0	74.6	152.		90.0	1090.2 X 457.7 X 866.7 1282.7 X 520.7 X 1020.7
38HDR036	1	X	0	T X	X	944.6	1131.9	433.4	468.3	774.7	498.5	741.4	865.2	347.7	206.4	403.2	19.0	87.3	165.		109.0	1282.7 X 520.7 X 1020.7
38HDR048	1,2	X	0	X	X	1097.0	1131.9	433.4	468.3	774.7	498.5	893.8	1017.6	368.3	215.9	479.4	22.2	87.3	165.	1 129.0	140.4	1282.7 X 520.7 X 1173.1
38HDR060	1,2	X	0	X	X	1097.0	1131.9	433.4	468.3	774.7	498.5	893.8	1017.6	368.3	215.9	479.4	22.2	87.3	165.	1 133.6	145.0	1282.7 X 520.7 X 1173.1
		208-230-1-60	230-1-60	208/230-3-60	460-3-60	X = Y  O = N4						AIR		⊢P	-=-			ON C CLEA ON C ARRA	COMPRESS ARANCE C COMPRESS ANGE UNI	SOR END AND FAN DN FAN SIDE AND SOR END AND COIL	SIDE. WITH FAN COIL END AND 9 SIDE. WITH M OF ONE DOES N	LL; ALLOW 152.4 MIN 914.4 MIN CLEARANCE FACING WALL; ALLOW 203.2 MIN 14.4 MIN CLEARANCE ULTI UNIT APPLICATION; OT ENTER INLET OF ANOTHER. LING
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									L	17.5		-		.						/	HOLE SIZES	PROVIDED:
						_						AIR	-	J — -	1	-JUNCTION					22.22 - 12 30.16 - 19	.05 TRADE
		-				-B		-				I				POWER SU CONTROL			36	.5-+  /	34.92 - 25	
	A		•							W	IELD CONTRY IRE ENTRY 2.22 HOLE '					- 38.1	ĥ					
	V		•							Ó <b>M</b> vapor female sw	EAT CONN.	L				203.	2 2					
U	NIT S		Moun Dim	INIMU ITING IENSIO	PAD DNS				∽_¢ F	Ó9.53 LIQU EMALE SWEA	ID LINE T CONN.		L 25.4	I		L 114.3						

### **TESTED AHRI COMBINATION RATINGS\***

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory <u>www.ahridirectory.org</u> Additional ratings and system combinations can be accessed via the Carrier database at:

http://cactaxcredits.info/carrier-ratings/ac\_ratings\_srch.php

Equipment performance calculator can be accessed at: <u>http://rpmob.wrightsoft.com/</u>

Model Number	Indoor Model	Furnace Model	Capacity	EER	SEER
38HDR024-32	CNPV*2414A**+TDR		23,400	11.0	13.0
38HDR030-31	CNPV*3014A**+TDR		28,000	11.0	13.0
38HDR036-31	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR036-51	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR036-61	CNPV*4221A**+TDR		33,400	11.0	13.0
38HDR048-32	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR048-52	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR048-62	CNPV*4821A**+TDR		47,000	11.0	13.0
38HDR060-32	CNPV*6024A**+TDR		57,000	11.0	13.0
38HDR060-52	CNPV*6024A**+TDR		57,000	11.0	13.0
38HDR060-62	CNPV*6024A**+TDR		57,000	11.0	13.0

\* AHRI = Air Conditioning, Heating & Refrigeration Institute

EER — Energy Efficiency Ratio

SEER — Seasonal Energy Efficiency Ratio

TDR — Time – Delay Relay. In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time – Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

NOTES:

1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.

2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.

3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.

4. Do not apply with capillary tube coils as performance and reliability are significantly affected.

### **DETAILED COOLING CAPACITIES\***

EVADO	RATOR AIR								CONDENSER	ENTERING A	IR TEMPER	ATURES °F (	°C)	_					
LVAFU			75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)	
	EWB	Capac	ity MBtuh†	Total	Capaci	ty MBtuh†	Total	Capaci	ty MBtuh†	Total	Capaci	ty MBtuh†	Total	Capaci	ty MBtuh†	Total	Capacit	y MBtuh†	Total
CFM	° F (° C)	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**
	ľ						38HDF	R018 Outdoo	r Section Wit	h CNPV*1814	A** Indoor	Section							
	72 (22.2)	20.28	9.40	1.22	19.31	9.07	1.36	18.30	8.73	1.52	17.26	8.38	1.69	16.14	8.01	1.87	14.90	7.61	2.07
525	67(19.4)	18.53	11.50	1.22	17.65	11.17	1.36	16.72	10.82	1.52	15.76	10.47	1.69	14.72	10.09	1.87	13.59	9.69	2.07
525	62 (16.7)	16.93	13.58	1.23	16.13	13.24	1.37	15.29	12.89	1.52	14.43	12.52	1.69	13.57	13.57	1.87	12.71	12.71	2.07
	57 (13.9)	16.35	16.35	1.23	15.72	15.72	1.37	15.05	15.05	1.52	14.34	14.34	1.69	13.57	13.57	1.87	12.71	12.71	2.07
	72(22.2)	20.65	9.87	1.25	19.63	9.53	1.39	18.59	9.18	1.54	17.50	8.83	1.71	16.34	8.46	1.90	15.05	8.05	2.10
600	67(19.4)	18.90	12.25	1.25	17.97	11.91	1.39	17.00	11.56	1.55	16.00	11.20	1.72	14.93	10.82	1.90	13.75	10.41	2.10
000	62 (16.7)	17.33	14.61	1.25	16.51	14.26	1.39	15.67	15.61	1.55	14.91	14.91	1.72	14.08	14.08	1.90	13.16	13.16	2.10
	57 (13.9)	17.07	17.07	1.25	16.39	16.39	1.39	15.67	15.67	1.55	14.91	14.91	1.72	14.08	14.08	1.90	13.16	13.16	2.10
	72 (22.2)	20.91	10.30	1.27	19.86	9.96	1.41	18.78	9.61	1.57	17.67	9.26	1.74	16.47	8.88	1.93	15.15	8.46	2.13
675	67 (19.4)	19.16	12.97	1.27	18.20	12.62	1.42	17.20	12.27	1.57	16.18	11.90	1.74	15.07	11.52	1.93	13.87	11.09	2.13
0/0	62 (16.7)	17.70	17.52	1.28	16.94	16.94	1.42	16.17	16.17	1.57	15.37	15.37	1.74	14.49	14.49	1.93	13.52	13.52	2.13
	57(13.9)	17.67	17.67	1.28	16.94	16.94	1.42	16.17	16.17	1.57	15.37	15.37	1.74	14.49	14.49	1.93	13.52	13.52	2.13
EVADO	RATOR AIR							(	CONDENSER	ENTERING A	R TEMPER/	ATURES °F (°	C)						
EVAPOR	AT OR AIR		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)	
CFM	EWB	Capacity	/ MBtuh†	Total	Capacity	MBtuh†	Total	Capacity	/ MBtuh†	Total	Capacity	/ MBtuh†	Total	Capacity	/ MBtuh†	Total	Capacity	MBtuh†	Total
CFIN	° F (° C)	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**
							38HDF	R024 Outdoo	or Section Wit	h CNPV*2414	A** Indoor								
	72 (22.2)	28.11	13.59	1.69	26.70	13.09	1.89	25.17	12.55	2.10	23.54	11.98	2.33	21.76	11.38	2.58	19.78	10.71	2.84
700	67(19.4)	25.68	16.61	1.68	24.41	16.11	1.87	23.04	15.58	2.09	21.58	15.02	2.32	19.98	14.42	2.57	18.21	13.77	2.83
100	62 (16.7)	23.47	19.61	1.67	22.34	19.11	1.86	21.13	18.58	2.08	19.86	18.01	2.31	18.57	18.57	2.55	17.23	17.23	2.82
	57 (13.9)	22.67	22.67	1.67	21.77	21.77	1.86	20.81	20.81	2.07	19.75	19.75	2.31	18.57	18.57	2.55	17.23	17.23	2.82
	72(22.2)	28.62	14.25	1.73	27.14	13.73	1.93	25.53	13.18	2.14	23.83	12.61	2.37	21.98	11.99	2.62	19.92	11.32	2.88
800	67(19.4)	26.18	17.67	1.72	24.84	17.16	1.91	23.40	16.61	2.13	21.88	16.05	2.36	20.22	15.43	2.61	18.38	14.76	2.87
	62 (16.7)	24.02	21.07	1.71	22.85	20.54	1.90	21.63	21.51	2.12	20.48	20.48	2.35	19.20	19.20	2.60	17.75	17.75	2.86
	57 (13.9)	23.64	23.64	1.71	22.68	22.68	1.90	21.62	21.62	2.12	20.48	20.48	2.35	19.20	19.20	2.60	17.75	17.75	2.86
	72 (22.2)	28.99	14.87	1.77	27.45	14.34	1.96	25.78	13.78	2.18	24.03	13.20	2.41	22.12	12.57	2.66	20.00	11.89	2.92
900	67 (19.4)	26.54	18.68	1.76	25.15	18.16	1.95	23.66	17.61	2.17	22.09	17.03	2.40	20.38	16.40	2.65	18.50	15.71	2.91
	62 (16.7)	24.51	22.41	1.75	23.41	23.41	1.94	22.28	22.28	2.16	21.06	21.06	2.39	19.70	19.70	2.64	18.15	18.15	2.91
	57(13.9)	24.45	24.45	1.75	23.41	23.41	1.94	22.28	22.28	2.16	21.06	21.06	2.39	19.70	19.70	2.64	18.15	18.15	2.91

See notes on pg. 13

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38HDR

### **DETAILED COOLING CAPACITIES\* (CONT.)**

EVADO	ATOR AIR								CONDENSER	R ENTERING A	IR TEMPER	ATURES °F (	(°C)						
EVAPOR			75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)	)
CFM	EWB	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total
CFIN	° F (° C)	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**	Total	Sens‡	System KW**
							38HDI	R030 Outdo	or Section Wi	th CNPV*3014	A** Indoor	Section							
	72 (22.2)	33.74	16.03	2.06	32.29	15.52	2.29	30.76	14.99	2.54	29.12	14.43	2.81	27.36	13.84	3.11	25.42	13.19	3.44
875	67(19.4)	30.65	19.58	2.06	29.32	19.06	2.29	27.90	18.51	2.54	26.39	17.94	2.81	24.76	17.34	3.11	22.97	16.69	3.43
0/5	62 (16.7)	28.07	23.01	2.07	26.73	22.59	2.29	25.47	22.03	2.54	24.10	21.45	2.81	22.76	22.72	3.11	21.45	21.45	3.43
	57 (13.9)	27.14	27.14	2.07	26.16	26.16	2.29	25.11	25.11	2.53	24.01	24.01	2.80	22.78	22.78	3.11	21.43	21.43	3.43
	72(22.2)	34.29	16.79	2.11	32.87	16.29	2.34	31.28	15.69	2.58	29.58	15.18	2.86	27.57	14.54	3.17	25.64	13.91	3.49
1000	67(19.4)	31.27	20.81	2.11	29.84	20.29	2.34	28.40	19.75	2.58	26.82	19.17	2.86	24.99	18.52	3.16	23.21	17.87	3.49
1000	62 (16.7)	28.72	24.92	2.11	27.38	24.26	2.34	26.11	26.11	2.58	24.94	24.94	2.85	23.54	23.54	3.16	22.22	22.22	3.48
	57 (13.9)	28.28	28.28	2.11	27.23	27.23	2.34	26.13	26.13	2.58	24.94	24.94	2.85	23.54	23.54	3.16	22.22	22.22	3.48
	72 (22.2)	34.76	17.52	2.16	33.30	17.00	2.39	31.65	16.46	2.63	29.90	15.89	2.91	28.03	15.27	3.21	25.95	14.60	3.53
1125	67 (19.4)	31.86	21.48	2.16	30.25	21.46	2.38	28.76	20.92	2.63	27.14	20.32	2.90	25.39	19.69	3.21	23.44	18.98	3.54
1125	62 (16.7)	29.27	29.04	2.16	28.12	28.12	2.38	26.98	26.98	2.63	25.71	25.71	2.90	24.35	24.35	3.20	22.84	22.84	3.53
	57(13.9)	29.23	29.23	2.16	28.13	28.13	2.38	26.99	26.99	2.63	25.71	25.71	2.90	24.23	24.23	3.21	22.85	22.85	3.53
EVAPOR	ATOR AIR								CONDENSER	RENTERING A	IR TEMPER	ATURES °F (	(°C)						
			75 (23.9)			85 (29.4)			95 (35)			105 (40.6)	)		115 (46.1)			125 (51.7)	
CFM	EWB	Capacit	y MBtuh†	Total System	Capacit	y MBtuh†	Total Svstem	Capacit	y MBtuh†	Total System	Capacit	y MBtuh†	Total System	Capacit	y MBtuh†	Total	Capacit	y MBtuh†	Total System
CFIVI	° F (° C)	Total	Sens‡	KW**	Total	Sens‡	KW**	Total	Sens‡	KW**	Total	Sens‡	KW**	Total	Sens‡	System KW**	Total	Sens‡	KW**
							38HDI	R036 Outdo	or Section Wi	th CNPV*4221	A** Indoor	Section		1					
	72 (22.2)	39.85	18.85	2.42	38.03	18.23	2.68	36.08	17.58	2.98	33.99	16.89	3.30	31.72	16.14	3.65	29.20	15.33	4.03
1050	67(19.4)	36.33	23.19	2.42	34.67	22.57	2.68	32.91	21.91	2.98	31.02	21.23	3.30	28.99	20.49	3.65	26.73	19.69	4.04
1050	62 (16.7)	33.23	27.51	2.42	31.75	26.88	2.68	30.20	26.20	2.98	28.60	28.45	3.30	27.06	27.06	3.65	25.34	25.34	4.03
	57 (13.9)	32.46	32.46	2.42	31.26	31.26	2.68	29.98	29.98	2.98	28.59	28.59	3.30	27.06	27.06	3.65	25.34	25.34	4.03
	72(22.2)	40.51	19.77	2.48	38.61	19.14	2.74	36.57	18.47	3.04	34.40	17.77	3.36	32.04	17.01	3.71	29.42	16.18	4.09
1200	67(19.4)	36.97	24.67	2.48	35.23	24.04	2.74	33.40	23.38	3.04	31.45	22.68	3.36	29.33	21.93	3.71	27.00	21.10	4.09
1200	62 (16.7)	34.01	29.52	2.48	32.53	32.23	2.74	31.11	31.11	3.04	29.61	29.61	3.36	27.97	27.97	3.71	26.12	26.12	4.09
	57 (13.9)	33.78	33.78	2.48	32.49	32.49	2.74	31.11	31.11	3.04	29.62	29.62	3.36	27.97	27.97	3.71	26.12	26.12	4.09
	72 (22.2)	40.99	20.64	2.54	39.02	19.99	2.80	36.91	19.31	3.09	34.67	18.60	3.42	32.24	17.83	3.77	29.54	16.99	4.15
	67 (19.4)	37.43	26.09	2.54	35.65	25.45	2.80	33.76	24.78	3.10	31.75	24.06	3.42	29.58	23.29	3.77	27.20	22.42	4.15
1350		04.96	34.86	2.54	33.49	33.49	2.80	32.02	32.02	3.10	30.44	30.44	3.42	28.70	28.70	3.77	26.73	26.73	4.15
1350	62 (16.7)	34.86	34.00	2.54	00.43	33.49	2.80	OE.OE	02.02	0.10	30.44	00.44	3.42	20.10	2011 0	3.77	26.73	26.73	

See notes on pg. 13

#### CONDENSER ENTERING AIR TEMPERATURES °F (°C) EVAPORATOR AIR 75 (23.9) 85 (29.4) 95 (35) 105 (40.6) 115 (46.1) 125 (51.7) Capacity MBtuht Total Capacity MBtuht Total Capacity MBtuh† Total Capacity MBtuh† Total Capacity MBtuht Total Capacity MBtuh† Total FWB CFM Svstem System Svstem System System System °F (°C) Total Total Total Sens‡ Total Sens‡ Total Total Senst Sens‡ Senst Sens‡ **KW\*\* K**W\*\* **KW\*\* KW**\*\* **KW\*\* KW\*\*** 48 Outdoor Section With CNPV\*4821A\*\* Indoor Section 38HDR0 57.22 54.16 50.83 23.69 43.24 38.87 72 (22.2) 27.09 3.31 26.03 3.74 24.90 4.20 47.23 4.69 22.38 5.21 20.99 5.76 67(19.4) 52.21 33.21 3.33 49.49 32.17 3.76 46.57 31.08 4.22 43.40 29.91 4.71 39.95 28.66 5.23 36.03 27.26 5.77 1460 62 (16.7) 47.74 39.31 3.35 45.37 38.29 3.78 42.88 37.19 4.23 40.25 39.91 4.72 37.64 37.64 5.23 34.63 34.63 5.78 57 (13.9) 46.44 46.44 3.36 44.53 44.53 3.78 42.48 42.48 4.23 40.21 40.21 4.72 37.65 37.65 5.23 34.63 34.63 5.78 72(22.2) 58.13 28.26 3.37 54 91 27.17 3.81 51.42 26.01 4 27 47.67 24.78 4.76 43.52 23 45 5.28 39.26 22.10 5 84 67(19.4) 53.07 35.09 3.40 50.21 34.03 3.83 47.16 32.91 4.29 43.87 31.73 4.78 40.28 30.44 5.30 36.23 28.99 5.85 1650 62 (16.7) 48.75 41.89 3.42 46.32 40.79 3.85 43.85 43.85 4.30 41.42 41.42 4.79 38.64 38.64 5.31 35.37 35.37 5.85 57 (13.9) 48.17 48.17 3.43 46.11 46.11 3.85 43.88 43.88 4.30 41.42 41.42 4.79 38.64 38.64 5.31 35.37 35.37 5.85 25.87 5.36 72 (22.2) 58.83 29.41 3.45 55.48 28.31 3.88 51.86 27.12 4.35 47.97 4.84 43.73 24.52 39.89 23.26 5.92 67 (19.4) 53.74 36.97 50.78 35.90 3.91 47.62 34.76 4.37 44.22 33.55 4.86 40.51 32.22 5.38 30.70 3 48 36 39 5.93 1850 45.09 42.44 62 (16.7) 49.74 44.35 3.50 47.48 47.48 3.92 45.09 4.38 42.44 4.87 39.46 39.46 5.38 35.96 35.96 5.93 49.69 57(13.9) 49.69 3.50 47.49 47.49 3.92 45.09 45.09 4.38 42.45 42.45 4.87 39.46 39.46 5.38 35.97 35.97 5.93 CONDENSER ENTERING AIR TEMPERATURES °F (°C) EVAPORATOR AIR 75 (23.9) 85 (29.4) 95 (35) 105 (40.6) 115 (46.1) 125 (51.7) Total Total Total Total Total Total Capacity MBtuh† Capacity MBtuh† Capacity MBtuh† Capacity MBtuh† Capacity MBtuh† Capacity MBtuh† EWB CFM System System System System System System °F (°C) Total Sens‡ Total Sens‡ Total Sens‡ KW\*\* Total Sens‡ KW\*\* Total Sens‡ KW\*\* Total Sens‡ **ќ**₩\*\* **ќ**₩\*\* **ќ**₩\*\* 60 Outdoor Section W CNPV\*602 \*\* Indoor Section 38HDF 72 (22.2) 68.88 33.36 4.20 65.13 32.05 4.64 60.97 30.62 5.12 56.47 29.10 5.64 51.66 27.52 6.20 46.31 25.80 6.80 67(19.4) 63.28 41.18 4.15 59.98 39.91 4.59 56.34 38.52 5.08 52.38 37.05 5.60 48.00 35.44 6.17 43.23 33.69 6.77 1750 46.30 48.95 55.37 47.69 4.55 52.27 5.04 48.85 5.57 45.63 45.63 6.15 41.69 62 (16.7) 58.24 4.11 48.91 41.69 6.76 57 (13.9) 56.77 56.77 4.09 54.45 54.45 4.54 51.86 51.86 5.03 48.95 48.95 5.57 45.63 45.63 6.15 41.69 41.69 6.76 72(22.2) 69.89 34.93 4.31 65.94 33.59 4.75 61.58 32.12 5.23 56.96 30.59 5.74 52.01 29.02 6.31 47.30 27.45 6.92 67(19.4) 64.28 43.75 4.26 60.81 42.45 4.70 57.00 41.04 5.18 52.88 39.53 5.71 48.32 37.86 6.27 43.82 36.17 6.88 2000 53.58 46.78 59 48 52.47 56 55 4 66 53 58 50 40 50.40 5 68 46 78 6 26 42 62 62 (16.7) 4 22 51 08 5 15 42 62 6 87 58.96 58.96 56.42 53.58 53.58 50.40 50.40 5.68 46.78 6.26 42.60 42.60 57 (13.9) 4.21 56 42 4 66 5.15 46.78 6.87 72 (22.2) 70.60 36.41 4.42 66.50 35.04 4.86 61.97 33.55 5.33 57.25 32.02 5.85 52.14 30.44 6.41 48.41 29.01 7.04 67 (19.4) 65.01 46.21 4.37 61.41 44.89 4.81 57.46 43.44 5.29 53.20 41.88 5.81 48.56 40.17 6.37 44.28 38 42 6.99 2250 62 (16.7) 60.67 60.67 4.33 58.00 58.00 4.78 54.94 54.94 5.26 51.52 51.52 5.79 47.63 47.63 6.36 43.18 43.18 6.98 54.94 51.52 57(13.9) 60.73 60.73 4.33 58.00 58.00 54.94 5.26 51.52 5.79 47.63 47.63 6.36 43.14 43.14 4.78 6.98

### **DETAILED COOLING CAPACITIES\* (CONT.)**

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NOTE: When the required data fall between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

\* Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per the latest edition of AHRI standard 210/240. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80° F (27° C) entering air at the indoor coil. For sensible capacities at other than 80° F (27° C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree below 80° F (27° C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80° F (27° C). When the required data fall between the published data, interpolation may be performed.

