Attachment A2

1431 FRANKLIN ST

Residential Entitlement - 11/22/2022

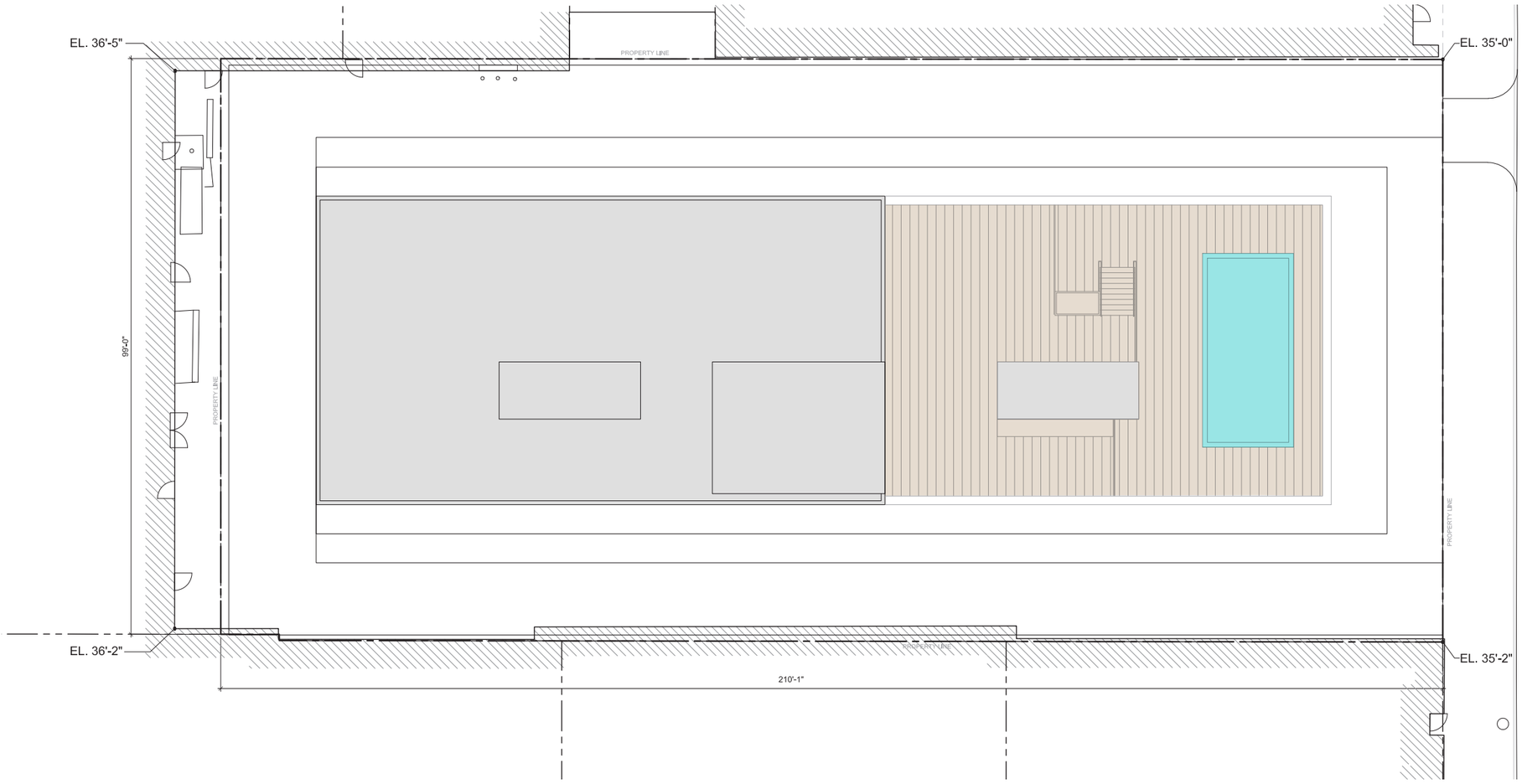
PLN20125
RECEIVED 12-15-2022

TIDEWATER

LARGE
architecture

CONTENTS

SITE



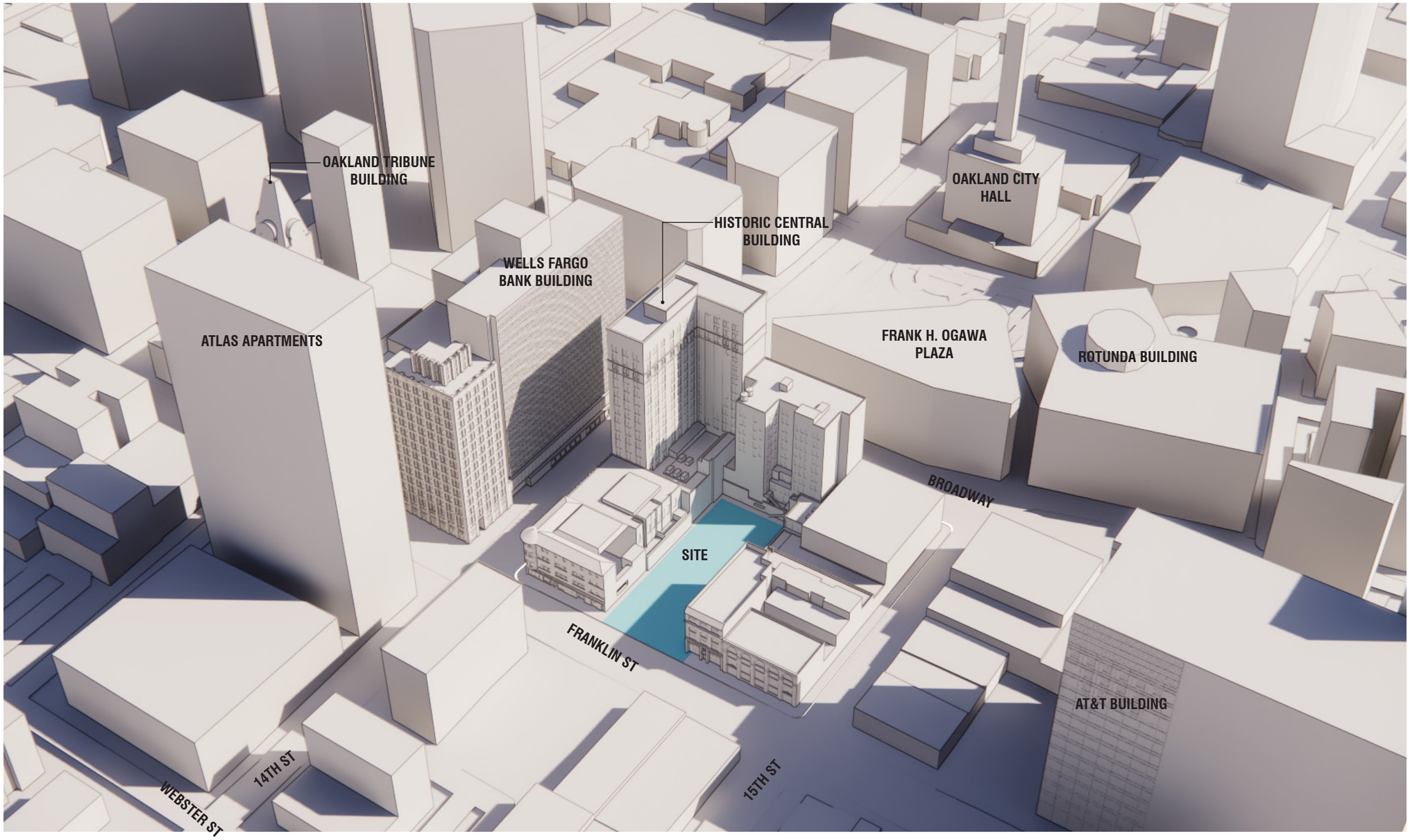
SITE PLAN

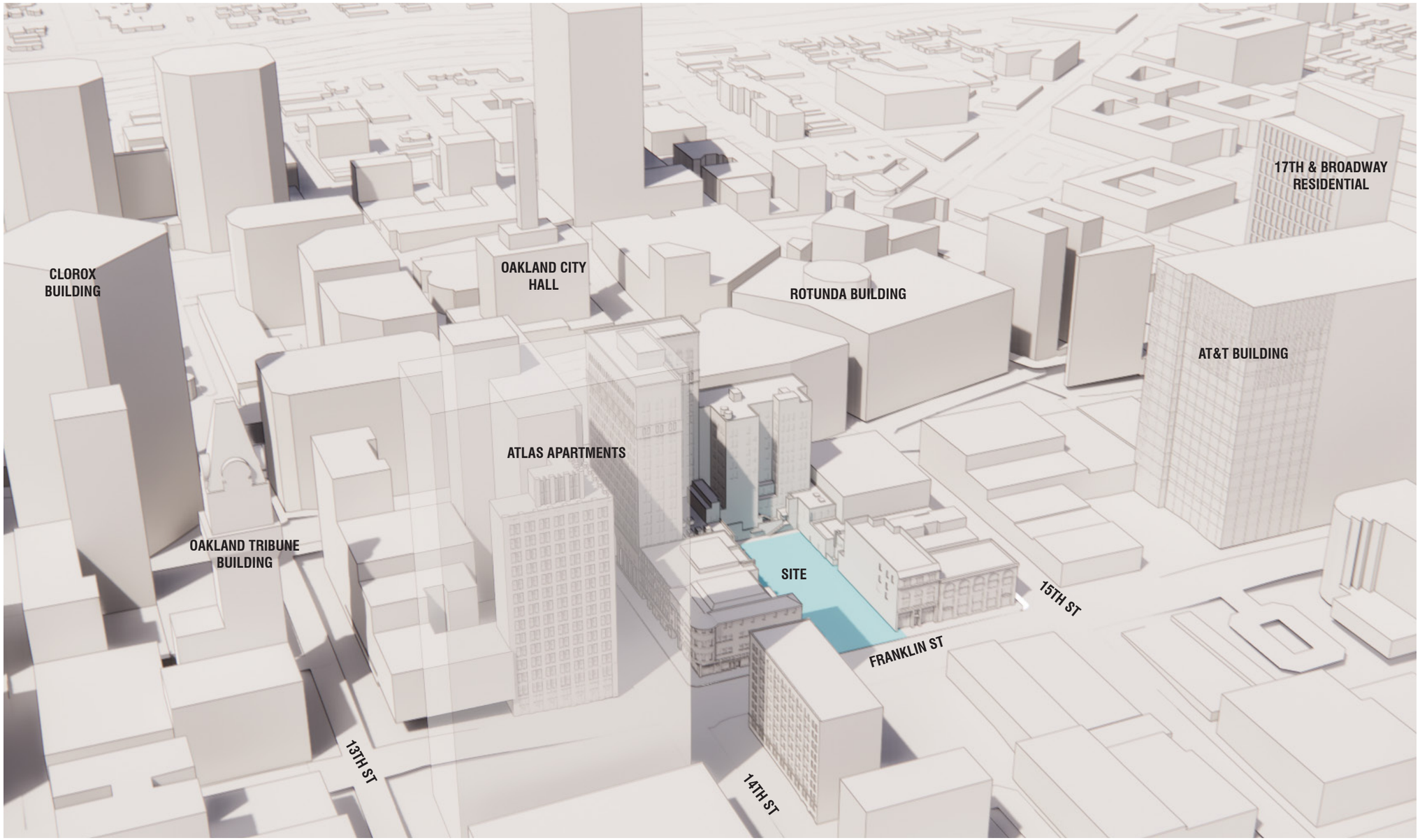
SCALE: x" = 1'-0" 0' 5' 15' 30'

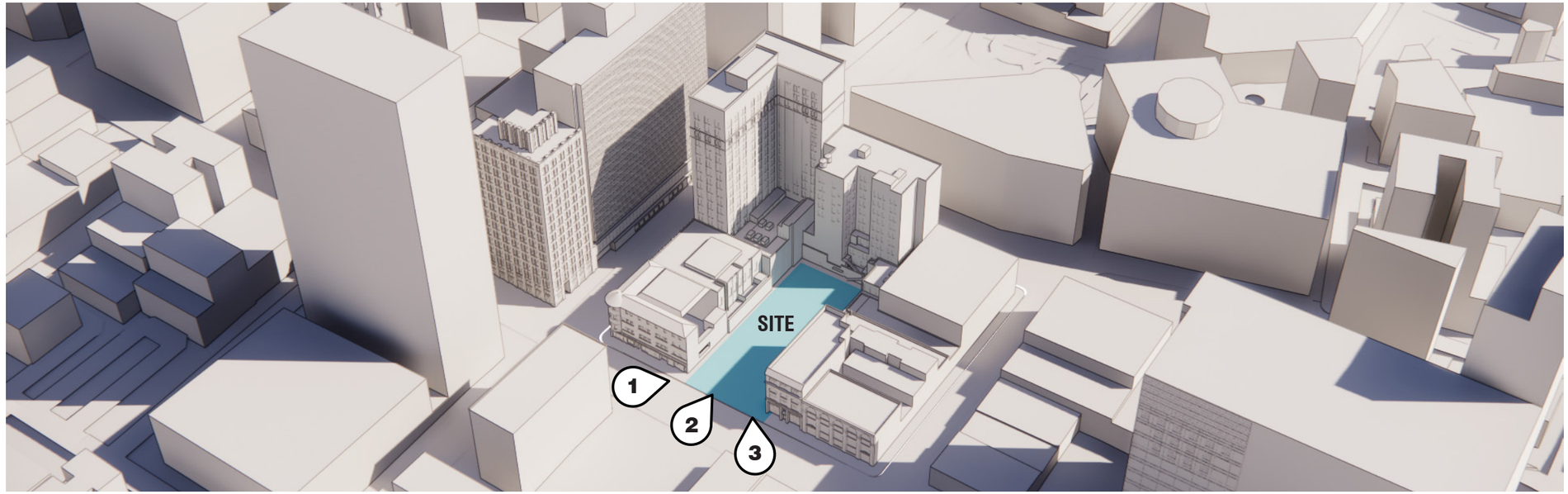
1431 FRANKLIN ST

Residential Entitlement TIDEWATER

CONTEXT AXONOMETRIC



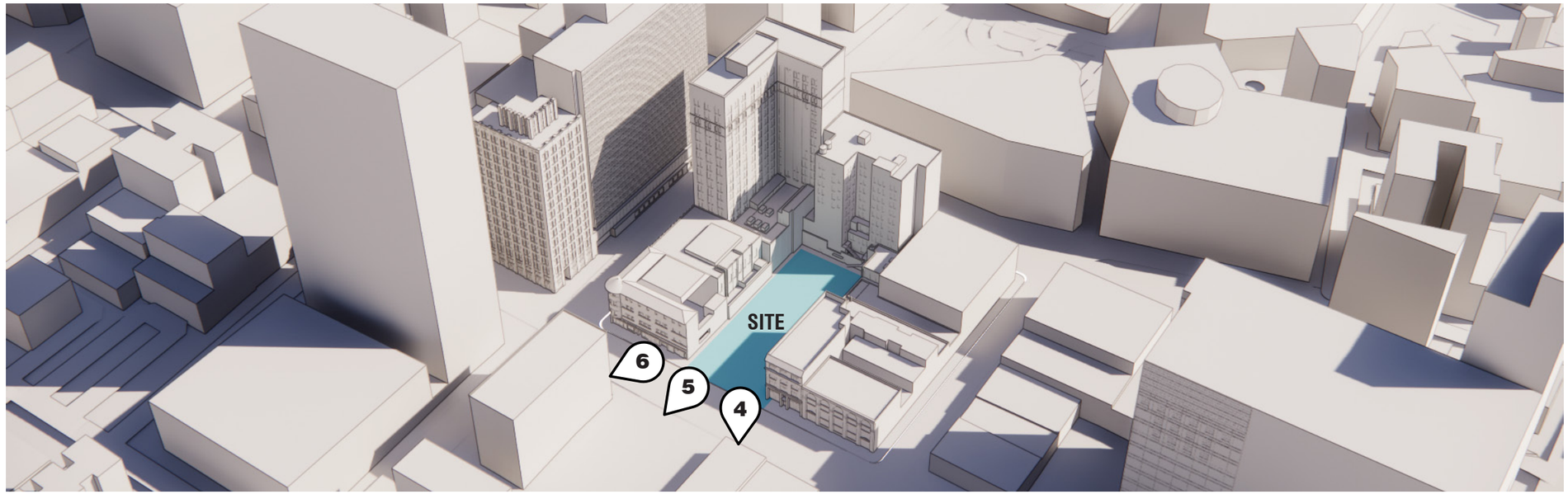

CLOROX
BUILDING
OAKLAND CITY
HALL
ROTUNDA BUILDING
17TH & BROADWAY
RESIDENTIAL
AT&T BUILDING
ATLAS APARTMENTS
OAKLAND TRIBUNE
BUILDING
SITE
15TH ST
FRANKLIN ST
13TH ST
14TH ST