\*\* Total system kW is total of indoor and outdoor unit kilowatts.

TSS				CONDENSE	CONDENSER ENTERING AIR TEMPERATURES °F (°C)	R TEMPERATU	RES °F (°C)
°F (°C)		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)
			·	38HDR018-31	018-31	·	ļ
	TCG	16.20	15.30	14.30	13.40	12.40	11.40
30 (- 1.6)	SDT	67.40	77.00	86.50	96.00	105.50	114.90
	KW	0.86	0.98	1.11	1.26	1.42	1.59
	TCG	17.90	16.90	15.90	14.80	13.80	12.70
35 (1.7)	SDT	68.50	78.00	87.50	97.00	106.40	115.80
	KW	0.86	0.98	1.11	1.26	1.42	1.59
	TCG	19.70	18.60	17.50	16.40	15.20	14.10
40 (4.4)	SDT	69.70	79.10	88.60	98.00	107.40	116.80
	KW	0.85	0.97	1.11	1.26	1.42	1.60
	TCG	21.60	20.40	19.20	18.00	16.80	15.50
45 (7.2)	SDI	70.90	80.30	89.70	1 00	108.40	117.70
	TCG	23.60	22.30	21.10	19.70	18.40	17.00
50 (10)	SDT	72.20	81.50	90.80	100.10	109.40	118.60
	КW	0.85	0.97	1.11	1.26	1.42	1.60
	TCG	25.70	24.30	22.90	21.50	20.00	18.60
55 (12.8)	SDT	73.50	82.70	92.00	101.20	110.40	119.60
	KW	0.85	0.97	1.10	1.25	1.42	1.60
				38HDR024-32	024-32		
	TCG	22.10	20.90	19.60	18.30	16.90	15.50
30 (-1.6)	SDT	69.00	78.50	88.00	97.40	106.80	116.10
	КW	1.08	1.24	1.41	1.60	1.80	2.02
	TCG	24.30	23.00	21.70	20.30	18.80	17.20
35 (1.7)	SDT	70.30	79.80	89.20	98.60	107.90	117.10
	ΚW	1.09	1.24	1.42	1.61	1.82	2.04
	TCG	26.80	25.30	23.90	22.30	20.70	19.00
40 (4.4)	SDT	71.70	81.10	90.50	99.80	109.10	118.20
	KW	1.10	1.26	1.43	1.62	1.83	2.06
	TCG	29.40	27.80	26.20	24.50	22.70	20.90

38HDR

See notes on page 15	55 (12.8)			50 (10)		45 (7.2)		40 (4.4)			35 (1.7)		30 (-1.6)			55 (12.8)		50 (10)			45 (7.2)		40 (4.4)		35 (1.7)		ou (- 1.o)	20 1-1 61		0.71) 66	SE (1) 8)		50 (10)		45 (7.2)		40 (4.4)		35 (1.7)		30 (- I.8)	201 1 00		55 (12.8)		50 (10)		45 (7.2)		40 (4.4)		35 (1.7)		(o.1 - ) oo	20 / - 1 6)	°F (°C)
age 15	SDT	TCG	KW .	SDT	TON NA	SDT	TCG	SDT	TCG	KW.	SDT	KW	SDT	TCG	KW	SDT	TCG	SDT	TCG	KW	SDT	TOO NA	SDT	TCG	SDT	TCG	KW		TOO T	KN -	TCG	KW	SDT	KW	SDT	TCG	SDT	TCG	SDT	TCG	KN -	TCG	KW	SDT	TCG	SDT	TCG	SDT	TCG	SDT	TCG	KW	TCG	KV -		
	77.40	48.00	1.52	43.90 75.90	1.51	74.60	40.10	73.30	36.50	1.50	72.00	33 20	70.90	30.10	1.32	78.30	41.70	1 20	38.20	1.31	34.80 75.60	1.31	74.30	31.70	73.10	28.80	1.30	26.20	0000	1.13	35.00	1.12	74.80	32 10	73.20	29.40	71.70	26.80	1.09	24.30	1.08	22.10	0.85	73.50	25.70	72.20	23.60	0.90	21.60	69.70	19.70	0.86	17.90	0.86	16.20	55 (12.8)
	87.10	45.70	1.73	41./U 85.80	1.72	84.40	38.10	4 70	34.60	1.71	82.00	1.71	80.80	28.50	1.51	88.50	39.70	1 50	36.20	1.50	33.10 85.90	1.49	84.70	1.49 30.10	1 /0	27.30	02.30 1.48	24.70 82 30	07 70	1.29	33.10	1.28	84.10	30 40	82.60	27.80	81.10	25.30	79.80	23.00	1.24	20.90	0.97	82.70	24.30	81.50	22.30	0 <u>9</u> 7	20.40	79.10	18.60	/8.00	16.90	0.98	15.30	65 (18.3)
	97.00	43.30	1.97	39.50 95.70	1.96	94.40	36.00	93.20	32.70	1.95	29.00	1.94 20 70	90.90	26.80	1.72 38HDE	98.90	37.60	97.60	34.30	1.71	31.20 96.40	1.70	95.20	28.40	94.00	25.70	1.69	23.20	38HDF	1.47	31.20	1.46	93.30	1.44 28 60	91.90	1.43 26.20	90.50	23.90	1.42	21.70	1.41	19.60	1.10 38HDF	92.00	22.90	90.80	21.10	89.70	19.20	1 11	17.50	87.50 1.11	15.90	1.11	14.30	CONDENSE 75 (23.9) 38HDF
							2.22 33.80		30.70	2.21	102.10	2.20	101.00	25.10	1.96	109.40	35.50	108.20	32.30	1.95	29.40 107.10	1.94	105.90	26.60	104.80	24.10	1.69 1.92	103 80	1030-31	1.66	29.10	1.65	102.40	1.64	101.10	1.62 24.50	1 80	22.30	98.60 1.61	20.30	97.40 1.60	18.30	0.9/ 1.10 1.25 1.42 38HDR024-32	101.20	21.50	100.10	19.70	1 26	18.00	98.00	16.40	97.00 1.26	14.80	1.26	13.40	CONDENSER ENTERING AIR TEMPERATURES °F (° C) 75 (23.9) 85 (29.4) 95 (35) 105 (40.6) 38HDR018–31
1.00	116.70 255	38.30	2.54	34.90 115.50	2.51	113.80	31.70	113.40										119.20	30.30	2.22	27.40 118.10	2.22	117.10	24.80	116.10	22.40	2.19	20.10	000	1.88	26.90	1.86	111.50	1.85 24.80	110.20	22.70	109.10	20.70	107.90	18.80	1.80	16.90	1.42	110.40	20.00	109.40	18.40	108.40	16.80	107.40	15.20	1.42	13.80	1.42	12.40	IR TEMPERATU 95 (35)
	126.80	35.70	2.89	32.40 125.90	2.86	124.50	29.40	123.60	26.60	2.85	122.80	2.83	121.60	21.50	2.55	131.20	31.10	130.30	28.20	2.54	129.40	2.53	128.60	23.00	127.70	20.60	2.50	18.40	10 10	2.10	24.60	2.09	120.40	2.08	119.30	20.90	118.20	19.00	2 04	17.20	2.02	15.50	1.60	119.60	18.60	118.60	17.00	117.70	15.50	116.80	14.10	115.80	12.70	1.59	11.40	JRES °F (°C) 105 (40.6)
0.10	137.00	33.10	3.27	30.00 136.20	3.26	135.20	3.23 27.10	134.10	24.40	3.21	133.30	3.19	132.30	19.60	2.89	141.80	29.00	141.10	26.20	2.88	140.60	2.87	140.00	21.20	139.50 3 86	18.90	2.84	130.00		2.35	130 20	2.33	129.20	2.32	128.30	18.90	127.30	17.20	126.30	15.60	2.25	14.00													10.30	÷
0.00	146.70 3.66	30.50	3.66	146.00	3.65	145.30	3.03 24.80	144.50	22.30	3.60	143.80	3.58	143.30	17.60	3.20	150.90	27.10	3 20	24.40	3.19	21.90 150.10	3.18	149.70	دا .5 19.60	3 15	17.40	140.90 3.12	15.30		2.60	19.50	2.59	137.90	2.57	137.10	2.55 16.70	136.30	15.30	135.40	13.80	2.48	12.40	2.00	137.70	15.40	136.90	14.10	2 00	12.80	135.30	11.60	1.34.50	10.40	1.96	9.20	125 (51.7)

See notes on page 15

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### **CONDENSER ONLY RATINGS\* CONTINUED**

SST				CONDENSE	R ENTERING A	<b>R TEMPERATU</b>	RES °F (°C)		
°F (°C)		55 (12.8)	65 (18.3)	75 (23.9)	85 (29.4)	95 (35)	105 (40.6)	115 (46.1)	125 (51.7)
				38HDR	048-32				
	TCG	48.40	45.50	42.50	39.50	36.20	32.90	30.60	28.10
30 (-1.6)	SDT	67.90	77.30	86.70	96.00	105.40	114.70	124.30	133.80
	KW	2.05	2.39	2.75	3.15	3.56	4.01	4.49	5.00
	TCG	53.40	50.20	46.90	43.40	39.60	35.70	34.00	25.50
35 (1.7)	SDT	69.10	78.40	87.80	97.00	106.20	115.40	125.10	133.00
	KW	2.02	2.37	2.74	3.14	3.56	4.01	4.51	4.99
	TCG	58.70	55.10	51.40	47.50	43.10	38.30	33.00	27.10
40 (4.4)	SDT	70.40	79.60	88.90	98.00	107.10	116.10	124.80	133.40
. ,	KW	1.99	2.35	2.72	3.13	3.55	4.01	4.49	4.99
	TCG	64.30	60.30	56.20	51.60	46.90	41.20	35.20	28.90
45 (7.2)	SDT	71.80	80.90	90.00	99.10	108.10	116.80	125.40	133.80
	KW	1.96	2.32	2.70	3.11	3.54	4.00	4.48	4.99
	TCG	70.30	65.80	61.10	55.80	50.40	44.20	37.30	34.60
50 (10)	SDT	73.30	82.30	91.20	100.10	108.90	117.50	125.90	135.30
, í	KW	1.92	2.29	2.68	3.09	3.52	3.98	4.46	5.01
	TCG	76.50	71.40	66.00	60.30	54.00	47.00	50.70	41.10
55 (12.8)	SDT	74.80	83.60	92.50	101.20	109.80	118.20	129.40	137.00
. ,	KW	1.88	2.25	2.64	3.06	3.49	3.95	4.57	5.05
			1	38HDR	060-32	1		1	1
	TCG	59.30	55.30	50.90	46.20	40.40	37.90	33.80	30.30
30 (-1.6)	SDT	70.10	79.30	88.40	97.40	106.20	115.80	124.90	134.20
, ,	KW	2.59	2.93	3.31	3.73	4.19	4.72	5.31	5.90
	TCG	64.70	60.20	55.50	50.00	43.30	42.40	31.50	33.10
35 (1.7)	SDT	71.40	80.50	89.50	98.40	106.90	116.90	124.20	134.90
` ´	KW	2.62	2.97	3.34	3.76	4.21	4.76	5.25	5.93
	TCG	69.90	65.30	60.10	53.80	55.90	47.40	31.70	35.60
40 (4.4)	SDT	72.70	81.70	90.60	99.30	110.10	118.10	124.20	135.50
` ´	KW	2.66	3.00	3.38	3.78	4.34	4.81	5.24	5.96
	TCG	76.00	70.80	64.80	57.40	56.00	54.60	48.50	47.70
45 (7.2)	SDT	74.10	83.00	91.80	100.20	110.00	119.90	128.60	138.80
	KW	2.71	3.04	3.40	3.80	4.32	4.89	5.43	6.08
	TCG	82.20	76.70	69.30	70.90	61.80	58.60	30.50	52.10
50 (10)	SDT	75.60	84.40	92.80	103.40	111.40	120.90	123.80	139.80
· /	KW	2.75	3.09	3.42	3.99	4.38	4.93	5.16	6.13
	TCG	95.20	87.70	88.40	74.60	75.40	53.90	46.10	60.30
55 (12.8)	SDT	78.80	87.10	97.50	104.30	114.70	119.50	127.70	141.70
` '	KW	2.85	3.13	3.74	3.95	4.56	4.78	5.33	6.25

\* AHRI listing applies only to systems shown in Combination Ratings table.

**KW** – Outdoor Unit Kilowatts Only.

**SDT** – Saturated Temperature Leaving Compressor (° F)

SST - Saturated Temperature Entering Compressor (° F/° C)

TCG - Gross Cooling Capacity (1000 Btuh)

### GUIDE SPECIFICATIONS GENERAL

#### System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air horizontally as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

#### **Quality Assurance**

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.
- Unit cabinet will be capable of withstanding Federal Test

Method Standard No. 141 (Method 6061) 500-hr salt spray test.

- Air-cooled condenser coils will be leak tested and pressure tested
- Unit constructed in ISO9001 approved facility.

#### Delivery, Storage, and Handling

 Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

#### Warranty (for inclusion by specifying engineer)

— U.S. and Canada only.

### PRODUCTS

#### Equipment

— Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron<sup>®</sup> (R-410A), and special features required prior to field start-up.

#### Unit Cabinet

— Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

#### Fans

— Condenser fan will be direct-drive propeller type, discharging air horizontally.

#### AIR-COOLED, SPLIT-SYSTEM AIR CONDITIONER 38HDR 1-1/2 TO 5 NOMINAL TONS

## Condenser fan motors will be totally enclosed, 1-phase

- type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

### Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

### Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

### Refrigeration Components

- Refrigeration circuit components will include liquid-line front-seating shutoff valve with sweat connections, vapor-line front-seating shutoff valve with sweat connections, system charge of Puron<sup>®</sup> (R-410A) refrigerant, and compressor oil.
- Unit will be equipped with high-pressure switch, low pressure switch and filter drier for Puron refrigerant.

#### **Operating Characteristics**

- The capacity of the unit will meet or exceed Btuh at a suction temperature of \_\_\_\_\_ °F/°C. The power consumption at full load will not exceed \_\_\_\_\_ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of Btuh or greater at conditions of \_\_\_\_\_ CFM entering air temperature at the evaporator at \_\_\_\_\_ °F/°C wet bulb and \_\_\_\_\_ °F/°C dry bulb, and air entering the unit at \_\_\_\_\_ °F/°C.
- The system will have a SEER of \_\_\_\_\_ Btuh/watt or greater at DOE conditions.

### **Electrical Requirements**

- Nominal unit electrical characteristics will be \_\_\_\_\_v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of \_\_\_\_\_v to \_\_\_\_\_v.
- Nominal unit electrical characteristics will be v, three phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of v to v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

### **Special Features**

 Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

# **38HDR**

### SYSTEM DESIGN SUMMARY

- 1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
- 2. Minimum outdoor operating air temperature without low-ambient operation accessory is 55°F (12.8°C).
- 3. Maximum outdoor operating air temperature is 125°F (51.7°C).
- 4. For reliable operation, unit should be level in all horizontal planes.
- 5. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or 35 ft (10.7 m) vertical differential, consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
- 6. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
- 7. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
- 8. Do not apply capillary tube indoor coils to these units.
- 9. Factory-supplied filter drier must be installed.