1 - View to site from south

2 - View to site from south-east

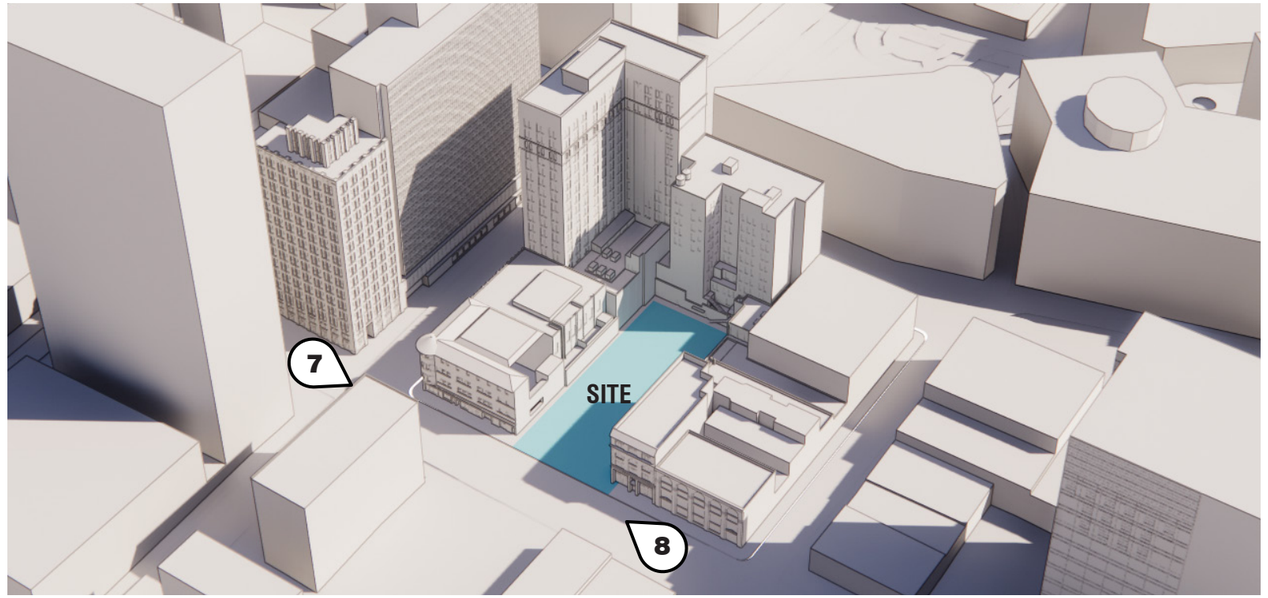
3 - View towards site from east



4 - View from site to east

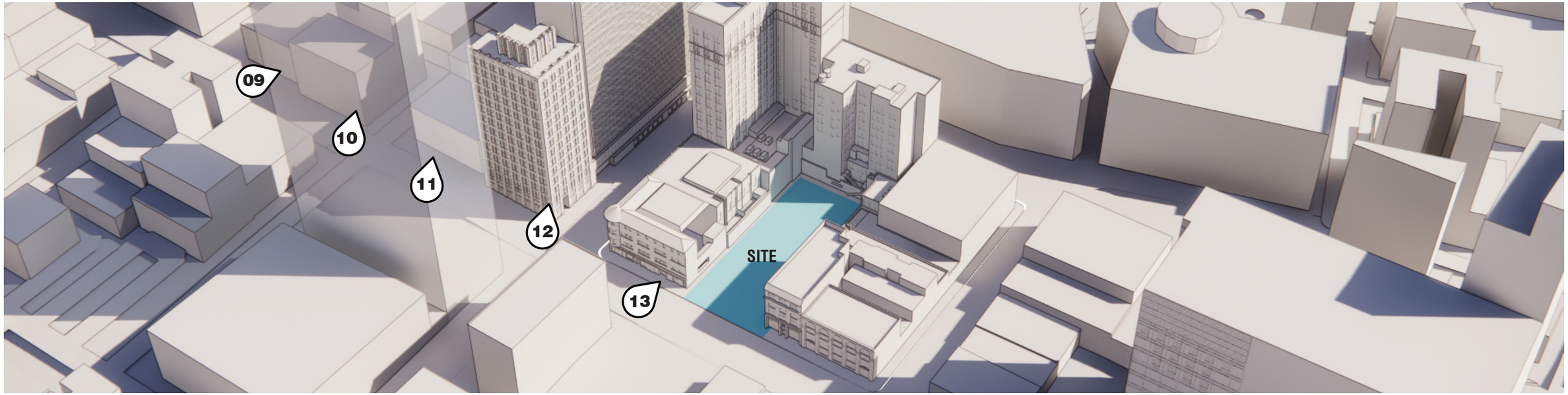
5 - View from site to south-east

6 - View from site to south



7 - View along franklin ave. to north-east

8 - View along franklin ave. to south-west



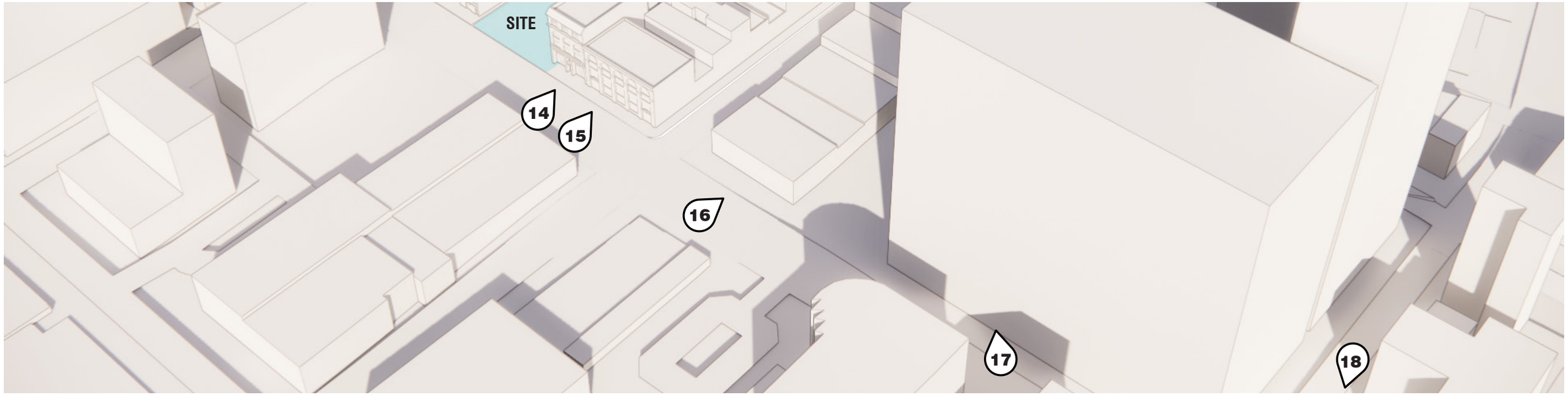
9 - 1205 Franklin St

10 - Tribune Tower, 09 13TH St

11 - 1305 Franklin St

12 - 1901 Harrison St

13 - 1407 Franklin St



14 - 1445 Franklin St

15 - 401 15TH St

16 - 1517 Franklin St

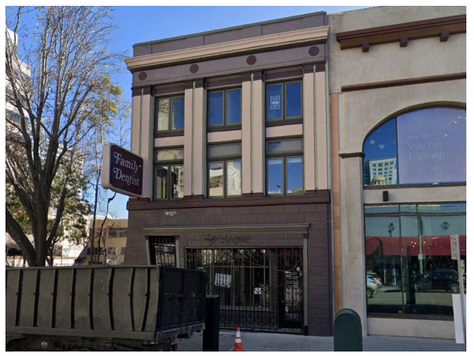
17 - 1587 Franklin St

18 - 1701 Franklin St

19 - 1430 Franklin St

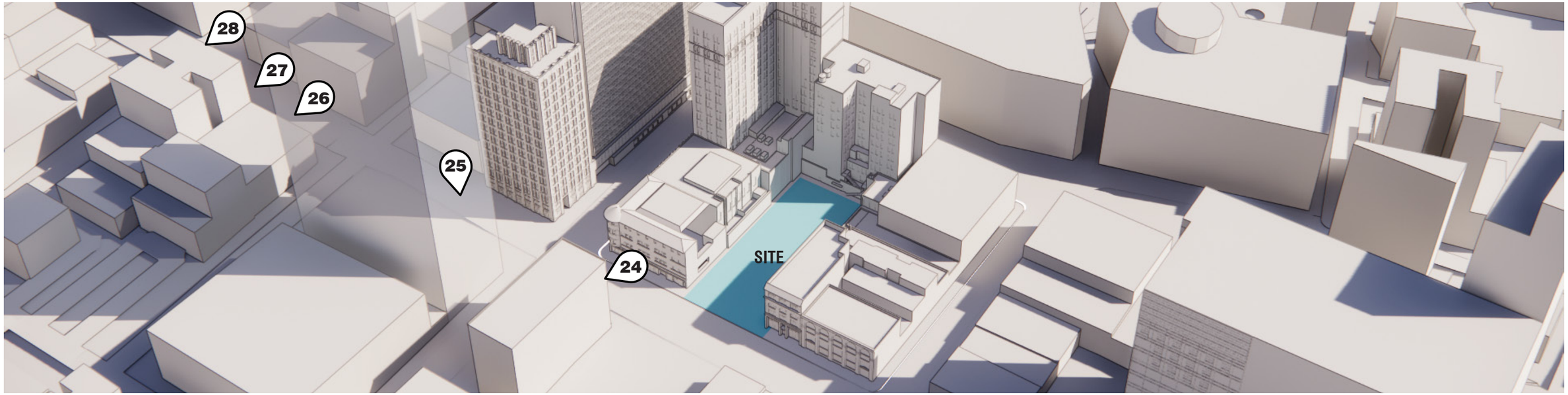
20 - 1444 Franklin St

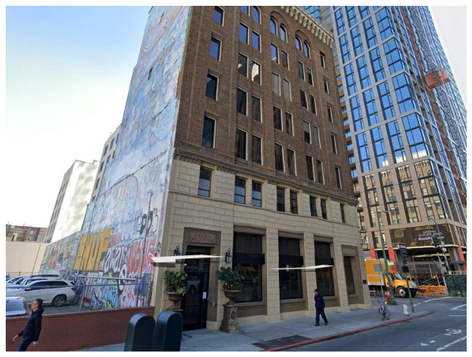
21 - 1504 Franklin St



22 - 1510 Franklin St

23 - 1582 Franklin St





24 - 1400 Franklin St

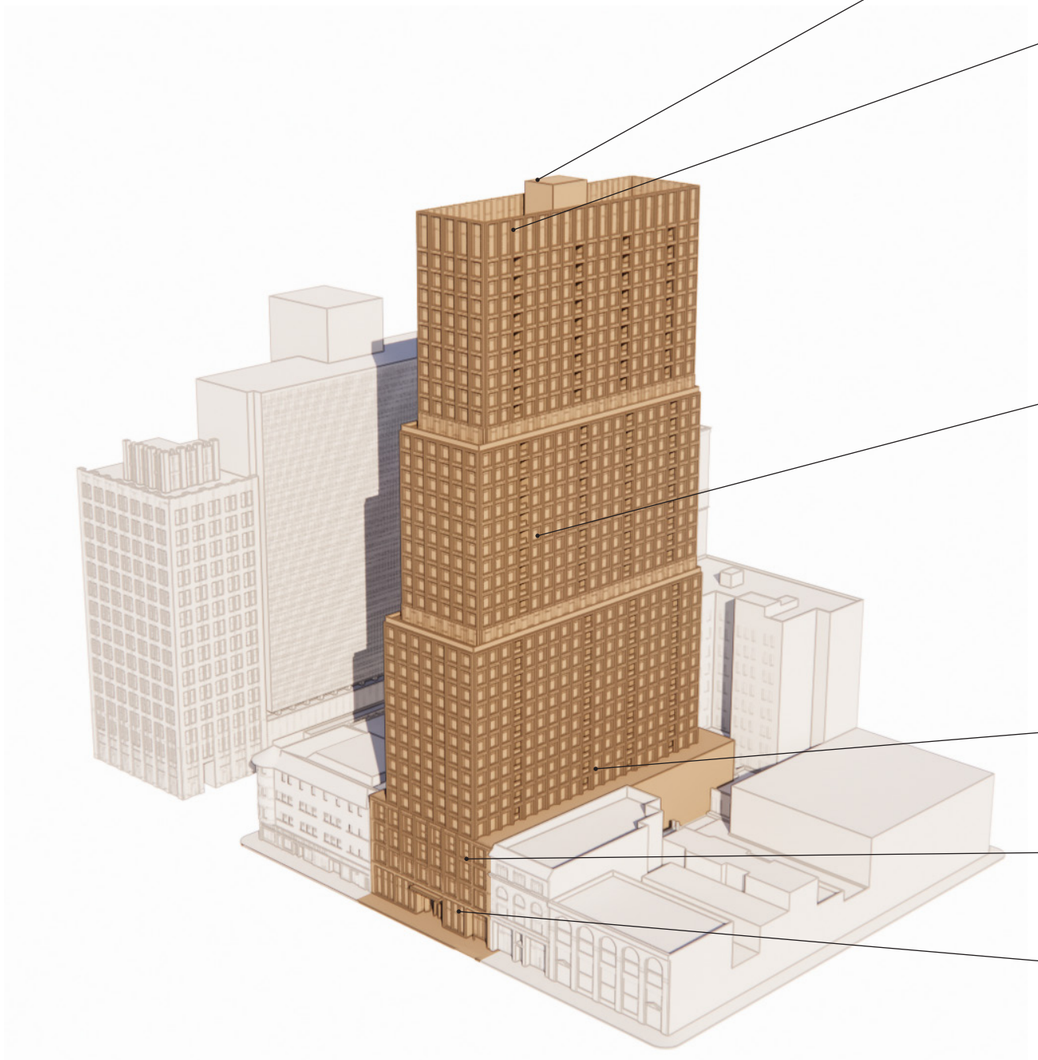
25 - 385 14TH St

26 - 393 13TH St

27 - 394 12TH St

28 - 1168 Franklin St

RESIDENTIAL TOWER PROGRAM



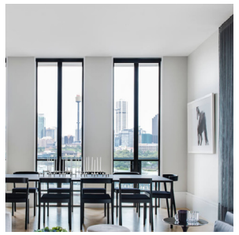
MECHANICAL

ROOFTOP AMENITY
indoor and outdoor amenities on roof



381 RESIDENTIAL UNITS



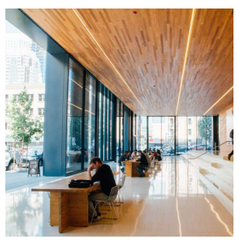


BUILDING AMENITY

PARKING GARAGE
167 stalls of 4 floors

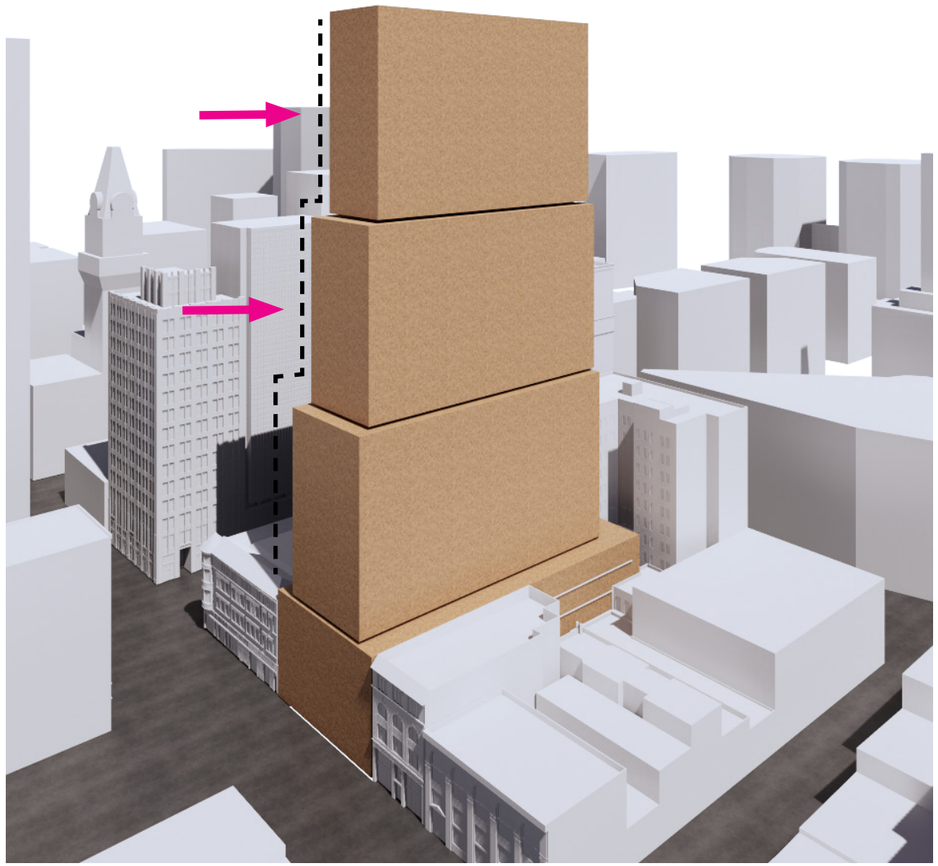
LOBBY
Res lobby and back of house



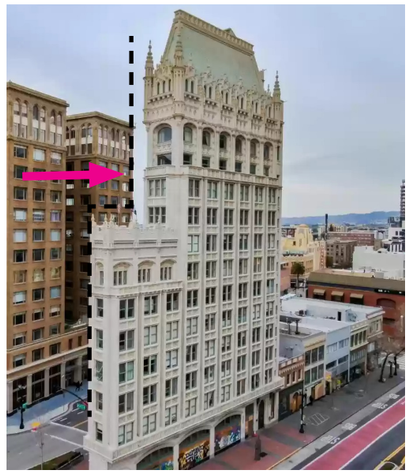


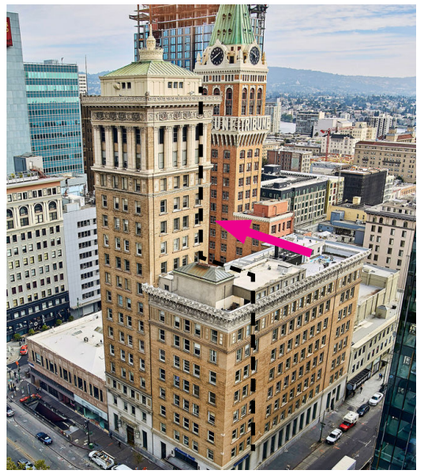
DESIGN PARTI

MASSING DIAGRAM

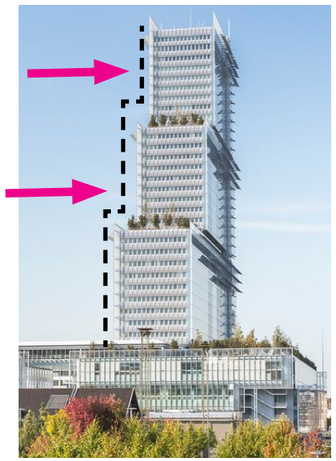


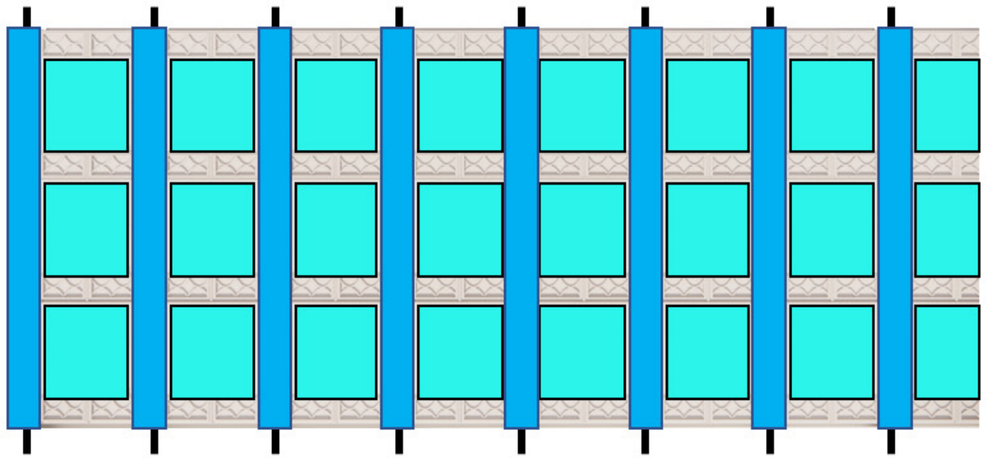
SPIRE-LIKE BUILDINGS AROUND THE SITE WITH STEPPED MASSING





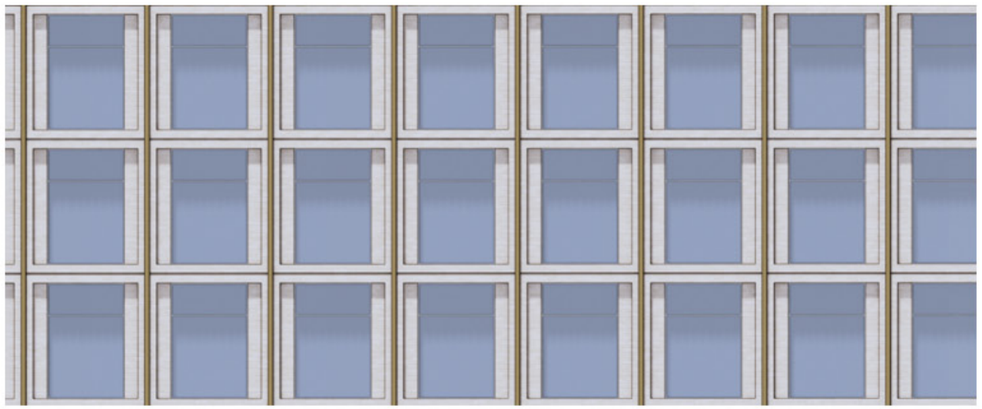
MODERN EXAMPLE

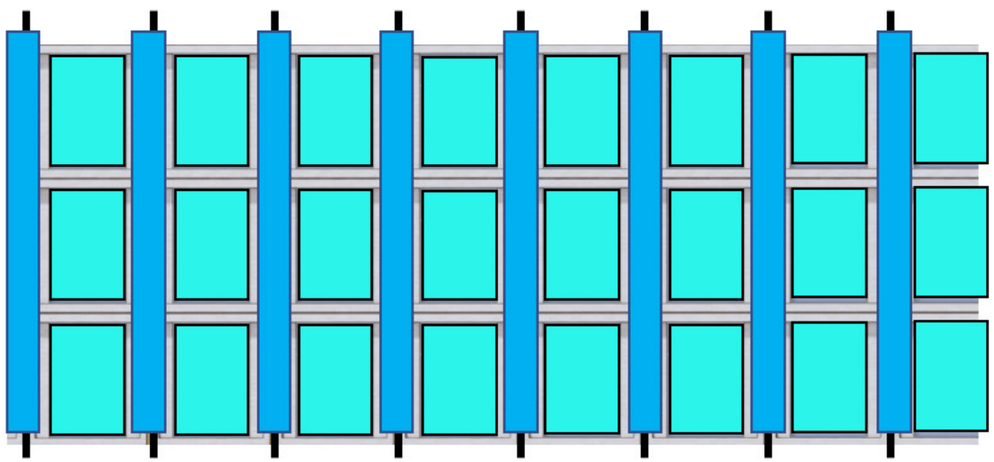




CATHEDRAL BUILDING: 1615 Broadway

Cathedral Building verticality and rhythm.

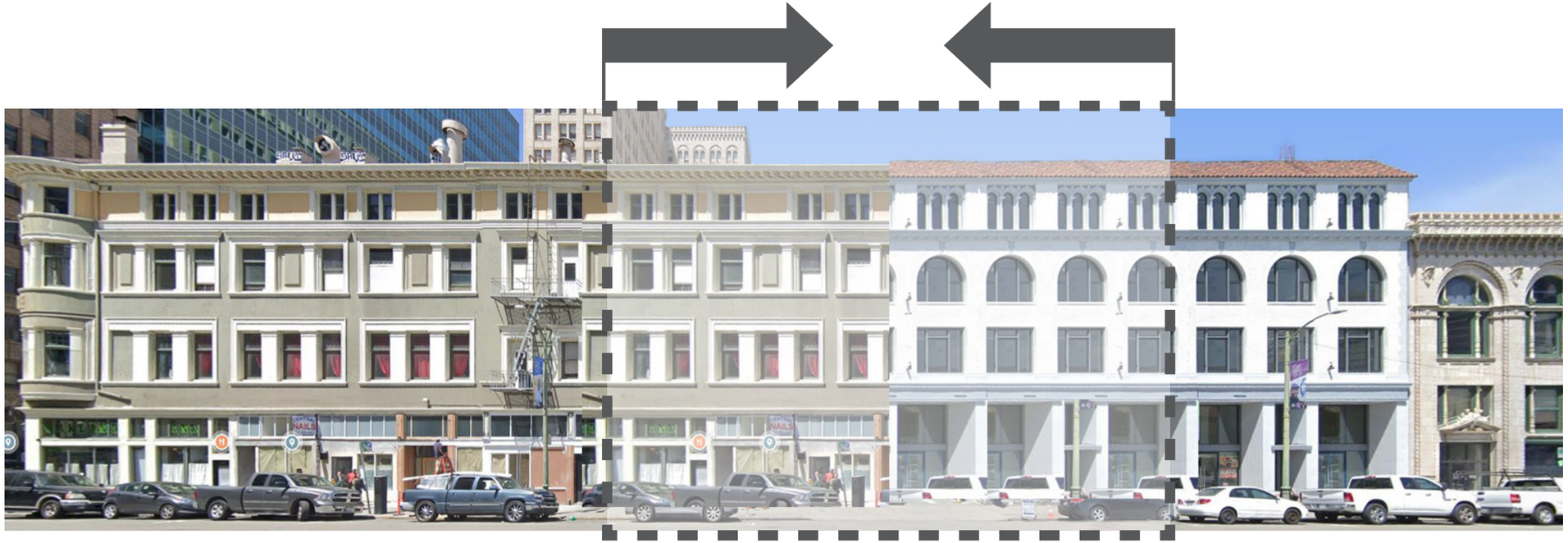




FRANKLIN RESIDENTIAL PROPOSAL: 1431 Franklin St.

Proposed building verticality and rhythm. Windows were elongated to further to reinforce historic allusions.

EXISTING STREET ELEVATION

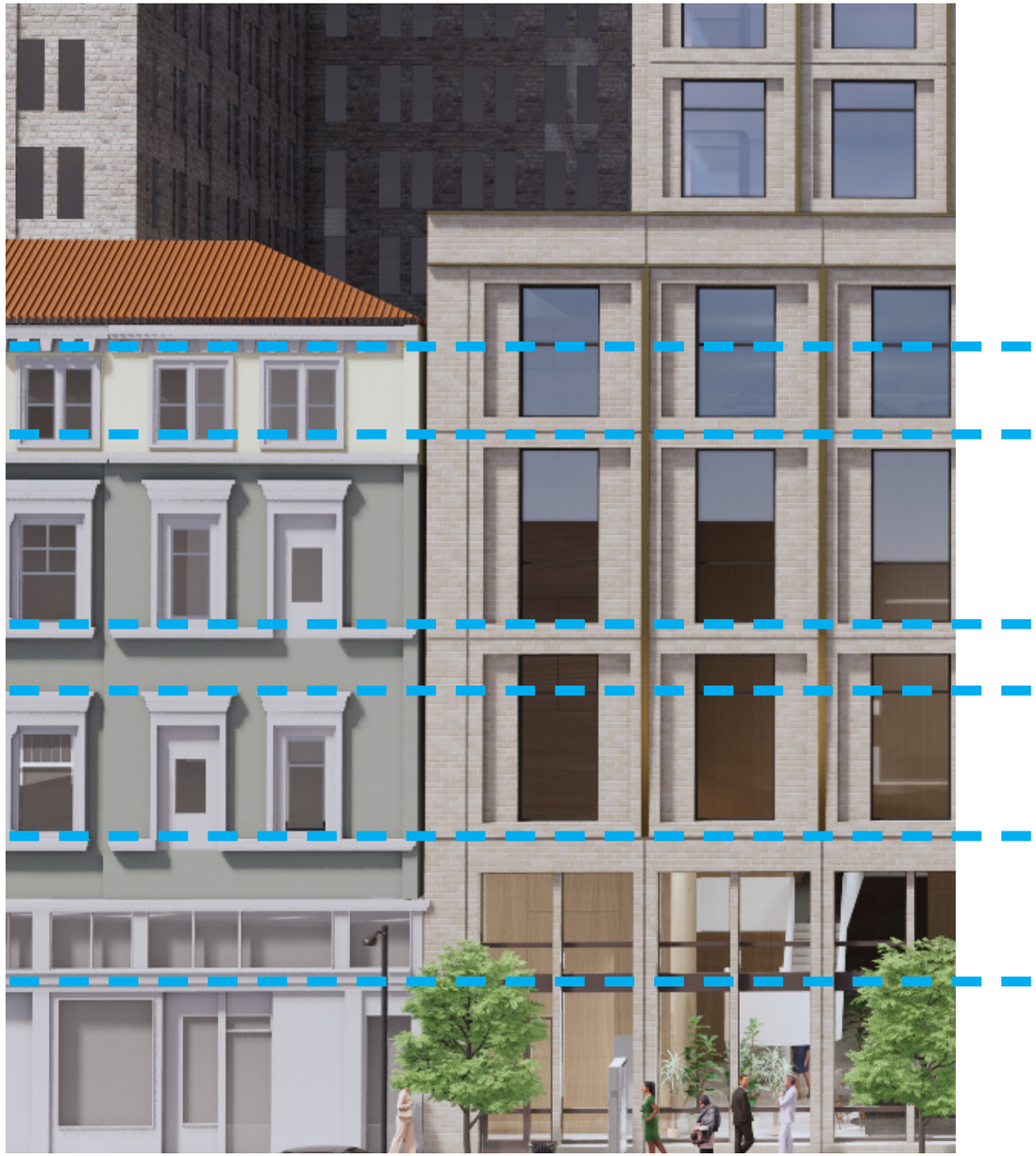


FACADES EXTENDED

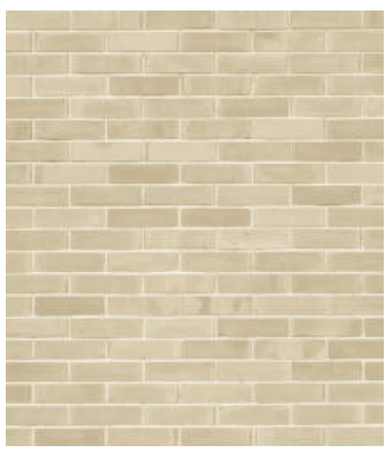
Continuing the adjacent facades across the site reveals the existing relationships. The primary commonality is that both are solid walls with punched-windows. Furthermore, the facades both employ a classical three part break down. This results in approximate datum lines and window sizes that can be leveraged to create a blended proposal.

BUILDING DESIGN

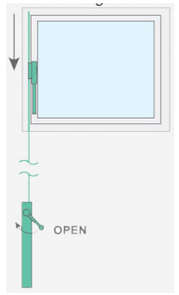
FACADE HISTORICAL REFERENCE



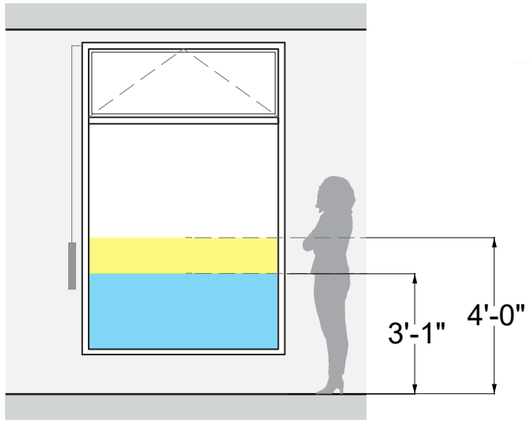
Great care was taken in aligning openings and window sashes with adjacent buildings to maintain the continuity of the streetscape.

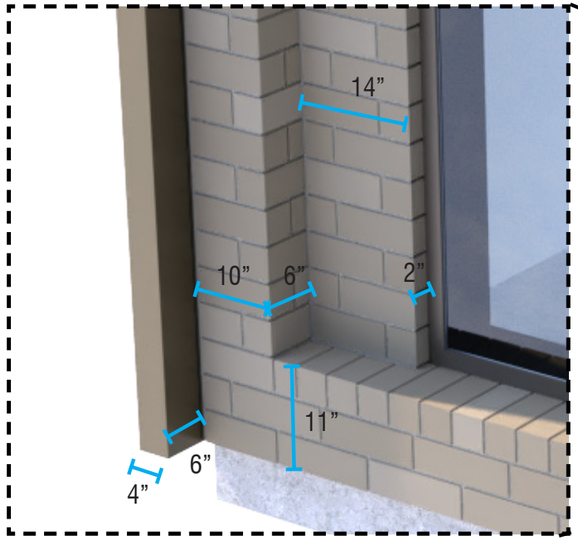


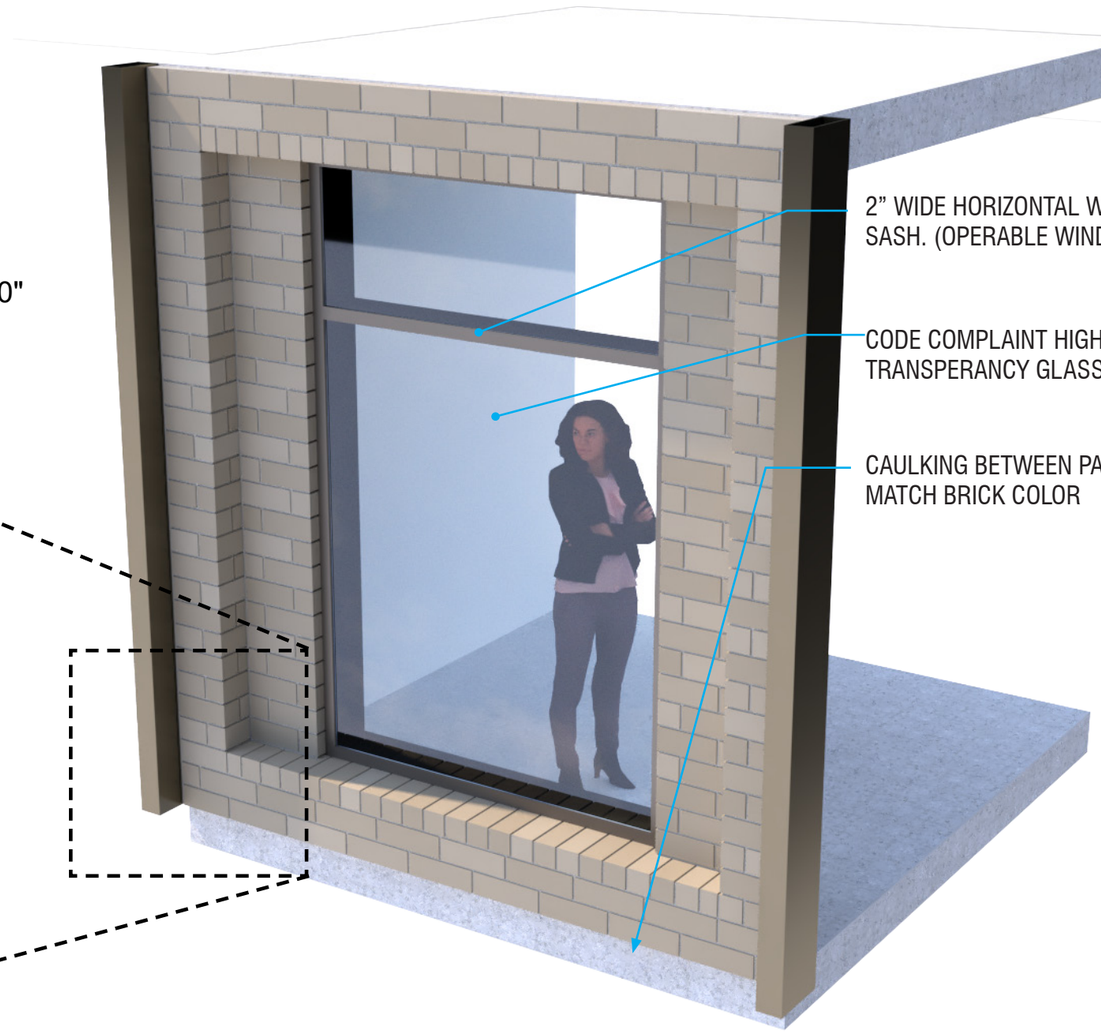
Variegated brick color to match Financial Center Building in the historic district.



MANUAL WINDING CRANK TO OPEN UPPER WINDOW.







FRANKLIN RESIDENTIAL PROPOSAL: 1431 Franklin St.

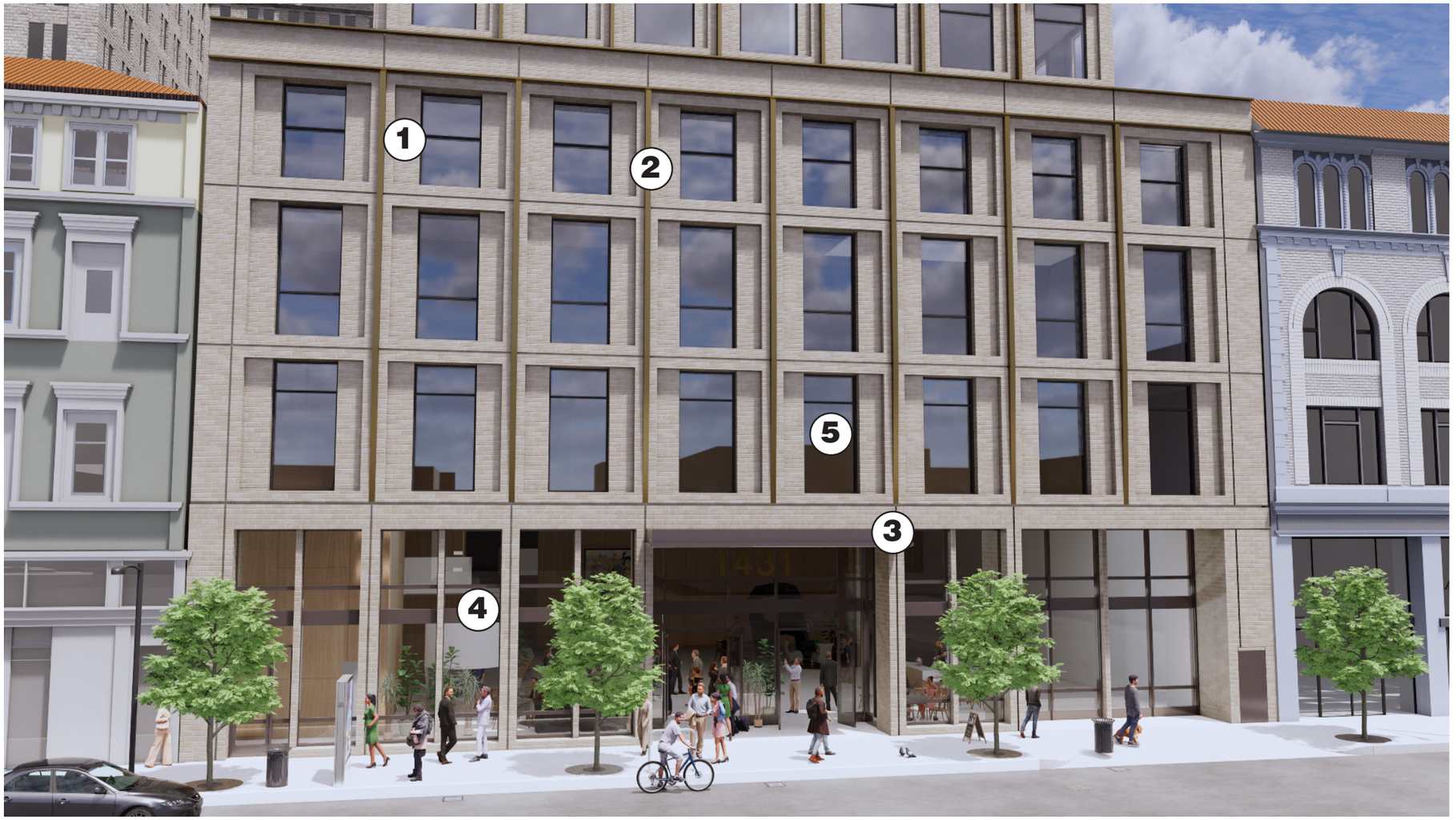
Punched window precast system with variegated brick finish and aluminum anodized windows. Color to match Financial Center Building.

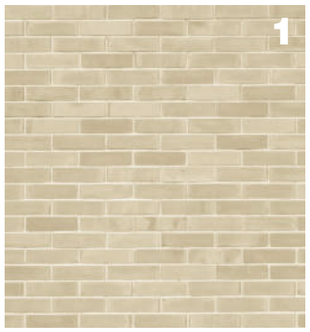
*ALL MEASUREMENTS ARE APPROXIMATE AND SUBJECT TO ENGINEERING AND CONSTRUCTION REFINEMENT

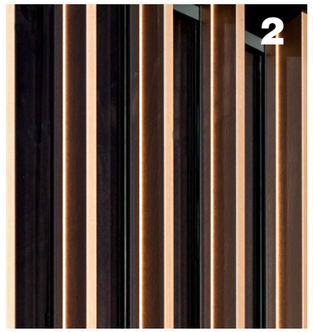
TOWER DESIGN ELEMENTS

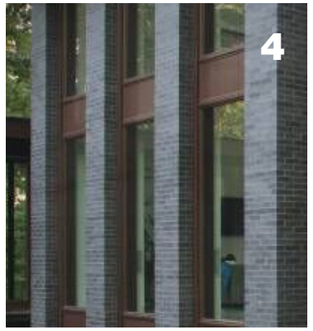
TOWER DESIGN
VIEW FROM FRANKLIN STREET

SECTION THROUGH LOBBY AND GARAGE

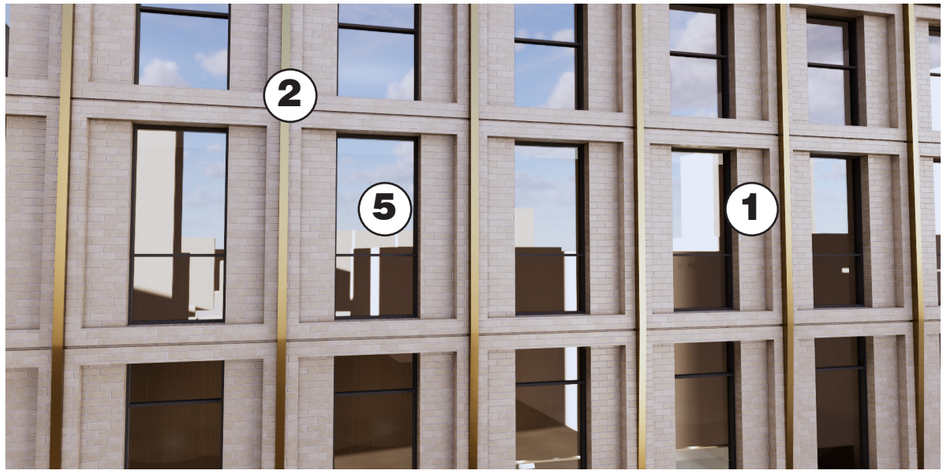


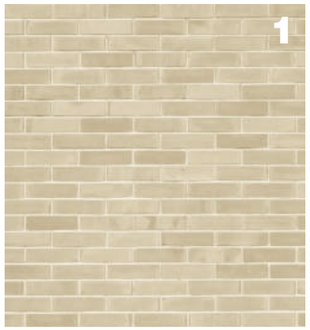


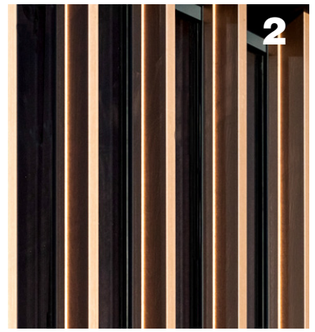


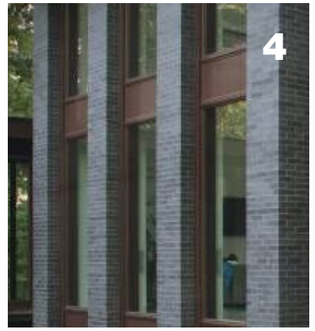


1. BEIGE BRICK VENEER ON PRECAST PANEL
2. BRONZE METAL FINS
3. ANODIZED ALUMINUM METAL SOFFIT
4. METAL FRAMED WINDOWS WITH BRICK PILASTER
5. CODE COMPLAINT HIGH TRANSPARENCY GLASS

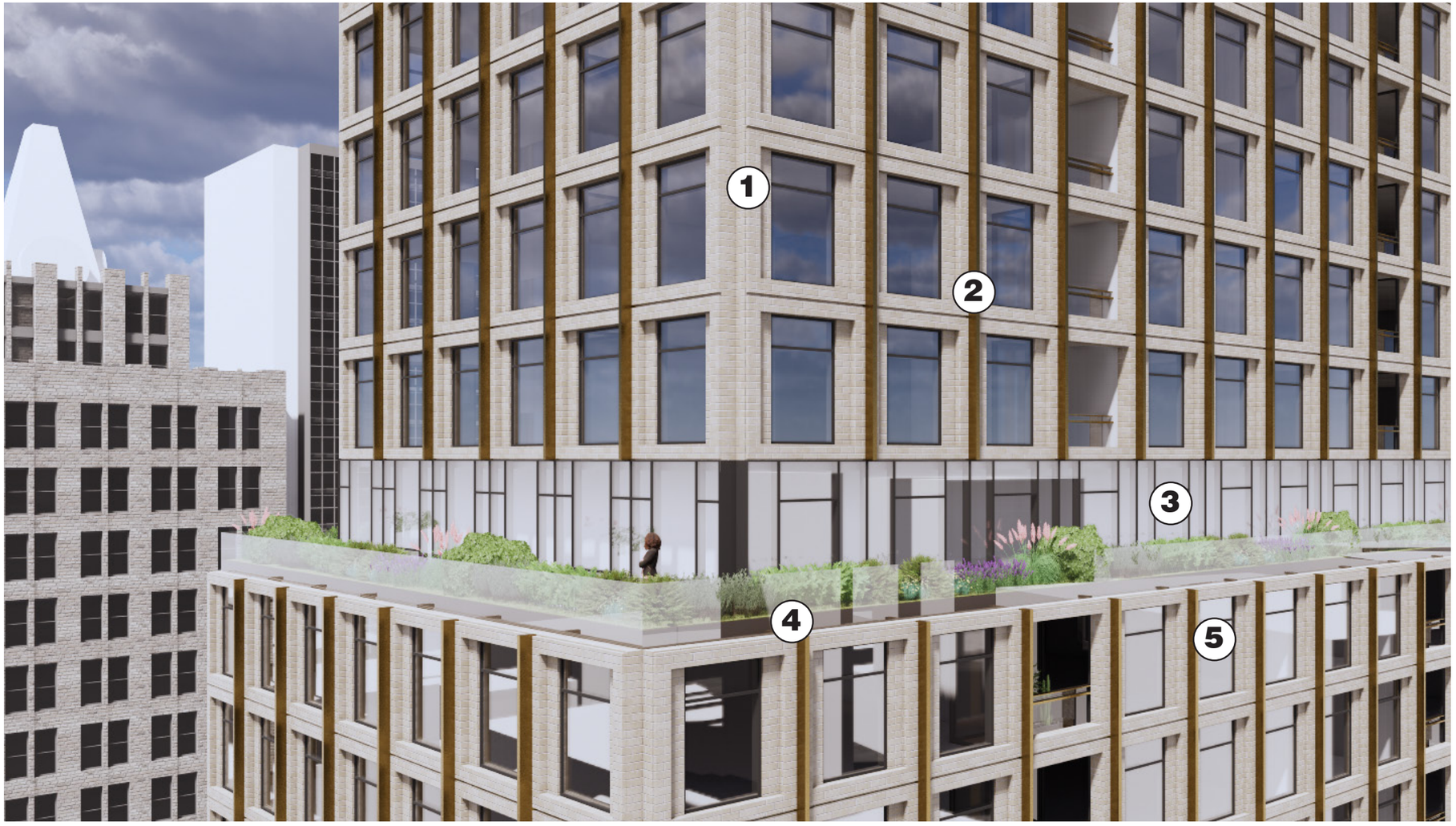


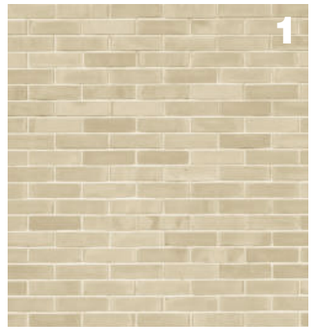


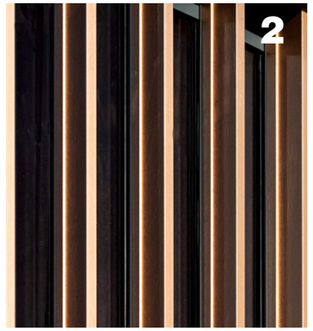


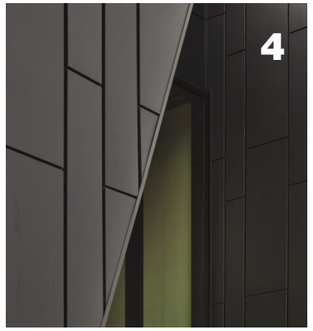


1. BEIGE BRICK VENEER ON PRECAST PANEL
2. BRONZE COLORED METAL FINS
3. ANODIZED ALUMINUM METAL SOFFIT
4. METAL FRAMED WINDOWS WITH BRICK PILASTER
5. CODE COMPLAINT HIGH TRANSPARENCY GLASS