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Replaces: 38HDR-3PD

## **ATTACHMENT 3**

## SoundPLAN Data

## **Construction Equipment Noise Levels**

Noise Levels

Sound Level From One Working Area (three loudest Pieces of Equipment)	Directionality Factor (1 = in air) (2 = over flat plane) (4 = against wall) (8 = corner of a room)	Sound Power Level From One Working Area (dBA)	Sound Power Level From Three Working Areas (dBA)
82.0 dB(A) at 50 feet	2	113.6	118.4

SoundPlan Parameters

Source name	Reference	Sound Power Level dB(A)
Disturbance Area	Lw/unit	118.4

### SoundPlan Output

No.	Receiver name		Coordinates (in meters)		Noise Level
106.	Receiver fidille	Х	Y	Height	dB(A)
1	1	496,144.90	3,625,986.56	129.80	63.5
2	2	496,239.51	3,625,971.95	131.40	64.1
3	3	496,279.30	3,625,968.11	135.60	65.4
4	4	496,319.62	3,625,943.50	142.90	62.4
5	5	496,398.35	3,625,963.39	134.60	65.6
6	6	496,492.66	3,625,952.90	146.30	64.2
7	7	496,524.08	3,625,963.47	146.30	64.3
8	8	496,569.99	3,625,963.64	148.70	64.1
9	9	496,602.15	3,625,953.05	148.10	61.0
10	10	496,628.73	3,625,976.15	140.70	65.6
11	11	496,664.53	3,625,994.87	139.50	68.4
12	12	496,710.88	3,625,985.93	145.30	60.5

### **Emissions Transportation Noise**

SoundPlan Vehicle Traffic Parameters

Stationing (km)	ADT (Veh/24h)	Traffic values Vehicles type	Vehicle name	day (Veh/h)	Speed (km/h)	Control device	Constr. Speed (km/h)	Affect. veh. (%)		Road surface	Gradient Min / Max (%)
I-8 Eastbou	und Traffic	direction: In entry	/ direction								
0+139	100800	Total	-	6720	-	-	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Automobiles	-	6498	-	105	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Medium trucks	-	134	-	105	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Heavy trucks	-	87	-	105	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Buses	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Motorcycles	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.165
0+139	100800	Auxiliary vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.165
2+165	-	-	-	-	-	-					
I-8 Westbo	ound Traffic	direction: In entr	v direction								
0+139	86400	Total	-	5760	-	-	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Automobiles	-	5570	-	105	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Medium trucks	-	115	-	105	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Heavy trucks	-	75	-	105	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Buses	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Motorcycles	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.747
0+139	86400	Auxiliary vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.747
2+175	-	-	-	-	-	-					
Alvarado R	Road Traffic	direction: In ent	ry direction								
0+139	94500	Total	-	6300	-	-	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Automobiles	-	6092	-	56	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Medium trucks	-	126	-	56	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Heavy trucks	-	82	-	56	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Buses	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Motorcycles	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.866
0+139	94500	Auxiliary vehicle	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.866
1+444	-	-	-	-	-	-				, ,	

#### SoundPlan Trolley Parameters

Track Station	C	oordinates of track ax	is	N	umber of tra	ains	Length per Train		Corrected Emission level dB(A)		
(km)	х	Y	Z	Day	Evening	Night	(m)	(km/h)	Day	Evening	Night
SDMTS Gr 0+995 2+785	reen Line1 495,610.756 497,330.025	3,626,244.691	rection: 128.49 131.22	Section: 96 -	1 Km: 18 -	0+995 23 -	Lm,E25: 6 100 -	0.6 / 59.4 48 -	/ 55.7 60.6 60.6 60.6	59.4 59.4 59.4	55.7 55.7 55.7

### **Emissions On-site Generated Noise**

### Noise Levels

Number of Units	Sound Power Level (dBA)
1.0-unit(s)	72.0
6.0-unit(s)	79.8
8.0-unit(s)	81.0
10.0-unit(s)	82.0
12.0-unit(s)	82.8
14.0-unit(s)	83.5
16.0-unit(s)	84.0
22.0-unit(s)	85.4
24.0-unit(s)	85.8
30.0-unit(s)	86.8
36.0-unit(s)	87.6
54.0-unit(s)	89.3

#### SoundPlan Parameters

	- í	Sound Power Level
Source name	Reference	dB(A)
Building 1 Array 1	Lw/unit	82.0
Building 1 Array 2	Lw/unit	82.0
Building 1 Array 3	Lw/unit	82.0
Building 1 Array 4	Lw/unit	82.0
Building 1 Array 5	Lw/unit	82.0
Building 1 Array 6	Lw/unit	82.0
Building 2 Array 1	Lw/unit	84.0
Building 2 Array 2	Lw/unit	84.0
Building 2 Array 3	Lw/unit	84.0
Building 2 Array 4	Lw/unit	84.0
Building 2 Array 5	Lw/unit	84.0
Building 2 Array 6	Lw/unit	84.0
Building 2 Array 7	Lw/unit	84.0
Building 2 Array 8	Lw/unit	84.0
Building 2 Array 9	Lw/unit	84.0
Building 2 Array 10	Lw/unit	84.0
Building 2 Array 11	Lw/unit	82.8
Building 2 Array 12	Lw/unit	85.4
Building 2 Array 13	Lw/unit	87.6
Building 2 Array 14	Lw/unit	82.8
Building 3 Array 1	Lw/unit	89.3
Building 3 Array 2	Lw/unit	84.0
Building 3 Array 3	Lw/unit	84.0
Building 3 Array 4	Lw/unit	84.0
Building 3 Array 5	Lw/unit	84.0
Building 3 Array 6	Lw/unit	84.0
Building 3 Array 7	Lw/unit	84.0
Building 3 Array 8	Lw/unit	84.0
Building 3 Array 9	Lw/unit	81.0
Building 3 Array 10	Lw/unit	84.0
Building 3 Array 11	Lw/unit	84.0
Building 3 Array 12	Lw/unit	84.0
Building 3 Array 13	Lw/unit	84.0
Building 3 Array 14	Lw/unit	84.0
Building 3 Array 15	Lw/unit	86.8
Building 4 Array 1	Lw/unit	83.5
Building 4 Array 2	Lw/unit	84.0
Building 4 Array 3	Lw/unit	84.0
Building 4 Array 4	Lw/unit	84.0
Building 4 Array 5	Lw/unit	84.0
Building 4 Array 6	Lw/unit	84.0
Building 4 Array 7	Lw/unit	79.8
Building 4 Array 8	Lw/unit	84.0
Building 4 Array 9	Lw/unit	84.0
Building 4 Array 10	Lw/unit	84.0
Building 4 Array 10	Lw/unit	82.8
Building 4 Array 12	Lw/unit	85.8
Building 4 Array 12 Building 4 Array 13	Lw/unit	83.8
Building 4 Array 13	Lw/unit	84.0
Building 4 Array 15	Lw/unit	84.0
Building 4 Array 15	Lw/unit	84.0
Building 4 Array 10 Building 4 Array 17	Lw/unit	82.8
Dunung 4 Allay 17	Lw/unit	02.0