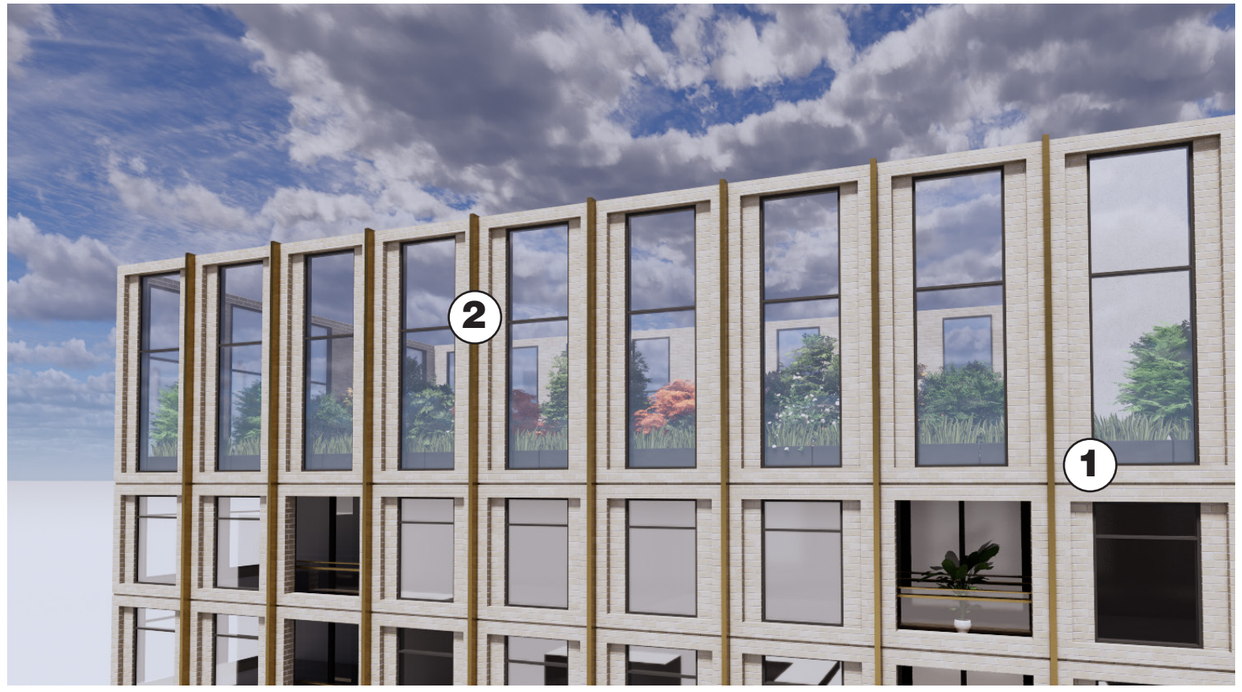


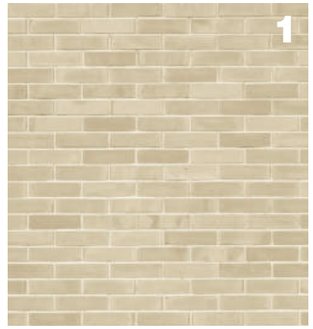


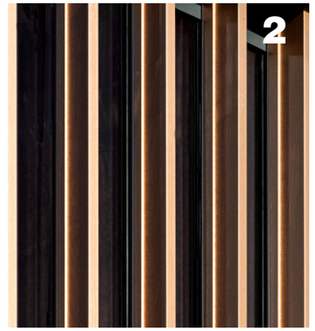




1. BEIGE BRICK VENEER ON PRECAST PANEL
2. BRONZE COLORED METAL FINS
3. GLAZED FACADE
4. DARK BRONZE COLORED PLANTERS
5. CODE COMPLAINT HIGH TRANSPARENCY GLASS







1. BEIGE BRICK VENEER ON PRECAST PANEL
2. BRONZE METAL FINS
3. CODE COMPLAINT HIGH TRANSPARENCY GLASS

OVERALL RENDERS

OVERALL LOOKING SOUTH-WEST

OVERALL LOOKING NORTH-WEST

FRANKLIN STREET ELEVATION LOOKING SOUTH-WEST

FRANKLIN STREET ELEVATION LOOKING NORTH-WEST

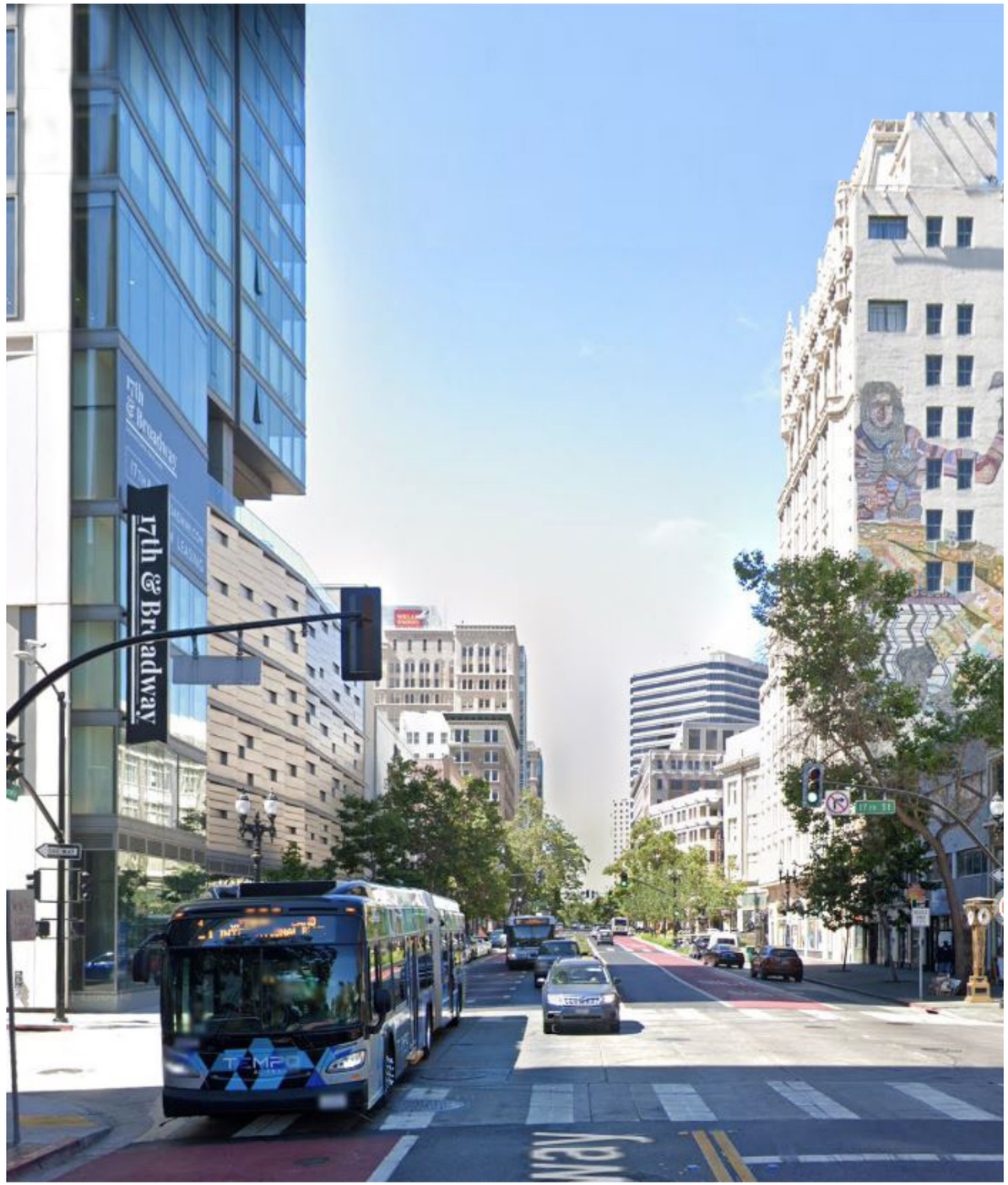
PROJECT IN CONTEXT

EXISTING

PROPOSED

VIEW FROM 14TH LOOKING WEST

EXISTING



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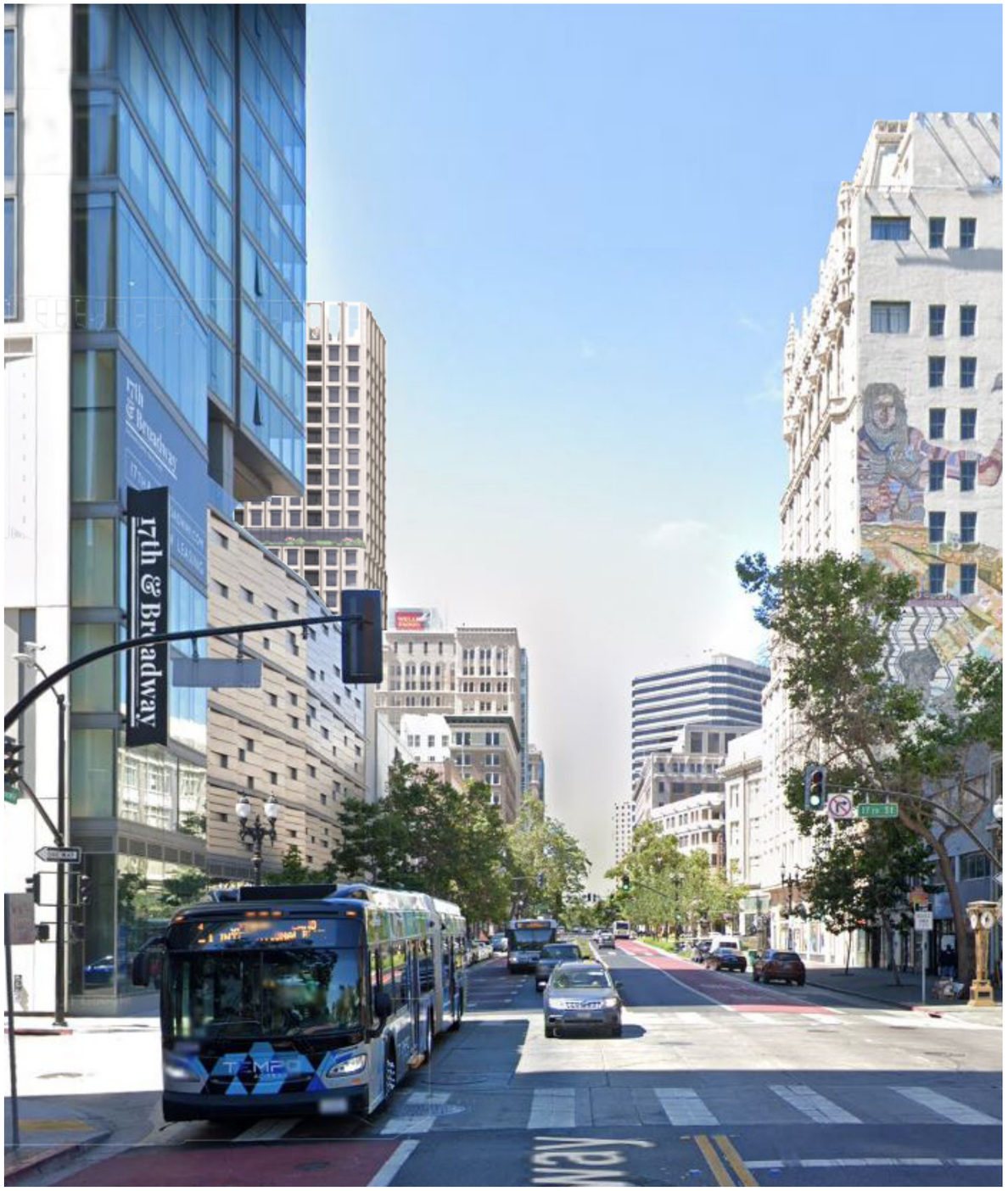


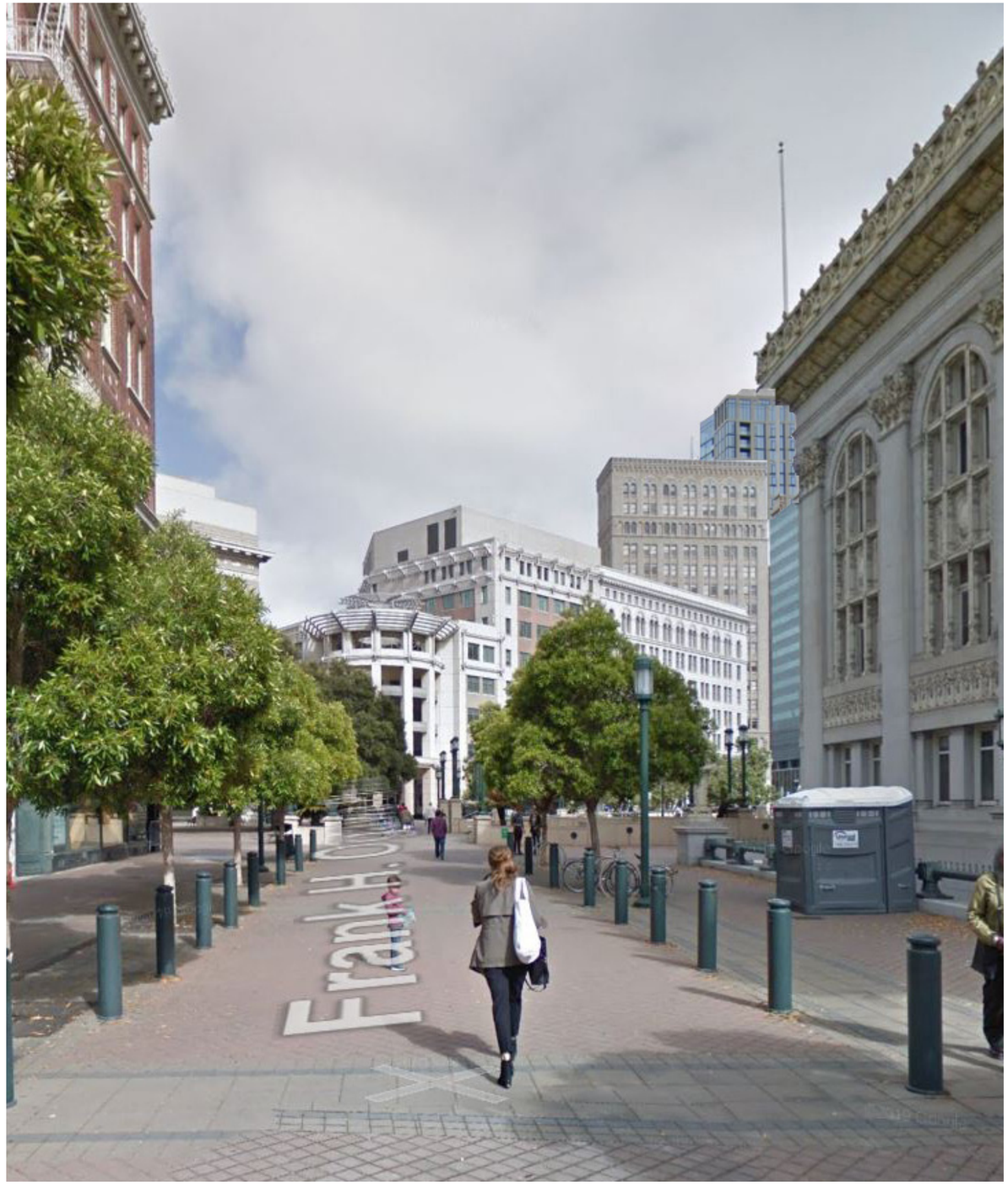
VIEW FROM BROADWAY LOOKING EAST

EXISTING

PROPOSED

VIEW FROM CITY HALL LOOKING EAST

EXISTING



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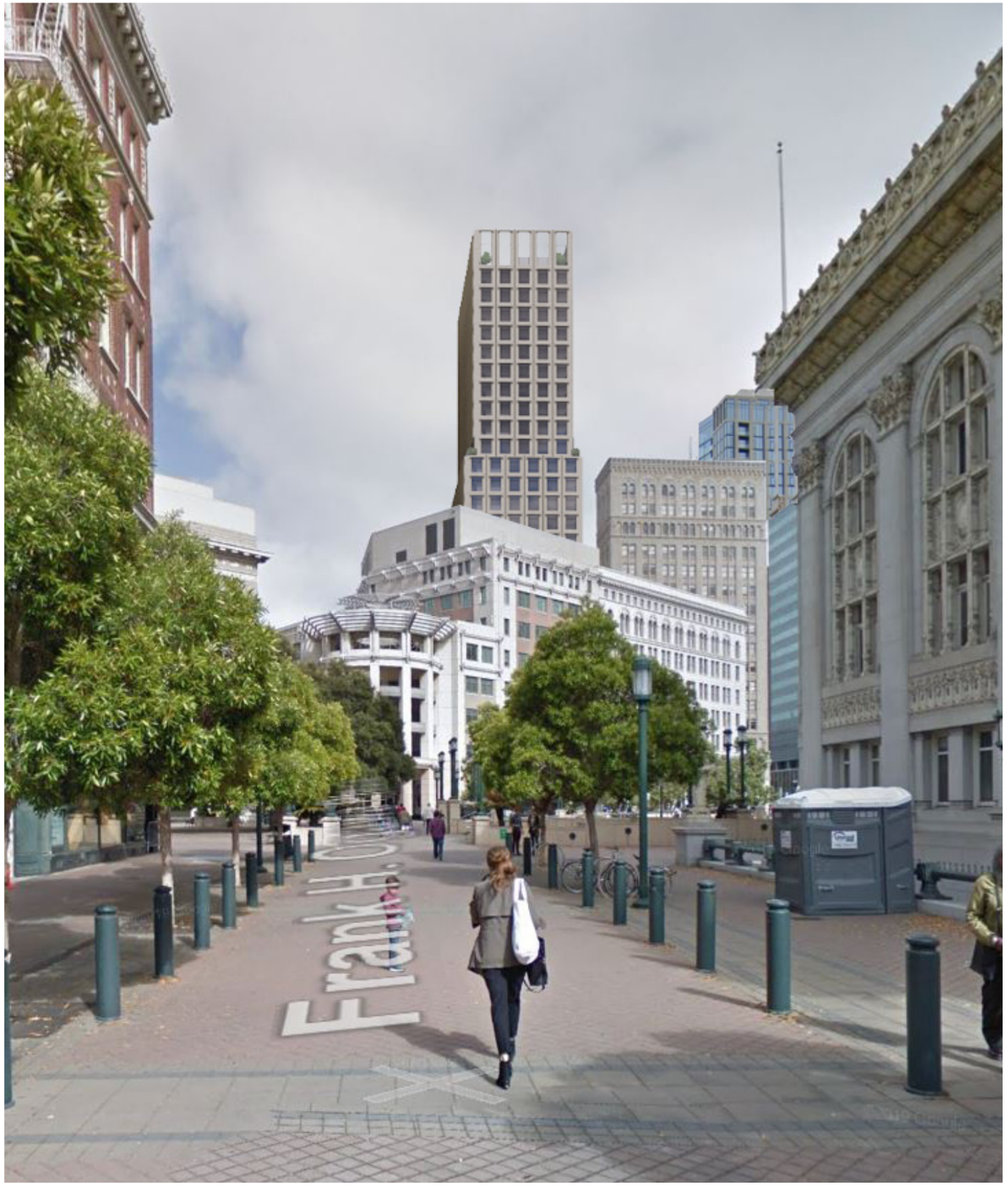
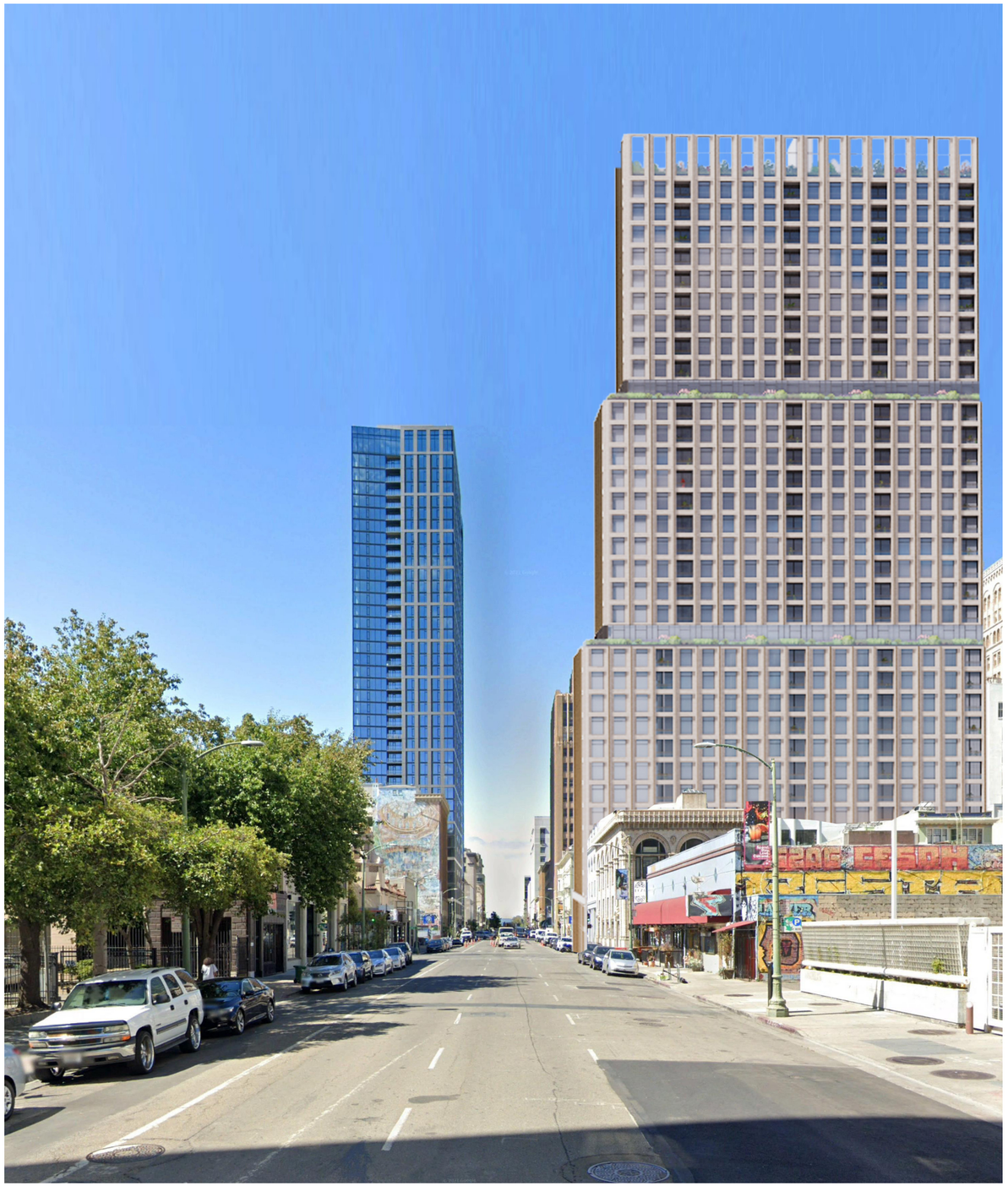


VIEW FROM CITY HALL LOOKING EAST

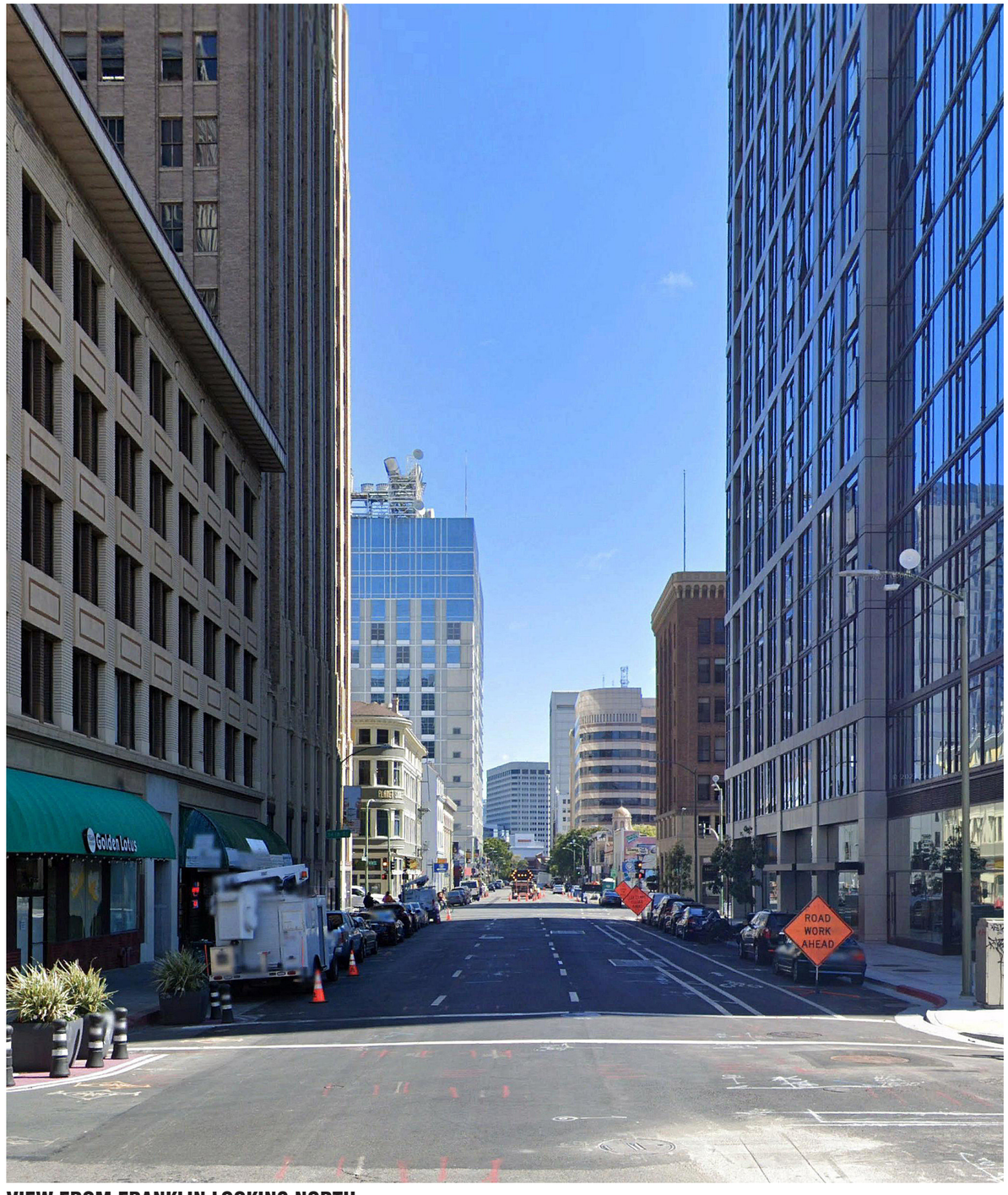
EXISTING

PROPOSED



VIEW FROM CITY FRANKLIN LOOKING SOUTH

EXISTING



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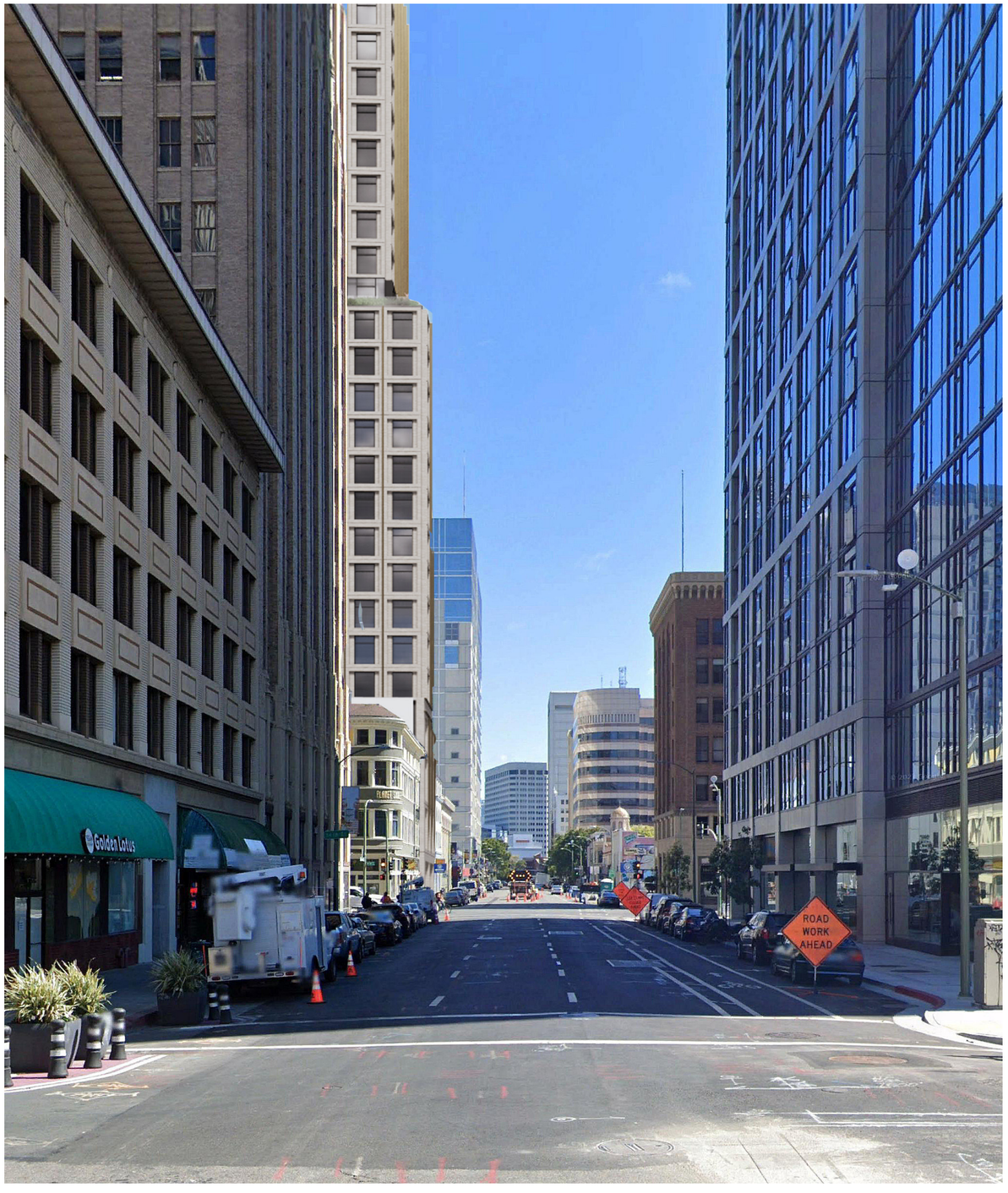
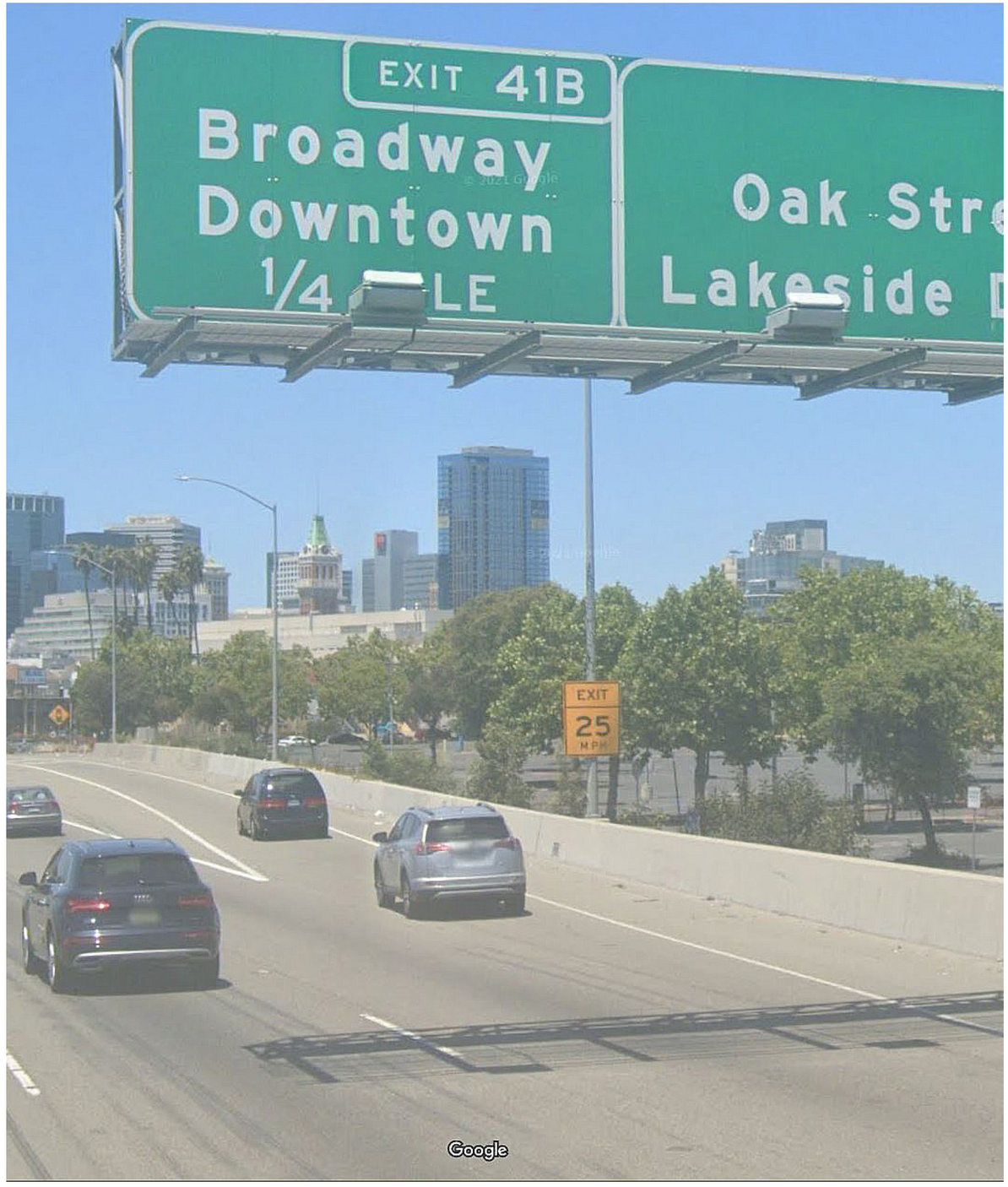