#### Emissions Traffic Noise

SoundPlan Output

No.		Receiver name	Co X	ordinates (in meters Y	) Height	Floor	Unmitigated Noise Level dB(A)	Mitigated Noise Level dB(A)
1	1-1	Building 1 Patio Above Cafe	496,214.85	3,626,039.78	129.06	GF	80	65
3	1-2 1-3	Building 1 Western Sky Deck Building 1 Eastern Sky Deck	496,149.17 496,215.31	3,626,027.83 3,626,033.52	141.76 141.80	GF GF	70 75	63 65
			1001 15 00		129.10 132.30	GF 1.FI	78	78
4	1-4	Building 1 Facade North	496145.39	3626032.18	135.50	2.FI 3.FI	78	78
		1			129.10	GF	79	79
5	1-5	Building 1 Facade North	496163.21	3626038.09	132.30 135.50	1.FI 2.FI	80 80	80 80
					138.70 141.90	3.FI 4.FI	79	79
					129.10	GF	79	79
6	1-6	Building 1 Facade North	496183.32	3626039.9	132.30 135.50	1.FI 2.FI	80 80	80 80
		-			138.70	3.FI	80	80
					141.90 129.10	4.FI GF	79 78	79 63
7	1-7	Building 1 Facade North	496210.31	3626037.72	132.30	1.FI 2.FI	79	76
					138.70	3.FI	79	79
					141.90 129.10	4.FI GF	78	78
8	1-8	Building 1 Facade East	496222.71	3626027.61	132.30 135.50	1.FI 2.FI	73 73	72 73
0		Building 11 doubt Edit	HOULLETT	0020027.01	138.70	3.FI	73	73
					141.90 129.10	4.FI GF	73 33	73 33
9	1-9	Building 1 Facade South	496207.84	3626021.95	132.30 135.50	1.FI 2.FI	35 37	35 37
5	15	Building 11 dedee count	400201.04	0020021.00	138.70	3.FI	41	41
					141.90 129.10	4.FI GF	46 36	46 36
10	1-10	Duilding 4 Franks Couth	496189.06	3626021.92	132.30	1.FI	35	35
10	1-10	Building 1 Facade South	496189.06	3626021.92	135.50 138.70	2.FI 3.FI	38 41	38 41
			+		141.90 252.48	4.FI GE	46	46
					255.68	1.FI	72	72
11	1-11	Building 1 Facade South	496156.97	3626023.33	258.88 262.08	2.FI 3.FI	72 72	72 72
					265.28	4.FI	71	71
12	1-12	Building 1 Facade West	496142.78	3626029.13	129.10 132.30	GF 1.FI	75 75	75 75
		- and the second of the second s	400142.70	0020028.13	135.50 138.70	2.FI 3.FI	75 75	75 75
13	2-1	Building 2 Western Sky Deck	496,271.42	3,626,041.29	153.60	GF	68	63
14 15	2-2 2-3	Building 2 Podium Courtyard Building 2 Podium Periphery	496,375.71 496,290.84	3,626,040.89 3,626,024.86	136.10 136.10	GF GF	35 35	35 34
		a contraction of the second se			137.60	GF	79	79
16	2-4	Building 2 Facade North	496300.54	3626052.81	140.70 143.80	1.Fl 2.Fl	79 79	79 79
					146.90	3.FI 4 FI	78 78	78
				1	150.00 137.60	GF	79	79
17	2-5	Building 2 Facade North	496336.5	3626064	140.70 143.80	1.FI 2.FI	79 79	79 79
					146.90	3.FI	79	79
					150.00 137.60	4.FI GF	78 79	78 79
18	2-6	Building 2 Facade North	496372.36	3626074.02	140.70 143.80	1.FI 2.FI	79	79
10	20	Balang 2 Facado Honn	400072.00	0020074.02	146.90	3.FI	79	79
					150.00	4.FI GF	78	78
			100105 70		140.70	1.FI	67	67
19	2-7	Building 2 Facade East	496405.72	3626050.42	143.80 146.90	2.FI 3.FI	69 70	69 70
					150.00	4.FI GF	70 30	70 30
					137.65 140.75	1.FI	36	36
20	2-8	Building 2 Facade South	496398.7	3626008.82	140.75 143.85	1.FI 2.FI	36 36	36 36
20	2-8	Building 2 Facade South	496398.7	3626008.82	140.75 143.85 146.95 150.05	1.Fl 2.Fl 3.Fl 4.Fl	36 36 37 40	36 36 37 40
					140.75 143.85 146.95 150.05 137.60 140.70	1.Fl 2.Fl 3.Fl 4.Fl GF 1.Fl	36 36 37 40 31 32	36 36 37 40 30 32
20	2-8	Building 2 Facade South Building 2 Facade South	496398.7 496348.04	3626008.82 3626013.89	140.75 143.85 146.95 150.05 137.60 140.70 143.80	1.Fl 2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl	36 36 37 40 31 32 33	36 36 37 40 30 32 33
21	2-9	Building 2 Facade South	496348.04	3626013.89	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00	1.Fl 2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl 3.Fl 4.Fl	36 36 37 40 31 32 33 38 40	36 37 40 30 32 33 37 40
21 22 23	2-9 3-1 3-2	Building 2 Facade South Building 3 Podium Courtvard Building 3 Podium Periphery	496348.04 496.496.53 496.525.17	3626013.89 3.626.073.29 3.626.073.20	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00 137.60	1.FI 2.FI 3.FI 4.FI GF 1.FI 2.FI 3.FI 4.FI GF GF	36 36 37 40 31 32 33 38 40 58 67	36 36 37 40 30 32 33 37 40 55 61
21	2-9 3-1	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Veck	496348.04 496.496.53 496.525.17 496.422.24	3626013.89 3,626,073.29 3,626,073.20 3,626,080.78	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00 137.60 137.60 155.10	1.FI 2.FI 3.FI 4.FI 0F 1.FI 2.FI 3.FI 4.FI 0F 0F 0F	36 37 40 31 32 33 38 40 58	36 36 37 40 30 32 33 37 40 55 61 61
21 22 23	2-9 3-1 3-2 3-3	Building 2 Facade South Building 3 Podium Courtvard Building 3 Podium Periphery	496348.04 496.496.53 496.525.17	3626013.89 3.626.073.29 3.626.073.20	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00 137.60 137.60 137.60 137.60 137.5.10 155.10	1.FI 2.FI 3.FI 4.FI 0F 1.FI 2.FI 3.FI 4.FI 0F 0F 0F 0F 0F	36 37 40 31 32 33 38 40 58 67 67 71 67 71 64	36 36 37 40 30 32 33 37 40 55 61 61 61 64 64
21 22 23	2-9 3-1 3-2 3-3	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Veck	496348.04 496.496.53 496.525.17 496.422.24	3626013.89 3,626,073.29 3,626,073.20 3,626,080.78	140.75 143.85 146.95 150.05 137.60 140.70 144.90 150.00 137.60 137.60 137.60 155.10 155.10 155.10 155.10 142.20 145.30	1.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 4.Fl GF GF GF GF GF 5.Fl 2.Fl	36 36 37 40 31 32 38 40 58 67 71 64 68 70	36 36 37 40 30 32 33 37 40 55 61 61 61 61 64 64 64 64 70
21 22 23 24 25	2-9 3-1 3-2 3-3 3-4	Building 2 Facade South Building 3 Podium Courtnard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.24 496,537.21	3626013.89 3,626,073.29 3,626,073.20 3,626,080.78 3,626,111.72	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00 137.60 137.60 137.60 135.10 155.10 155.10 139.10 142.20	1.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 4.Fl GF GF GF GF GF GF 1.Fl	36 36 37 40 31 32 33 38 40 58 67 67 71 64 68	36 36 37 40 30 32 33 37 40 55 61 61 64 64 64 68
21 22 23 24 25	2-9 3-1 3-2 3-3 3-4	Building 2 Facade South Building 3 Podium Courtnard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.24 496,537.21	3626013.89 3,626,073.29 3,626,073.20 3,626,080.78 3,626,111.72	140.75 143.85 146.95 150.05 137.60 140.70 143.80 150.00 137.60 137.60 137.60 137.60 137.60 137.510 155.10 155.10 145.30 142.20 145.30 145.30	1.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 3.FI 4.FI GF GF GF GF 5.FI 2.FI 2.FI 3.FI 4.FI 6F	36 36 37 40 31 32 38 40 40 67 67 67 67 67 67 67 67 71 68 68 70 69 70 79	36 37 40 30 30 32 33 37 40 61 61 61 61 64 64 64 64 65 70 69 70 70 70
21 22 23 24 25	2-9 3-1 3-2 3-3 3-4	Building 2 Facade South Building 3 Podium Courtnard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.24 496,537.21	3626013.89 3,626,073.29 3,626,073.20 3,626,080.78 3,626,111.72	140.75 143.85 146.95 150.05 137.60 140.70 143.80 146.90 150.00 137.60 155.10 155.10 155.10 155.10 142.20 142.30 142.30 148.40	1.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl GF GF GF GF GF 1.Fl 2.Fl 3.Fl 4.Fl	36           37           40           31           32           38           40           58           67           71           64           68           70           69           70	36           37           40           30           32           33           37           40           55           61           64           64           65           70           79           79           79
21 23 24 25 26	2-9 3-1 3-2 3-3 3-4 3-4 3-5	Building 2 Facade South Building 3 Podum Courtnard Building 3 Podum Perphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck Building 3 Facade West	496348.04 496,496,53 496,525,17 496,522,24 496,537,21 496422,3	3626013.89 3.626.073.29 3.626.073.20 3.626.073.20 3.626.080.78 3.626.111.72 3626054.68	140.75 143.85 146.95 150.05 137.60 140.70 140.70 140.70 143.80 146.90 155.10 137.60 137.60 137.60 137.60 139.10 142.20 145.30 145.30 145.30 145.30	1.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI GF GF GF GF 1.FI 2.FI 3.FI 4.FI 2.FI 3.FI	36 36 37 40 31 31 38 38 67 67 71 64 68 67 71 64 68 70 70 79 79 79 79	36 37 40 30 32 32 37 37 37 40 40 40 40 40 40 40 40 40 40 40 40 40
21 23 24 25 26	2-9 3-1 3-2 3-3 3-4 3-4 3-5	Building 2 Facade South Building 3 Podum Courtnard Building 3 Podum Perphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck Building 3 Facade West	496348.04 496,496,53 496,525,17 496,522,24 496,537,21 496422,3	3626013.89 3.626.073.29 3.626.073.20 3.626.073.20 3.626.080.78 3.626.111.72 3626054.68	140.75 143.85 146.95 150.05 137.60 140.70 143.80 140.70 143.80 155.10 155.10 155.10 155.10 155.10 155.10 155.10 145.30 148.40 151.50 139.10 145.30 148.40 151.50	1.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI GF GF GF GF GF 1.FI 3.FI 3.FI 3.FI 4.FI 3.FI 4.FI GF 4.FI 5.FI 5.FI 4.FI 6.F 5.FI 5	36 36 37 40 40 41 32 33 38 40 67 77 71 64 66 66 60 77 70 70 70 70 70 70 70 70 70 70 70 70	36           37           40           30           32           33           34           35           37           38           39           32           33           34           35           36           37           39           30           31           32           33           33           34           35           36           37           38           39           39           39           39           39           39           39           39           39           39           39           39           39           39           39           39           39           39           30           30           310           3110           3110           3110
21 23 24 25 26	2-9 3-1 3-2 3-3 3-4 3-4 3-5	Building 2 Facade South Building 3 Podum Courtnard Building 3 Podum Perphery Building 3 Western Sky Deck Building 3 Eastern Sky Deck Building 3 Facade West	496348.04 496,496,53 496,525,17 496,522,24 496,537,21 496422,3	3626013.89 3.626.073.29 3.626.073.20 3.626.073.20 3.626.080.78 3.626.111.72 3626054.68	140.75 143.85 146.95 150.05 137.60 140.70 143.80 140.70 143.80 140.70 143.80 140.70 145.90 155.10 137.60 137.60 137.60 137.60 137.60 137.60 137.60 137.60 137.60 137.60 137.60 137.60 139.10 145.30 145.30 139.10 145.30 139.10 145.30	1.Fl 2.Fl 3.Fl 4.Fl 6F 2.Fl 3.Fl 4.Fl 4.Fl 6F 6F 6F 6F 6F 7.Fl 2.Fl 3.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 2.Fl 2.Fl 4.Fl 2.Fl 4.Fl 2.Fl 4.Fl 2.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4	36 36 37 40 40 31 33 33 38 40 67 67 71 64 68 67 71 64 68 69 70 70 79 79 79 79 79 79 79 79 79	36           37           40           37           40           32           33           37           40           55           61           64           68           70           70           70           79
21 23 24 25 26 27	2-9 3-1 3-2 3-3 3-4 3-5 3-6	Building 2 Facade South Building 3 Podium Courtvard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,525.17 496,422.24 496,422.23 496422.3 496422.3	3626013.89 3.626.073.29 3.626.0073 3.626.008.78 3.626.008.78 3.626.04.79 3626054.68 3626054.68	140.75           143.85           146.95           150.05           137.60           140.70           143.85           140.70           143.80           140.70           143.80           145.10           155.10           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           142.20           148.40           151.50           139.10           142.20           145.30           148.40           139.10           142.20           145.30           148.40           148.40           148.40	1.Fl 2.Fl 3.Fl 4.Fl 6.F 2.Fl 3.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 3.Fl 3.Fl 3.Fl 3.Fl 3.Fl 3.Fl 3.Fl 3	36 36 37 40 31 32 33 40 58 67 71 64 67 71 64 69 70 70 70 70 70 70 70 70 70 70 70 70 70	36 37 40 30 30 31 31 37 40 55 61 64 64 64 64 65 65 70 70 70 70 70 70 70 70 70 70 70 70 70
21 23 24 25 26 27	2-9 3-1 3-2 3-3 3-4 3-5 3-6	Building 2 Facade South Building 3 Podium Courtvard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,525.17 496,422.24 496,422.23 496422.3 496422.3	3626013.89 3.626.073.29 3.626.0073 3.626.008.78 3.626.008.78 3.626.04.79 3626054.68 3626054.68	140.75           143.85           146.95           150.05           137.60           140.70           1445.95           140.70           143.80           144.90           150.00           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           137.60           142.20           148.40           151.50           139.10           142.20           145.30           148.40           151.50           139.10           142.20           148.40           151.50           139.10           145.30           148.40           151.50           139.10           145.30           148.40           151.50           139.10           145.30	1.Fl 2.Fl 3.Fl 4.Fl 6.F 2.Fl 3.Fl 4.Fl 6.F 6.F 6.F 6.F 6.F 6.F 7.Fl 3.Fl 3.Fl 4.Fl 3.Fl 4.Fl 3.Fl 4.Fl 6.F 6.F 6.F 6.F 6.F 6.F 7.Fl 4.Fl 4.Fl 6.Fl 4.Fl 6.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7	36 36 37 40 37 32 38 38 38 67 67 67 67 67 64 64 69 70 70 70 79 79 79 79 79 79 79 79 79 79 79 79 79	36           37           40           30           22           37           38           39
21 23 24 25 26 27	2-9 3-1 3-2 3-3 3-4 3-5 3-6	Building 2 Facade South Building 3 Podium Courtvard Building 3 Podium Periphery Building 3 Western Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,525.17 496,422.24 496,422.23 496422.3 496422.3	3626013.89 3.626.073.29 3.626.0073 3.626.008.78 3.626.008.78 3.626.04.79 3626054.68 3626054.68	140.75           143.85           144.95           145.95           150.05           137.60           143.85           144.95           140.70           140.70           143.80           143.80           150.00           137.60           145.30           148.40           151.50           148.40           145.30           145.30           148.40           151.50           139.10           142.20           145.30           145.30	1.FI 2.FI 4.FI 4.FI 2.FI 3.FI 3.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4	36 36 37 37 40 40 31 32 33 38 40 40 67 67 71 64 68 67 71 64 68 67 70 70 70 70 70 70 70 70 70 70 70 70 70	36           36           37           40           30           32           33           37           40           61           61           64           68           70           70           77           78           79           79           79           79           79           78           78           78           78           78           78           77           78           78           77           78           775
21 23 24 25 26 27 28	2.9 3.1 3.2 3.3 3.4 3.5 3.6 3.6 3.7	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Periphary Building 3 Sustern Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496446.72 496446.72	3626013.89 3.625.073.20 3.625.063.20 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79	$\begin{array}{r} 140.75\\ 143.85\\ 146.95\\ 150.05\\ 137.60\\ 144.070\\ 143.80\\ 145.00\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 145.00\\ 145.00\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 145.30\\ 145.30\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 148.40\\ 139.10\\ 142.20\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40\\ 139.10\\ 148.40$	1.FI 2.FI 4.FI 4.FI 2.FI 3.FI 2.FI 3.FI 4.FI 6.F 6.F 6.F 6.F 7.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 6.F 6.F 1.FI 2.FI 3.FI 4.FI 2.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3	36 36 37 40 37 40 37 40 52 58 67 77 70 70 70 70 70 70 70 70 7	36           37           40           33           37           40           55           61           64           68           70           78           78           75           75
21 23 24 25 26 27 28	2.9 3.1 3.2 3.3 3.4 3.5 3.6 3.6 3.7	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Periphary Building 3 Sustern Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496446.72 496446.72	3626013.89 3.625.073.20 3.625.063.20 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79	$\begin{array}{r} 140.75\\ 143.85\\ 146.95\\ 150.05\\ 137.60\\ 143.87\\ 143.80\\ 143.80\\ 143.80\\ 143.80\\ 143.80\\ 145.80\\ 137.60\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.30\\ 148.40\\ 151.50\\ 139.10\\ 142.30\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\$	1.FI 2.FI 3.FI 4.FI 6.F 7.FI 7.FI 6.F 6.F 6.F 6.F 6.F 6.F 7.FI 7.FI 7.FI 7.FI 7.FI 7.FI 7.FI 7.	36 36 37 40 31 32 39 40 67 67 71 71 74 68 69 70 70 70 70 70 70 70 70 70 70 70 70 70	36           37           40           30           37           40           53           37           40           55           61           64           68           69           70           79           79           79           79           79           79           79           78           75           75           75           55
21 23 24 25 26 27 28	2.9 3.1 3.2 3.3 3.4 3.5 3.6 3.6 3.7	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Periphary Building 3 Sustern Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496446.72 496446.72	3626013.89 3.625.073.20 3.625.063.20 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79 3.626.04.79	$\begin{array}{r} 140.75\\ 146.95\\ 143.85\\ 146.95\\ 146.95\\ 146.95\\ 146.95\\ 146.90\\ 147.60\\ 147.60\\ 147.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 137.60\\ 143.00\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.40\\ 151.50\\ 139.10\\ 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 148.40\\ 151.50\\ 148.40\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 151.50\\ 150.50\\ 148.40\\ 150.50\\ 150.50\\ 148.40\\ 150.50\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 148.40\\ 150.50\\ 150.50\\ 150.50\\ 140.50\\$	1.FI 2.FI 4.FI 6.F 2.FI 3.FI 4.FI 4.FI 6.F 6.F 6.F 6.F 7.FI 2.FI 3.FI 4.FI 6.F 7.FI 3.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4.FI 4	36 36 37 37 37 37 30 37 38 40 40 40 40 40 40 40 40 40 40 40 40 40	36           37           40           37           40           32           33           37           40           61           64           68           70           75           75
21 22 23 24 25 26 27 28 29	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Suestim Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.24 496,527.21 496422.3 496422.3 496422.3 496426.72 496446.72 496501.49	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.00.78 3.625.017.29 3.625.017.29 3.625.017.87 3.625.004.79 3.626.004.41 3.626.107.67	140.75 143.85 143.85 150.05 150.05 137.80 143.80 146.70 145.80 146.70 145.80 146.70 145.80 146.70 145.80 146.90 155.80 155.80 155.80 155.80 155.80 155.80 155.80 155.80 155.80 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 145.20 145.30 14	1.Fl           2.Fl           3.Fl           3.Fl           4.Fl           2.Fl           3.Fl           4.Fl           6F           1.Fl           1.Fl           2.Fl           3.Fl	36           36           37           40           31           32           33           40           67           67           67           67           61           63           70           70           70           79           79           79           79           79           79           79           79           79           79           79           79           75	36           37           40           32           33           37           40           55           61           64           68           70           75           75           75           75           75
21 22 23 24 25 26 27 28 29	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Suestim Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.24 496,527.21 496422.3 496422.3 496422.3 496426.72 496446.72 496501.49	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.00.78 3.625.017.29 3.625.017.29 3.625.017.87 3.625.004.79 3.626.004.41 3.626.107.67	140.75 143.85 143.85 150.05 137.60 143.86 150.05 137.60 143.80 150.05 137.60 142.20 14	1.Fl           2.Fl           3.Fl           3.Fl           4.Fl           2.Fl           3.Fl           3.Fl           3.Fl           4.Fl           6.F           6.F           6.F           6.F           6.F           7.Fl           3.Fl           4.Fl           6.F           7.Fl           3.Fl           3.Fl           3.Fl           3.Fl           4.Fl           1.Fl           1.Fl           3.Fl           4.Fl           4.Fl	36         36           37         40           31         31           32         33           33         40           67         67           67         71           71         71           72         71           73         70           70         70           79         79           79         73           78         75           75         75           75         56           66         67           77         75           75         44           44         44	36         36           37         40           30         37           40         33           37         40           55         61           61         64           68         70           79         79           70         79           79         79           79         79           79         79           79         79           79         79           79         75           75         75           55         55           56         55           55         55           56         55           57         75           58         54           44         44
21 22 23 24 25 26 27 28 29	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Suestim Sky Deck Building 3 Facade West Building 3 Facade North Building 3 Facade North Building 3 Facade North Building 3 Facade North	496348.04 496,496.53 496,625.17 496,422.24 496,527.21 496422.3 496422.3 496422.3 496426.72 496446.72 496501.49	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.00.78 3.625.017.29 3.625.017.29 3.625.017.87 3.625.004.79 3.626.004.41 3.626.107.67	1407.75 143.85 150.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 157.05 155.10 155.10 155.10 155.10 155.15 1	1.Fl 2.Fl 3.Fl 4.Fl 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F 7.Fl 3.Fl 3.Fl 3.Fl 3.Fl 4.Fl 6.F 6.F 6.F 7.Fl 3.Fl 4.Fl 6.F 7.Fl 3.Fl 4.Fl 6.F 6.F 6.F 6.F 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.Fl 7.	36         36           37         37           40         37           41         31           32         33           34         60           67         67           71         64           68         70           70         79           79         79           79         79           79         78           75         75           55         56           53         44           44         45	36         36           37         40           32         32           33         37           40         61           61         64           68         67           70         79           79         79           79         79           78         75           75         75           75         55           56         57           53         56           54         44           40         44
21 <u>22</u> <u>23</u> <u>24</u> <u>25</u> 26 27 28 29 30	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-6 3-7 3-8 3-8 3-9	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Petiphery Building 3 Suestim Sky Deck Building 3 Facade West Building 3 Facade West Building 3 Facade North Building 3 Facade North	496348.04 496.496.53 496.625.17 496.422.24 496537.21 496422.3 496422.3 496446.72 496543.65 496494.74	3626013.89 3.656.073.29 3.656.073.20 3.656.007.8 3.656.007.8 3.626.017.2 3.626.017.2 3.626.016.4 3.626.004.79 3.626.004.79 3.626.004.71 3.626.004.71 3.626.004.73	140.75 143.85 145.95 14	1.FI           2.FI           3.FI           4.FI           6F           1.FI           3.FI           3.FI           3.FI           3.FI           3.FI           3.FI           3.FI           4.FI           6F           6F           1.FI           2.FI           3.FI           3.FI           4.FI           6F           1.FI           2.FI           3.FI           4.FI           6F           1.FI           2.FI           3.FI           4.FI           4.FI           2.FI           3.FI           4.FI           2.FI           3.FI           3.FI           3.FI           4.FI           2.FI           3.FI           3.FI           3.FI           4.FI           2.FI           3.FI           3.FI           4.FI           4.FI	36           37           38           37           38           40           58           67           67           67           67           68           70           71           69           70           70           79           79           79           79           79           76           75           75           56           53           42           44           44           45           43	36         36           37         40           37         40           32         32           37         40           61         61           64         64           68         70           79         79           79         79           79         79           79         79           79         79           79         79           75         75           75         55           55         56           57         63           49         44           46         46           46         47
21 22 23 24 25 26 27 28 29 30 31 32	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-6 3-7 3-8 3-8 3-9	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Sector Sky Deck         Building 3 Sector Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 3 Facade South	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 496446.93 4966494.74	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.09.78 3.626.017.42 3.626.017.42 3.626.014.43 3.626.06.41 3.626.06.41 3.626.06.41 3.626.06.35 3.626.06.41	140.75 140.85 143.85 145.85 145.95 150.05 157.60 143.80 145.20 143.80 155.05 155.10	1.FI           2.FI           3.FI           4.FI           6F           1.FI           3.FI           6F           1.FI           3.FI           4.FI           4.FI           4.FI           4.FI           6F           1.FI           3.FI           4.FI           6F           1.FI           3.FI           3.FI           4.FI           6F           1.FI           3.FI           3.FI<	36           37           38           37           38           39           30           38           40           67           67           67           61           63           70           70           70           70           79           79           79           79           75	36         36           37         40           32         37           40         32           37         40           65         61           64         64           68         70           70         70           70         70           70         70           70         70           70         73           79         79           79         76           75         75           75         75           75         55           57         55           53         40           45         45           46         46           47         45
21 22 23 24 25 26 27 28 29 30 31	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-6 3-7 3-8 3-8 3-9 3-9 3-10 4-1 4-2	Building 2 Facade South Building 3 Podium Courtyard Building 3 Podium Periphery Building 3 Substem Sky Deck Building 3 Facade West Building 3 Facade North Building 3 Facade North Building 3 Facade North Building 3 Facade South Building 3 Facade South Building 3 Facade South Building 4 Podium Courtyard Building 4 Podium Poterbery Building 4 Potebery Building 4 Poterbery Building	496348.04 496.496.53 496.422.51 496.422.3 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 4966494.74 4966494.74	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.047.8 3.626.047.8 3.626.047.8 3.626.047.8 3.626.047.8 3.626.047.8 3.626.047.67 3.626.047.67 3.626.047.67 3.626.047.67	140.75 143.85 145.95 145.85 145.95 155.05 157.60 146.70 146.70 146.70 146.70 146.70 146.70 155.10 15	1.F1           3.F1           4.F3           4.F1           0.F           1.F1           3.F1           3.F1           4.F1           0.F           0.F </td <td>36           37           38           37           38           40           12           33           34           60           67           71           64           68           70           71           64           68           70           70           79           79           79           79           79           79           78           75</td> <td>36         36           37         40           37         40           32         33           33         37           40         61           61         64           68         70           79         79           79         79           79         79           79         79           78         75           75         55           56         57           55         56           57         75           58         57           44         46           44         45           46         47           47         58           59         56           57         56           57         56           56         57           56         56           57         59           56         56           57         59           58         50           59         50           50         50           50         50           50         &lt;</td>	36           37           38           37           38           40           12           33           34           60           67           71           64           68           70           71           64           68           70           70           79           79           79           79           79           79           78           75	36         36           37         40           37         40           32         33           33         37           40         61           61         64           68         70           79         79           79         79           79         79           79         79           78         75           75         55           56         57           55         56           57         75           58         57           44         46           44         45           46         47           47         58           59         56           57         56           57         56           56         57           56         56           57         59           56         56           57         59           58         50           59         50           50         50           50         50           50         <
21 22 23 24 25 26 27 28 29 30 31 32 33	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-6 3-7 3-8 3-9 3-10 4-1	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Subilding 3 Facade South         Building 3 Statem Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade North         Building 3 Facade North         Building 3 Facade North         Building 3 Facade South         Building 3 Facade South	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 496446.93 4966494.74	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.09.78 3.626.017.42 3.626.017.42 3.626.014.43 3.626.06.41 3.626.06.41 3.626.06.41 3.626.06.35 3.626.06.41	140.75 140.85 143.85 143.85 143.85 150.05 150.05 150.05 150.05 150.05 150.05 150.05 150.05 150.05 155.00	1.F1           3.F1           4.F1           4.F1           4.F1           4.F1           5.F1           3.F1           3.F1           3.F1           5.F1           6.F           6.F           7.F1           7.F1 </td <td>36           37           38           37           38           40           12           33           34           60           67           71           64           68           70           70           79           79           79           79           79           75</td> <td>36           36           37           40           32           33           37           40           51           61           64           66           70           75           75           55           56           57           55           56           57           57           55           56           57</td>	36           37           38           37           38           40           12           33           34           60           67           71           64           68           70           70           79           79           79           79           79           75	36           36           37           40           32           33           37           40           51           61           64           66           70           75           75           55           56           57           55           56           57           57           55           56           57