VIEW FROM FRANKLIN LOOKING NORTH

EXISTING



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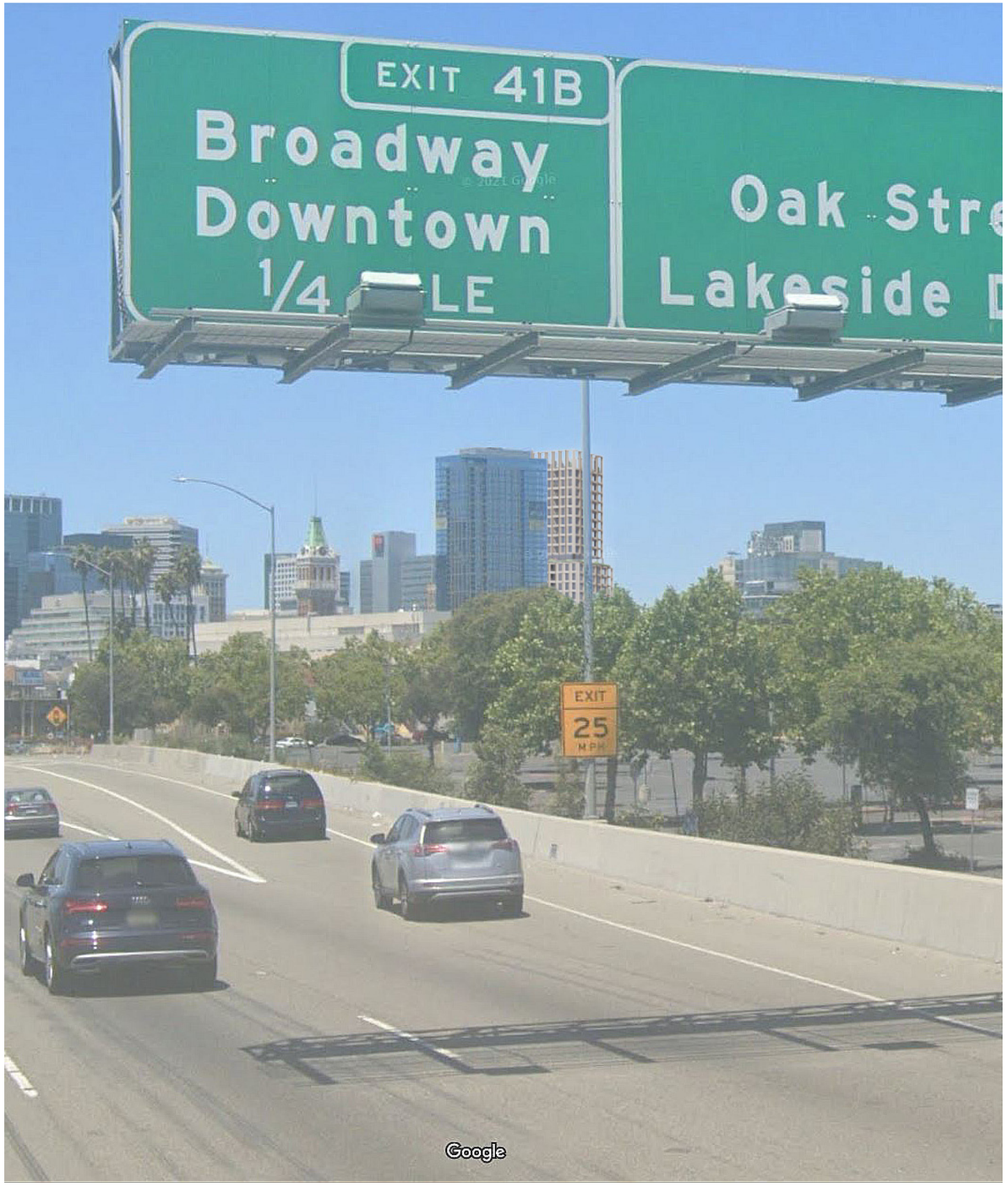


VIEW FROM I-880

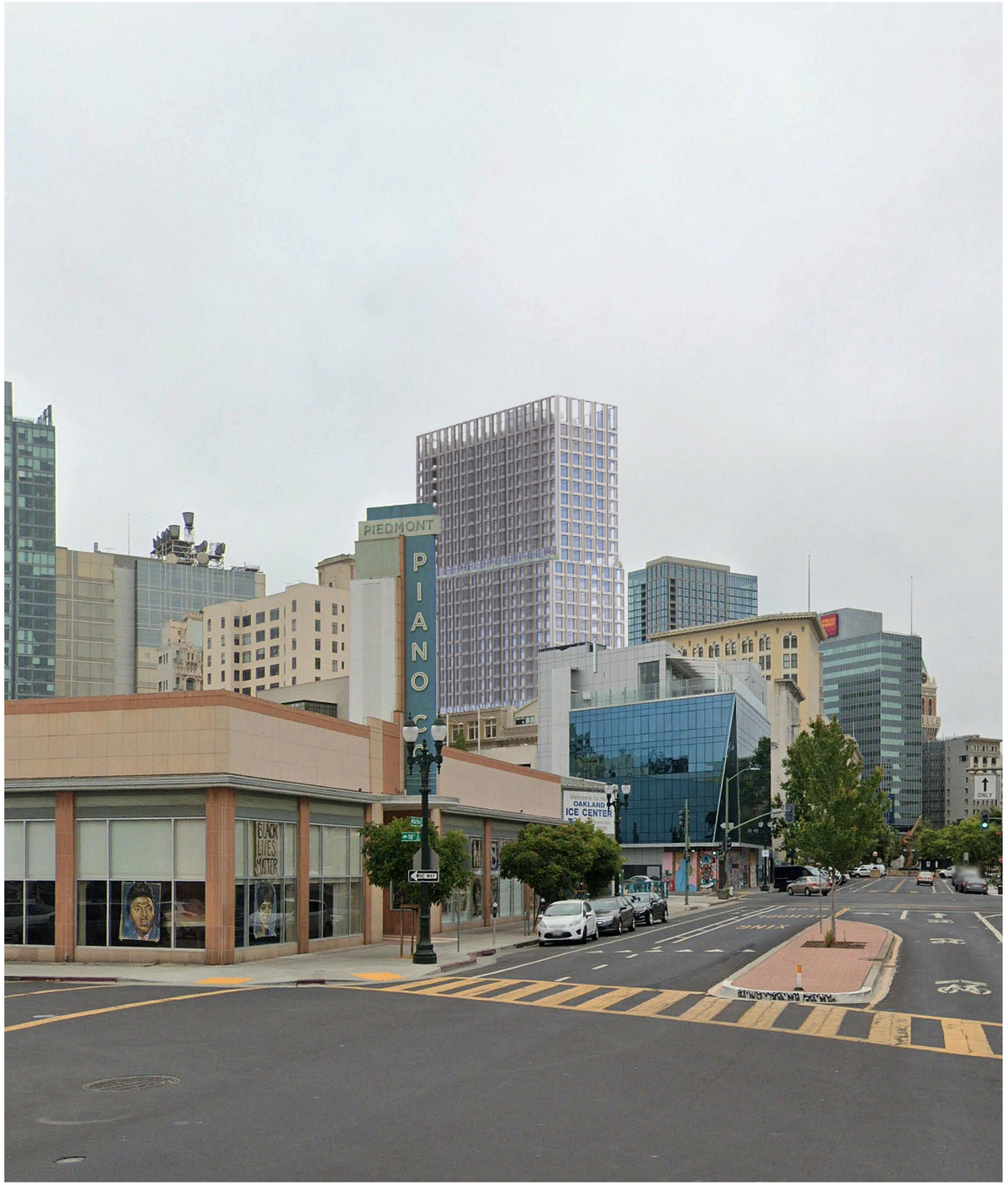
EXISTING

PROPOSED

VIEW FROM I-980

EXISTING

PROPOSED



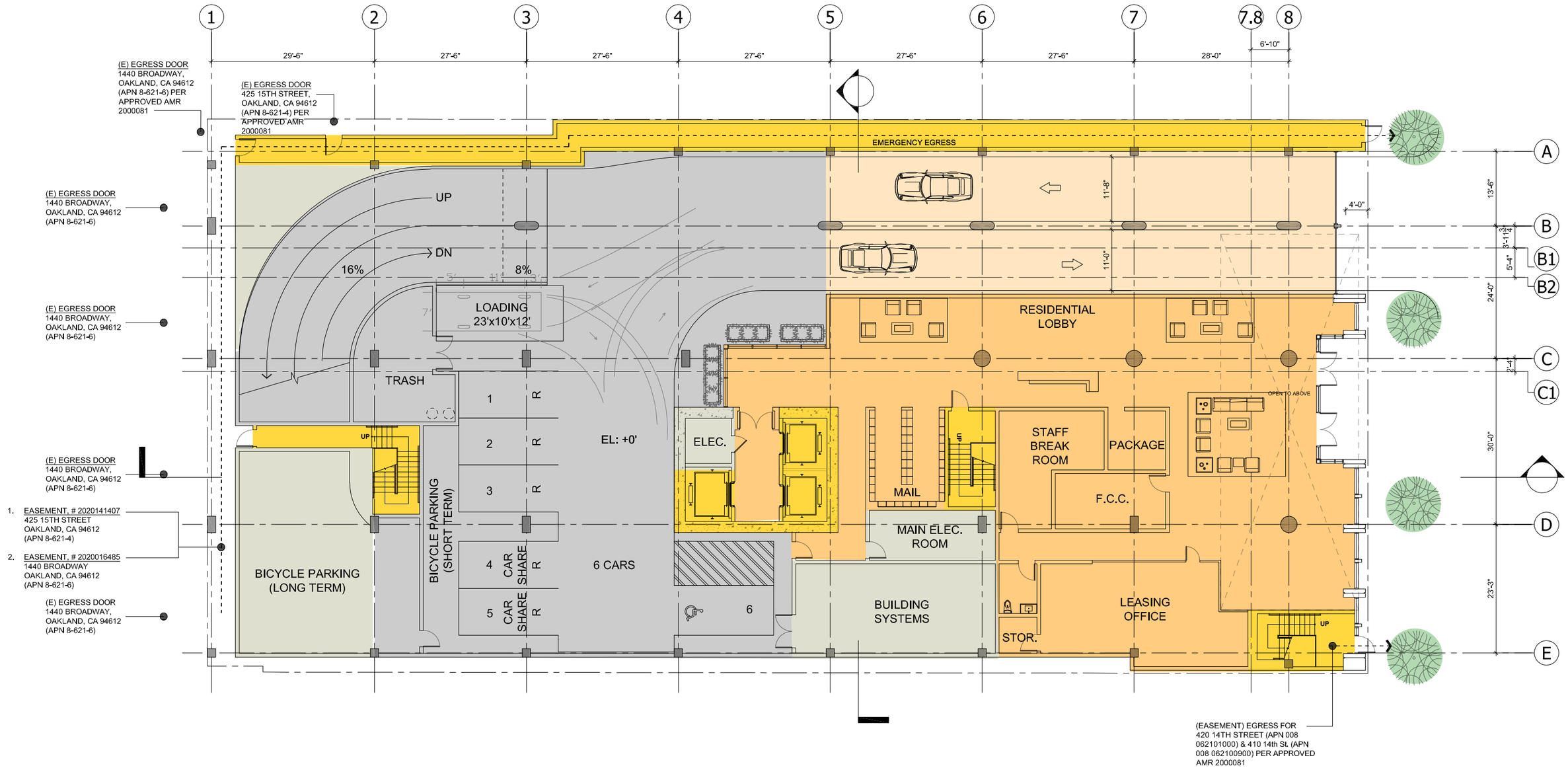
VIEW FROM SAN PABLO AVE

EXISTING

PROPOSED

VIEW FROM 18TH ST

PLANS AND SECTIONS

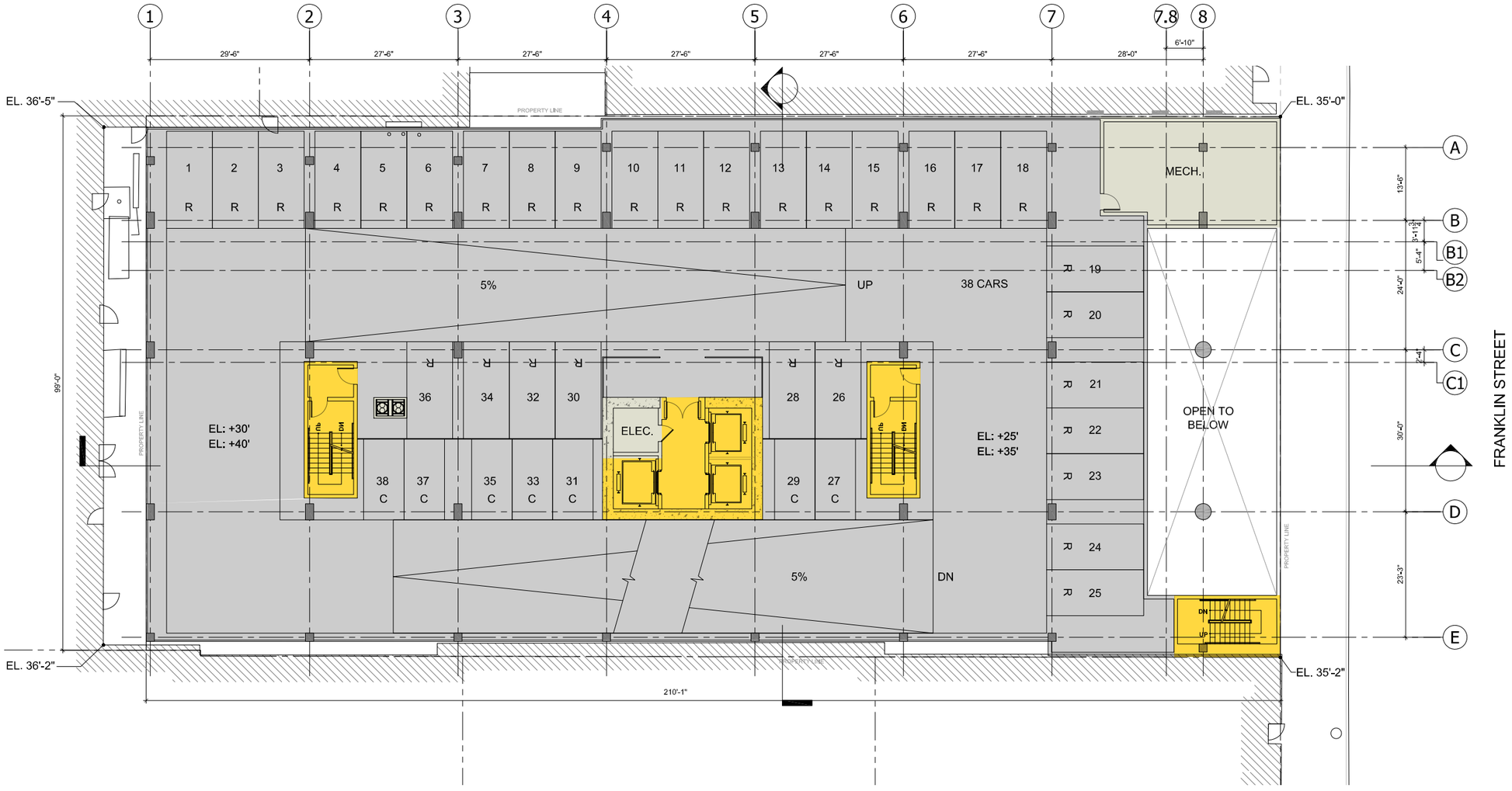


FLOOR PLAN (LEVEL 1)

SCALE: x" = 1'-0" 0' 5' 15' 30'

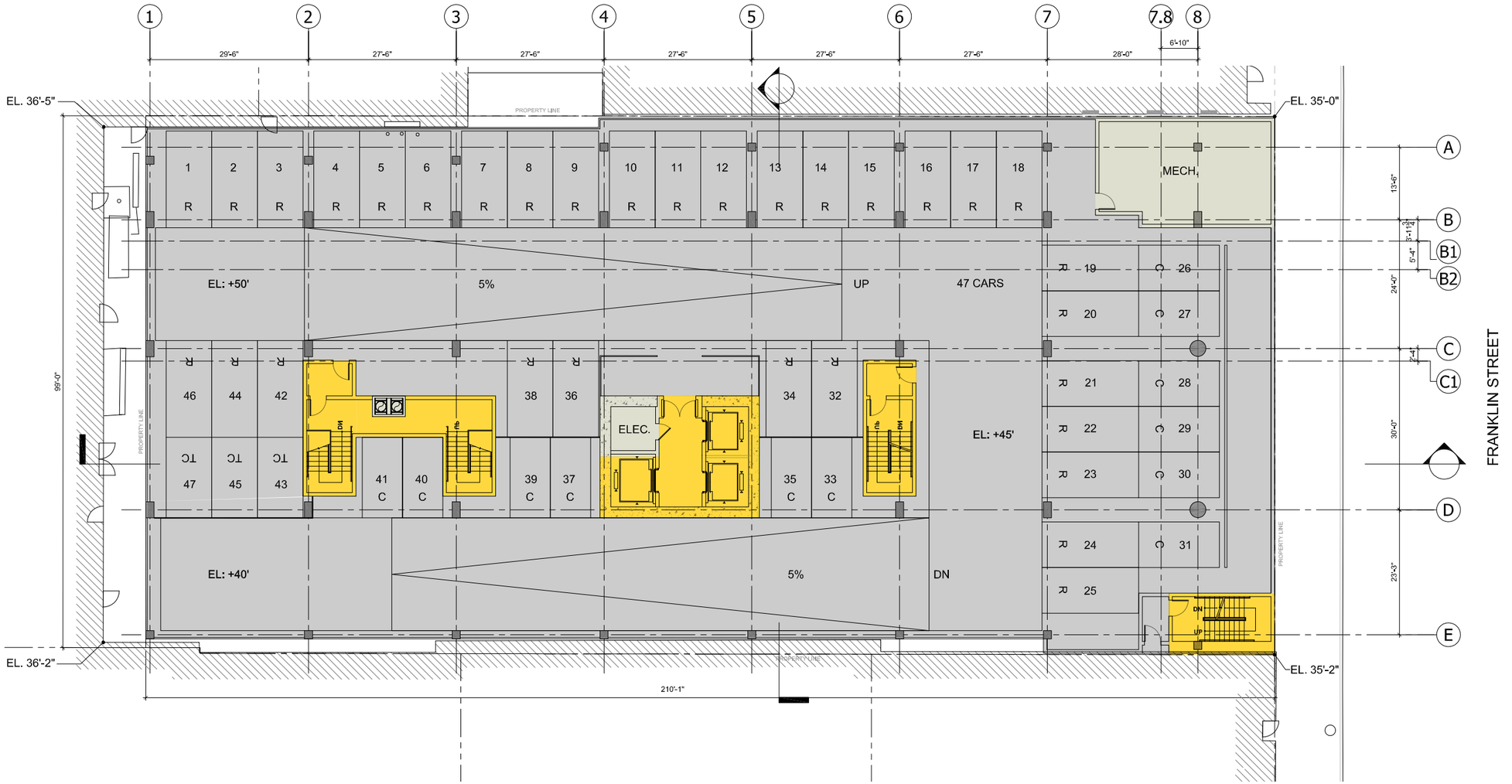
FLOOR PLAN (LEVEL 2)

SCALE: x" = 1'-0" 0' 5' 15' 30'



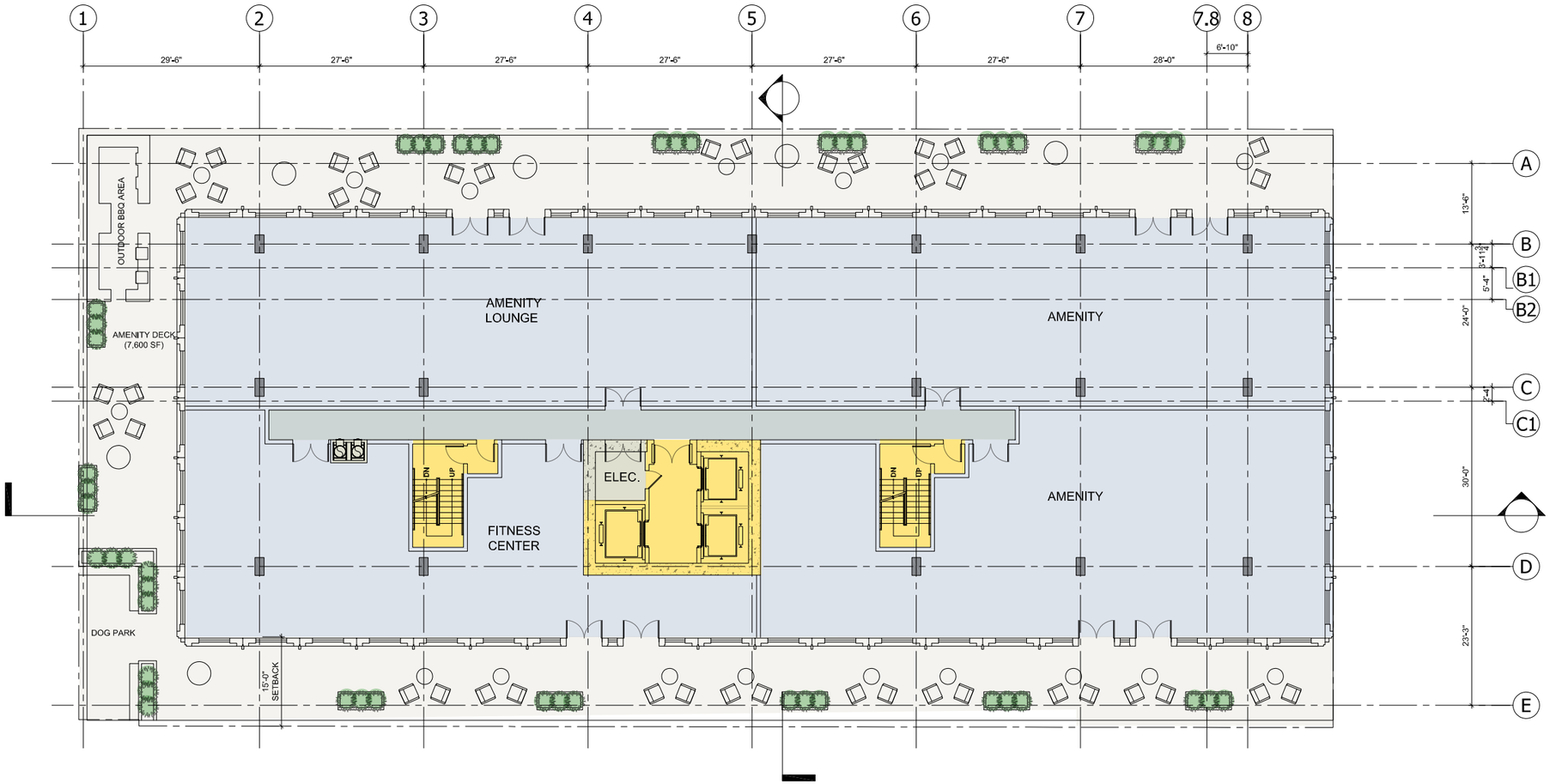
FLOOR PLAN (LEVEL 3 - 4)

SCALE: x" = 1'-0" 0' 5' 15' 30'



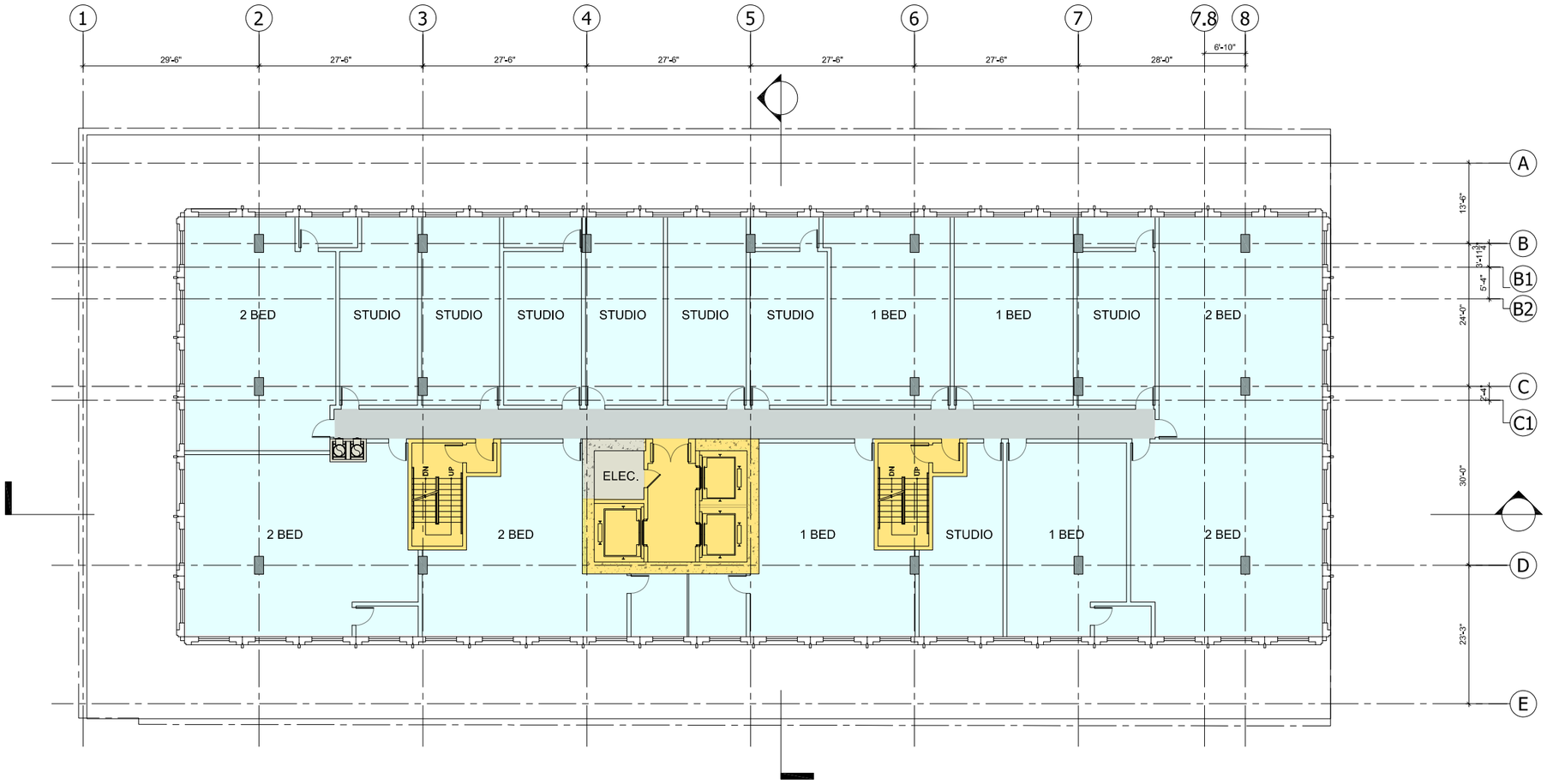
FLOOR PLAN (LEVEL 5)

SCALE: x" = 1'-0" 0' 5' 15' 30'



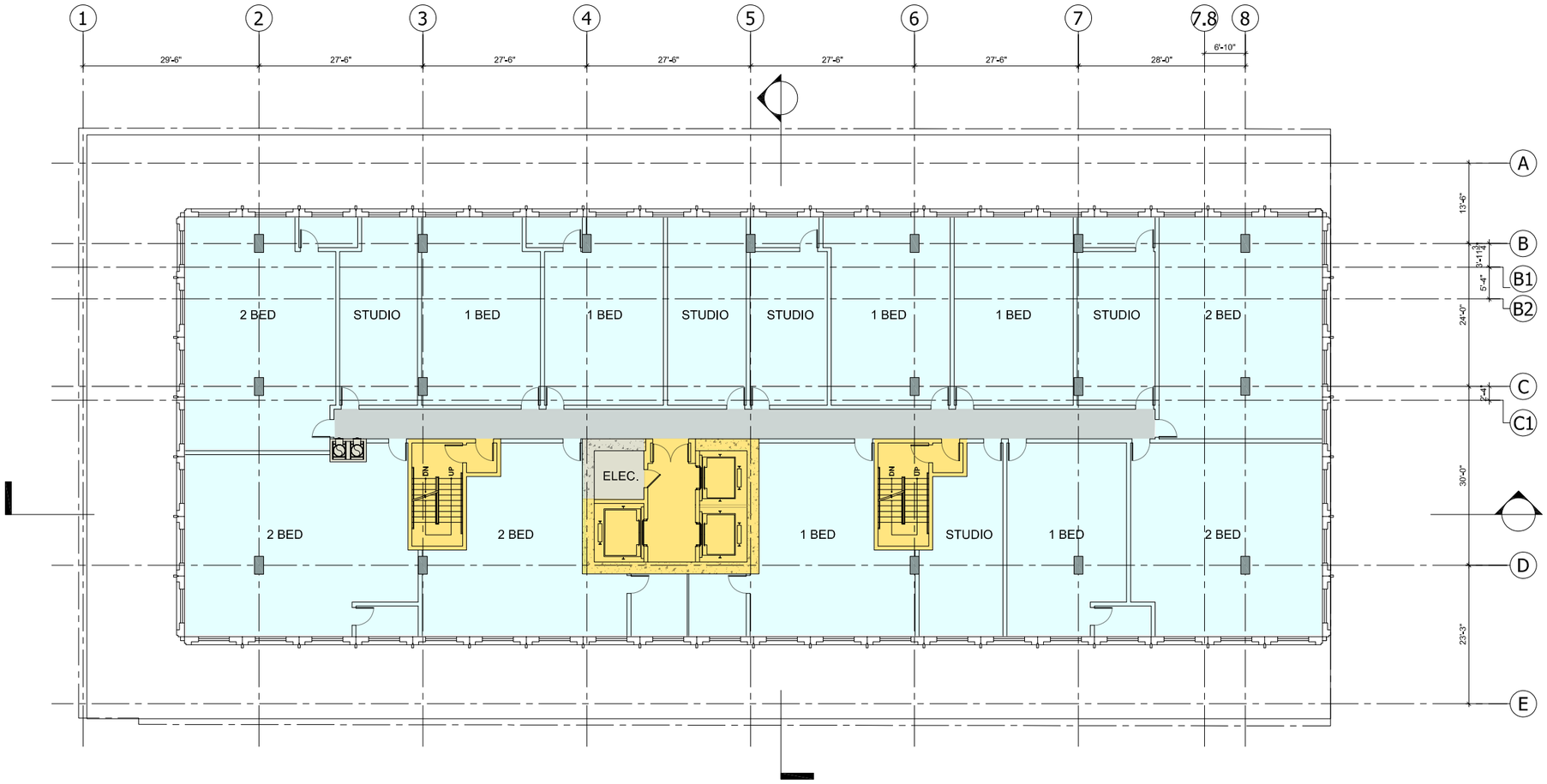
FLOOR PLAN (LEVEL 6)