21 22 23 24 25 26 27 28 29 30 31 33 34 35 55 55 55 55 55 55 55 55 55	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Western Sky Deck         Building 3 Facade West         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Petphery         Building 4 Podum Petphery         Building 4 Podum Sky Deck         Building 4 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.23 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 496446.93 4966494.74	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.073.20 3.625.00.78 3.625.00.78 3.625.014.72 3.625.004.79 3.626.04.41 3.626.04.41 3.626.04.51 3.626.05.51 3.626.05.51 3.6265.055.51 3.6265.51 3.6265.51 3.6265.51 3.6265.555.51 3.6265.555.555.555.555.555.555.555.555.55	140.75 140.85 143.85 143.85 143.85 143.85 143.85 145.95 155.05 155.05 155.05 155.05 155.05 155.05 155.05 155.05 155.05 155.05 142.20 145.30 142.20 145.30 155.05 145.15 145.15 155.15 145.15 155.15 145.20 14	1.FI           2.FI           3.FI           4.FI           6F           1.FI           3.FI           6F           1.FI           3.FI           4.FI           4.FI           4.FI           6F           1.FI           3.FI           4.FI           6F           6F	36           37           38           37           31           32           33           34           40           67           77           64           68           70           70           79           79           79           79           79           79           79           79           79           79           79           79           79           79           79           75           75           75           75           75           75           75           69           63           44           44           45           46           47           48           46           60           70           70           70	36           37           40           37           40           32           33           37           40           55           61           64           68           70           75           75           75           55           56           57           53           44           45           46
21 22 23 24 25 26 27 28 29 30 31 32 33 34	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Oddum Derphapy         Building 3 Stand	496348.04 496,496.53 496,625.17 496,422.3 496422.3 496422.3 496422.3 496446.72 496543.65 496543.65 496446.93 496543.65	3626013.89 3.626.073.29 3.626.073.20 3.626.09.78 3.626.917.20 3.626.917.42 3.626.917.82 3.626.917.82 3.626.917.87 3.626.06.41 3.626.06.69 3.626.05.69 3.626.01.59 3.626.01.59	140.75 140.75 143.85 146.95 145.95 14	1.F1           3.F1           3.F1           4.F1           4.F1           3.F1           4.F1	36           37           38           37           38           40           57           67           67           67           67           68           70           79           79           79           79           79           79           75           75           75           75           75           75           83           44           45           42           86           70           70           75           75           75           75           75           83           47           44           45           68           70           71           70           71           72           73	36         36           37         37           40         32           32         33           37         40           56         57           57         56           61         61           64         68           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         75           75         75           53         53           44         46           44         46           45         53           60         64           64         64           65         77           73         73
21 22 23 24 25 26 27 28 29 30 31 33 34 35 55 55 55 55 55 55 55 55 55	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Western Sky Deck         Building 3 Facade West         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Petphery         Building 4 Podum Petphery         Building 4 Podum Sky Deck         Building 4 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.23 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 496446.93 4966494.74	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.073.20 3.625.00.78 3.625.00.78 3.625.014.72 3.625.004.79 3.626.04.41 3.626.04.41 3.626.04.51 3.626.05.51 3.626.05.51 3.6265.055.51 3.6265.51 3.6265.51 3.6265.51 3.6265.555.51 3.6265.555.555.555.555.555.555.555.555.55	$\begin{array}{c} +00.78\\ +10.78\\ +10.88\\$	1.F1           2.F1           3.F1	36           37           38           37           38           40           52           33           34           60           67           71           64           68           70           70           79           79           79           79           79           79           75           75           75           75           75           86           90           70           75           75           75           75           86           90           70           75           86           93           94           44           45           46           70           70           73           73           73	36         36           37         40           40         9           32         37           40         9           32         33           37         40           56         61           64         66           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         75           75         75           75         55           65         57           75         75           64         45           44         45           45         60           61         63           73         73           73 <td< td=""></td<>
21 22 23 24 25 25 27 28 29 30 31 33 34 35 36	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-2 4-3 4-4 4-5	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Sector Sity Deck         Building 3 Sector Sity Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Pemphery         Building 4 Facade South         Building 4 Facade Northwest	496348.04 496,496.53 496,625.17 496,622.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496446.72 496543.65 496543.65 496543.65 496543.65 496543.65 496543.65	3626013.89 3.655.073.29 3.655.073.20 3.655.073.20 3.655.073.20 3.655.071.20 3.655.071.20 3.655.071.20 3.655.071.20 3.625.014.41 3.625.015.41 3.625.015.41 3.625.015.65 3.625.015.61 3.625.015.65 3.625.013.08 3.625.013.08	$\begin{array}{c} +00.75\\ +00.75\\ +00.85\\$	1.F1           3.F1	36           37           38           37           38           40           52           33           34           60           67           71           64           68           70           70           79           79           79           79           79           79           75           75           55           56           53           44           45           44           45           46           60           70           73           73           73           73           73           76	36           37           40           37           40           32           33           37           40           61           64           68           70           75           75           75           55           56           57           53
21 22 23 24 25 26 27 28 29 30 31 33 33 33 34 35 55	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Western Sky Deck         Building 3 Facade West         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Petphery         Building 4 Podum Petphery         Building 4 Podum Sky Deck         Building 4 Eastern Sky Deck	496348.04 496,496.53 496,525.17 496,422.23 496422.3 496422.3 496422.3 496446.72 496446.72 496543.65 496543.65 496446.93 4966494.74	3626013.89 3.625.073.29 3.625.073.29 3.625.073.20 3.625.073.20 3.625.00.78 3.625.00.78 3.625.014.72 3.625.004.79 3.626.04.41 3.626.04.41 3.626.04.51 3.626.05.51 3.626.05.51 3.6265.055.51 3.6265.51 3.6265.51 3.6265.51 3.6265.555.51 3.6265.555.555.555.555.555.555.555.555.55	$\begin{array}{c} 140.76\\ 140.76\\ 142.88\\ 142.88\\ 145.88\\$	1.F1           3.F1	36           37           38           37           33           38           40           67           67           67           67           71           64           68           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           73           75	36           36           37           40           40           32           33           37           40           56           57           68           69           61           64           68           70           75           75           75           53           40           44           45           66           64           64           64
21 22 23 24 25 25 27 28 29 30 31 33 34 35 36	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-2 4-3 4-4 4-5	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Sector Sity Deck         Building 3 Sector Sity Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Pemphery         Building 4 Facade South         Building 4 Facade Northwest	496348.04 496,496.53 496,625.17 496,622.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496446.72 496543.65 496543.65 496543.65 496543.65 496543.65 496543.65	3626013.89 3.655.073.29 3.655.073.29 3.655.073.20 3.655.073.20 3.655.071.20 3.655.071.20 3.655.071.20 3.655.071.20 3.655.074.41 3.625.056.69 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.075.20 3.625.0	$\begin{array}{c} 140.75\\ 140.75\\ 140.85\\$	1.F1           2.F1           3.F1	36           36           37           38           40           11           22           33           34           40           67           67           67           64           68           70           70           70           70           70           70           70           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           76           80           70           73           73           73           73           73           76           76           76	36         36           37         37           40         32           32         33           37         40           55         51           61         64           68         70           70         70           75         55           55         50           53         40           44         45           45         35           60         61           61         <
21 22 23 24 25 25 27 28 29 30 31 32 33 34 35 35 37	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-3 4-4 4-5 4-6	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Sector Sity Deck         Building 3 Sector Sity Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Pemphery         Building 4 Facade South         Building 4 Facade Northwest	496348.04 496,496,53 496,625,17 496,422,3 496422,3 496422,3 496422,3 496446,72 496541,49 496541,49 496543,85 496446,93 496644,74 496644,74 496644,74 496644,74 496654,76 496654,09 496654,09	3626013.89 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.074.20 3.655.074.41 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.81 3.655.0	$\begin{array}{c} 140.76\\ 140.76\\ 142.88\\$	1.FI           2.FI           3.FI	36           36           37           38           31           32           33           34           67           77           64           67           71           64           60           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           70           75	36         36           37         37           30         32           37         34           40         55           61         61           64         66           70         70           70         70           70         70           70         70           70         70           70         70           76         75           75         75           75         55           56         57           55         55           56         57           55         55           56         57           53         40           44         45           45         56           57         73           73         73           73         73           73         73           76         76           76         76           76         76           73         73           75         75           75         75           73         <
21 22 23 24 25 25 27 28 29 30 31 33 34 35 36	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-2 4-3 4-4 4-5	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Sector Sity Deck         Building 3 Sector Sity Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podum Pemphery         Building 4 Facade South         Building 4 Facade Northwest	496348.04 496,496.53 496,625.17 496,622.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496422.3 496446.72 496543.65 496543.65 496543.65 496543.65 496543.65 496543.65	3626013.89 3.655.073.29 3.655.073.29 3.655.073.20 3.655.073.20 3.655.071.20 3.655.071.20 3.655.071.20 3.655.071.20 3.655.074.41 3.625.056.69 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.056.69 3.625.071.20 3.625.075.20 3.625.0	$\begin{array}{c} +00.76\\ +00.76\\ +00.86\\$	1.F1           3.F1           3.F1           4.F1           3.F1           4.F1           3.F1           4.F1           5.F1           6.F1           7.F1	36           36           37           32           33           34           40           67           77           78           79           70           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75	36           36           37           30           32           33           37           40           61           64           68           70           75           75           75           75           56           57           53           60           61
21 22 23 24 25 25 27 28 29 30 31 32 33 34 35 35 37	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-3 4-4 4-5 4-6	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Codum Petiphery         Building 3 Second Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 3 Facade South         Building 4 Paciam Deptopeny         Building 4 Facade Northwest         Building 4 Facade North	496348.04 496,496,53 496,625,17 496,422,3 496422,3 496422,3 496422,3 496446,72 496541,49 496541,49 496543,85 496446,93 496644,74 496644,74 496644,74 496644,74 496654,76 496654,09 496654,09	3626013.89 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.074.20 3.655.074.41 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.81 3.655.0	$\begin{array}{c} 140.75\\ 140.75\\ 143.85\\ 143.85\\ 145.85\\$	1.FI           2.FI           3.FI	36           36           37           38           40           12           33           34           60           67           71           64           68           70           71           64           67           70           70           70           70           70           75           76           70           71           72           73           73	36         36           37         40           32         32           33         33           37         40           61         61           64         66           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         55           56         57           55         56           57         50           58         50           59         50           61         63           73         73           76         <
21 22 23 24 25 25 27 28 29 30 31 32 33 34 35 35 37	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-3 4-4 4-5 4-6	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Codum Petiphery         Building 3 Second Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 3 Facade South         Building 4 Paciam Deptopeny         Building 4 Facade Northwest         Building 4 Facade North	496348.04 496,496,53 496,625,17 496,422,3 496422,3 496422,3 496422,3 496446,72 496541,49 496541,49 496543,85 496446,93 496644,74 496644,74 496644,74 496644,74 496654,76 496654,09 496654,09	3626013.89 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.074.20 3.655.074.41 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.81 3.655.0	$\begin{array}{c} +00.76\\ +00.76\\ +00.86\\$	1.FI           2.FI           3.FI           4.FI           2.FI           3.FI           4.FI           2.FI           3.FI           4.FI           2.FI           3.FI           4.FI           3.FI           4.FI           3.FI           4.FI           2.FI           3.FI           4.FI           3.FI	36           36           37           38           31           32           33           34           67           71           64           67           71           64           60           70           70           70           70           70           70           73           75           76           83           70           73           73           73	36         36           37         37           30         32           37         34           40         57           32         33           37         40           61         61           64         56           57         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         75           75         75           75         75           56         57           57         55           56         57           57         55           56         57           57         55           50         <
21 22 23 24 25 25 27 28 29 30 31 32 33 34 35 35 37	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-9 3-10 4-1 4-3 4-4 4-5 4-6	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Codum Petiphery         Building 3 Second Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 3 Facade South         Building 4 Paciam Deptopeny         Building 4 Facade Northwest         Building 4 Facade North	496348.04 496,496,53 496,625,17 496,422,3 496422,3 496422,3 496422,3 496446,72 496541,49 496541,49 496543,85 496446,93 496644,74 496644,74 496644,74 496644,74 496654,76 496654,09 496654,09	3626013.89 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.073.29 3.655.074.20 3.655.074.41 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.67 3.655.074.81 3.655.0	$\begin{array}{c} 400.76\\ +00.76\\ +00.86\\$	1.FI           2.FI           3.FI           4.FI           3.FI           3.FI           3.FI           3.FI           3.FI           3.FI           4.FI           5.FI	36           36           37           38           31           32           33           34           40           67           77           78           79           70           75           75           75           75           75           75           75           75           75           75           75           75           73           73           73           74	36         36           37         37           32         33           37         40           32         33           37         40           36         61           61         61           64         68           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         75           75         75           56         57           53         54           44         45           53         56           63         <
21 22 23 24 25 27 28 29 30 31 32 33 34 35 36 37 38	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-5 4-6 4-7	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Odium Courtyard         Building 3 Subsern Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 4 Podum Courtyard         Building 4 Podum Courtyard         Building 4 Pacade Northwest         Building 4 Facade Northwest         Building 4 Facade North	496348.04           496,496.53           496,422.3           496,422.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           496446.72           496446.73           496446.74           496446.93           496446.93           4966571.42           496,654.12           496,654.12           496,654.12           496,654.12           496,654.13           496,654.23           496,654.3           496,654.3           496,654.3           496,654.3           496,671.42           496,654.3	3626013.89 3.626,073.29 3.626,073.29 3.626,073.29 3.626,073.29 3.626,017.2 3.626,017.2 3.626,017.8 3.626,017.8 3.626,014.41,014.413.62	$\begin{array}{c} +00.75\\ +00.75\\ +00.85\\$	1.FI           2.FI           3.FI           3.FI           6F           7.FI           6.FI           7.FI           6.FI           7.FI           6.FI           7.FI           7.FI </td <td>36           37           38           37           38           40           61           62           67           71           64           68           70           71           64           68           70           73           79           79           79           79           79           75           75           75           75           75           75           75           75           75           76           70           71           75           75           75           75           76           77           78           79           73           73           73           73           76           77           78           79           73</td> <td>36         36           37         37           40         32           32         33           37         40           58         51           61         61           64         68           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         55           66         67           75         55           66         60           61         63           63         73           73         76           76         76           73         76           76         76           76         76           73         &lt;</td>	36           37           38           37           38           40           61           62           67           71           64           68           70           71           64           68           70           73           79           79           79           79           79           75           75           75           75           75           75           75           75           75           76           70           71           75           75           75           75           76           77           78           79           73           73           73           73           76           77           78           79           73	36         36           37         37           40         32           32         33           37         40           58         51           61         61           64         68           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         55           66         67           75         55           66         60           61         63           63         73           73         76           76         76           73         76           76         76           76         76           73         <
21 22 23 24 25 27 28 29 30 31 32 33 34 35 36 37 38	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-5 4-6 4-7	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Odium Courtyard         Building 3 Subsern Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 4 Podum Courtyard         Building 4 Podum Courtyard         Building 4 Pacade Northwest         Building 4 Facade Northwest         Building 4 Facade North	496348.04           496,496.53           496,422.3           496,422.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           496446.72           496446.73           496446.74           496446.93           496446.93           4966571.42           496,654.12           496,654.12           496,654.12           496,654.12           496,654.13           496,654.23           496,654.3           496,654.3           496,654.3           496,654.3           496,671.42           496,654.3	3626013.89 3.626,073.29 3.626,073.29 3.626,073.29 3.626,073.29 3.626,017.2 3.626,017.2 3.626,017.8 3.626,017.8 3.626,014.41,014.413.62	$\begin{array}{c} +00.75\\ +00.75\\ +00.85\\$	1.FI           3.FI	36           37           38           37           31           32           33           34           60           67           71           64           68           70           71           64           67           70           70           70           70           70           70           70           70           70           70           70           70           70           73           75           55           56           53           55           56           53           60           70           73           73           73           76           76           76           76           76           76           76           76           69	36           37           40           37           40           32           33           37           40           61           61           64           68           70           70           70           70           71           72           73           75           73           73
21 22 23 24 25 27 28 29 30 31 32 33 34 35 36 37 38	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-5 4-6 4-7	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Odium Courtyard         Building 3 Subsern Sky Deck         Building 3 Facade West         Building 3 Facade North         Building 4 Podum Courtyard         Building 4 Podum Courtyard         Building 4 Pacade Northwest         Building 4 Facade Northwest         Building 4 Facade North	496348.04           496,496.53           496,422.3           496,422.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           49642.3           496446.72           496446.73           496446.74           496446.93           496446.93           4966571.42           496,654.12           496,654.12           496,654.12           496,654.12           496,654.13           496,654.23           496,654.3           496,654.3           496,654.3           496,654.3           496,671.42           496,654.3	3626013.89 3.626,073.29 3.626,073.29 3.626,073.29 3.626,073.29 3.626,017.2 3.626,017.2 3.626,017.8 3.626,017.8 3.626,014.41,014.413.62	$\begin{array}{c} 400.76\\ +00.76\\ +00.86\\$	1.Fn 3.Fn 4.Fn 6.Fn 7.Fn 7.Fn 7.Fn 6.Fn 6.Fn 6.Fn 7.Fn 7.Fn 7.Fn 7.Fn 7.Fn 7.Fn 7.Fn 7	36           36           36           37           38           33           38           40           67           77           78           79           79           79           79           79           79           79           79           79           79           75           73           73           73	36         36           37         37           32         33           37         40           38         37           40         51           61         61           64         68           70         70           70         70           70         70           73         70           76         75           75         75           75         75           75         55           56         57           57         55           56         57           57         75           73         73           73         73           73         73           73         73           73         73           73         73           76         76           76         76           76         76           76         76           76         76           76         76           76         76           76         76           69         <
21 22 23 24 25 27 28 29 30 31 32 33 33 34 35 36 37 38 39	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Oddum Periphery         Building 3 Second Periphery         Building 3 Second Periphery         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podium Courtyard         Building 4 Pacade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade South	496348.04           496,496.53           496,422.3           496,422.3           49642.3           496446.72           496446.72           4964543.65           4964543.65           49646.93           49646.93           496543.65           49646.93           496543.65           49646.93           4965634.12           4965634.23           4965634.23           496573.63           496674.23	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.074.29 3.626.074.29 3.626.074.29 3.626.074.41 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.0	$\begin{array}{c} 140.75\\ 140.75\\ 140.85\\$	1.F. 3.S.F. 3.S.F. 4.F. 5.F. 5.F. 5.F. 5.F. 5.F. 5.F. 5	36           37           38           37           38           40           52           33           34           68           67           64           68           70           64           68           70           79           79           79           79           79           79           75           75           75           75           75           75           75           75           75           75           75           75           75           75           75           76           70           71           73           73           73           73           73           74           75           76           77           78           79	36         36           37         40           37         40           32         33           37         40           58         57           59         57           50         61           64         66           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         55           55         55           55         56           50         57           73         73           76         75           77         75           78         75           79         73           73         <
21 22 23 24 25 27 28 29 30 31 32 33 33 34 35 36 37 38 39	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Oddum Periphery         Building 3 Second Periphery         Building 3 Second Periphery         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podium Courtyard         Building 4 Pacade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade South	496348.04           496,496.53           496,422.3           496,422.3           49642.3           496446.72           496446.72           4964543.65           4964543.65           49646.93           49646.93           496543.65           49646.93           496543.65           49646.93           4965634.12           4965634.23           4965634.23           496573.63           496674.23	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.074.29 3.626.074.29 3.626.074.29 3.626.074.41 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.0	$\begin{array}{c} +00.76\\ +00.76\\ +00.86\\$	1.Fn 3.Fn 3.Fn 0.Fr 3.Fn 0.Fr 0.Fr 1.Fn 3.Fn 1.Fn 3.Fn 1.Fn 3.Fn 1.Fn 3.Fn 1.Fn 3.Fn 1.Fn 1.Fn 3.Fn 1.Fn 1.Fn 1.Fn 1.Fn 1.Fn 1.Fn 2.Fn 2.Fn 2.Fn 2.Fn 2.Fn 2.Fn 2.Fn 2	36           37           38           37           38           40           52           33           34           60           67           71           64           68           70           71           64           68           70           79           79           79           79           79           79           75           75           55           56           53           44           45           46           47           48           45           56           57           56           57           70           71           73           73           76           76           76           76           76           76           76           76	36         36           37         40           37         40           32         32           33         37           40         61           61         61           64         68           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           70         70           75         55           56         57           55         56           57         73           73         73           73         73           73         73           76         76           76         <
21 22 23 24 25 27 28 29 30 31 31 32 33 33 35 35 37 38 39	2-9 3-1 3-2 3-3 3-4 3-5 3-6 3-7 3-8 3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 2 Facade South         Building 3 Podium Courtyard         Building 3 Oddum Periphery         Building 3 Second Periphery         Building 3 Second Periphery         Building 3 Facade West         Building 3 Facade North         Building 3 Facade South         Building 4 Podium Courtyard         Building 4 Pacade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade Northwest         Building 4 Facade North         Building 4 Facade South	496348.04           496,496.53           496,422.3           496,422.3           49642.3           496446.72           496446.72           4964543.65           4964543.65           49646.93           49646.93           496543.65           49646.93           496543.65           49646.93           4965634.12           4965634.23           4965634.23           496573.63           496674.23	3626013.89 3.626.073.29 3.626.073.29 3.626.073.29 3.626.074.29 3.626.074.29 3.626.074.29 3.626.074.41 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.67 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.076.77 3.626.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.077.29 3.627.0	140.75 140.85 140.85 140.85 140.85 140.85 140.85 140.85 140.75 150.75 140.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 150.75 140.75 15	1.F           1.7           3.7           3.7           4.7           6.7           7.7	36         36           37         37           38         37           31         38           40         60           67         67           71         64           68         77           79         79           79         79           79         79           79         79           79         75           75         75           75         75           63         63           44         44           44         45           64         63           70         75           75         75           76         76           70         73           73         73           73         73           76         76           76         76           69         69           69         69           69         69           69         69           69         69           69         69           69         69           69         <	36           36           37           30           32           33           37           40           61           61           64           65           70           75           75           75           75           75           75           75

#### Emissions Trolley Noise

SoundPlan Output

No.		Receiver name	Co	ordinates (in mete	rs)			Unmitigated dB	Noise Level (A)			Mitigated I dB	Noise Level I(A)		
	1-1	Building 1 Patio Above Cafe	X 496.214.85	Y 3,626,039.78	Height 129.06	Floor GF	Dav 41	Evenina 39	Niaht	CNEL 44	Dav 37	Evenina	Niaht	<b>CNE</b> 40	
2	1-2	Building 1 Western Sky Deck	496,149.17	3,626,027.83	141.76	GF	50	49	36 45	53	50	35 49	32 45	53	
3	1-3	Building 1 Eastern Sky Deck	496,215.31	3,626,033.52	141.80 129.10	GF GF	37 35	36 33	32 30	40 38	37 35	36 33	32 30	40 38	
4	1-4	Building 1 Facade North	496145.39	3626032.18	132.30	1.FI	35	34	30	38	35	34	30	38	
					135.50 138.70	2.FI 3.FI	36	34 35	31 32	39 40	36	34 35	31 32	39 40	
					129.10 132.30	GF 1.FI	32	31	27	35	32	31	27	35	
5	1-5	Building 1 Facade North	496163.21	3626038.09	135.50	2.FI	33 33	31 32	28 28	36 36	33 33	31 32	28 28	36 36	
					138.70 141.90	3.FI 4.FI	34 35	33 34	29 30	37	34 35	33	29 30	37	
					129.10	GF	32	30	27	34	32	30	27	34	
6	1-6	Building 1 Facade North	496183.32	3626039.9	132.30 135.50	1.FI 2.FI	32	31	27 27	35 35	32 32	31 31	27 27	35	
					138.70	3.FI	33	32	28	36	33	32	28	36	
					141.90 129.10	4.FI GF	35	33 36	30 33	38	35 34	33	30 29	38 37	
_					132.30	1.FI	38	37	33	41	37	36	32	40	
7	1-7	Building 1 Facade North	496210.31	3626037.72	135.50	2.FI 3.FI	39	37	34 34	42	39 39	37	34	42	
					141.90	4.FI	38	36	33	41	38	36	33	41	
					129.10 132.30	GF 1.FI	51 52	50 50	46 47	54 55	51 52	50 50	46 47	54 55	
8	1-8	Building 1 Facade East	496222.71	3626027.61	135.50	2.FI	52	51	47	55	52	51	47	55	
					138.70 141.90	3.FI 4.FI	52 52	51 50	47	55 55	52 52	51 50	47	55 55	
					129.10	GF 1.FI	55 55	54 54	50	58	55 55	54	50	58 58	
9	1-9	Building 1 Facade South	496207.84	3626021.95	132.30 135.50	2.FI	55	54	50 50	58 58	55	54 54	50 50	58	
					138.70	3.FI	55	54	50	58	55	54	50	58	
					141.90 129.10	4.FI GF	55 55	54 54	50 50	58 58	55 55	54 54	50 50	58 58	
10	1-10	Building 1 Facade South	496189.05	3626021.91	132.30 135.50	1.FI 2.FI	56 56	54 54	51 51	59 59	56 56	54 54	51 51	59 59	
10	1-10	building 11 acade South	450105.05	3020021.91	138.70	2.FI 3.FI	56	54	51	59	56	54	51	59	
	_				141.90	4.FI	55	54	51	58	55	54	51	58	
			1		129.10 132.30	GF 1.FI	56 56	55 55	51 52	59 59	56 56	55 55	51 52	59 59	
11	1-11	Building 1 Facade South	496156.96	3626023.31	135.50 138.70	2.Fl 3.Fl	56 56	55 55	51 51	59 59	56 56	55 55	51 51	59 59	
					141.90	4.FI	56	55	51	59	56	55	51	59	
	1				129.10 132.30	GF 1 FI	53 53	52 52	48 48	56 56	53 53	52 52	48 48	56	
12	1-12	Building 1 Facade West	496142.78	3626029.13	135.50	2.FI	54	52	49	56	54	52	49	56 56	
13	2-1	Building 2 Western Sky Deck	496,271.42	3,626,041.29	138.70 153.60	3.FI GF	53 41	52 40	48 36	56 44	53 39	52 38	48 34	56 42	
14	2-2	Building 2 Podium Courtyard	496,375.71	3,626,040.89	136.10	GF	33	32	28	36	33	32	28	36	
15	2-3	Building 2 Podium Periphery	496,290.84	3,626,024.86	136.10 137.60	GF GF	54 32	53 30	49 27	57 35	54 32	53 30	49 27	57 35	
	1	L			140.70	1.FI	32	31	27	35	32	31	27	35	
16	2-4	Building 2 Facade North	496300.54	3626052.81	143.80 146.90	2.FI 3.FI	32 33	31 31	27 28	35 36	32 33	31	27 28	35 36	
	1				150.00	4.FI	34	32	29	36	34	32	29	36	
					137.60 140.70	GF 1.FI	31 32	30 30	26 27	34 35	31 32	30 30	26 27	34 35	
17	2-5	Building 2 Facade North	496336.5	3626064	143.80	2.FI	32	31	27	35	32	31	27	35	
					146.90 150.00	3.FI 4.FI	32 33	31 32	27 28	35 36	32 33	31 32	27 28	35 36	
					137.60	GF	31	29	26	34	31	29	26	34	
18	2-6	Building 2 Facade North	496372.36	3626074.02	140.70	1.FI 2.FI	31	30 30	26 26	34 34	31 31	30 30	26 26	34	
			490372.30		146.90	3.FI	32	30	27	35	32	30	27	35	
					-	150.00 137.60	4.FI GF	32 43	31 42	27 38	35 46	32 43	31 42	27 38	35 46
			400405 70	0000050 10	140.70	1.FI	43	42	38	46	43	42	38	46	
19	2-7	Building 2 Facade East	496405.72	3626050.42	143.80 146.90	2.FI 3.FI	45 46	44 45	40 41	48 49	45 46	44 45	40 41	48 49	
					150.00	4.FI	47	46	42	50	47	46	42	50	
					137.60	GF 1.FI	54 55	52 54	49 50	57 58	54 55	52 54	49 50	57 58	
20	2-8	Building 2 Facade South	496398.7	3626008.82	143.80	2.FI	55	54	50	58	55	54	50	58	
					146.90 150.00	3.FI 4.FI	55 55	54 54	50 50	58 58	55 55	54 54	50 50	58 58	
					137.60	GF 1 FI	55	54	50	58	55	54	50	58	
21	2-9	Building 2 Facade South	496348.04	3626013.89	143.80	2.FI	55 55	54 53	50 50	58 58	55 55	54 53	50 50	58 58	
					146.90 150.00	3.FI 4.FI	55 54	53 53	50 50	58 57	55 54	53 53	50 50	58 57	
22	3-1	Building 3 Podium Courtyard	496,496.53	3,626,073.29	137.60	GF	42	41	37	45	41	40	36	44	
23	3-2	Building 3 Podium Periphery Building 3 Western Sky Deck	496,525.17	3,626,073.20	137.60	GF	47	46	42	50	46	44	41	48	
24 25	3-3 3-4	Building 3 Eastern Sky Deck	496,422.24 496,537.21	3,626,080.78 3,626,111.72	155.10 155.10	GF	36 40	35	31 35	39 43	35 39	34 37	30 34	38	
					139.10 142.20	GF 1.FI	42	41 43	37	45 47	42 44	41 43	37	45 47	
26	3-5	Building 3 Facade West	496422.3	3626054.68	145.30	2.FI	46	43	41	47	44	43	41	47	
					148.40 151.50	3.FI 4.FI	46	45 45	41	49 49	46 46	45 45	41	49 49	
					139.10	GF	29	45	24	32	40	45	24	32	
27	3-6	Building 3 Facade North	496446.72	3626094.79	142.20 145.30	1.FI 2.FI	29	28	24	32	29	28	24	32	
21	00	building of dedde Horar	400440.72	0020004.10	148.40	3.FI	29 30	28	25	32 33	29 30	28 29	24 25	32	
					151.50	4.FI GF	31 28	29 27	26 23	34 31	31 28	29 27	26 23	34 31	
28	6-		1	1	142.20	1.FI	28	27	23	31	28	27			
	3-7	Building 3 Facade North									29		23	31	
20			496501.49	3626108.41	145.30	2.FI	29	27 28	24 24	32	29	27	23 24 24	31 32 32	
20			496501.49	3626108.41	145.30 148.40 151.50	2.FI 3.FI 4.FI	29	27	24	32				32	
					145.30 148.40 151.50 139.10	2.Fl 3.Fl 4.Fl GF	29 29 30 31	27 28 29 29	24 24 25 26	32 32 33 34	29 30 29	28 29 28	24 25 24	32 32 33 32	
29	3-8	Building 3 Facade Northeast	496501.49	3626108.41 3626107.67	145.30 148.40 151.50 139.10 142.20 145.30	2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl	29 29 30 31 29 30	27 28 29 29 29 28 29	24 24 25 26 24 25 26 24 25	32 32 33 34 32 33	29 30 29 28 30	28 29 28 27 28	24 25 24 23 25	32 32 33 32 31 31 33	
	3-8	Building 3 Facade Northeast			145.30 148.40 151.50 139.10 142.20	2.Fl 3.Fl 4.Fl GF 1.Fl	29 29 30 31 29 30 32 33	27 28 29 29 29 28	24 24 25 26 24	32 32 33 34 32	29 30 29 28 30 30 30	28 29 28 27	24 25 24 23	32 32 33 32 31 33 33 33 35	
	3-8	Building 3 Facade Northeast			145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11	2.FI 3.FI 4.FI GF 1.FI 2.FI 3.FI 4.FI GF	29 29 30 31 29 30 32 33 51	27 28 29 29 28 29 31 32 49	24 24 25 26 24 25 27 27 28 46	32 32 33 34 32 33 35 35 36 53	29 30 29 28 30 30 30 32 51	28 29 28 27 28 29 31 49	24 25 24 23 25 25 27 46	32 32 33 32 31 33 33 33 35 53	
	3-8	Building 3 Facade Northeast Building 3 Facade East			145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50	2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl 3.Fl 4.Fl	29 29 30 31 29 30 32 33	27 28 29 29 28 29 31 32	24 24 25 26 24 25 27 27 28	32 32 33 34 32 33 35 35 36	29 30 29 28 30 30 30	28 29 28 27 28 29 31	24 25 24 23 25 25 25 27	32 32 33 32 31 33 33 33 35	
29			496543.65	3626107.67	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 148.41	2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl 3.Fl 3.Fl	29 29 30 31 29 30 32 33 51 52 52 52 52	27 28 29 29 28 29 31 32 49 51 51 51	24 24 25 26 24 25 27 28 46 47 47 48	32 32 33 34 32 33 35 36 53 55 55 55 55	29 30 29 28 30 30 32 51 52 52 52 52	28 29 28 27 28 29 31 49 51 51 51	24 25 24 23 25 25 27 46 47 47 48	32 32 33 32 31 33 33 33 35 55 55 55 55	
29			496543.65	3626107.67	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 1445.31 145.31 145.31 145.31 145.31	2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 4.FI 2.FI 3.FI 4.FI 4.FI 6F	29 29 30 31 29 30 32 33 51 52 52 52 52 52 53 54	27 28 29 29 28 29 31 32 49 51 51 51 51 51 51 52	24 24 25 26 24 25 27 28 46 47 47 47 47 48 48 49	32 32 33 34 32 33 35 36 53 55 55 55 55 55 56 56	29 30 29 28 30 30 32 51 52 52 52 52 52 52 53 54	28 29 28 27 28 29 31 49 51 51 51 51 51 51	24 25 24 23 25 25 27 46 47 47 47 47 48 48 48	32 32 33 33 33 33 33 33 35 55 55 55 55 55 55	
29 30	3-9	Building 3 Facade East	496543.65	3626107.67 3626036.35	145.30 148.40 151.50 142.20 145.30 145.30 148.40 151.50 139.11 142.21 145.31 148.41 151.51 139.10 139.10 142.20	2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl 3.Fl 4.Fl 4.Fl 4.Fl 4.Fl 6F 4.Fl 5.Fl 1.Fl	29 29 30 31 29 30 32 33 51 52 52 52 52 52 52 53 54 54	27 28 29 29 28 31 32 49 51 51 51 51 51 52 53	24 24 25 26 24 25 27 28 46 47 47 47 48 48 48 49 49	32 32 33 34 32 33 35 36 55 55 55 55 55 55 55 55 55 55 55 55 55	29 30 29 28 30 30 32 51 52 52 52 52 52 53 54 54	28 29 28 27 28 29 31 49 51 51 51 51 51 51 52 53	24 25 24 23 25 25 27 46 47 47 47 48 48 49 49	32 32 33 33 33 33 33 33 55 55 55 55 55 55 56 566 56	
29			496543.65	3626107.67	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 148.41 155.51 139.10 142.20 145.30 145.40 148.40	2.Fl 3.Fl 4.Fl 1.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 3.Fl 4.Fl 3.Fl 1.Fl 2.Fl 3.Fl	29 29 30 31 29 30 32 33 51 52 52 52 52 52 53 54 55 55 55	27 28 29 29 29 31 31 32 49 51 51 51 51 51 51 51 51 53 53	24 24 25 26 24 25 27 28 46 47 47 47 47 47 48 48 49 49 50 50	32 32 33 34 32 33 35 36 55 55 55 55 55 55 56 56 56 57 57 57	29 30 29 28 30 30 32 51 52 52 52 52 52 53 54 54 55 55	28 29 27 27 28 29 31 49 51 51 51 51 51 51 51 52 53 53	24 25 24 23 25 25 27 46 47 47 47 47 47 48 48 49 49 50 50	32 32 33 31 33 33 33 33 35 55 55 55 55 55 55 55 55	
29 30	3-9	Building 3 Facade East	496543.65 496494.74 496446.93	3626107.67 3626036.35 3626014.41	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 148.41 151.51 139.10 142.20 145.30 142.20 145.30 148.40	2.Fl 3.Fl 4.Fl GF 1.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 3.Fl 4.Fl 3.Fl 4.Fl 4.Fl	29 29 30 31 29 30 32 51 52 52 52 52 53 53 54 54 55 54 54 54	27 28 29 29 29 31 31 32 49 51 51 51 51 51 51 53 53 53 53	24 24 25 26 24 25 27 27 28 46 47 47 47 48 48 49 50 50 50 49	32 32 33 34 32 33 35 36 55 55 55 55 55 55 56 56 56 57 57 57 57	29 29 28 30 30 32 51 52 52 52 53 54 54 54 54	28 29 27 28 29 31 49 51 51 51 51 51 51 51 53 53 53 53	24 25 24 23 25 25 27 46 47 47 47 47 48 48 49 49 50 50 49	32 32 33 31 33 33 33 35 55 55 55 55 55 55 55 55 55	
29 30 31 <u>32</u> 33	3-9 3-10 4-1 4-2	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Perphery	496543.85 496494.74 496446.93 4966,634.12 496,6571.42	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.065.59	145.30 148.40 151.50 139.10 142.20 145.30 139.11 148.40 151.50 139.11 142.21 145.31 142.21 145.31 142.21 145.31 148.40 145.30 145.30 142.70 146.70 140.70	2.Fl 3.Fl GF 1.Fl 2.Fl 3.Fl 4.Fl GF 1.Fl 3.Fl 4.Fl 3.Fl 4.Fl GF 5.Fl 3.Fl 4.Fl 6.F 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.	29 29 30 31 29 30 30 32 33 31 51 52 52 52 52 52 53 54 54 55 54 55 4 31 44	27 28 29 29 29 31 32 49 51 51 51 51 51 52 53 53 53 53 29 42	24 24 25 26 26 24 25 27 28 46 47 47 48 48 49 49 50 50 50 50 39	32 32 33 33 34 32 33 35 55 55 55 55 55 55 55 55 55 55 55	29 30 29 28 30 30 32 51 52 52 52 53 54 54 54 54 30 30 32 42	28 29 28 27 28 29 31 51 51 51 51 51 51 53 53 53 53 29 41	24 25 24 23 25 25 27 46 47 47 47 47 48 49 49 50 50 50 50 50 25 37	32 33 32 31 33 33 33 55 55 55 55 55 55 57 57 57 57 57 57 57	
29 30 31 32	3-9 3-10 4-1 4-2 4-3	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Periphery Building 4 Podum Psy Deck	496543.85 496494.74 496446.93 496446.93 4966571.42 4966,655	3626036.35 3626036.35 3626014.41 3.626.051.69 3.626.01.81	145.30 148.40 151.50 139.10 142.20 145.30 139.11 142.21 148.40 151.50 149.21 145.31 148.41 151.51 142.20 145.30 142.20 145.30 142.70 140.70	2.Fl 3.Fl 4.Fl 5.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 2.Fl 3.Fl 4.Fl 6F 1.Fl 2.Fl 3.Fl 4.Fl 6F 5.Fl 5.Fl 6F 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.Fl 5.F	29 29 30 31 29 30 33 33 51 52 52 53 55 54 55 55 54 55 54 31 31 44 4 36	27 28 29 29 29 28 29 31 32 49 51 51 51 51 51 51 51 53 53 53 53 53 29 42 29 42 29 35	24 24 25 26 25 27 28 46 47 47 47 47 48 48 49 49 50 50 50 26	32 32 33 33 34 32 33 35 55 55 55 55 55 55 55 55 55 55 55	29 30 29 28 30 30 32 51 52 52 52 52 53 54 55 54 30 42 35	28 29 27 27 28 29 31 51 51 51 51 51 51 53 53 53 53 53 29	24 25 24 25 25 27 46 47 47 47 47 47 47 47 48 48 49 50 50 50 50 50 50 37 30	32 32 33 33 33 33 35 55 55 55 55 56 56 56 56 57 57 57 57 57	
29 30 31 <u>32</u> 33 34	3-9 3-10 4-1 4-2	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Perphery	496543.85 496494.74 496446.93 4966,634.12 496,6571.42	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.065.59	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 146.31 146.31 142.20 145.30 142.20 142.20 148.40 151.51 142.70 157.00 157.00	2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 6F 4.FI 6F 4.FI 6F 6F 6F 6F 6F	29 29 30 31 29 30 32 33 51 52 52 52 52 53 54 54 55 54 55 54 54 31 44 4 43 8 38	27 28 29 29 28 29 31 31 51 51 51 51 51 51 53 53 53 53 53 53 29 42 35 42 35	24 24 25 26 24 25 27 28 46 47 47 47 48 48 49 50 50 50 50 50 50 39 33 33 33	32 32 33 33 34 32 33 35 55 55 55 55 55 55 55 55 55 55 55	29 30 29 28 30 30 32 51 52 52 52 55 54 54 30 42 35 39 38	28 29 28 27 28 29 49 51 51 51 51 51 51 51 53 53 53 29 41 41 34 38	24 25 25 25 25 25 27 46 47 47 48 48 49 49 50 50 50 50 50 50 50 30 33 33 33	32 33 33 33 33 33 33 33 33 33 33 55 55 55	
29 30 31 <u>32</u> 33 34	3-9 3-10 4-1 4-2 4-3	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Periphery Building 4 Podum Psy Deck	496543.85 496494.74 496446.93 496446.93 4966571.42 4966,655	362607.67 3626036.35 3626014.41 3.626.05.69 3.626.01.81	145.30 148.40 151.50 139.10 142.20 145.30 148.40 151.50 139.11 142.21 145.31 148.41 151.51 139.10 142.20 145.30 144.40 151.50 140.70 140.70 157.00	2.FI 3.FI GF 1.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 0F 4.FI 0F 0F 0F 0F 0F	29 29 30 31 30 30 32 33 51 52 52 52 52 53 54 54 55 54 54 54 54 54 54 43	27 28 29 29 28 29 32 49 51 51 51 51 51 51 51 51 53 53 53 53 53 29 29 42 42 35	24 24 25 26 24 25 27 28 46 47 47 47 47 48 48 49 49 50 50 50 50 26 39 31 38	32 32 33 33 34 32 33 35 55 55 55 55 55 55 55 55 55 55 55	29 30 29 28 30 32 51 52 52 52 53 54 55 54 55 54 55 54 30 42 33 9	28 29 27 27 29 31 49 51 51 51 51 51 52 53 53 53 53 53 53 53 53 53 53 53 53 53	24 25 24 23 25 25 25 25 27 46 47 47 47 47 47 48 48 49 49 50 50 50 50 25 37 30 334	32 33 33 33 33 33 33 35 55 55 55 55 55 55	
29 30 31 <u>32</u> <u>33</u> 34 35	3-9 3-10 4-1 4-2 4-3 4-4	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Periphery Building 4 Vestim Sky Deck Building 4 Vestim Sky Deck	496543.65 496494.74 496446.93 496654.12 496.571.42 496.505.50 496.670.69	3626107.67 3626036.35 3626014.41 3.626.065.60 3.626.015 3.626.101.81 3.626.103.08	145.30 148.40 151.50 142.20 145.30 148.40 145.30 148.40 151.50 142.21 142.21 145.31 142.21 142.21 142.21 145.31 142.21 142.20 142.20 142.20 142.20 142.20 145.30 140.70 157.00 157.00 157.00 142.20 145.30	2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 2.FI 3.FI 4.FI 3.FI 4.FI 3.FI 4.FI 3.FI 4.FI 3.FI 4.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3.FI 3	29 29 30 31 29 30 32 32 33 51 52 52 52 53 54 54 54 54 54 54 54 54 54 31 34 33 38 38 39 40	277 28 29 29 29 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 25 26 24 27 27 28 46 47 47 48 49 49 50 50 50 50 50 50 50 50 30 30 33 33 33 33 33 34	32 32 33 33 34 35 35 55 55 55 55 55 55 55 55 55 55 57 57 57	29 30 29 28 30 30 31 51 52 52 52 55 54 55 55 54 55 54 55 54 55 54 30 42 33 39 38 33 9 40	28 29 27 28 29 29 31 49 51 51 51 51 51 53 53 53 53 53 53 53 53 53 53 53 53 53	24 25 24 23 25 25 27 46 47 47 47 47 47 47 48 49 50 50 50 50 50 37 30 34 33 33 33 33 33 33	32 32 33 33 35 55 55 55 55 55 55 55 57 57 57 57 57 57	
29 30 31 <u>32</u> <u>33</u> 34 35	3-9 3-10 4-1 4-2 4-3 4-4	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Periphery Building 4 Vestim Sky Deck Building 4 Vestim Sky Deck	496543.65 496494.74 496446.93 496654.12 496.571.42 496.505.50 496.670.69	3626107.67 3626036.35 3626014.41 3.626.065.60 3.626.015 3.626.101.81 3.626.103.08	145.30 148.40 148.40 149.20 149.20 146.30 148.40 146.30 148.40 145.30 148.40 149.31 149.21 149.21 149.21 149.21 149.20 149.20 149.20 149.20 157.00 15	2.FI 3.FI 4.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2	29 29 30 31 29 30 33 51 52 52 52 52 53 54 54 54 54 54 54 54 31 44 43 38 38 38 39	27 29 29 29 28 29 31 32 49 51 51 51 51 51 51 52 53 53 53 53 53 29 29 29 29 35 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 33 53 5	24 24 25 25 26 24 27 27 28 46 47 47 47 47 47 47 47 47 50 50 50 50 50 39 39 39 33 33 33 33 33	32 32 33 33 34 32 33 35 55 55 55 55 55 55 55 55 55 55 57 57 57	29 30 29 28 30 30 32 51 52 52 53 54 54 54 55 54 54 54 30 42 33 33 33 33 33 33	28 29 28 27 28 29 31 40 51 51 51 51 51 51 53 53 53 53 29 41 34 33 33 37 37 33	24 25 24 25 25 25 27 46 47 47 48 48 49 50 50 50 50 50 50 37 30 37 30 33 33 33 33	32 32 33 32 33 33 33 33 33 33 55 55 55 55 55 55 57 57 57 57 57 57 57	
29 30 31 <u>32</u> 33 <u>34</u> 35 36	3-9 3-10 4-1 4-2 4-3 4-4 4-4 4-5	Building 3 Facade East Building 3 Facade South Building 4 Podium Courtyard Building 4 Podium Reinherry Building 4 Western Sky Deck Building 4 Facade Northwest	496543.65 496494.74 496446.93 4966594.12 4966591.42 4966591.42 4966595.06 496659.08	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81	$\begin{array}{r} 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 151.50\\ 139.11\\ 142.20\\ 148.40\\ 151.50\\ 139.11\\ 148.41\\ 151.51\\ 139.10\\ 142.21\\ 145.31\\ 148.41\\ 151.50\\ 140.70\\$	2.FI 3.FI 4.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 4.FI 4.FI 3.FI 4.FI 3.FI 4.FI 5.FI 3.FI 4.FI 5.FI 4.FI 5.FI 5.FI 5.FI 5.FI 5.FI 5.FI 5.FI 5	29 29 30 31 29 30 32 32 51 52 52 52 52 53 54 55 55 54 31 44 43 36 38 38 38 39 40 40 22 33	277 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 27 27 28 27 28 46 47 47 47 48 49 49 50 50 49 50 50 49 26 33 33 33 33 33 33 33 33 33 33 33 33 33	32           32           33           34           32           35           55           55           56           57	29 30 229 23 30 30 32 51 52 52 53 54 54 55 54 30 42 35 39 38 38 38 38 38 38 38 38 38 38 38 38 38	28 29 28 28 29 28 29 29 29 29 29 31 49 51 51 51 51 51 51 53 63 53 53 29 41 34 36 37 37 37 37 37 39 39 22 22	24 25 25 25 25 25 27 46 47 47 47 47 48 49 49 49 50 50 50 50 50 50 33 33 33 33 33 33 33 33 33 33 33 33 13 36 36	32 32 33 33 35 55 56 56 56 56 56 57 57 57 57 57 57 57 57 57 45 33 34 41 41 42 42 43 22 5 22 6	
29 30 31 <u>32</u> <u>33</u> 34 35	3-9 3-10 4-1 4-2 4-3 4-4	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Periphery Building 4 Vestim Sky Deck Building 4 Vestim Sky Deck	496543.65 496494.74 496446.93 496654.12 496.571.42 496.505.50 496.670.69	3626107.67 3626036.35 3626014.41 3.626.065.60 3.626.015 3.626.101.81 3.626.103.08	$\begin{array}{r} 145.30\\ 148.40\\ 148.40\\ 151.50\\ 149.20\\ 144.20\\ 144.530\\ 148.40\\ 151.50\\ 139.10\\ 148.41\\ 151.51\\ 148.41\\ 151.51\\ 139.10\\ 148.20\\ 148.30\\ 148.20\\ 148.30\\ 148.20\\ 148.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 142.20\\ 145.30\\ 142.20\\ 148.30\\ 148.40\\ 151.50\\ 142.20\\ 148.30\\ 148.30\\ 148.40\\ 151.50\\ 142.20\\ 148.30\\ 148.30\\ 148.40\\ 151.50\\ 148.30\\ 148.40$	2.FI 3.FI 4.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 3.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2.FI 2	29 29 30 31 29 30 32 32 33 31 51 52 52 53 54 54 54 54 54 54 54 54 54 43 38 39 40 40 22 22 23 24	27 28 29 29 29 28 29 31 32 49 51 51 51 51 51 51 51 53 53 53 53 53 53 29 29 24 24 35 42 35 33 38 38 39 39 21 22 32 23	24 24 25 26 26 27 27 27 27 27 27 27 27 46 47 47 47 47 47 48 49 49 49 49 50 50 50 50 50 50 50 50 50 50 50 50 50	32           32           33           34           35           36           53           56           56           56           57           52	29 30 29 28 30 30 30 30 51 52 52 52 52 53 54 54 54 54 54 54 54 54 54 54 54 54 54	28 29 29 27 27 29 31 51 51 51 51 51 51 53 53 53 53 29 41 34 38 37 37 33 38 33 21 22 22 23	24 25 25 25 25 25 25 27 47 47 47 47 47 47 47 47 47 47 47 47 47	322 322 313 313 322 313 333 325 555 555 555 555 555 555 555 55	