SCALE: x" = 1'-0" 0' 5' 15' 30'



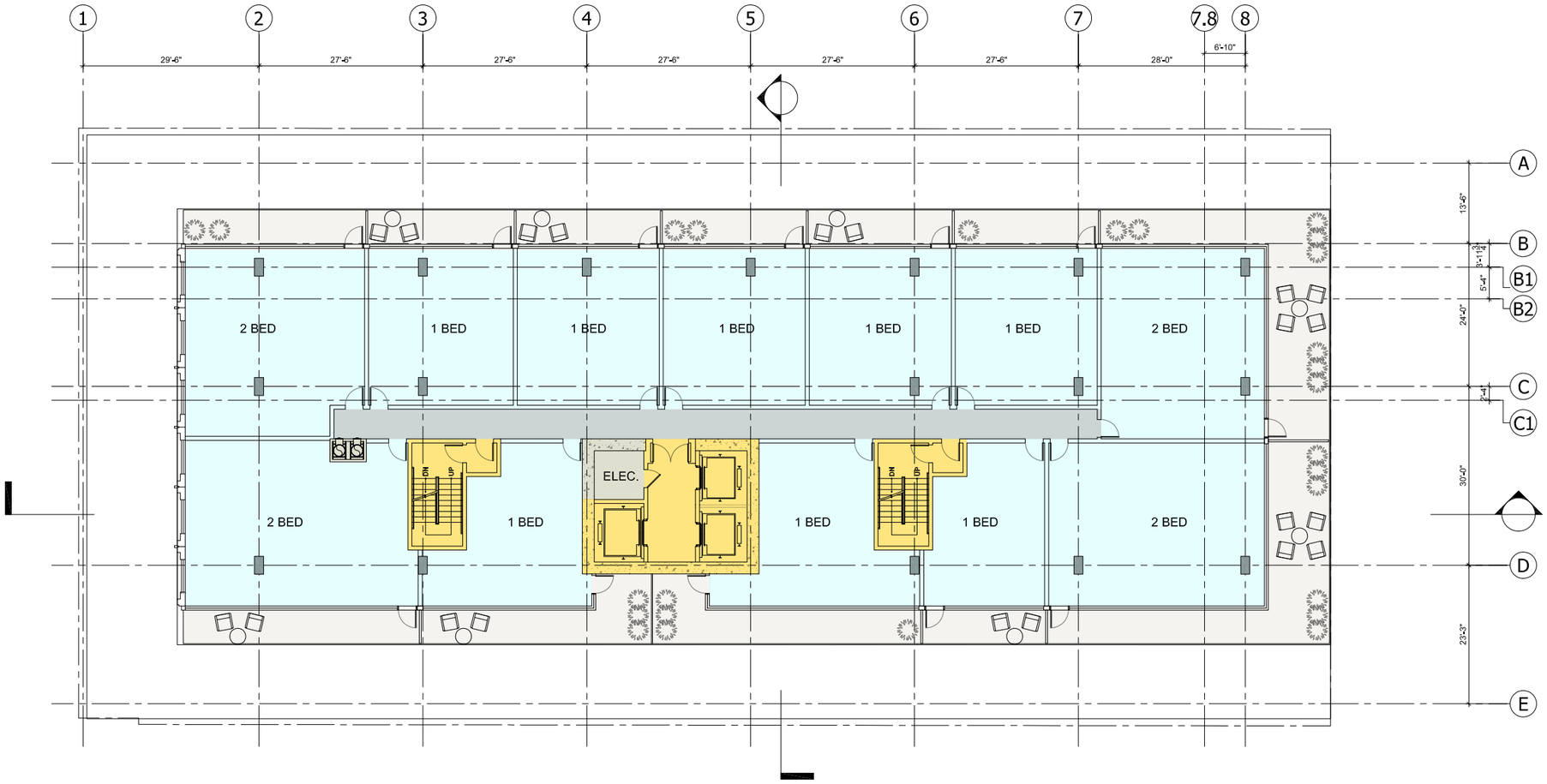
FLOOR PLAN (LEVEL 7 - 9)

SCALE: x" = 1'-0" 0' 5' 15' 30'



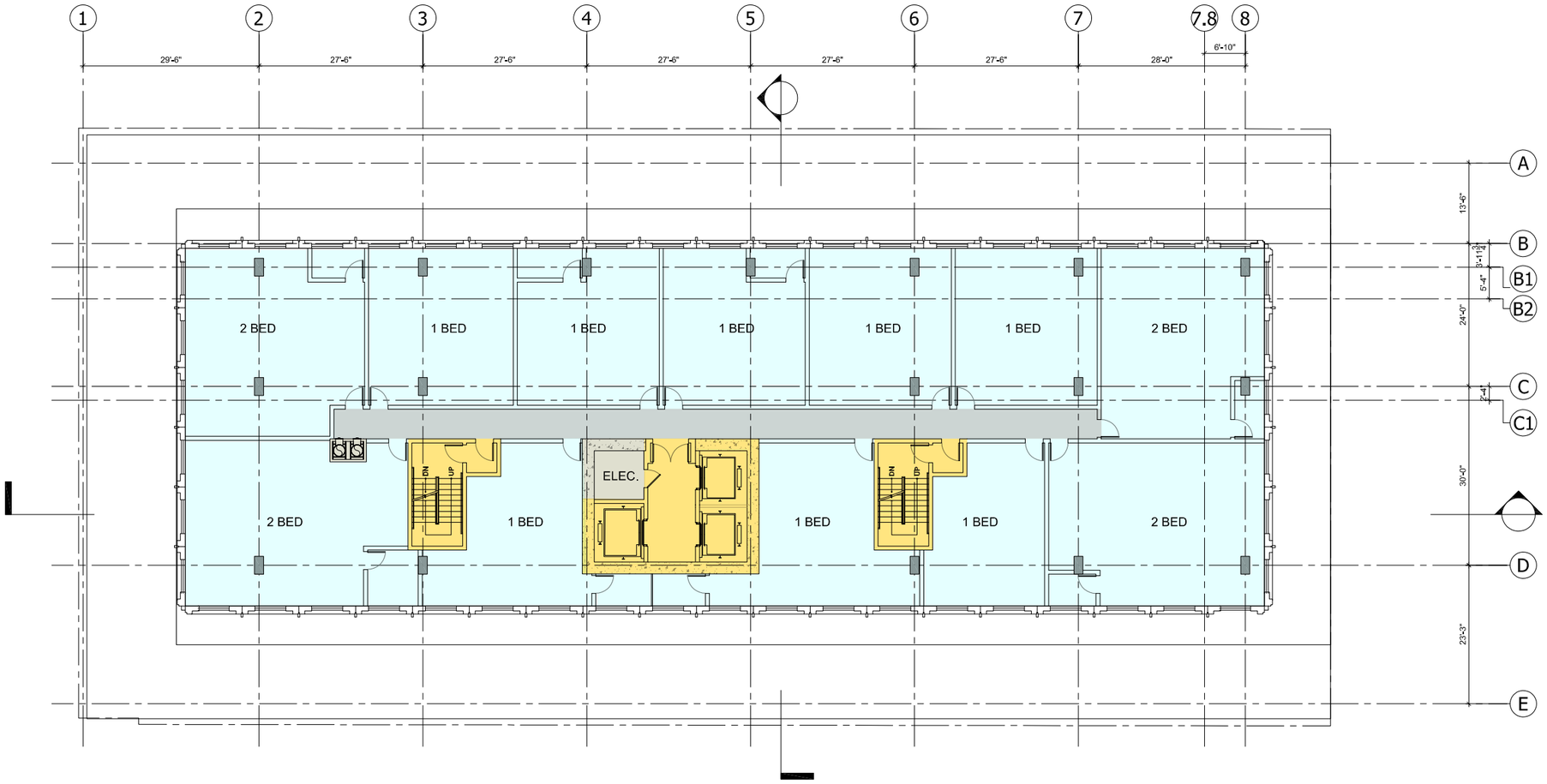
FLOOR PLAN (LEVEL 10 - 17)

SCALE: x" = 1'-0" 0' 5' 15' 30'



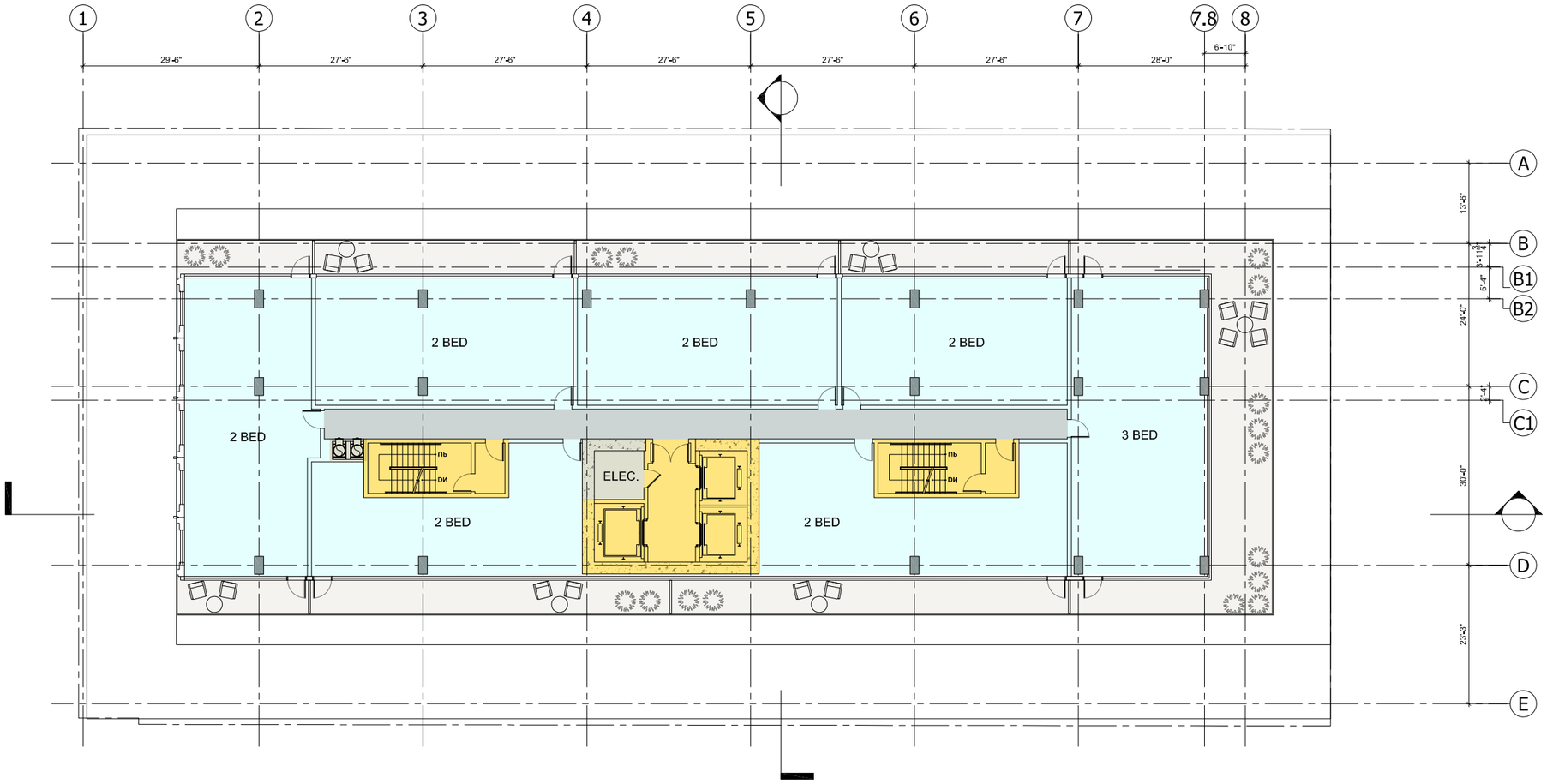
FLOOR PLAN (LEVEL 18)

SCALE: x" = 1'-0" 0' 5' 15' 30'



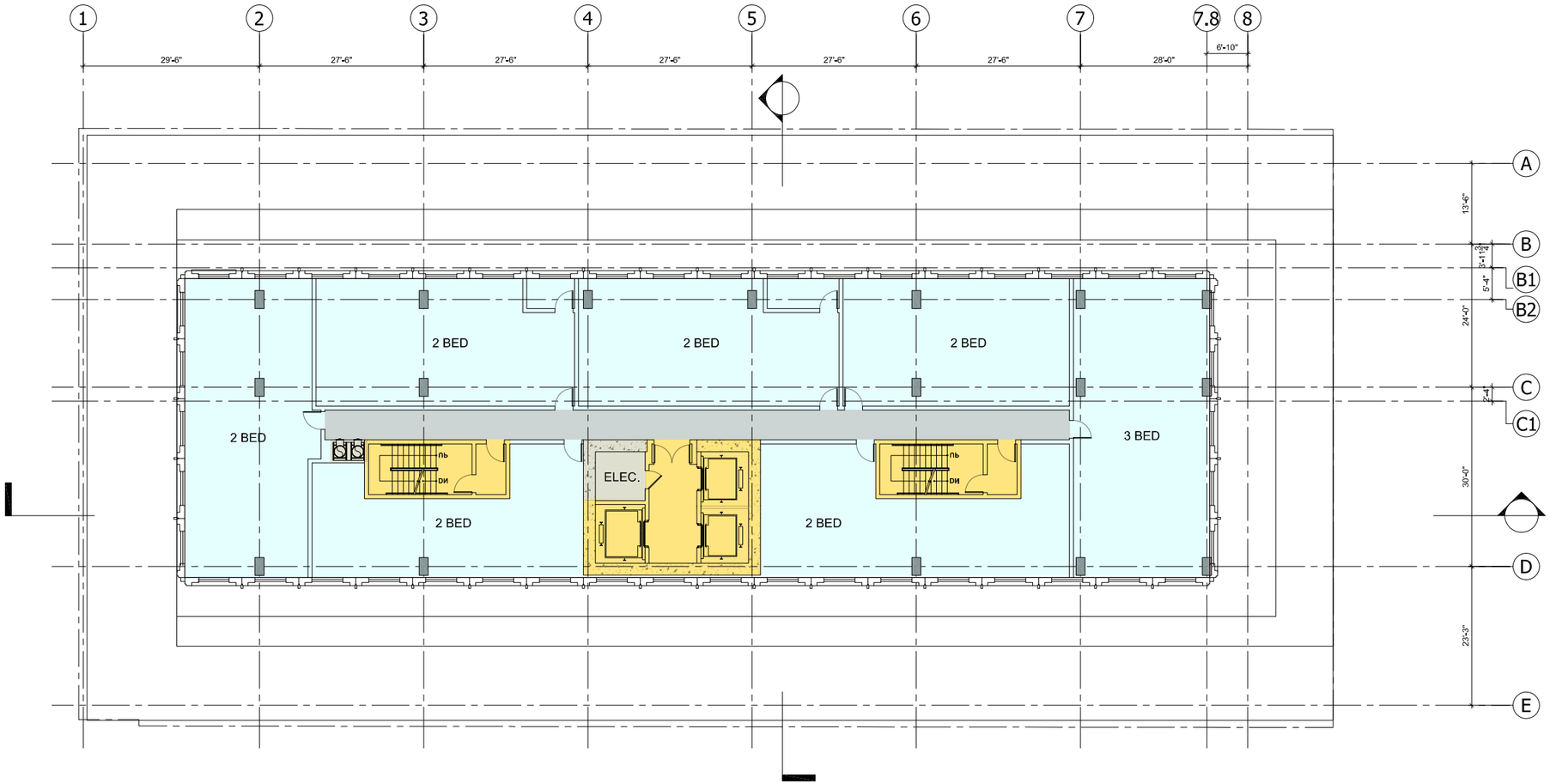
FLOOR PLAN (LEVEL 19 - 28)

SCALE: x" = 1'-0" 0' 5' 15' 30'



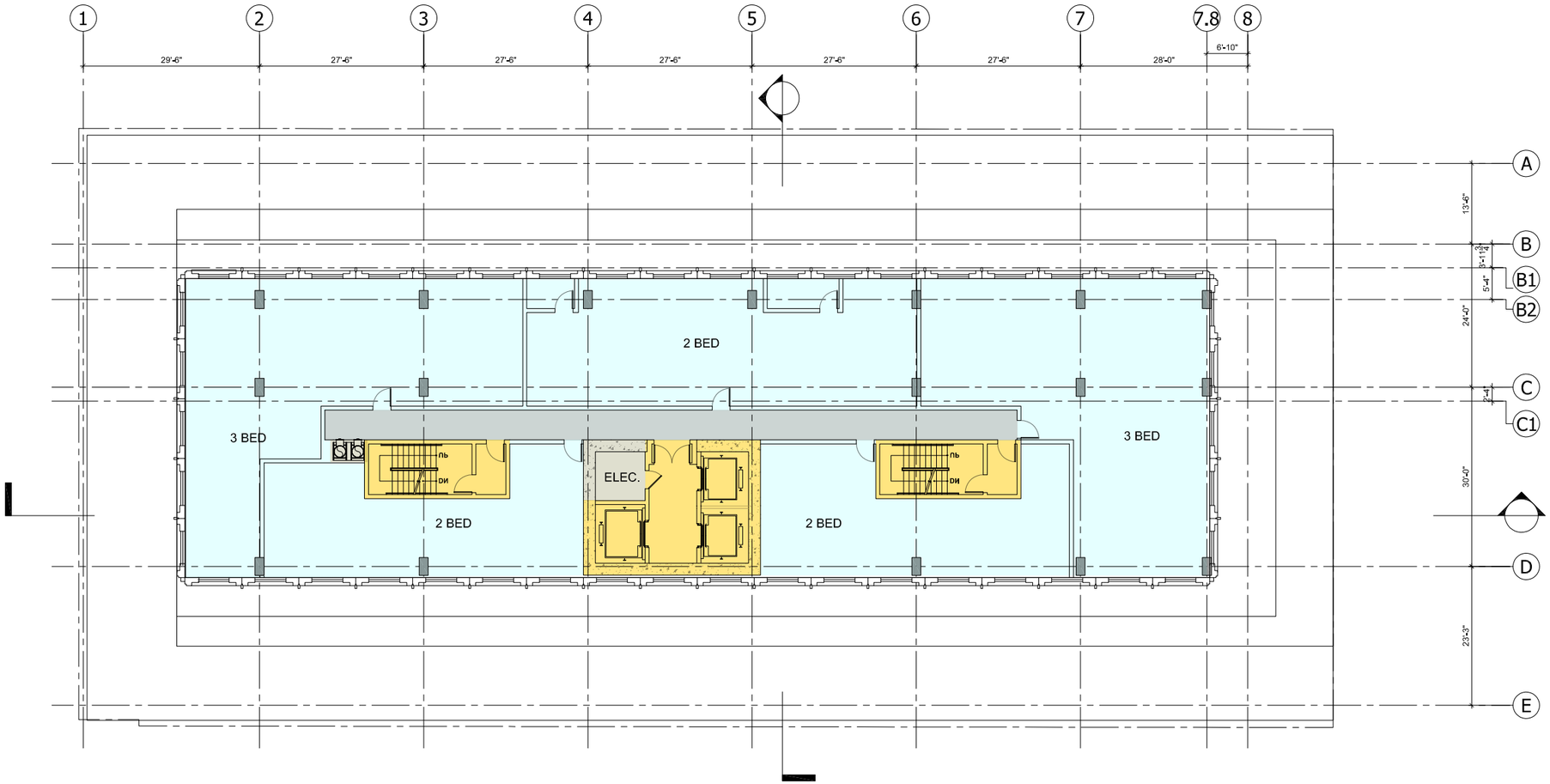
FLOOR PLAN (LEVEL 29)

SCALE: x" = 1'-0" 0' 5' 15' 30'



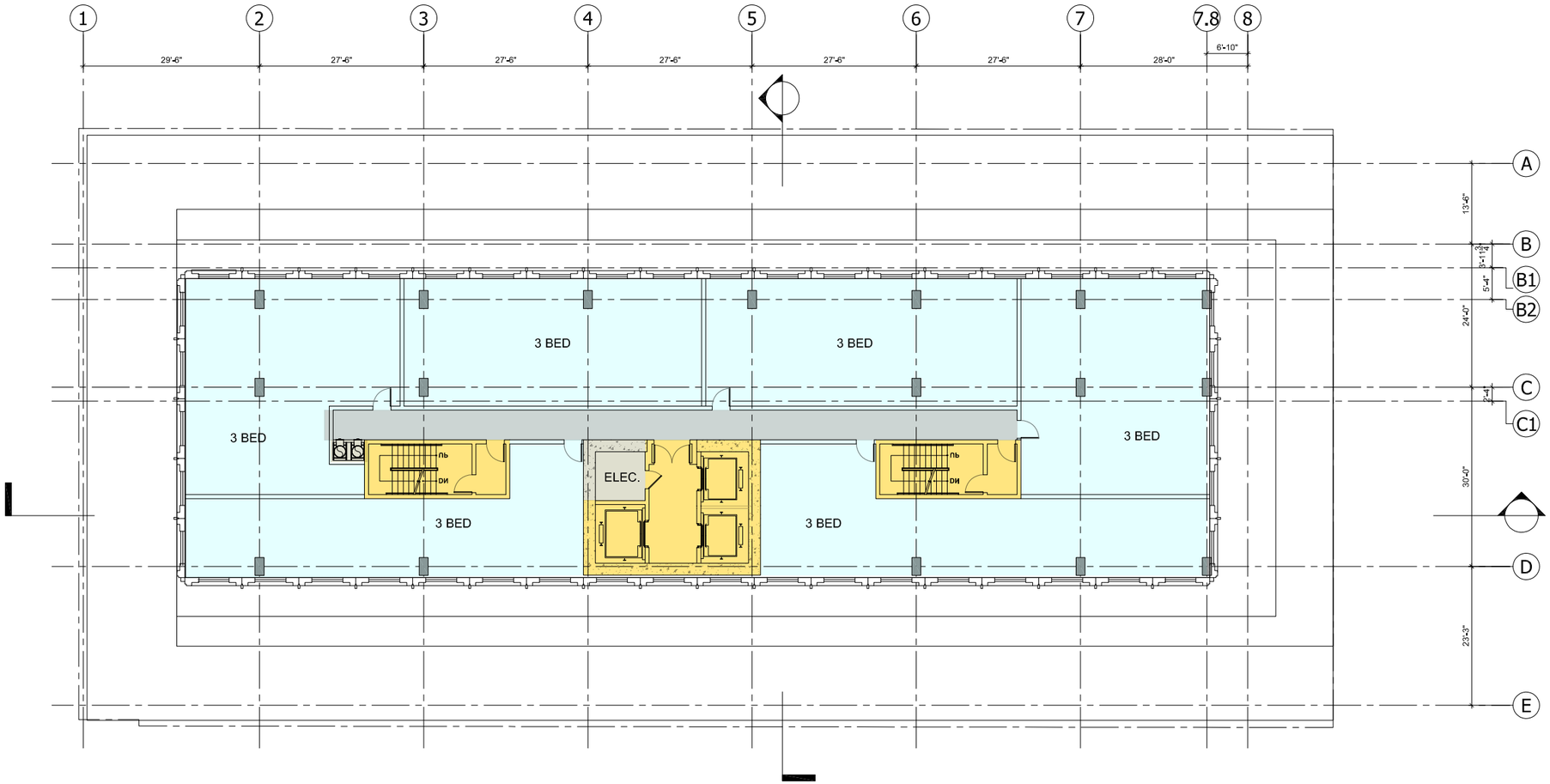
FLOOR PLAN (LEVEL 30 - 35)

SCALE: x" = 1'-0" 0' 5' 15' 30'



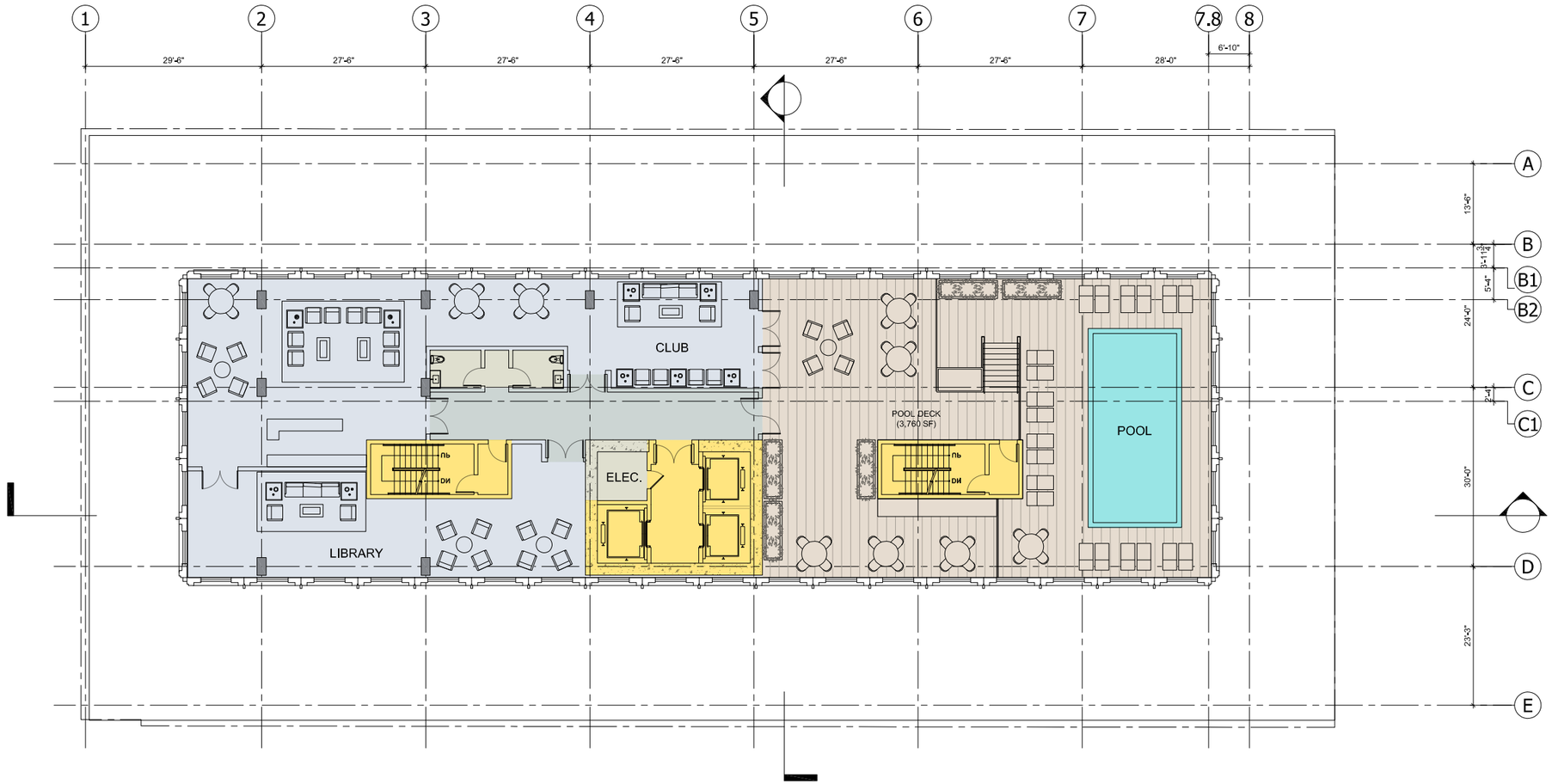
FLOOR PLAN (LEVEL 36 - 38)

SCALE: x" = 1'-0" 0' 5' 15' 30'



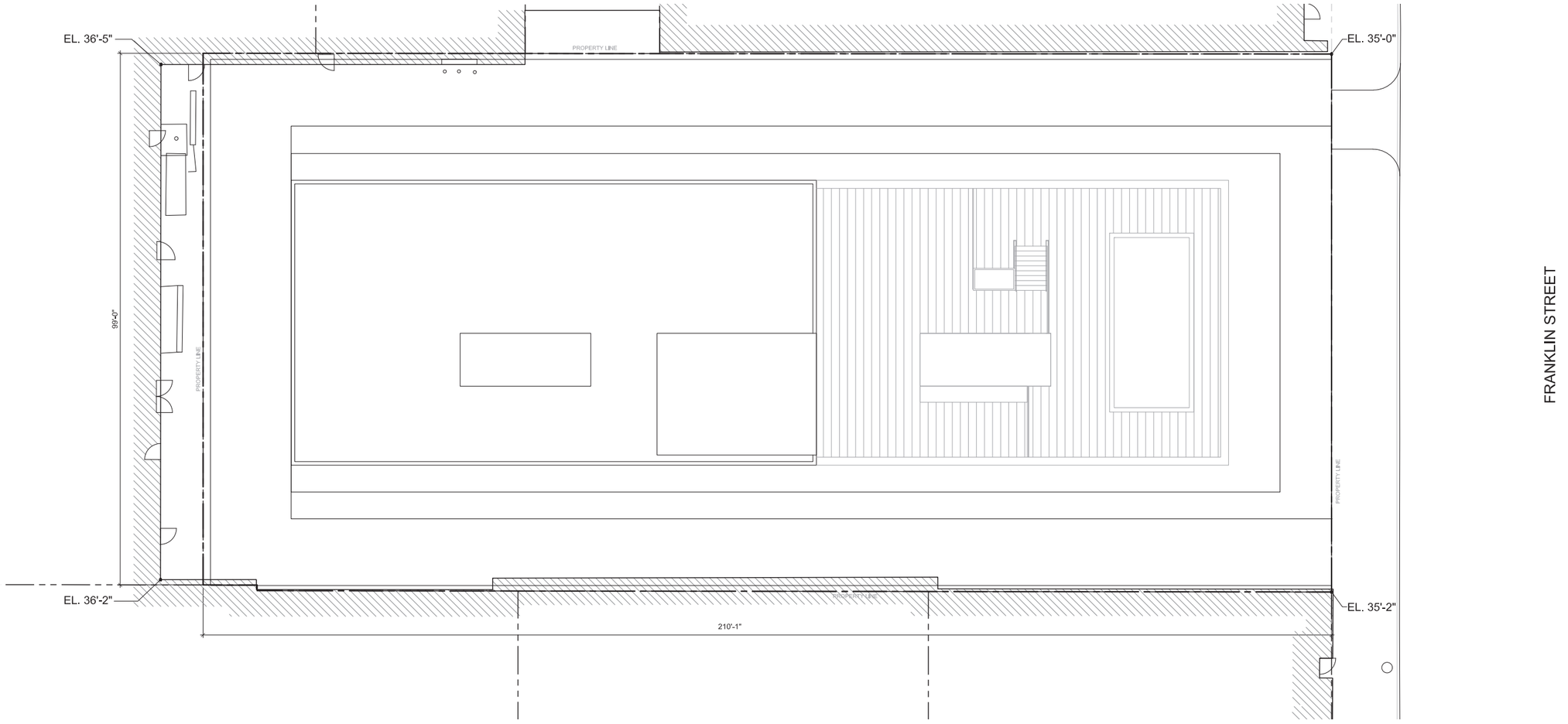
FLOOR PLAN (LEVEL 39)

SCALE: x" = 1'-0" 0' 5' 15' 30'