29 30 31 <u>32</u> 33 <u>34</u> 35 36	3-9 3-10 4-1 4-2 4-3 4-4 4-4 4-5	Building 3 Facade East Building 3 Facade South Building 4 Podium Courtyard Building 4 Podium Derphany Building 4 Western Sky Deck Building 4 Facade Northwest	496543.65 496494.74 496446.93 4966594.12 4966591.42 4966591.42 4966595.06 496659.08	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81	$\begin{array}{c} 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 142.21\\ 145.31\\ 142.21\\ 145.31\\ 142.20\\ 148.40\\ 148.40\\ 148.40\\ 146.30\\ 146.30\\ 140.70\\ 157.00\\$	2.F1 3.F1 4.F1 6.F 7.F1 2.F1 3.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4	29         29           29         30           31         29           30         32           33         51           52         52           53         54           54         55           54         54           38         38           38         38           39         40           40         22           23         24           26         29	27 28 29 29 29 29 29 31 32 49 51 51 51 51 51 51 51 53 53 53 53 53 53 53 29 42 42 37 37 38 38 39 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 24 25 26 26 27 27 27 27 27 27 27 27 47 47 47 47 47 47 47 49 49 49 49 50 50 50 50 50 50 50 50 50 50 50 50 50	32           32           33           34           35           36           35           36           53           55           56           56           56           57           52	29 30 29 38 30 30 32 52 52 52 52 54 54 55 54 55 54 55 54 55 54 30 42 39 38 38 39 40 40 22 23 224 26	28 29 29 27 27 28 29 31 49 51 51 51 51 51 53 63 63 63 63 63 63 63 7 7 37 37 37 37 37 37 37 22 23 22 23 22 23 22 23 22 23 22 23 22 23 22 23 22 23 22 23 22 23 22 23 23	24 25 25 25 25 25 25 25 27 47 47 47 47 47 47 47 47 47 47 47 47 47	322 323 333 332 333 333 333 333 333 333	
29 30 31 32 33 34 35 36 36 37	3-9 3-10 4-1 4-2 4-3 4-4 4-4 4-5	Building 3 Facade East Building 3 Facade South Building 4 Podium Courtyard Building 4 Podium Derphany Building 4 Western Sky Deck Building 4 Facade Northwest	496543.65 496494.74 496446.93 4966594.12 496571.42 496571.42 496570.69 496659.08	3626107.67 3626036.35 3626014.41 3.626.065.69 3.2626.015.81 3.626.101.81 3.626.101.81 3.626.013.08 3626.08.86	$\begin{array}{r} 145.30\\ 148.40\\ 151.50\\ 139.10\\ 142.20\\ 145.30\\ 151.50\\ 139.11\\ 142.20\\ 148.40\\ 151.50\\ 142.21\\ 145.31\\ 142.21\\ 145.31\\ 142.21\\ 145.31\\ 142.20\\ 145.30\\ 142.20\\ 145.30\\ 157.00\\ 157.00\\ 157.00\\ 157.00\\ 157.00\\ 157.00\\ 157.00\\ 145.30\\ 148.40\\ 151.50\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 154.60\\ 142.20\\ 145.30\\ 148.40\\ 151.50\\ 154.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 154.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 154.60\\ 142.20\\ 146.30\\ 148.40\\ 148.40\\ 151.50\\ 154.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 155.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 155.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 155.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 155.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 156.60\\ 142.20\\ 146.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 156.60\\ 148.40\\ 151.50\\ 156.60\\ 148.40\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\ 156.60\\ 148.40\\ 156.60\\ 148.40\\ 156.60\\$	2.Fl 3.Fl GF 4.Fl 2.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4.Fl 4.Fl 7.Fl 4.Fl 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F	29 29 30 31 29 32 32 51 55 55 55 55 55 55 55 55 55 55 55 55	277 28 29 29 29 29 29 29 29 29 29 29 29 29 31 51 51 51 51 53 53 53 53 53 53 53 53 53 53 53 36 37 37 37 37 38 38 39 22 22 22 22 22 22 22 22 22 22 22 22 22	24 24 25 26 26 27 27 28 27 28 46 47 47 47 49 49 49 49 49 50 50 49 50 26 30 31 33 33 33 33 33 33 33 33 33 33 33 33	32           32           33           34           35           36           35           36           53           55           56           56           56           57           52	29 30 29 28 30 30 32 51 52 52 52 53 54 55 54 55 54 30 30 33 33 33 33 33 33 33 33 32 52 52 52 54 54 55 54 55 54 25 22 52 52 54 22 52 54 22 54 22 54 55 22 55 22 55 25 55 5	28         28           29         28           27         27           27         27           28         31           49         51           51         51           52         53           53         53           53         53           53         53           37         37           37         37           38         38           39         21           22         23	24 25 24 25 25 25 27 46 47 47 47 47 48 48 49 50 50 50 50 50 50 30 30 33 33 33 33 33 33 33 33 33 33 33	322 322 333 322 333 311 333 355 555 555 555 555 555 555	
29 30 31 <u>32</u> 33 <u>34</u> 35 36	3-9 3-10 4-1 4-2 4-3 4-4 4-4 4-5	Building 3 Facade East Building 3 Facade South Building 4 Podium Courtyard Building 4 Podium Derphany Building 4 Western Sky Deck Building 4 Facade Northwest	496543.65 496494.74 496446.93 4966594.12 4966591.42 4966591.42 4966595.06 496659.08	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81	145.30 138.10 138.10 138.10 142.20 142.20 142.20 143.30 142.20 143.30 143.30 143.30 143.31 143.31 145.31 145.31 145.31 145.31 145.30 145.10 145.20 145.30 145.10 151.50 150.50 150.50 150.50 150.50 150.50 15	2.F1 3.F1 4.F1 6.F 7.F1 7.F1 7.F1 7.F1 7.F1 7.F1 7.F1 7.	29         29           29         30           31         31           29         30           32         33           51         52           52         52           54         54           54         54           54         33           38         38           39         40           22         23           23         24           26         29           49         49           49         50	277 28 29 29 29 29 29 29 31 32 49 51 51 51 51 51 51 51 53 53 53 53 53 53 29 24 42 36 37 77 37 37 39 39 22 22 23 24 44 24 24 24 24 24 24 24 25 25 25 26 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 24 25 27 27 27 47 47 47 47 47 47 47 47 47 47 47 47 47	32           32           33           34           32           33           35           55           56           57           33           41           42           25           26           27           32           52           52           52           53	29 30 29 28 30 30 32 51 52 52 52 53 54 54 55 54 54 54 54 39 38 39 40 40 22 23 24 26 29 50 50	28 29 29 27 27 29 31 49 61 61 61 61 61 51 51 53 53 53 53 53 53 29 41 34 33 37 37 35 20 20 21 22 23 44 44 34 36 44 22 22 23 24 44 24 24 24 24 24 24 24 24 24 24 24	24 25 25 25 25 25 27 47 47 47 48 48 49 50 50 50 50 50 50 50 50 33 33 33 33 33 33 33 33 33 34 35 36 17 18 18 19 21 22 50 25 25 25 25 27 27 27 27 27 27 27 27 27 27 27 27 27	322 323 323 333 333 333 333 333 555 555	
29 30 31 32 33 34 35 36 36 37	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtnard Building 4 Podum Courtnard Building 4 Western Sky Deck Building 4 Facade North Building 4 Facade North	496543.65 496494.74 496446.93 4966594.12 496571.42 496571.42 496570.69 496659.08	3626107.67 3626036.35 3626014.41 3.626.065.69 3.2626.015.81 3.626.101.81 3.626.101.81 3.626.013.08 3626.08.86	145.30 148.40 151.50 148.40 148.40 148.40 148.20 145.20 145.20 145.20 145.20 145.20 145.20 145.20 145.20 145.20 145.20 145.20 157.00 15	2.F1 3.F7 4.F1 4.F1 2.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F 6.F	29 29 30 31 29 30 32 33 33 51 52 52 52 53 54 54 54 55 54 54 54 54 54 54 54 54 54	277 28 29 29 29 29 29 29 31 51 61 51 61 61 61 61 61 61 61 61 61 61 61 61 61	24 24 25 26 24 25 26 24 24 27 27 27 27 47 47 47 47 47 47 47 47 47 49 50 50 50 50 50 50 50 50 50 50 50 50 50	32           32           33           34           32           33           35           55           55           56           57           52           52           53	29 30 30 29 28 30 30 32 51 52 52 55 54 55 54 55 54 55 54 55 54 55 54 55 54 55 54 55 4 55 4 55 54 55 2 55 53 30 30 33 33 33 33 33 33 33 2 8 51 52 55 52 55 54 55 54 55 54 55 55 55 55 55 55 55	28 29 20 27 27 28 29 29 40 41 51 51 51 51 51 51 51 53 53 53 53 53 53 20 20 20 21 21 23 23 23 24 24 24 24 24 25 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	24 25 25 23 25 25 25 27 46 47 47 48 49 49 50 50 49 50 50 49 50 33 33 33 33 33 33 34 34 34 34 44 44 44	322 333 322 333 333 333 333 555 555 555	
29 30 31 32 33 34 35 36 36 37	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtnard Building 4 Podum Courtnard Building 4 Western Sky Deck Building 4 Facade North Building 4 Facade North	496543.65 496494.74 496446.93 4966594.12 496571.42 496571.42 496570.69 496589.08 496641.09	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.016.81 3.626.101.81 3.626.101.81 3.626.013.66 3626083.66	145.30 148.40 151.50 148.40 148.40 148.20 146.20 14	2 Fi 3 Fi 4 Fi 6 F 1 Fi 2 SFi 4 Fi 2 SFi 4 Fi 4	29         29           29         30           31         31           29         30           33         31           51         52           52         52           54         54           54         54           54         54           54         54           38         38           39         40           40         22           20         20           20         20           20         50           50         50           50         55	277 28 29 29 29 29 29 29 20 30 29 30 51 51 51 51 51 51 51 51 51 51 51 51 51	24 24 25 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27	32           32           33           34           32           33           36           55           56           56           57           53           53           53           58	29 30 30 29 28 30 30 32 51 52 52 52 53 54 55 54 55 54 55 54 55 54 55 54 55 54 55 54 25 54 25 54 25 54 55 54 55 55 39 40 22 51 51 51 52 55 55 55 55 55 50 55 50 55 55 50 55 55	28 28 29 29 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 25 25 25 25 25 27 46 47 47 48 49 49 50 50 50 49 25 50 50 49 25 50 33 33 33 33 33 33 34 45 27 50 50 50 50 50 50 50 50 50 50 50 50 50	322 333 322 333 333 333 333 555 555 555	
29 30 31 32 33 34 35 36 37 38	3-9 3-10 4-1 4-3 4-4 4-5 4-5 4-6 4-7	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Perphery Building 4 Western Sky Deck Building 4 Facade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade East	496543.65 496494.74 496446.93 4966.634.12 496.670.69 496.670.69 496669.08 496669.08	3626107.67 3626036.35 3626014.41 3.626.005.69 3.3626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.80 3.626.100.80 3.626.100.	145.30 148.40 151.50 148.40 151.50 148.40 148.40 148.50 148.50 148.50 148.50 148.50 148.50 148.50 148.50 148.50 151.50 155.50 15	2.F1 3.F1 3.F1 2.F1 2.F1 2.F1 3.F1 4.F1 4.F1 4.F1 2.F1 3.F1 3.F1 4.F1 2.F1 3.F1 3.F1 4.F1 2.F1 3.F1 4.F1 4.F1 4.F1 4.F1 3.F1 5.F1 5.F1 5.F1 5.F1 5.F1 5.F1 5.F1 5	29 29 30 31 29 30 32 32 52 52 52 53 54 54 55 55 55 55 55	277 28 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 24 25 26 26 26 24 27 27 27 27 27 28 46 47 47 48 49 49 49 49 49 49 49 49 49 49 50 50 50 50 33 33 33 33 33 33 33 33 33 33 33 33 33	32 32 33 34 34 32 33 35 55 56 56 56 56 56 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57	29 30 30 29 28 30 30 32 51 52 55 54 54 55 55 54 42 39 38 39 40 40 22 23 24 49 50 50 55 55 55	28 29 29 27 27 28 29 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 25 23 25 26 47 47 47 48 49 49 50 50 30 34 33 33 33 33 33 33 33 5 55 50 50	322 323 333 333 333 333 333 355 555 556 566 577 577 577 577 577 577 5	
29 30 31 32 33 34 35 36 36 37	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtnard Building 4 Podum Courtnard Building 4 Western Sky Deck Building 4 Facade North Building 4 Facade North	496543.65 496494.74 496446.93 4966594.12 496571.42 496571.42 496570.69 496589.08 496641.09	3626107.67 3626036.35 3626014.41 3.626.065.69 3.626.016.81 3.626.101.81 3.626.101.81 3.626.013.66 3626083.66	145.30 148.40 151.50 139.10 148.20 148.20 148.20 148.30 148.30 148.30 148.30 139.11 145.31 148.31 148.31 145.31 148.31 145.31 148.31 148.21 145.31 148.21 148.21 148.21 148.21 148.21 148.21 148.30 148.20 148.30 148.40 148.30 148.40 148.30 148.40 148.30 148.40 149.10 148.40 149.100 149.100 149.1000000000	2.F1 3.F1 4.F1 6.F 6.F 7.F1 3.F1 6.F 7.F1 7.F1 7.F1 7.F1 7.F1 7.F1 7.F1 7.	29 29 30 31 31 32 30 30 30 30 30 51 52 52 52 54 54 54 54 55 54 54 44 43 30 55 54 54 44 43 39 39 40 40 40 22 23 29 49 49 50 55 55 55	277 28 29 29 29 29 20 31 31 31 31 51 51 51 51 51 51 51 53 53 53 53 53 53 53 53 53 29 42 42 42 37 37 38 38 39 22 22 24 44 51 51 53 53 53 53 53 53 53 53 53 53 53 53 53	24 24 25 26 26 24 26 27 27 27 27 27 27 28 28 46 47 47 48 49 49 49 49 49 49 26 50 50 50 19 19 19 19 19 19 26 49 49 26 49 49 26 50 50 50 50 50 50	22 33 34 34 32 33 35 56 56 56 56 56 56 56 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57	29 30 29 30 30 30 30 30 51 51 52 52 53 54 55 55 55 55	28 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 25 23 25 25 25 46 47 47 47 48 49 49 50 50 30 34 33 33 33 33 33 33 33 33 34 42 50 50 50 50	322 323 333 333 333 333 333 355 555 556 566 577 577 577 577 577 577 5	
29 30 31 32 33 34 35 36 37 38	3-9 3-10 4-1 4-3 4-4 4-5 4-5 4-6 4-7	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Perphery Building 4 Western Sky Deck Building 4 Facade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade East	496543.65 496494.74 496446.93 4966.634.12 496.670.69 496.670.69 496669.08 496669.08	3626107.67 3626036.35 3626014.41 3.626.005.69 3.3626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.80 3.626.100.80 3.626.100.	$\begin{array}{c} 145.30\\ 148.40\\ 151.80\\ 148.40\\ 151.80\\ 148.40\\ 148.40\\ 148.40\\ 148.30\\ 148.20\\ 148.30\\ 148.40\\ 148.41\\ 151.50\\ 139.10\\ 142.21\\ 148.41\\ 151.50\\$	2.Fi 3.Fi 4.Fi 0.F 2.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3.Fi 4.Fi 4.Fi 4.Fi 4.Fi 4.Fi 4.Fi 4.Fi 4	29 29 30 31 31 32 30 30 30 30 30 51 52 52 52 54 54 54 54 55 54 54 44 43 30 55 54 54 44 43 39 39 40 40 40 22 23 29 49 49 50 55 55 55	277 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 26 27 27 28 46 47 47 49 49 49 49 49 49 49 49 49 49 49 50 50 50 11 11 11 11 11 11 11 11 11 11 11 11 11	22 33 34 32 33 34 32 35 55 55 55 55 55 55 55 55 55 55 55 55	29 30 29 30 30 30 30 30 51 51 52 52 53 54 55 55 55 55	28 29 29 27 27 20 27 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 24 25 23 25 26 27 47 47 47 47 47 47 48 49 49 49 49 49 49 50 50 50 50 33 33 33 34 33 35 36 17 18 19 29 30 30 33 33 34 44 44 44 45 45 50 50 50 50 50	$\begin{array}{c} 322\\ 323\\ 333\\ 333\\ 333\\ 355\\ 555\\ 556\\ 65\\ 556\\ 65\\ 57\\ 757\\ 57\\ 757\\ 57\\ 57\\ 57\\ 57\\ 57\\$	
29 30 31 32 33 34 35 36 36 37 38 38	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Courtyard Building 4 Gata Building 4 Facade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade South Building 4 Facade South	496543.65 496494.74 496494.74 496571.42 496571.42 496570.69 496570.69 496590.08 496641.09 496678.3	3626107.67 3626036.35 3626014.41 3.622.005.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.91 3.626.101.91 3.626.101.91 3.626.01	$\begin{array}{c} 465.30\\ 1465.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 148.50\\ 148.50\\ 148.50\\ 148.50\\ 148.50\\ 148.40\\ 148.50\\ 148.40\\ 151.50\\ 148.41\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 157.50$	2.Fi 3.Fi 4.Fi 0.F 7.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3.Fi 3	29 29 30 31 31 32 32 32 32 32 32 33 33 33 33 52 52 52 52 53 54 54 54 54 54 54 54 54 54 54 54 54 54	277 28 29 29 29 29 20 31 31 31 31 51 51 51 51 51 51 51 53 53 53 53 53 53 53 53 53 29 42 42 42 37 37 38 38 39 22 22 24 44 51 51 53 53 53 53 53 53 53 53 53 53 53 53 53	24 24 25 26 26 24 26 27 27 27 27 27 27 28 28 46 47 47 48 49 49 49 49 49 49 26 50 50 50 19 19 19 19 19 19 26 49 49 26 49 49 26 50 50 50 50 50 50	22 33 34 34 32 33 35 56 56 56 56 56 56 56 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57	29 30 30 28 30 31 30 32 51 52 53 54 55 55 54 54 55 55 54 30 42 33 33 33 33 33 40 40 42 23 24 49 40 40 55 55 55 55 55	28 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 25 23 25 25 25 46 47 47 47 48 49 49 50 50 30 34 33 33 33 33 33 33 33 33 34 42 50 50 50 50	322 323 333 333 333 333 333 355 555 556 566 577 577 577 577 577 577 5	
29 30 31 32 33 34 35 36 37 38	3-9 3-10 4-1 4-3 4-4 4-5 4-5 4-6 4-7	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Perphery Building 4 Western Sky Deck Building 4 Facade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade East	496543.65 496494.74 496446.93 4966.634.12 496.670.69 496.670.69 496669.08 496669.08	3626107.67 3626036.35 3626014.41 3.626.005.69 3.3626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.80 3.626.100.80 3.626.100.	$\begin{array}{c} 145.30\\ 148.40\\ 151.80\\ 148.40\\ 151.80\\ 148.20\\$	2.F1 3.F1 4.F1 0.F 7.F1 3.F1 3.F1 3.F1 3.F1 3.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4	29 29 30 30 31 31 32 32 33 32 32 33 32 42 53 53 54 54 54 54 54 54 54 54 54 54 54 54 54	277 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 27 28 27 28 46 47 47 49 49 49 50 50 50 50 50 50 50 50 50 50 50 50 50	22 33 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	29 30 30 32 32 32 32 32 32 32 32 32 32 32 32 32	28 29 29 20 27 27 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 24 23 23 23 27 27 46 47 47 47 47 47 47 47 47 47 47 47 47 47	$\begin{array}{c} 322\\ 323\\ 333\\ 333\\ 333\\ 333\\ 333\\ 55\\ 55\\ 55\\ $	
29 30 31 32 33 34 35 36 36 37 38 38	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Courtyard Building 4 Eacade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade South Building 4 Facade South	496543.65 496494.74 496494.74 496571.42 496571.42 496570.69 496570.69 496590.08 496641.09 496678.3	3626107.67 3626036.35 3626014.41 3.622.005.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.91 3.626.101.91 3.626.101.91 3.626.01	$\begin{array}{c} 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 148.50\\ 148.20\\ 148.50\\ 148.50\\ 148.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 152.50\\ 148.40\\ 151.50\\ 154.50\\$	2.F1 3.F1 4.F1 6.F 7.F1 3.F1 3.F1 3.F1 3.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4	29 29 30 30 29 29 29 20 31 31 22 33 32 32 33 31 52 54 54 55 54 54 55 54 54 43 38 38 39 22 23 24 46 55 55 50 50 50 50 50 50 50 50 50 50 50	277 278 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 26 27 27 28 46 47 47 49 49 49 49 49 49 49 50 50 50 50 50 33 33 33 33 33 33 33 33 33 33 33 33 33	$\begin{array}{c} 32\\ 32\\ 33\\ 34\\ 34\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36$	29 30 32 32 30 32 32 32 32 32 32 32 32 32 52 52 52 52 53 33 32 32 34 40 40 40 22 23 35 54 44 55 55 55 55 57 77	28 29 20 20 20 20 20 20 20 20 20 20 20 20 20	24 25 25 23 23 25 27 27 40 47 47 47 47 47 47 47 47 47 47 47 47 47	$\begin{array}{c} 322\\ 323\\ 322\\ 333\\ 322\\ 313\\ 333\\ 333\\$	
29 30 31 32 33 34 35 36 36 37 38 38	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Courtyard Building 4 Eacade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade South Building 4 Facade South	496543.65 496494.74 496494.74 496571.42 496571.42 496570.69 496570.69 496590.08 496641.09 496678.3	3626107.67 3626036.35 3626014.41 3.622.005.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.91 3.626.101.91 3.626.101.91 3.626.01	$\begin{array}{c} 465.30\\ +465.40\\ +50.40\\ +50.40\\ +465.40\\$	2.F1 3.F1 4.F1 6.F 1.F1 3.F1 3.F1 3.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4	29 29 30 30 31 32 33 32 33 32 33 32 52 53 53 54 55 54 44 44 44 44 44 44 44 45 31 31 32 53 53 54 54 55 55 55 55 55	277 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 27 27 28 46 47 77 28 46 49 49 49 49 49 49 49 49 49 49 49 49 49	$\begin{array}{c} 32\\ 32\\ 33\\ 34\\ 34\\ 35\\ 35\\ 35\\ 35\\ 35\\ 35\\ 35\\ 35\\ 35\\ 35$	29 30 30 32 31 32 32 32 32 32 52 52 52 54 54 55 54 55 55 55 55 55 55 55 55 55	28 29 29 20 27 27 31 40 61 61 61 61 61 63 63 63 63 63 63 63 63 63 63 63 63 63	241 245 245 245 245 247 247 247 247 247 447 447 447 447 447	322 333 333 333 333 335 55 55 55 55 55 55 5	
29 30 31 32 33 34 35 36 36 37 38 38	3-9 3-10 4-1 4-2 4-3 4-4 4-5 4-6 4-7 4-8	Building 3 Facade East Building 3 Facade South Building 4 Podum Courtyard Building 4 Podum Courtyard Building 4 Eacade Northwest Building 4 Facade North Building 4 Facade East Building 4 Facade South Building 4 Facade South	496543.65 496494.74 496494.74 496571.42 496571.42 496570.69 496570.69 496590.08 496641.09 496678.3	3626107.67 3626036.35 3626014.41 3.622.005.69 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.81 3.626.101.91 3.626.101.91 3.626.101.91 3.626.01	$\begin{array}{c} 145.30\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 148.40\\ 148.50\\ 148.20\\ 148.50\\ 148.50\\ 148.50\\ 148.40\\ 151.50\\ 148.40\\ 151.50\\ 152.50\\ 148.40\\ 151.50\\ 154.50\\$	2.F1 3.F1 4.F1 6.F 7.F1 3.F1 3.F1 3.F1 3.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4.F1 4	23 30 30 31 32 32 33 32 32 33 32 32 33 33 32 32 33 34 41 41 41 44 43 43 43 43 43 43 43 43 43 43 44 44	277 28 29 29 29 29 29 29 29 29 29 29 29 29 29	24 24 25 26 26 26 27 28 46 47 47 46 49 49 49 49 49 49 49 49 49 49 49 49 49	$\begin{array}{c} 32\\ 32\\ 33\\ 34\\ 34\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36\\ 36$	29 30 30 32 33 33 32 32 52 52 52 52 52 52 54 54 54 54 54 54 54 54 54 54 54 54 54	28 29 29 27 27 28 29 29 29 41 49 49 49 49 49 49 49 49 49 49 49 49 49	24 25 24 23 23 23 24 25 27 27 27 27 27 46 47 47 47 47 47 47 47 47 47 47 47 47 47	322 323 333 333 333 333 333 335 55 55 55 55 55	

#### Combined Transportation Noise Exposure

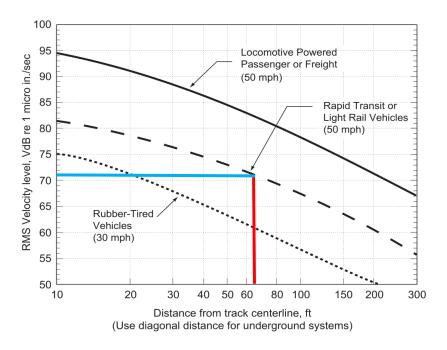
1		Receiver name	x	Y	Height		Unmitigated Noise Level dB(A)	Mitigated Noise Le dB(A)
1 2	1-1	Building 1 Patio Above Cafe Building 1 Western Sky Deck	496,214.85 496,149.17	3,626,039.78 3,626,027.83	129.06	GF	80	65 63
3	1-3	Building 1 Eastern Sky Deck	496,215.31	3,626,033.52	141.80 129.10	GF	75 78	65 78
4	1-4	Building 1 Facade North	496145.39	3626032.18	132.30 135.50	1.Fl 2.Fl	78 78	78 78
					138.70 129.10	3.Fl GF	78 79	78 79
5	1-5	Building 1 Facade North	496163.21	3626038.09	132.30 135.50	1.Fl 2.Fl	80	80
					138.70	3.FI	79	79
			1	1	129.10	4.Fl GF	79 79	79 79
6	1-6	Building 1 Facade North	496183.32	3626039.9	132.30 135.50	1.Fl 2.Fl	80 80	80 80
					138.70 141.90	3.FI 4.FI	80 79	80 79
					129.10	GF 1.Fl	78	63
7	1-7	Building 1 Facade North	496210.31	3626037.72	135.50	2.FI	79 79	76 79
					138.70 141.90	3.Fl 4.Fl	79 78	79 78
					129.10 132.30	GF 1.Fl	71 73	70 72
8	1-8	Building 1 Facade East	496222.71	3626027.61	135.50 138.70	2.Fl 3.Fl	73 73	73 73
					141.90	4.Fl GF	73	73
					132.30	1.FI	58 58	58 58
9	1-9	Building 1 Facade South	496207.84	3626021.95	135.50 138.70	2.Fl 3.Fl	58 58	58 58
					141.90 129.10	4.Fl GF	58 58	58 58
10	1-10	Building 1 Facade South	496189.05	3626021.91	132.30 135.50	1.Fl 2.Fl	59	59
	1-10	- sound in acade South	-au 103.00	5520021.91	138.70	3.FI	59 59	59 59
			+		141.90 129.10	4.Fl GF	59 72	59 72
11	1-11	Building 1 Facade South	496156.96	3626023.31	132.30 135.50	1.Fl 2.Fl	72	72 72
					138.70	3.Fl 4.Fl	72	72
			1	1	129.10	GF	72 75	72
12	1-12	Building 1 Facade West	496142.78	3626029.13	132.30 135.50	1.Fl 2.Fl	75 75	75 75
13	2-1	Building 2 Western Sky Deck	496.271.42	3.626.041.29	138.70 153.60	3.Fl GF	75	75
14	2-2 2-3	Building 2 Podium Courtyard Building 2 Podium Periphery	496,375.71 496,290.84	3,626,040.89 3,626,024.86	136.10	GF	39 57	39 57
19	2-3	country 2 roution reliphety		3,020,024.06	136.10 137.60 140.70	GF GF 1.FI	57 79 79	57 79 79
16	2-4	Building 2 Facade North	496300.54	3626052.81	140.70 143.80 146.90	2.Fl 3.Fl	79 79 78	79 79 78
					146.90 150.00 137.60	4.Fl GF	78 79	78
17	2-5	Building 2 Facade North	496336.5	3626064	140.70	1.Fl 2.Fl	79 79 79	79 79 79
					146.90	3.Fl 4.Fl	79 78	79 78
					137.60 140.70	GF 1.Fl	79 79	79 79
18	2-6	Building 2 Facade North	496372.36	3626074.02	143.80 146.90	2.Fl 3.Fl	79 79	79 79
			+		150.00 137.60	4.Fl GF	78 62	78
19	2-7	Building 2 Facade East	496405.72	3626050.42	140.70 143.80	1.Fl 2.Fl	67 69	67 69
					146.90 150.00	3.Fl 4.Fl	70 70	70 70
					137.60 140.70	GF 1.Fl	57 58	57 58
20	2-8	Building 2 Facade South	496398.7	3626008.82	143.80 146.90	2.Fl 3.Fl	58 58	58 58
			+	<u> </u>	150.00 137.60	4.Fl GF	58 58	58 58
21	2-9	Building 2 Facade South	496348.04	3626013.89	140.70 143.80	1.Fl 2.Fl	58 58	58 58
22		Pulking 2 Dodier Country	400 400 50	3 600 000 01	146.90 150.00	3.Fl 4.Fl	58 58	58 58
22 23 24	3-1 3-2 3-3	Building 3 Podium Courtyard Building 3 Podium Periphery Building 3 Western Sky Deck	496,496.53 496,525.17 496,422.24	3,626,073.29 3,626,073.20 3,626,080,78	137.60 137.60	GF GF	58 67 67	56 61
24 25	3-3 3-4	Building 3 Western Sky Deck Building 3 Eastern Sky Deck	496,422.24 496,537.21	3,626,080.78 3,626,111.72	155.10 155.10 139.10	GF GF	67 71 64	61 64 64
26	3-5	Building 3 Facade West	496422.3	3626054.68	139.10 142.20 145.30	1.Fl 2.Fl	68 70	68 70
-					145.30 148.40 151.50	2.FI 3.FI 4.FI	69 70	69 70
			1	1	139.10 142.20	GF 1.Fl	70 79 79	70 79 79
27	3-6	Building 3 Facade North	496446.72	3626094.79	145.30	2.Fl 3.Fl	79 79 79	79 79 79
					148.40 151.50 139.10		79 78 79	79 78 79
28	3-7	Building 3 Facade North	496501.49	3626108.41	142.20	1.Fl 2.Fl	79 79 79	79 79
					148.40	3.Fl 4.Fl	78 78	78
					139.10 142.20	GF 1.Fl	75 75	75
29	3-8	Building 3 Facade Northeast	496543.65	3626107.67	145.30 148.40	2.Fl 3.Fl	75 75	75
			+		151.50 139.11	4.Fl GF	75 57	75 57
30	3-9	Building 3 Facade East	496494.74	3626036.35	142.21 145.31	1.Fl 2.Fl	58 57	59 59
					148.41 151.51	3.Fl 4.Fl	56 56	58 56
					139.10 142.20	GF 1.Fl	57 57	57 57
31	3-10	Building 3 Facade South	496446.93	3626014.41	145.30 148.40	2.Fl 3.Fl	58 58	58 58
32	4-1	Building 4 Podium Courtyard	496,634.12	3,626,065.69	151.50 140.70	4.Fl GF	57 38	58 37
33 34	4-2 4-3	Building 4 Podium Periphery Building 4 Western Sky Deck	496,571.42 496,606.50	3,626,051.59 3,626,101.81	140.70 157.00	GF	68 70	60 64
35	4-4	Building 4 Eastern Sky Deck	496,670.69	3,626,103.08	157.00 142.20 145.30	GF GF	70 73	63 73
36	4-5	Building 4 Facade Northwest	496589.08	3626083.66	148.40	1.Fl 2.Fl	73 73	73 73
			1		151.50	3.FI 4.FI	73 73	73 73
37	4-6	Building 4 Facade North	496641.09	3626108.08	142.20 145.30 148.40	GF 1.Fl 2.Fl	76 76 76	76 76 76
31	4-0	Summing 4 Facade HORD	480041.09	3020106.06	151.50	3.FI	76 76 76	76 76 76
		1	1	1	154.60 142.20 145.30	4.Fl GF	76 68	76 68
38	4-7	Building 4 Facade East	496678.3	3626070.05	148.40	2.FI	68 69	68 69
				L	151.50	3.FI 4.FI	69 69	69 69
39	4-8	Building 4 Facade South	496673.01	3626035.48	142.18 145.28	GF 1.FI	58 58	58 58
38	4-8	Something of Facable South	+900/3.U1	3020035.48	148.38 151.48	2.Fl 3.Fl	58 58	58 58
			1	1	154.58 142.23	4.FI GF	58 60	58 60
40	4-9	Building 4 Facade South	496626.15	3626018.78	145.33 148.43	1.Fl 2.Fl	60 59	60 59
				L	151.53 154.63	3.FI 4.FI	59 59	59 59
	[	Building 4 Facade South	496587.29	3626018.5	142.22 145.32	GF 1.FI	58 59	58 59
41	4-10				148.42	2.FI	59	59

## **Emissions HVAC Noise**

### SoundPlan Output

Nie	Receiver		Coordinates (in meters)		Noise Level
No.	name	Х	Y	Height	dB(A)
1	1	496,144.90	3,625,986.56	129.80	39
2	2	496,239.51	3,625,971.95	131.40	40
3	3	496,279.30	3,625,968.11	135.60	41
4	4	496,319.62	3,625,943.50	142.90	44
5	5	496,398.35	3,625,963.39	134.60	42
6	6	496,492.66	3,625,952.90	146.30	45
7	7	496,524.08	3,625,963.47	146.30	45
8	8	496,569.99	3,625,963.64	148.70	45
9	9	496,602.15	3,625,953.05	148.10	44
10	10	496,628.73	3,625,976.15	140.70	41
11	11	496,664.53	3,625,994.87	139.50	39
12	12	496,710.88	3,625,985.93	145.30	41

### **Reference Vibration Levels**



Distance from Centerline	65	feet
Reference Vibration Level at 50 mph	71	VdB
Reference Speed	50	mph
Model Speed	30	mph
Adjustment	-4	VdB
Estimbated Vibration Level	67	VdB