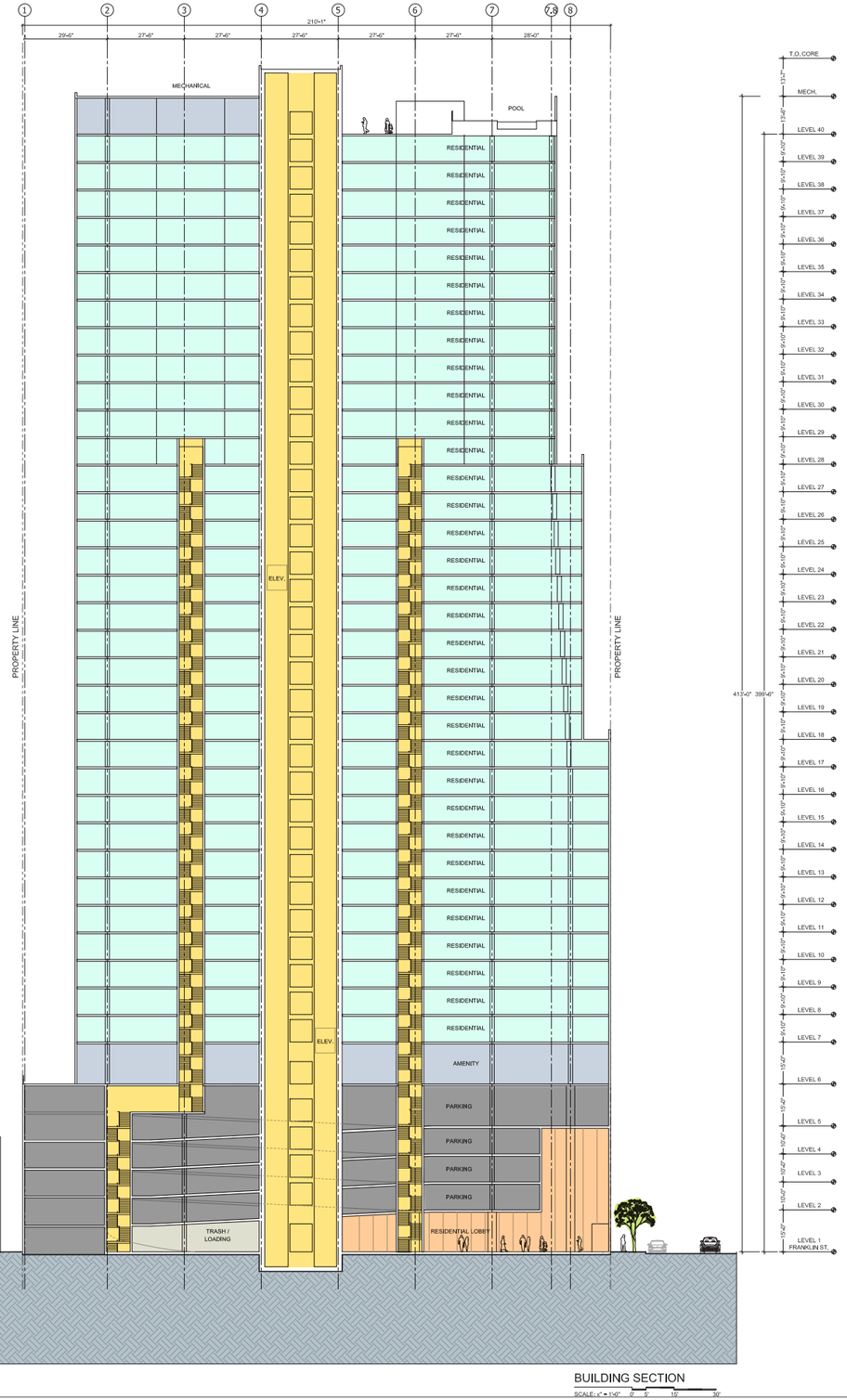
FLOOR PLAN (ROOF DECK AMENITY)

SCALE: x" = 1'-0" 0' 5' 15' 30'



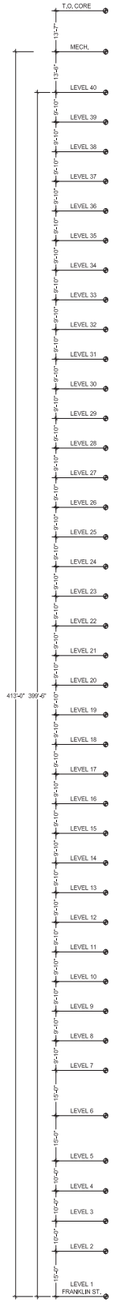
ROOF PLAN

SCALE: x" = 1'-0" 0' 5' 15' 30'



BUILDING SECTION

SCALE: 1/4" = 1'-0" 0' 5' 10' 30'



BUILDING SECTION

SCALE: 1/4" = 1'-0" 0' 5' 10' 30'

NORTH ELEVATION

SOUTH ELEVATION

Amenity deck. glass enclosure screen

Private terraces

Punched window pre-cast system with brick facade and aluminum anodized window and low-e glass. Brick color to be determined (Approximate color shown is proposed)

Private terraces

Amenity terrace

T.O. ROOF
413’ ABOVE GRADE

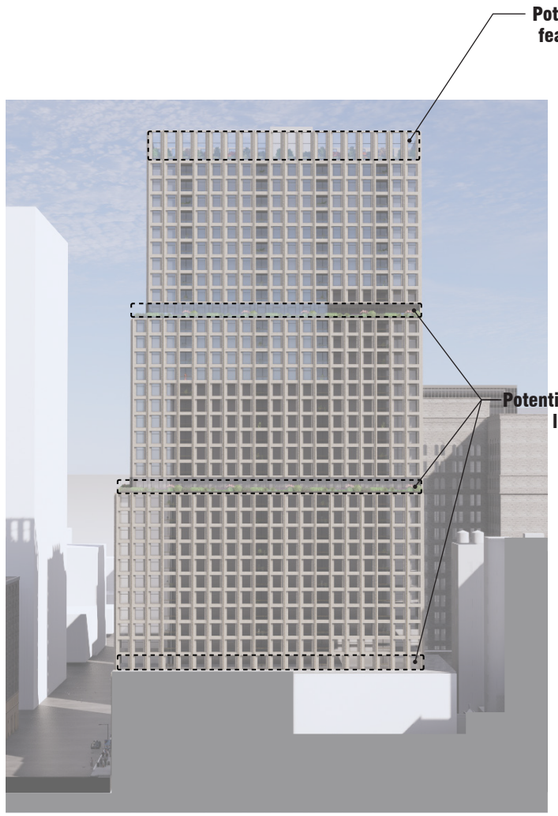
TERRACE
291’-4” ABOVE GRADE

TERRACE
183’-2” ABOVE GRADE

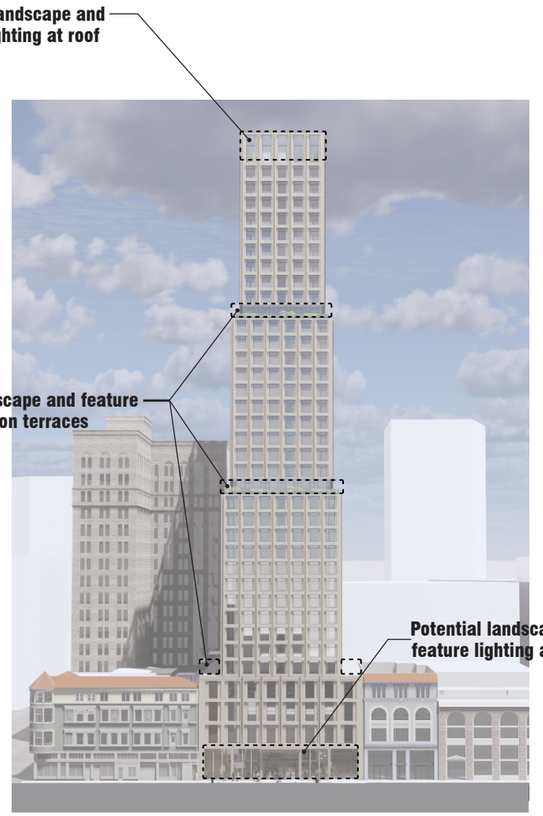
TERRACE
60’ ABOVE GRADE

EAST ELEVATION

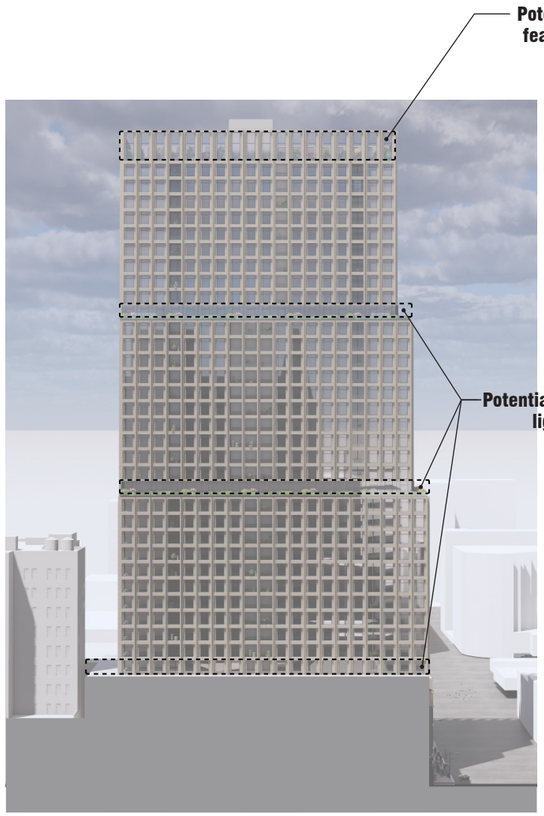
WEST ELEVATION



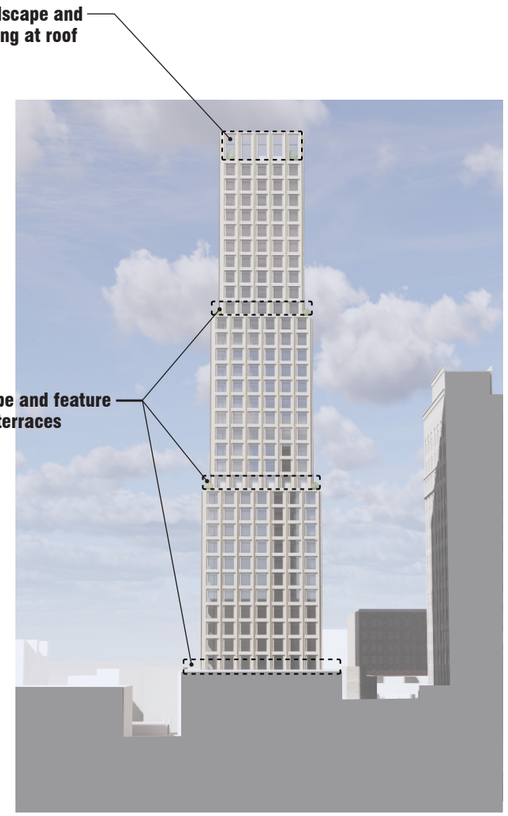
NORTH ELEVATION



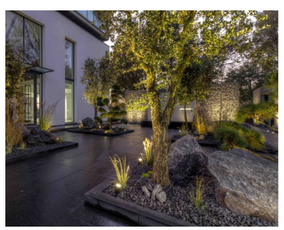
EAST ELEVATION

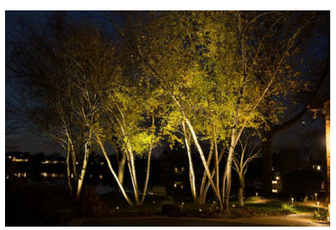


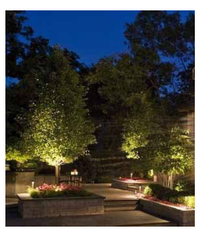
SOUTH ELEVATION



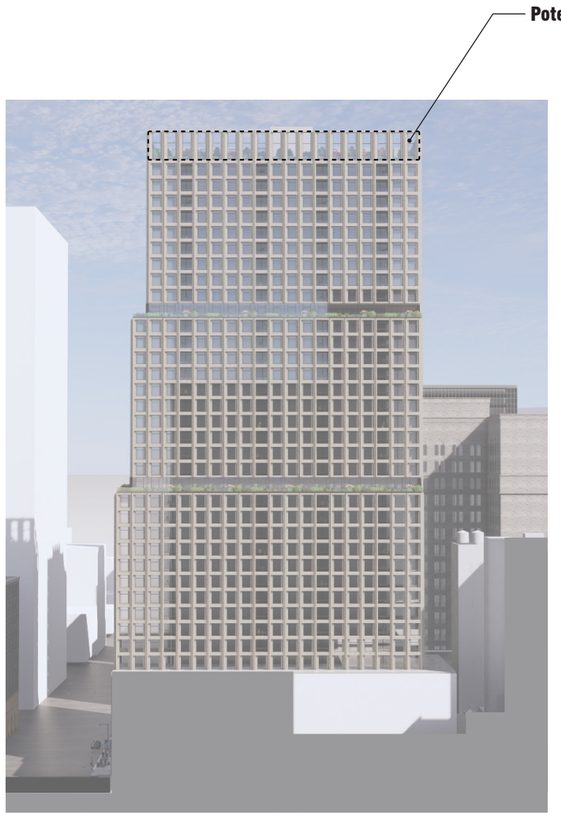
WEST ELEVATION



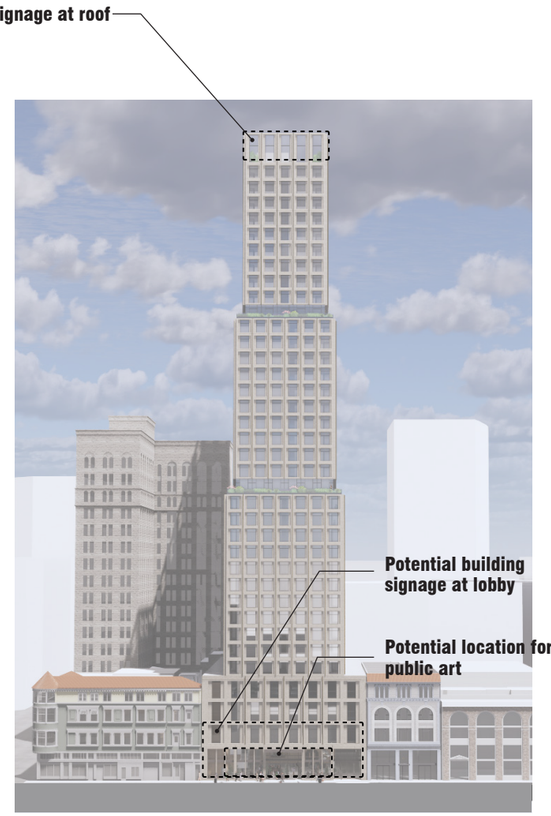




EXTERIOR LIGHTING LAYOUT



NORTH ELEVATION



EAST ELEVATION

SOUTH ELEVATION

WEST ELEVATION

SIGNAGE

RESIDENTIAL BUILDING MATRIX

	LEVELS	FLOOR HEIGHT (FT.)	HEIGHT ABOVE GRADE (FT.)	STUDIO	1 BEDROOM	2 BEDROOM	3 BEDROOM	TOTAL	GROSS HORIZONTAL AREA	EXCLUDED AREA (2)	FLOOR AREA (1)
ROOF	-	-	413'-0"	-	-	-	-	-	-	-	-
POOL DECK	40	13'-6"	399'-6"	-	-	-	-	-	5,425	-	5,425
RESIDENTIAL LEVELS	39	9'-10"	389'-8"	-	-	0	6	6	9,258	-	9,258
	38	9'-10"	379'-10"	-	-	3	2	5	9,258	-	9,258
	37	9'-10"	370'-0"	-	-	3	2	5	9,258	-	9,258
	36	9'-10"	360'-2"	-	-	3	2	5	9,258	-	9,258
	35	9'-10"	350'-4"	-	-	6	1	7	9,258	-	9,258
	34	9'-10"	340'-6"	-	-	6	1	7	9,258	-	9,258
	33	9'-10"	330'-8"	-	-	6	1	7	9,258	-	9,258
	32	9'-10"	320'-10"	-	-	6	1	7	9,258	-	9,258
	31	9'-10"	311'-0"	-	-	6	1	7	9,258	-	9,258
	30	9'-10"	301'-2"	-	-	6	1	7	9,258	-	9,258
	29	9'-10"	291'-4"	-	-	6	1	7	9,258	-	9,258
	28	9'-10"	281'-6"	-	8	4	-	12	9,258	-	9,258
	27	9'-10"	271'-8"	-	8	4	-	12	11,607	-	11,607
	26	9'-10"	261'-10"	-	8	4	-	12	11,607	-	11,607
	25	9'-10"	252'-0"	-	8	4	-	12	11,607	-	11,607
	24	9'-10"	242'-2"	-	8	4	-	12	11,607	-	11,607
	23	9'-10"	232'-4"	-	8	4	-	12	11,607	-	11,607
	22	9'-10"	222'-6"	-	8	4	-	12	11,607	-	11,607
	21	9'-10"	212'-8"	-	8	4	-	12	11,607	-	11,607
	20	9'-10"	202'-10"	-	8	4	-	12	11,607	-	11,607
	19	9'-10"	193'-0"	-	8	4	-	12	11,607	-	11,607
	18	9'-10"	183'-2"	-	8	4	-	12	11,607	-	11,607
	17	9'-10"	173'-4"	5	6	5	-	16	11,607	-	11,607
	16	9'-10"	163'-6"	5	6	5	-	16	14,167	-	14,167
	15	9'-10"	153'-8"	5	6	5	-	16	14,167	-	14,167
	14	9'-10"	143'-10"	5	6	5	-	16	14,167	-	14,167
	13	9'-10"	134'-0"	5	6	5	-	16	14,167	-	14,167
	12	9'-10"	124'-2"	5	6	5	-	16	14,167	-	14,167
	11	9'-10"	114'-4"	5	6	5	-	16	14,167	-	14,167
	10	9'-10"	104'-6"	5	6	5	-	16	14,167	-	14,167
	9	9'-10"	94'-8"	8	4	5	-	17	14,167	-	14,167
	8	9'-10"	84'-10"	8	4	5	-	17	14,167	-	14,167
	7	9'-10"	75'-0"	8	4	5	-	17	14,167	-	14,167
AMENITY	6	15'-0"	60'-0"						14,167	-	14,167
GARAGE	5	15'-0"	45'-0"						20,205	18,036	2,169
	4	10'-0"	35'-0"			N/A			20,205	18,036	2,169
	3	10'-0"	25'-0"						20,205	18,036	2,169
	2	10'-0"	15'-0"						20,205	18,036	2,169
LOBBY	1	15'-0"	0'-0"						20,205	7,860	12,345
TOTAL				64	148	150	19	381	501,060	80,004	421,056
				16.8%	38.8%	39.4%	5.0%	100%			

OPEN SPACE SUMMARY (3)

	UNITS	SQFT / UNIT	TOTAL (SQFT)
REQUIRED	381	75	28,575
PROVIDED	Private Open Space		14,900
	Public Open Space		8,100
			23,000

PARKING SUMMARY

	UNITS	STALLS / UNIT	TOTAL
ALLOWED	381	1.25	476
PROVIDED	381	0.438	167

BICYCLE PARKING SUMMARY

	UNITS	BIKES / UNIT	TOTAL
LONG-TERM	381	1 BIKE / 4 UNITS	96
SHORT-TERM	381	1 BIKE / 20 UNITS	20
PROVIDED			116

Notes

1. Per Chapter 17.09.040: "Floor area," for all projects except those with one or two dwelling units on a lot, means the total of the gross horizontal areas of all floors, including usable basements, below the roof and within the outer surfaces of the main walls of principal or accessory buildings or the center lines of party walls separating such buildings or portions thereof, or within lines drawn parallel to and two (2) feet within the roof line of any building or portion thereof without walls, but excluding the following: a. Areas used for off-street parking spaces or loading berths and driveways and maneuvering aisles relating thereto; b. Areas which qualify as usable open space under the standards for required usable open space in Chapter 17.126; c. In the case of Nonresidential Facilities: arcades, porticoes, and similar open areas which are located at or near street level, which are accessible to the general public, and which are not designed or used as sales, display, storage, service, or production areas.

2. Areas used for off-street parking spaces or loading berths and driveways and maneuvering aisles relating thereto; Areas which qualify as usable open space under the standards for required usable open space in Chapter 17.126; arcades, porticoes, and similar open areas which are located at or near street level, which are accessible to the general public, and which are not designed or used as sales, display, storage, service, or production areas.

PROJECT INFORMATION

PROJECT NAME: 1431 FRANKLIN RESIDENCES

PROJECT ADDRESS: 1431 FRANKLIN STREET OAKLAND, CA 94612

OWNER: TIDEWATER CAPITAL

APN: 8-621-8-7

ZONING: CENTRAL BUSINESS DISTRICT PEDESTRIAN RETAIL COMMERCIAL ZONE (CBD-P)

TOTAL LOT AREA: 20,974 SQUARE FEET

DENSITY:

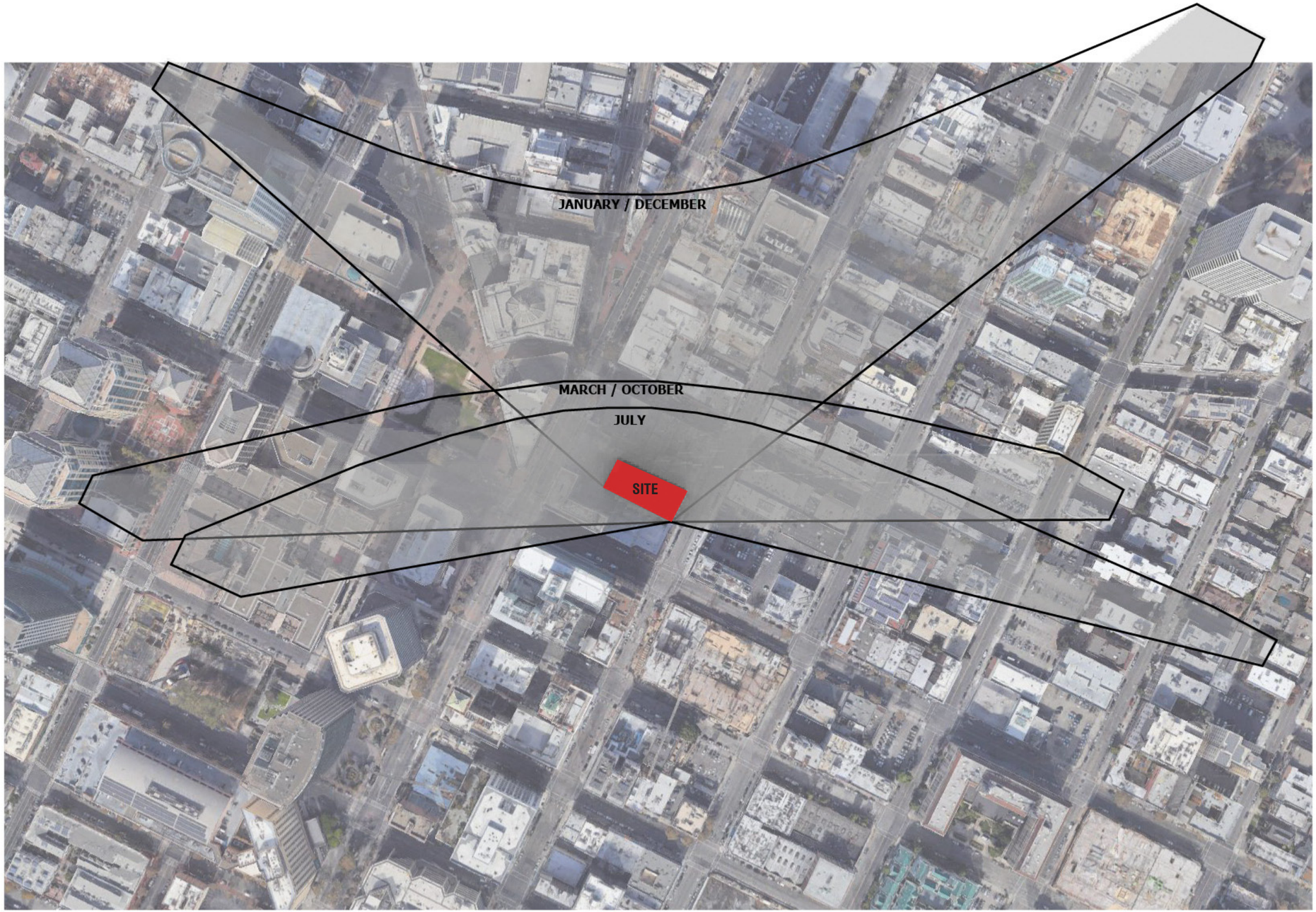
MARKET RATE DWELLING UNITS
20,974 X 91% = 19,086 SF, AT 1 UNIT PER 90 SF = 212 UNITS ALLOWED

EFFICIENCY DWELLING UNITS
20,974 X 9% = 1,888 SF, AT 1 UNIT PER 45 SF = 42 UNITS ALLOWED

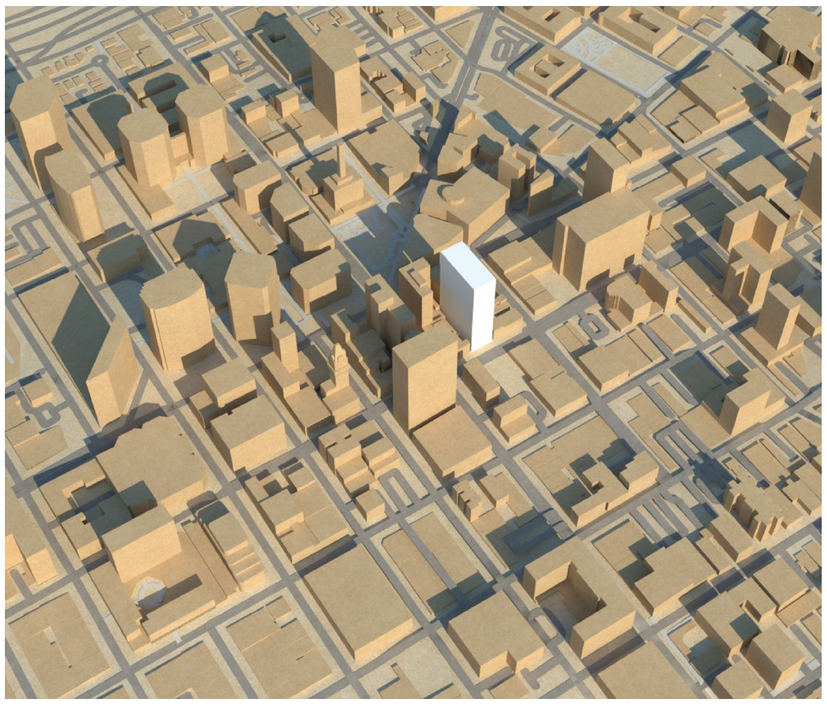
WITH STATE DENSITY BONUS
212 + 42 = 254 UNITS X 50% BONUS = 381 DWELLING UNITS
NOTE: PER AFFORDABLE HOUSING DENSITY BONUS SUPP. FORM, TABLE 3

TOTAL STORIES: 40 STORIES
Lot Coverage (Allowed) 85%
Lot Coverage (Provided) 70%

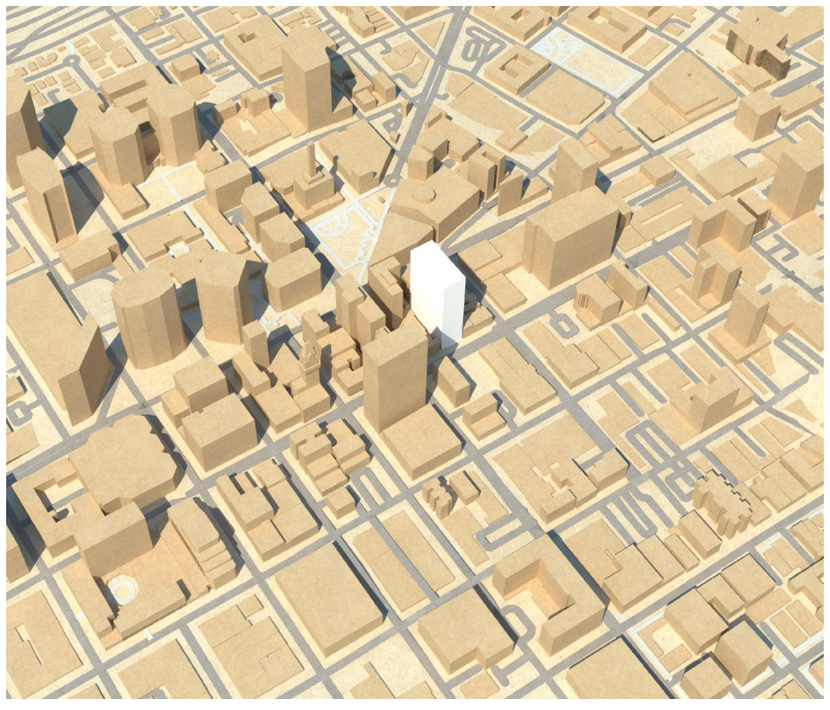
APPENDIX



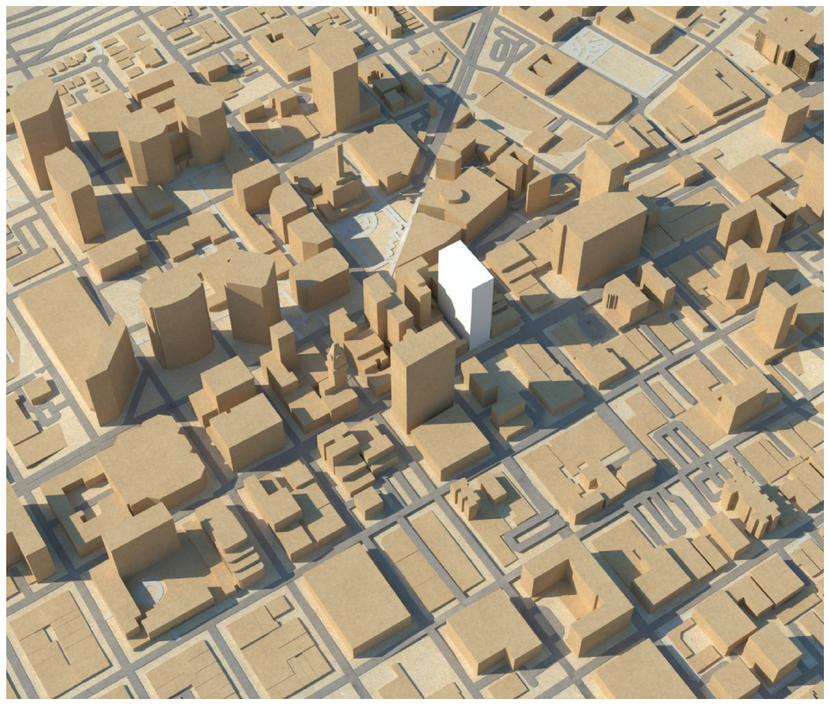
APPENDIX - PROJECTED SHADOW STUDY



MARCH/SEPTEMBER - 9AM

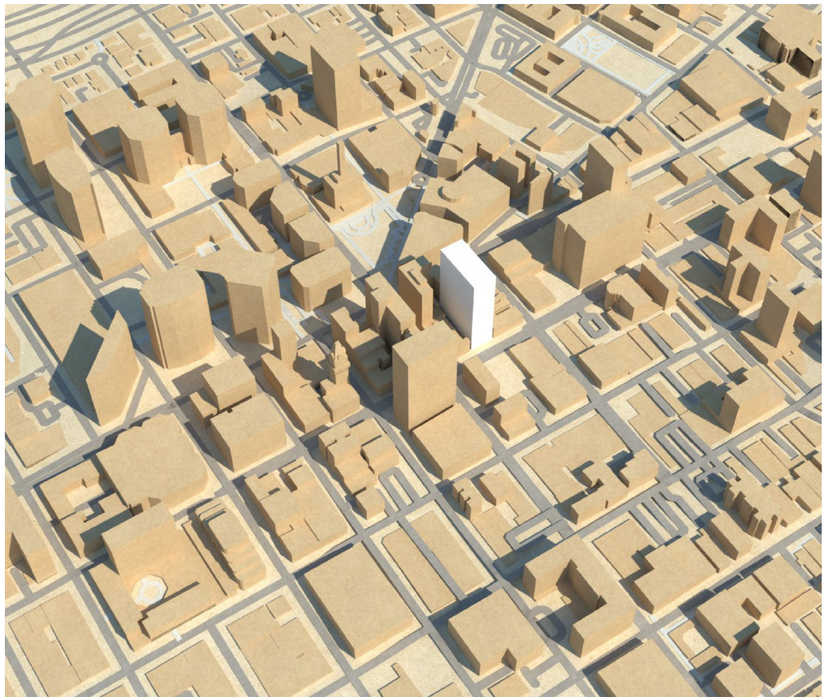


MARCH/SEPTEMBER - 12PM

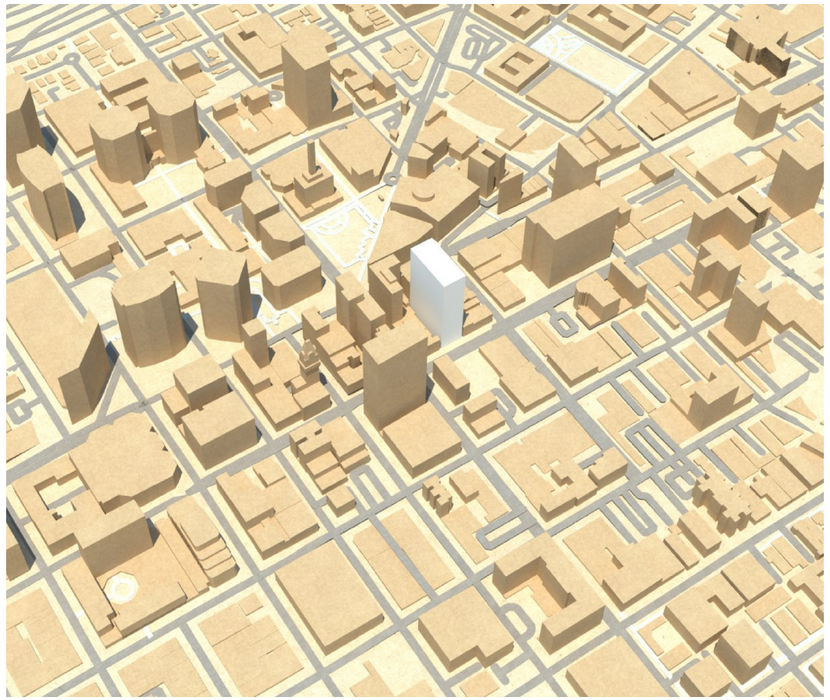


MARCH/SEPTEMBER - 3PM

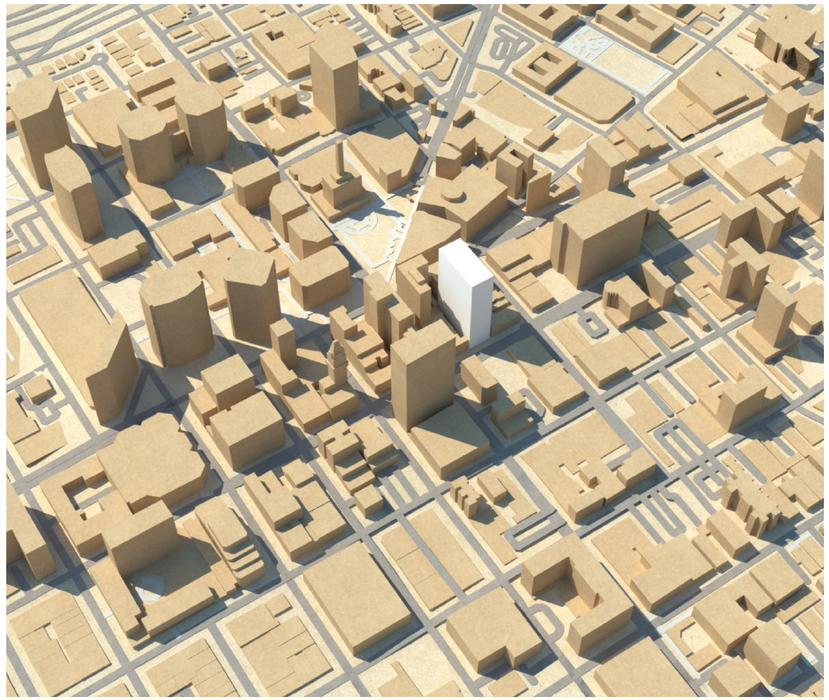
APPENDIX - SHADOW STUDIES



JUNE - 9AM

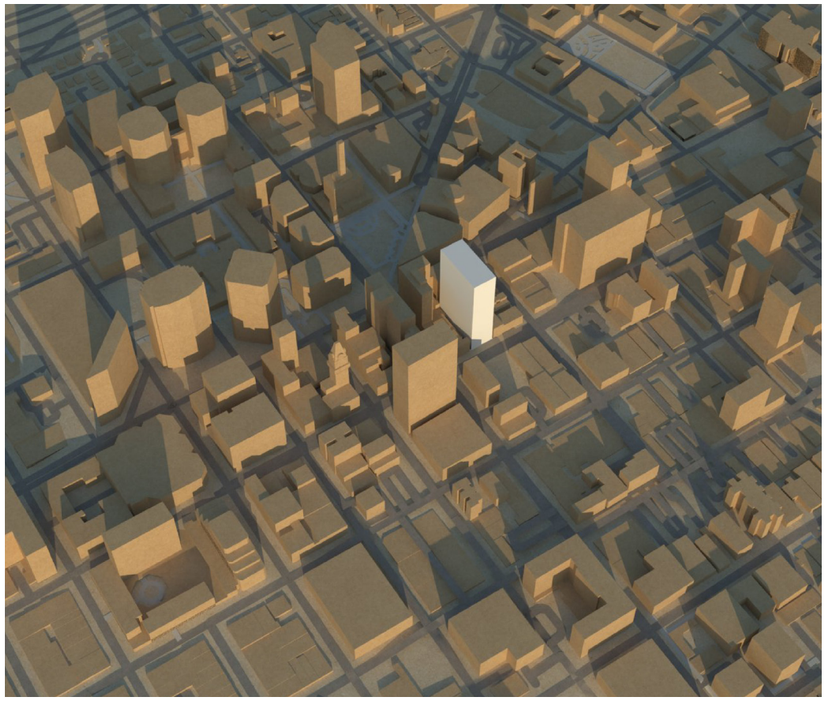


JUNE - 12PM

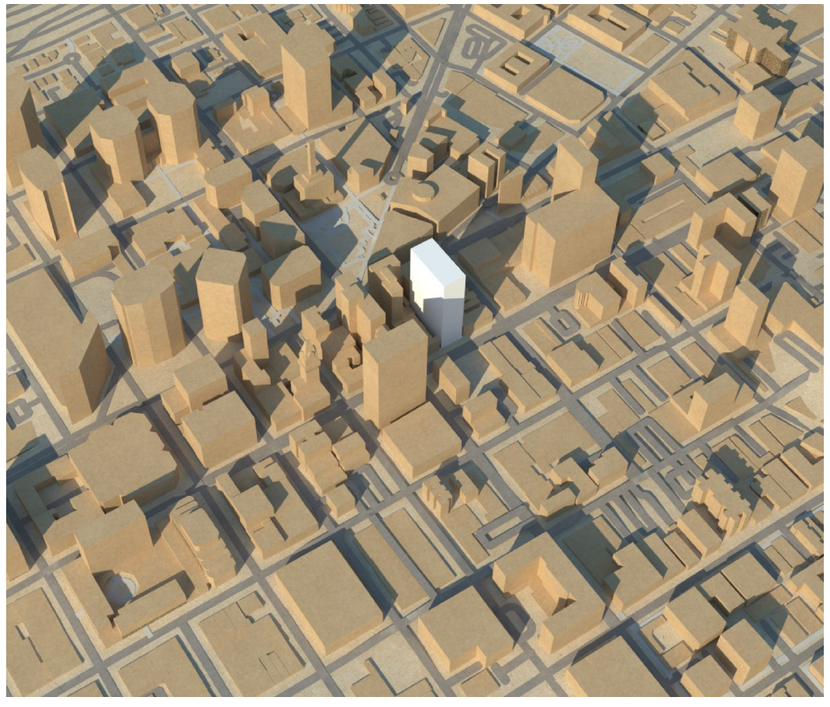


JUNE - 3PM

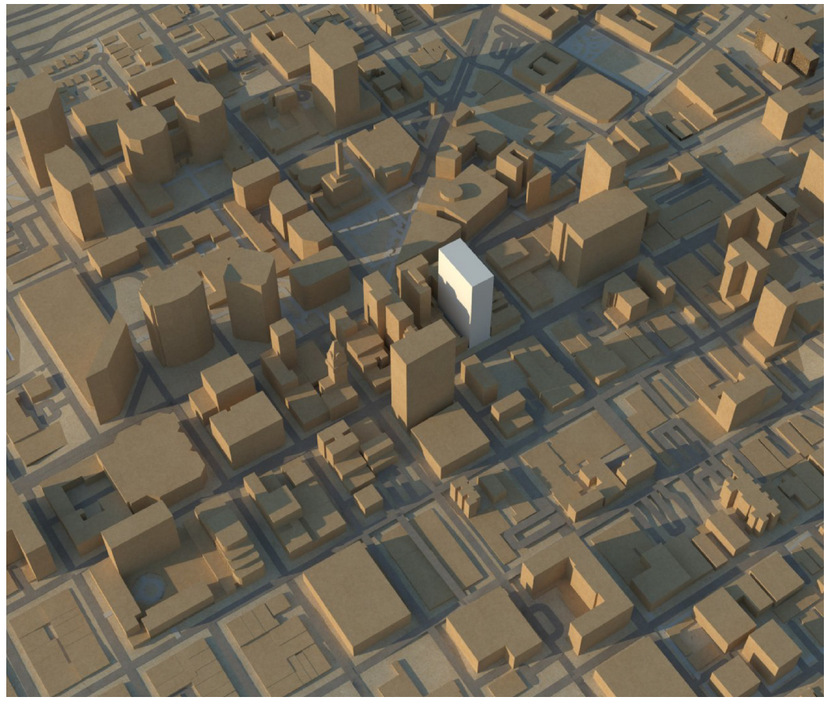
APPENDIX - SHADOW STUDIES



DECEMBER - 9AM



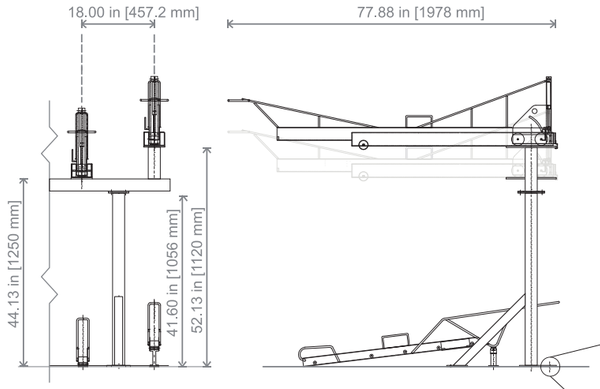
DECEMBER - 12PM

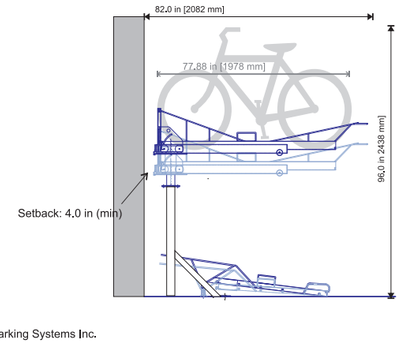


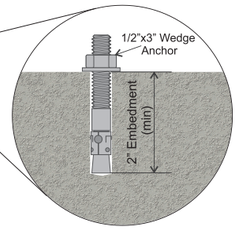
DECEMBER - 3PM

APPENDIX - SHADOW STUDIES

Urban Double Stacker - Standard Aisle







Specifications

Capacity	
Bicycles per set	2 (one up and one down)
Bicycle spacing	18.00 or 24.00 in [457.2 or 609.6 mm]
Rise differential	6.00 or 8.00 in [152.4 or 203.4 mm]
Weight	
Per two bicycle spaces	± 89.65 lbs [40.75 kg]
Materials	
Assembly material	Steel
Available finishes	
Powder coated (RAL 7016 - Anthracite Grey)	
Hot Dipped Galvanized	

These drawings are not for construction purposes and are for information purposes only. All information contained herein was current at the time of development but must be reviewed and confirmed by Urban Racks to be considered accurate.

URBAN RACKS
INNOVATIVE | BICYCLE PARKING

1-888-717-8881 sales@urbanracks.com
For more product and company information, please visit us at www.urbanracks.com

DOUBLE STACKER BIKE PARKING (LONG TERM)

CAPITOL™ BIKE RACK

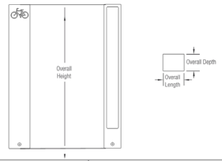
PRODUCT DATA

The **Capitol Bike Rack's** solid, corrosion-resistant cast aluminum body provides the strength necessary to stand up to continuous use while its simple, space-saving design allows it to engage with its surrounding environment as much or as little as desired. With a design perfect for cityscapes and other contemporary architectural settings, the Capitol Bike Rack is a solution for environments of all types.

MATERIAL & FINISHES / **INSTALLATION & MAINTENANCE**

MATERIAL	FINISHES	GUIDELINES & SECURITY	INSTALLATION	MAINTENANCE
• Body is made of corrosion-resistant cast aluminum with powdercoat finish.	• See the Forms+Surfaces Powdercoat Chart for details. Custom RAL colors are available for an upcharge. • Due to the inherent nature of metal castings, gloss powdercoats are not offered for cast components.	• Meets Association of Pedestrian and Bicycle Professionals (APBP) guidelines. • A locking point detail and mounting configurations that meet APBP guidelines can be found on page 1 and 2 of this document.	• Capitol Bike Racks must be surface mounted with embedded anchors. Stainless steel anchors and tamper-resistant stainless steel screws are included.	• Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

NOMINAL DIMENSIONS



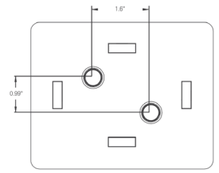
OVERALL LENGTH	OVERALL DEPTH	OVERALL HEIGHT	WEIGHT
5" (127 mm)	4" (102 mm)	34" (864 mm)	25 lbs (11.4 kg)

LOCKING POINT AND CONFIGURATION EXAMPLES

The Capitol Bike Rack was designed to allow for a multitude of locking point and configuration options to meet your individual needs. Please note that for optimal performance, Forms+Surfaces recommends a 36" center-to-center placement. See diagrams below and the separate installation instructions document for more details.

A standard U-lock can be locked at this location to meet APBP guidelines for security and functionality.

LOCKING POINT EXAMPLE



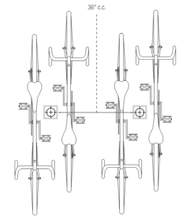
MOUNTING / HARDWARE DETAIL

BIKE RACK (SHORT TERM)

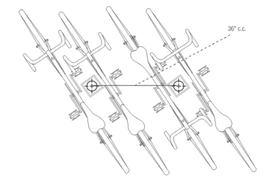
CAPITOL™ BIKE RACK

PRODUCT DATA

LOCKING POINT AND CONFIGURATION EXAMPLES (Continued)



CONFIGURATION EXAMPLE A



CONFIGURATION EXAMPLE B

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Capitol Bike Rack Environmental Data Sheet for detailed environmental impact information.
- Capitol aluminum casting has up to 95% recycled content and is fully recyclable.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

MODEL NUMBER AND DESCRIPTION

MODEL	DESCRIPTION
SKCAP	Capitol Bike Rack

PRODUCT OPTIONS

The following options are available for an upcharge

Premium Texture Colors from Forms+Surfaces Powdercoat Chart
Custom RAL powdercoat color

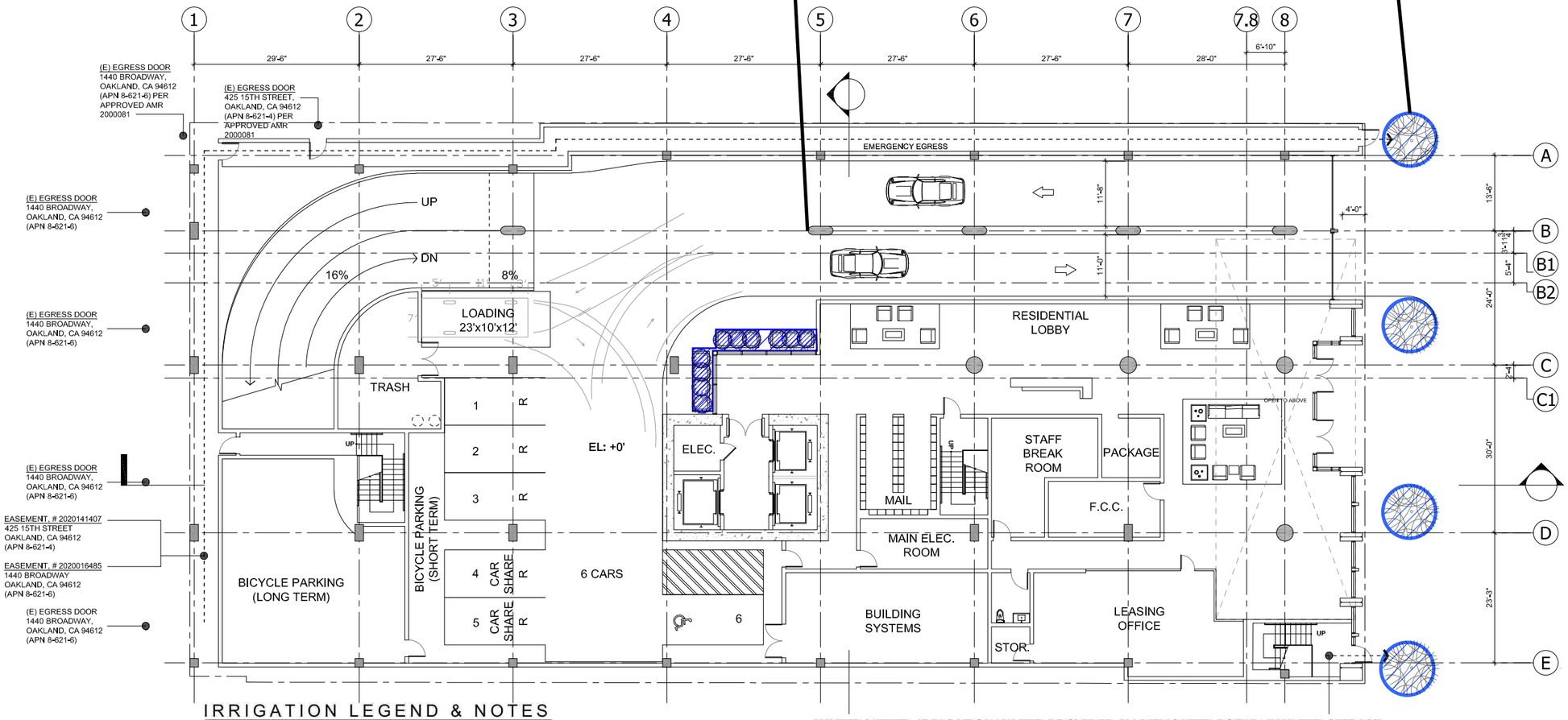
LEAD TIME: 4 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

PRICING: Please contact us at **800.451.0410** or **sales@forms-surfaces.com**. At Forms+Surfaces, we design, manufacture and sell our products directly to you. Our sales team is available to assist you with questions about our products, requests for quotes, and orders. Territory Managers are located worldwide to assist with the front-end specification and quoting process, and our in-house Project Sales Coordinators follow your project through from the time you place an order to shipment.

TO ORDER SPECIFY: Quantity, model, powdercoat color for body casting. Quote/Order Forms are available on our website to lead you through the specification process in a simple checkbox format.

2 BUBBLERS PER SIDEWALK TREE IN EMBEDDED PLANTERS WITH LIGHTWEIGHT PLANTING SOIL, TYP

SUB-SURFACE DRIP IRRIGATION FOR SHRUBS IN RAISED PLANTERS WITH LIGHTWEIGHT PLANTING SOIL, TYP



IRRIGATION LEGEND & NOTES

SUBSURFACE DRIP IRRIGATION VALVED FOR SEPERATE HYDROZONES WITH SIMILAR EXPOSURE AND PLANT WATER USE. 0.5 GPH DRIPPERLINE WITH EMITTERS SPACING AT 12" OC TYPICAL.

IRRIGATED LANDSCAPE AREA (THIS FLOOR)	24 SQ. FT.
TOTAL IRRIGATED LANDSCAPE (TOTAL PROJECT)	773 SQ. FT.

WATER METER: IRRIGATION WATER PROVIDED BY DEDICATED POTABLE WATER SERVICE METER OR SUB METER.

BACKFLOW: BACKFLOW PREVENTION DEVICE AS REQUIRED TO PROTECT WATER SUPPLY FROM CONTAMINATION.

CONTROLLER: SMART ET-BASED IRRIGATION CONTROLLER WITH FLOW SENSOR AND MASTER SHUT-OFF VALVE.

TREE BUBBLERS: ALL TREES IRRIGATED WITH TWO FLOOD BUBBLERS

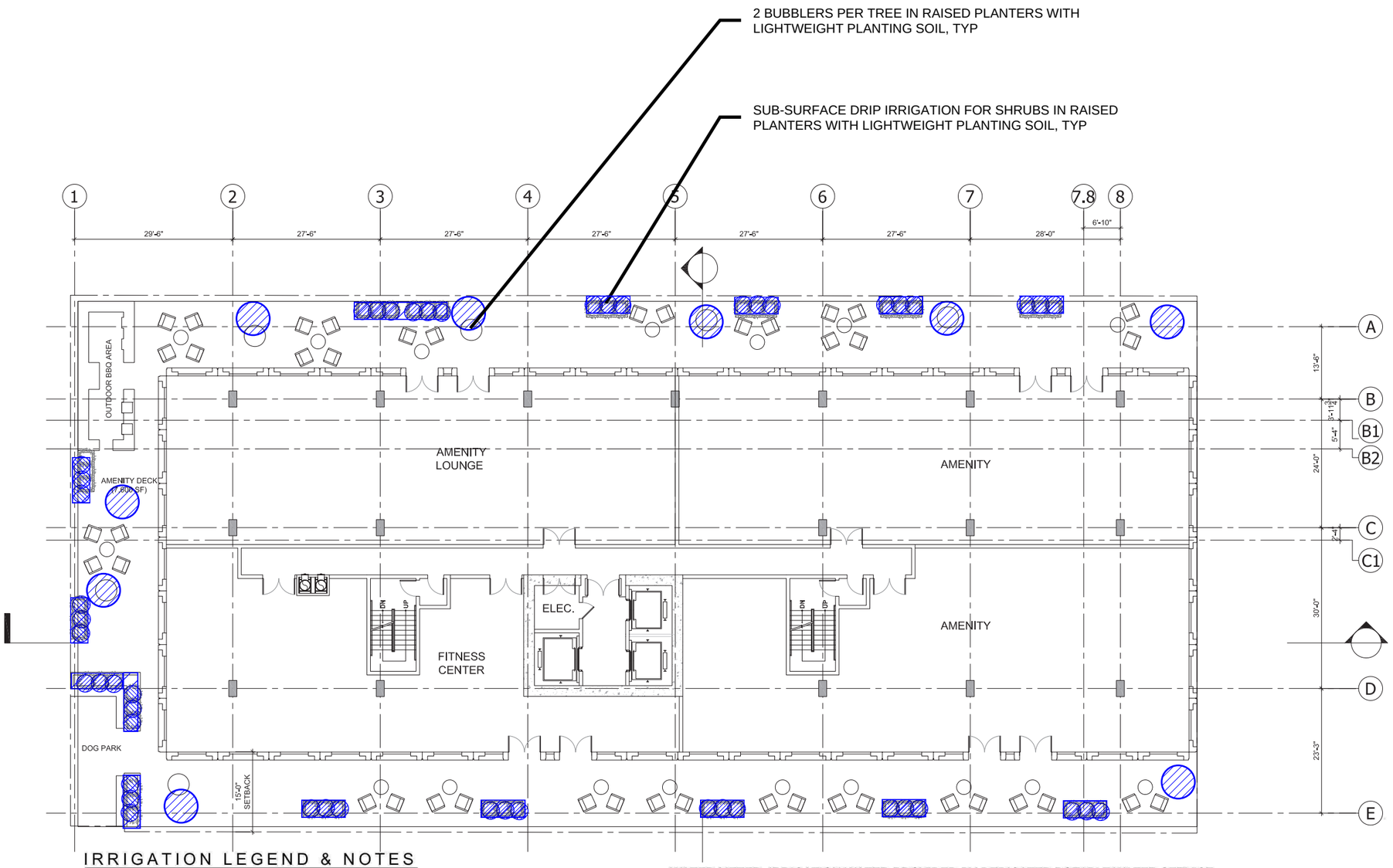
THIS PROJECT WILL APPLY THE CRITERIA OF TITLE 23 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE FOR EFFICIENT USE OF WATER IN THE LANDSCAPE.

FLOOR PLAN - LEVEL 1

SCALE: x" = 1'-0" 0' 5' 15' 30'

CARDUCCI ASSOCIATES

RESIDENTIAL LEVEL 1 IRRIGATION PLAN



IRRIGATION LEGEND & NOTES

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TREE BUBBLERS: ALL TREES IRRIGATED WITH TWO FLOOD BUBBLERS

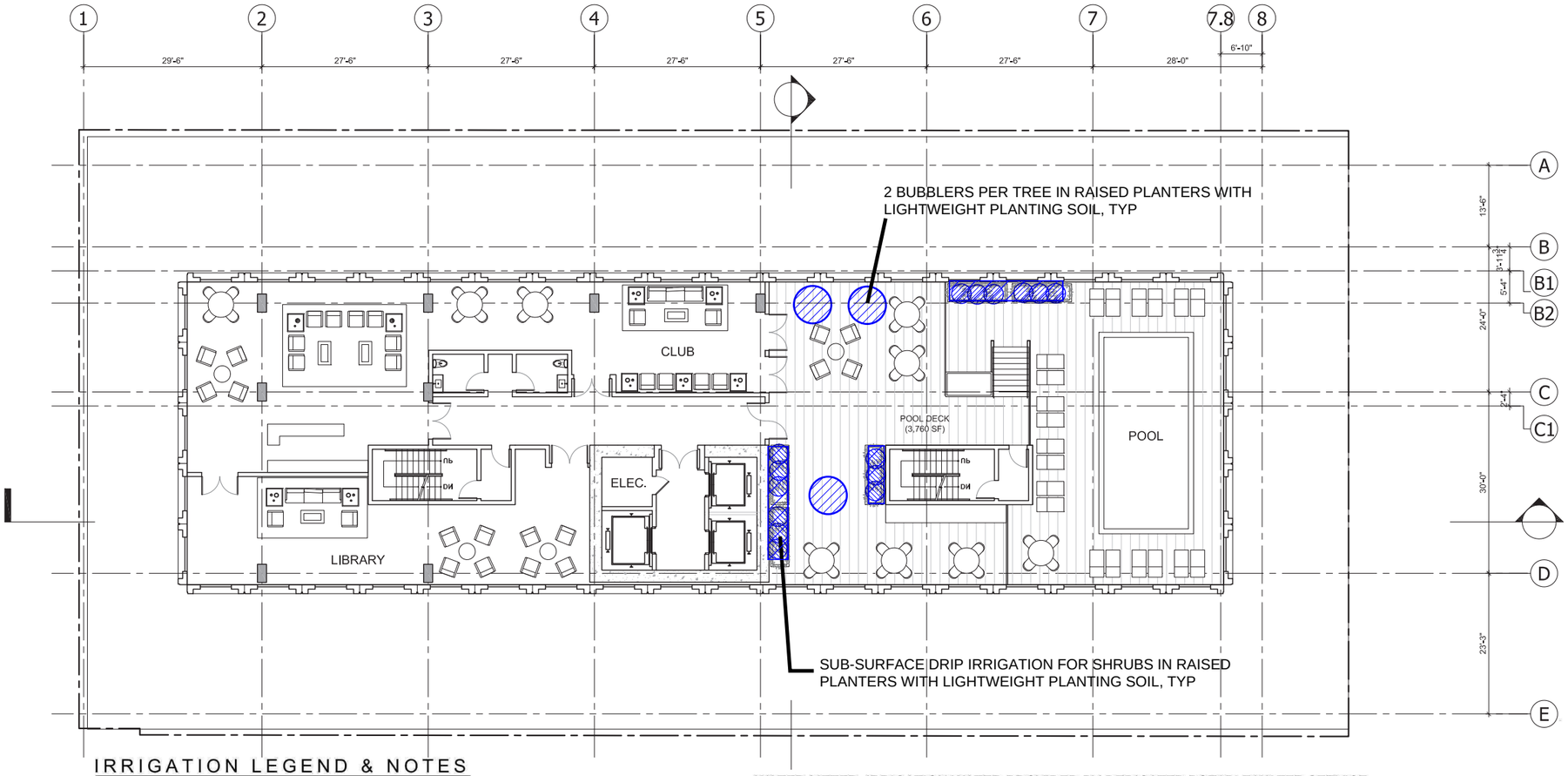
THIS PROJECT WILL APPLY THE CRITERIA OF TITLE 23 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE FOR EFFICIENT USE OF WATER IN THE LANDSCAPE.

FLOOR PLAN - LEVEL 6

SCALE: x" = 1'-0" 0' 5' 15' 30'

CARDUCCI ASSOCIATES

RESIDENTIAL LEVEL 1 IRRIGATION PLAN



IRRIGATION LEGEND & NOTES

SUBSURFACE DRIP IRRIGATION VALVED FOR SEPERATE HYDROZONES WITH SIMILAR EXPOSURE AND PLANT WATER USE. 0.5 GPH DRIPPERLINE WITH EMITTERS SPACING AT 12" OC TYPICAL.

IRRIGATED LANDSCAPE AREA (THIS FLOOR)	24 SQ. FT.
TOTAL IRRIGATED LANDSCAPE (TOTAL PROJECT)	773 SQ. FT.

WATER METER: IRRIGATION WATER PROVIDED BY DEDICATED POTABLE WATER SERVICE METER OR SUB METER.

BACKFLOW: BACKFLOW PREVENTION DEVICE AS REQUIRED TO PROTECT WATER SUPPLY FROM CONTAMINATION.

CONTROLLER: SMART ET-BASED IRRIGATION CONTROLLER WITH FLOW SENSOR AND MASTER SHUT-OFF VALVE.

TREE BUBBLERS: ALL TREES IRRIGATED WITH TWO FLOOD BUBBLERS

THIS PROJECT WILL APPLY THE CRITERIA OF TITLE 23 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE FOR EFFICIENT USE OF WATER IN THE LANDSCAPE.

FLOOR PLAN - POOL LEVEL

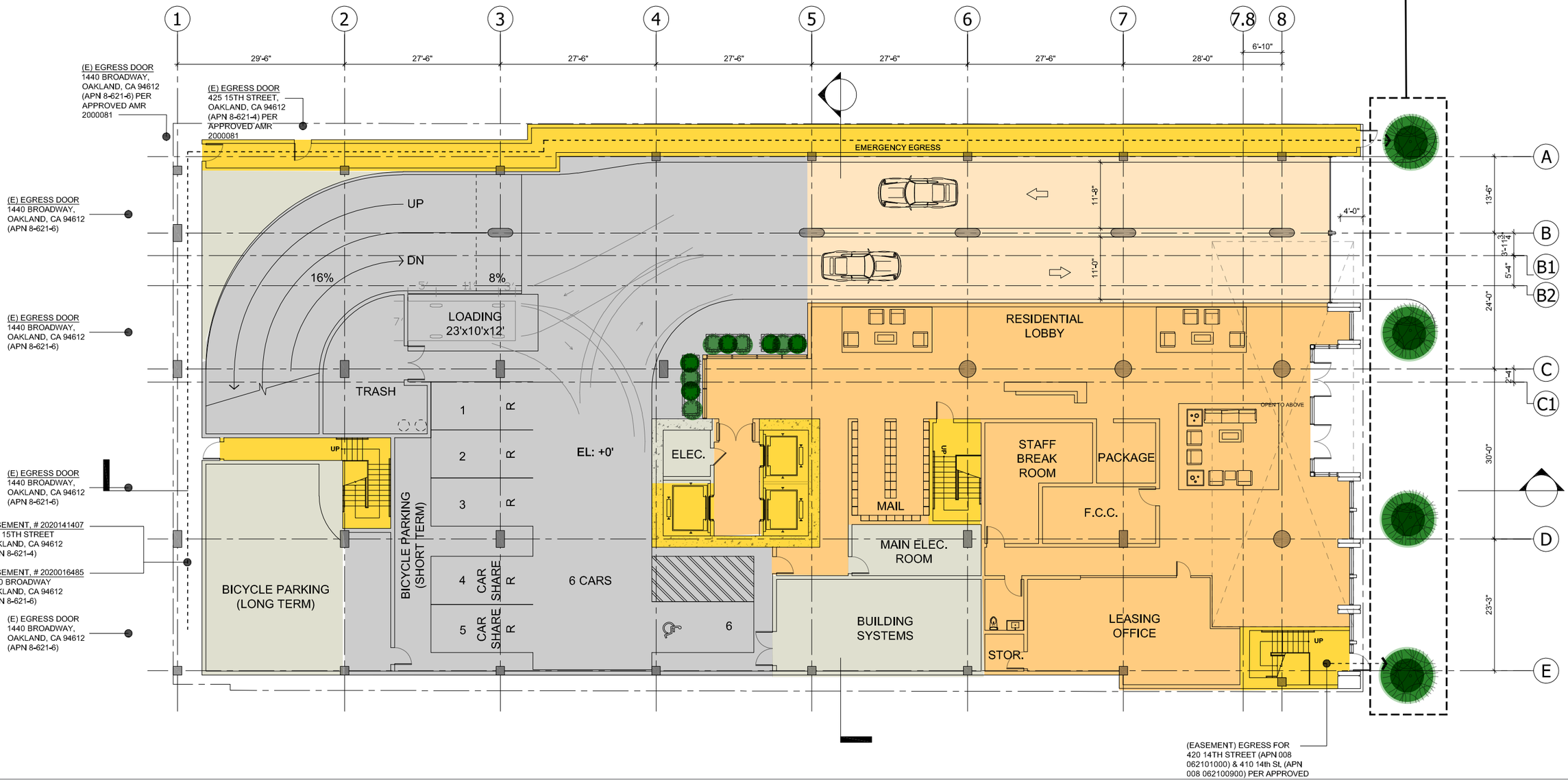
SCALE: x" = 1'-0" 0' 5' 15' 30'

CARDUCCI ASSOCIATES

RESIDENTIAL LEVEL 40 IRRIGATION PLAN

CITRUS GOLD BARBERRY

HYBRID CRAPE MYRTLE

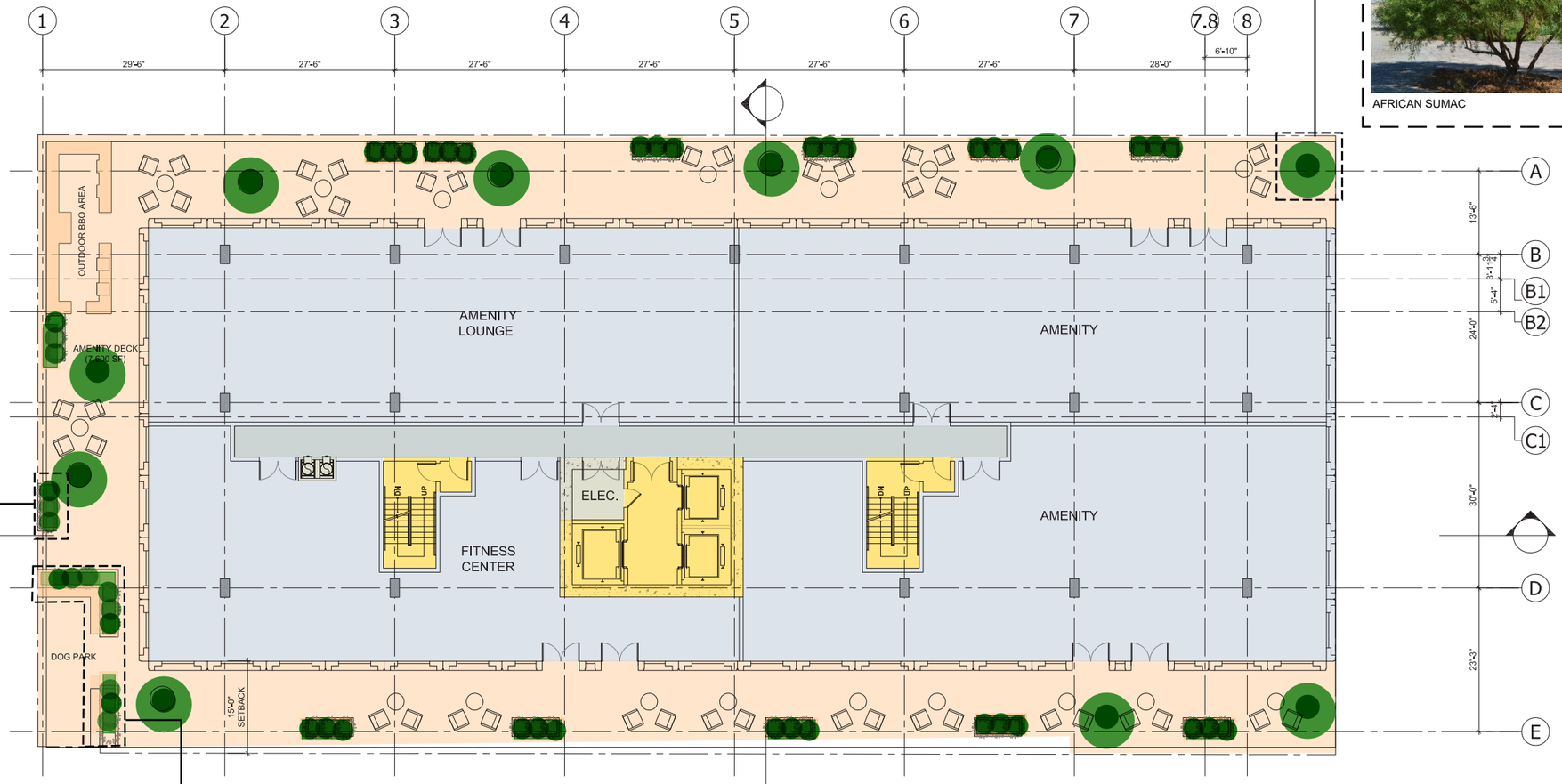


MARINA STRAWBERRY TREE

LOMANDRA

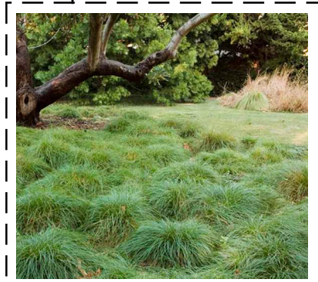
TRAILING ROSEMARY

AFRICAN SUMAC



LANDSCAPE
FLOOR PLAN (LEVEL 6)

SCALE: x" = 1'-0" 0' 5' 15' 30'

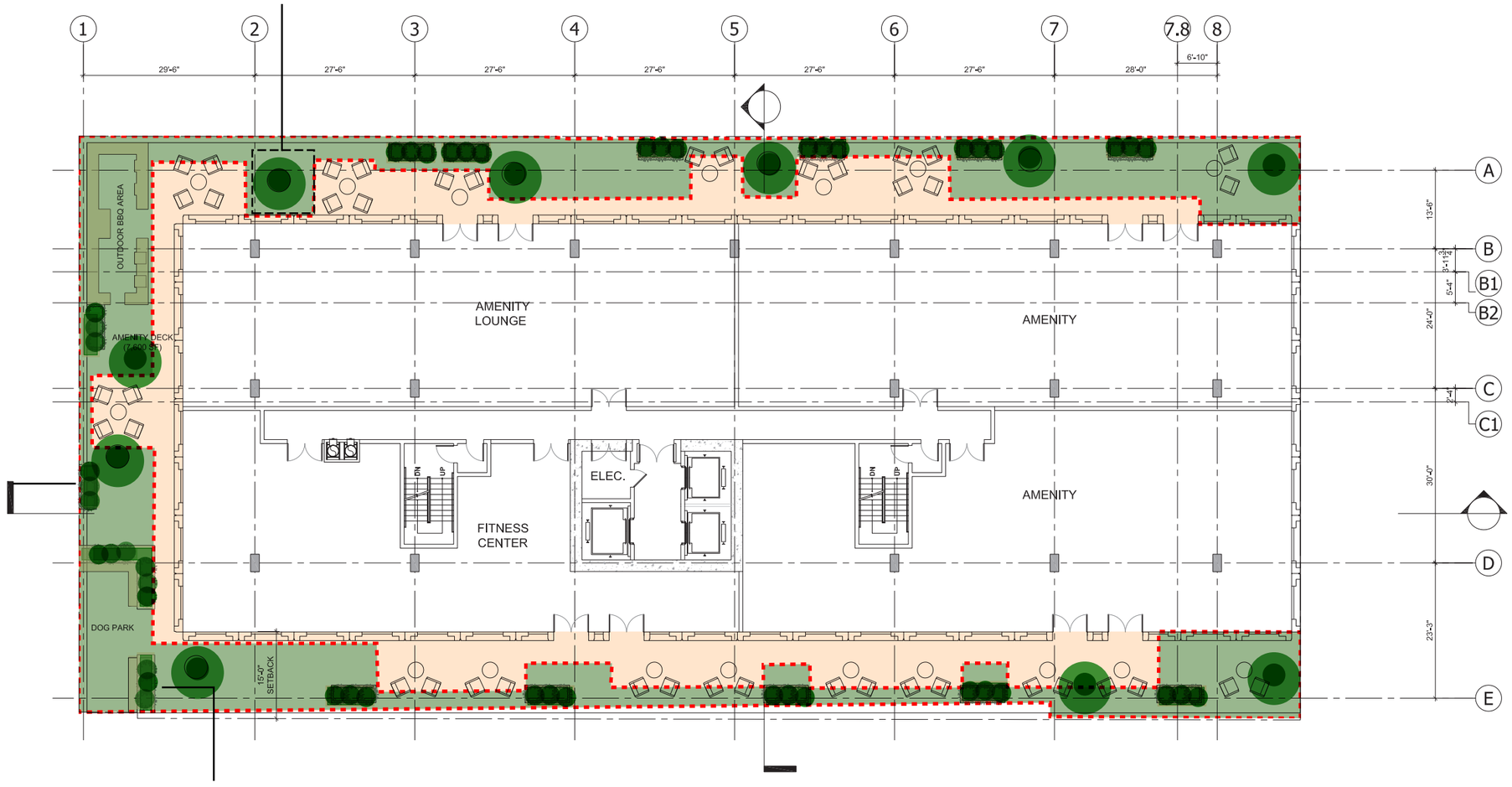


BERKELEY SEDGE

RED YUCCA

LOMANDRA

PACIFIC WAX MYRTLE

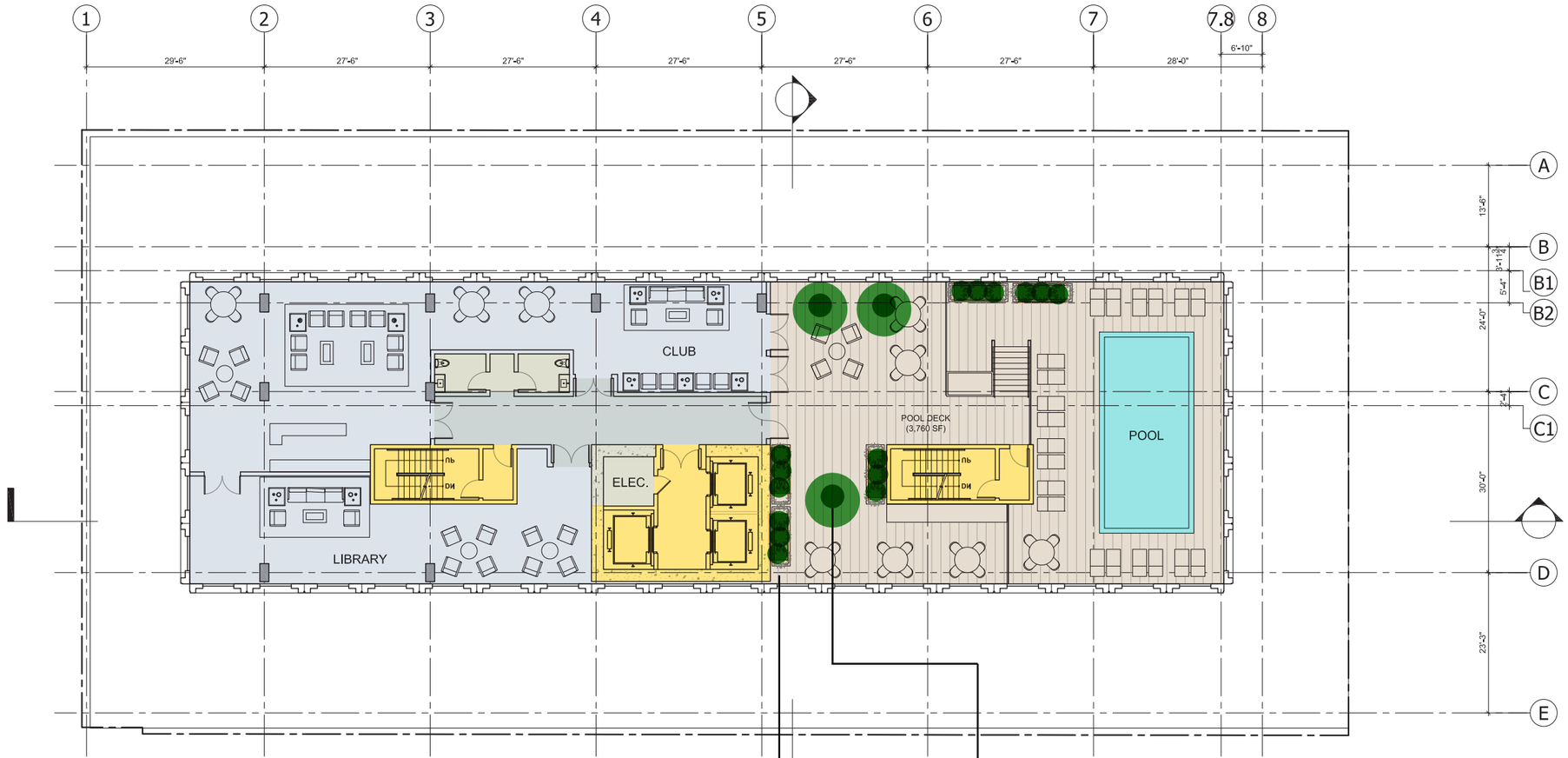


LANDSCAPE AREA: 50% OF PUBLIC OPEN SPACE

PUBLIC OPEN SPACE: 7,600 SF
LANDSCAPE AREA: 3,800 SF

LANDSCAPE
FLOOR PLAN (LEVEL 6)

SCALE: x" = 1'-0" 0' 5' 15' 30'



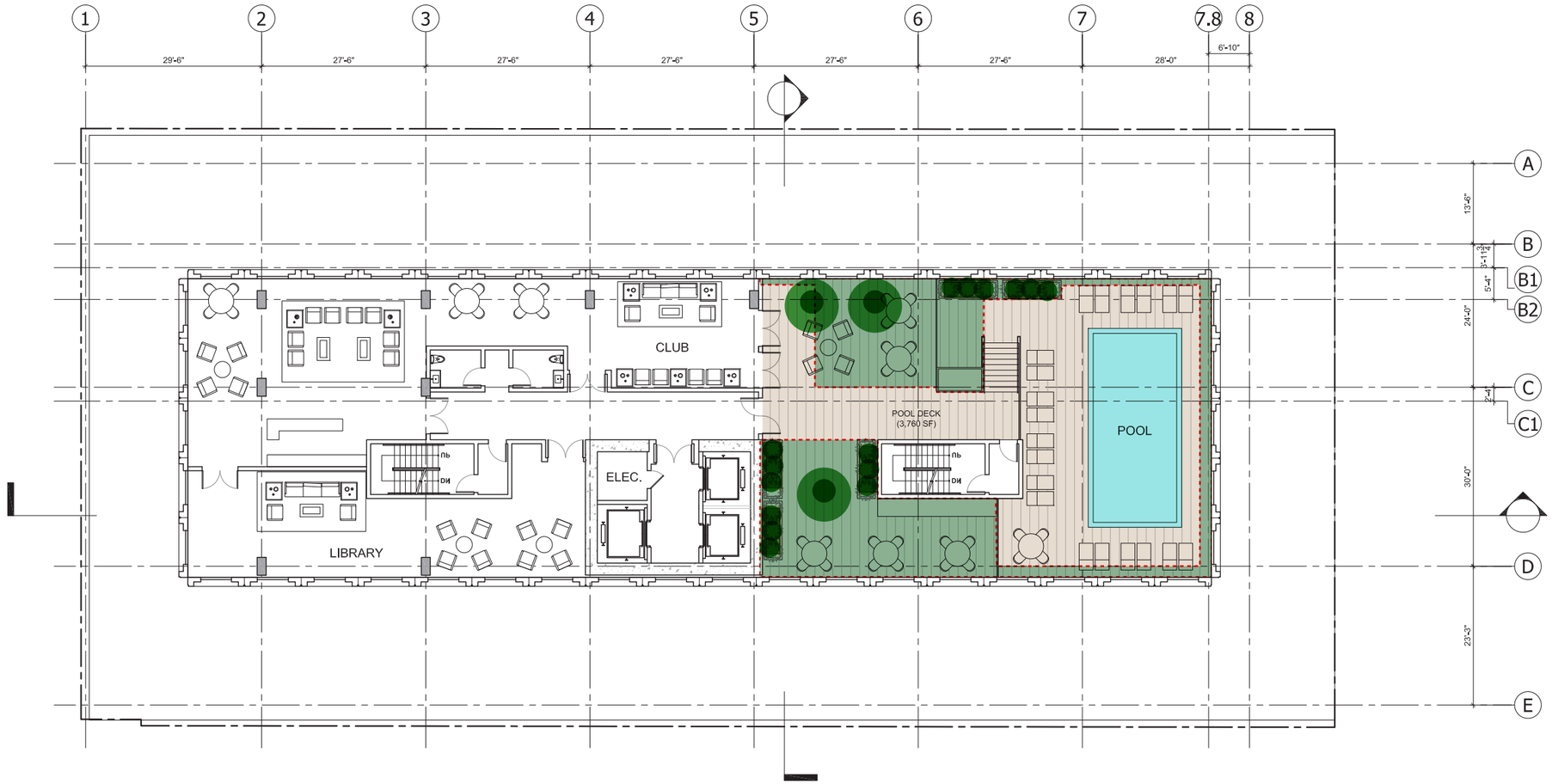
TRAILING ROSEMARY

LOMANDRA

AFRICAN SUMAC

LANDSCAPE FLOOR PLAN (ROOF DECK AMENITY)

SCALE: x" = 1'-0" 0' 5' 15' 30'

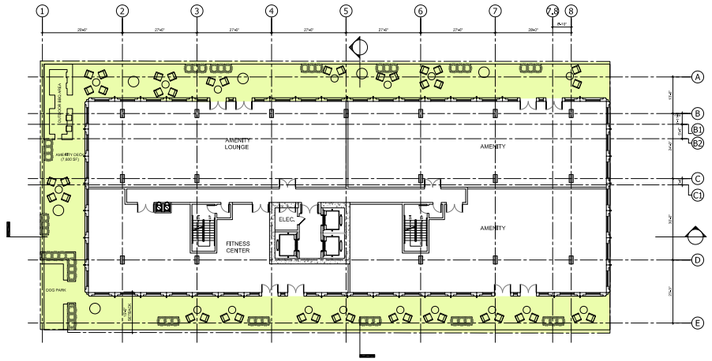


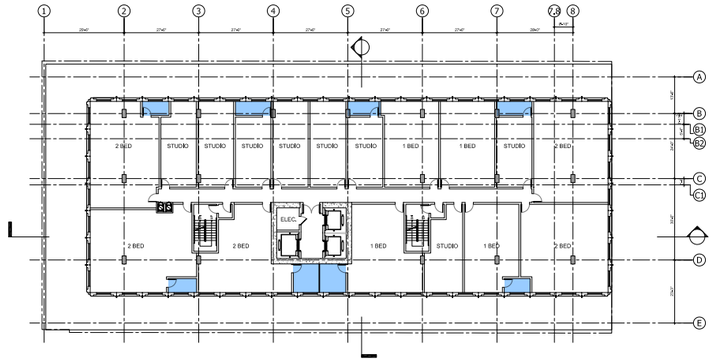
LANDSCAPE AREA: 50% OF PUBLIC OPEN SPACE

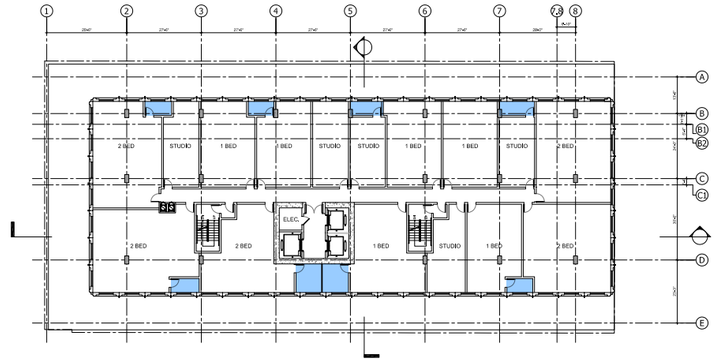
PUBLIC OPEN SPACE: 3,300 SF
LANDSCAPE AREA: 1,650 SF

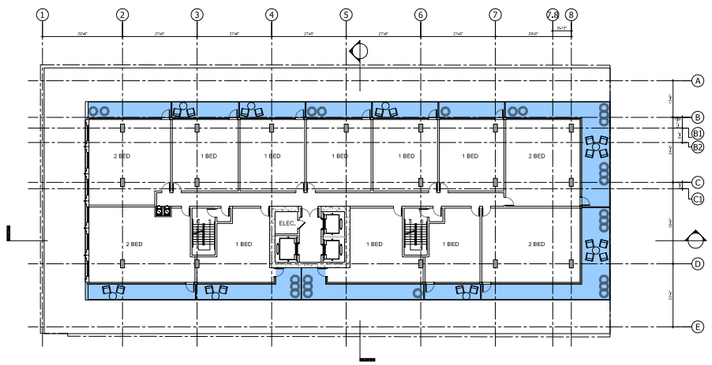
LANDSCAPE
FLOOR PLAN (ROOF DECK AMENITY)

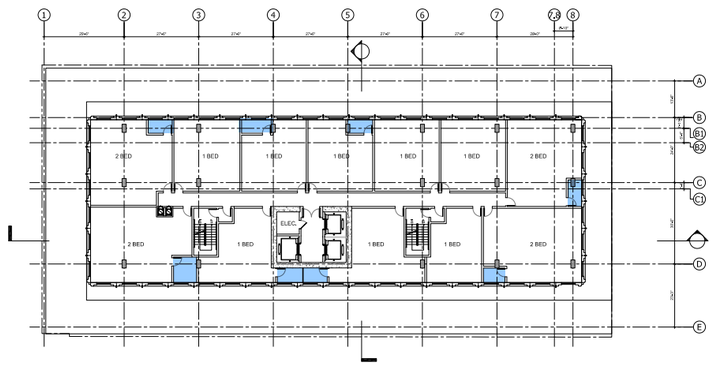
SCALE: x" = 1'-0" 0' 5' 15' 30'

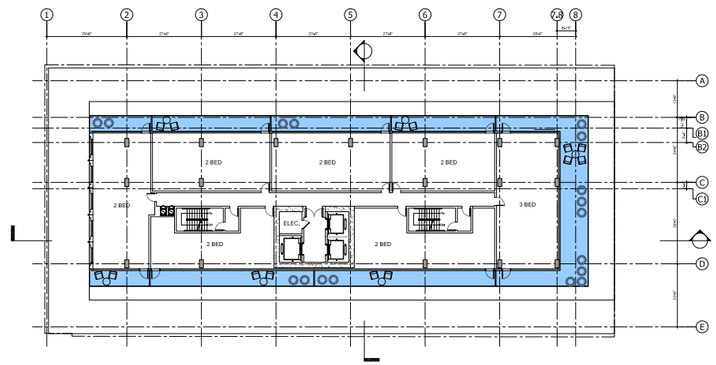

AMENITY LOUNGE
AMENITY
FITNESS CENTER
AMENITY
ELEC.
DOG PARK

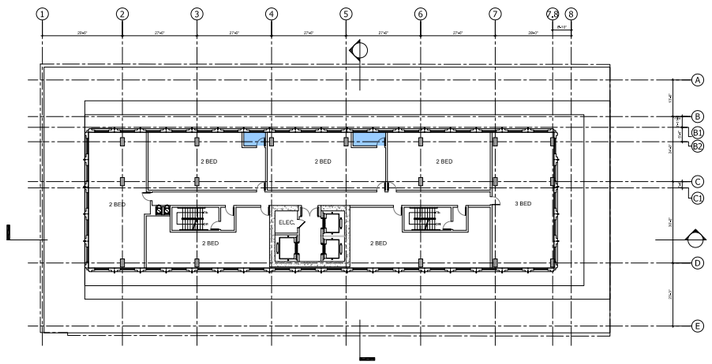

STUDIO
1 BED
2 BED
ELEC.

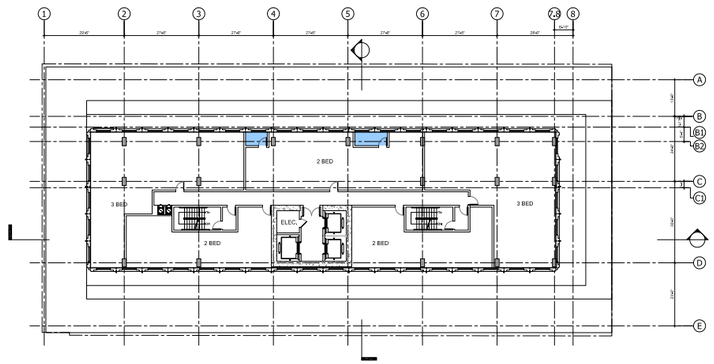

STUDIO
1 BED
2 BED
ELEC.

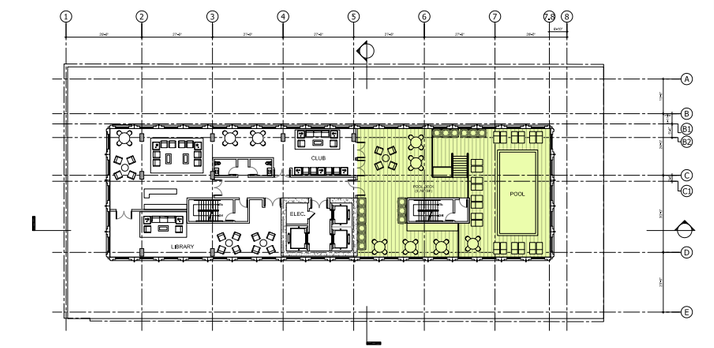

1 BED
2 BED
ELEC.

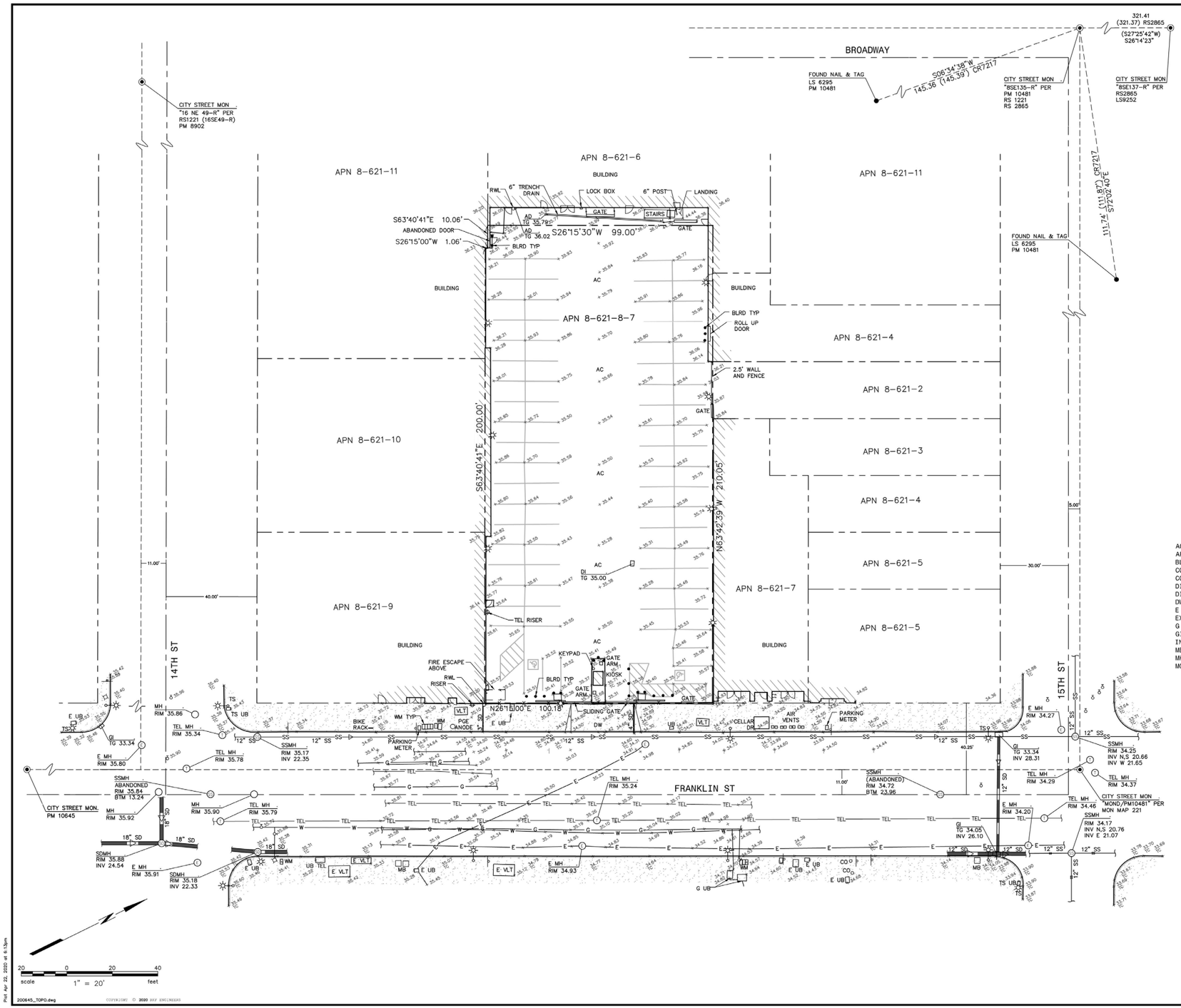

1 BED
2 BED
ELEC.

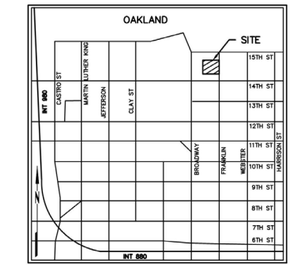

2 BED
3 BED
ELEC.


2 BED
3 BED
ELEC.


2 BED
3 BED
ELEC.


CLUB
POOL
LIBRARY
ELEC.





VICINITY MAP
NOT TO SCALE

SYMBOLS & LEGEND

EXISTING

- CITY MONUMENT
- NAIL AND TAG
- VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- RISER
- SIGN
- STREET LIGHT
- LIGHT POLE
- PROPERTY LINE
- ADJOINER PROPERTY LINE
- CENTER LINE
- MONUMENT LINE
- FENCE
- STORM DRAIN
- SANITARY SEWER
- WATER
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- UNDERGROUND TELECOM LINE
- PARKING STRIPE
- BUILDING WALL
- CONCRETE

ABBREVIATIONS

AC	ASPHALT CONCRETE	PGE	PACIFIC GAS & ELECTRIC
APN	ASSESSOR'S PARCEL NUMBER	RWL	RAIN WATER LEADER
BLRD	BOLLARD	SD	STORM DRAIN
CO	CLEAN OUT	SDMH	STORM DRAIN MANHOLE
CONC	CONCRETE	SL	STREETLIGHT
DI	DROP INLET	SS	SANITARY SEWER
DIA	DIAMETER	SSMH	SANITARY SEWER MANHOLE
DW	DRIVEWAY	TC	TOP FACE OF CURB
E	ELECTRIC	TEL	TELECOMMUNICATION
EX	EXISTING	TG	TOP OF GRATE
G	GAS	TS	TRAFFIC SIGNAL
GI	GRATE INLET	TV	TELEVISION
INV	BOTTOM INSIDE OF PIPE	TYP	TYPICAL
MB	MAILBOX	UB	UTILITY BOX
MH	MANHOLE	VLT	VAULT
MON	MONUMENT	W	WATER
		WM	WATER METER

BASIS OF BEARINGS: THE BEARING OF NORTH 26°15'00" EAST FOR THE NORTHWESTERLY LINE OF FRANKLIN STREET, AS DESCRIBED IN THE CERTAIN GRANT DEED FILED FOR RECORD ON NOVEMBER 14, 2019 UNDER RECORDER'S SERIES NO. 2019233419, RECORDS OF ALAMEDA COUNTY, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP

BENCHMARK: CITY OF OAKLAND BENCHMARK STATIION 31/A, STANDARD OAKLAND DISC UNDER STANDARD CASTING IN THE WALK AT THE NORTHEAST CORNER OF 17TH STREET AND BROADWAY 11.3' EAST OF THE EAST CURB OF BROADWAY AND 6.8' NORTH OF THE NORTH CURB OF 17TH STREET. ELEVATION 26.144' (DATUM: CITY OF OAKLAND MEAN SEA LEVEL).

FIELD SURVEY DATE: APNRIL 15TH, 2020.

TOPOGRAPNHIC NOTES

UNAUTHORIZED CHANGES & USES: THE PROFESSIONAL PREPARING THIS MAPN WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THIS MAPN. CHANGES TO THIS MAPN MUST BE REQUESTED IN WRITING AND MUST BE APNPROVED BY THE PROFESSIONAL.

THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES SHOWN ON THESE DRAWINGS ARE APNPROXIMATE AND ARE BASED ON OBSERVED TOPOGRAPHNIC SURFACE FEATURES AND AVAILABLE INFORMATION. THE PROFESSIONAL PREPARING THIS MAPN ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THESE FACILITIES OR FOR THE INADVERTENT OMISSION OF RELATED INFORMATION.

MISCELLANEOUS BOUNDARY INFORMATION SHOWN HEREON WAS OBTAINED FROM RECORD DATA AND DOES NOT CONSTITUTE A FORMAL BOUNDARY DETERMINATION.

PROFESSIONAL LAND SURVEYOR JONATHAN P SHATTUCK PLS 8940 STATE OF CALIFORNIA

JONATHAN P SHATTUCK PLS 8940

BKF
ENGINEERS / SURVEYORS / PLANNERS
2869 SAND HILL ROAD, SUITE 200
MENLO PARK, CA 94025
(650) 482-6300
FAX: (707) 583-8539

1431 FRANKLIN ST
APN 8-621-8-7
OAKLAND CA, ALAMEDA COUNTY

TOPOGRAPNHIC MAP

Revisions

No.	

Date: 04-20-2020
Scale: AS SHOWN
Design:
Drawn: MDK
APNproved: SM
Job No: 200645

Drawing Number:
1 OF 1

SITE SURVEY

DMA SUMMARY TABLE

DMA ID	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TREATMENT FLOW RATE (GPM)	NUMBER OF CARTRIDGES REQUIRED	NUMBER OF CARTRIDGES PROVIDED	BMP PROVIDED
1	19,907	1,067	37.0	2	2	MEDIA FILTER

STORMWATER COMPLIANCE DATA

PER THE MUNICIPAL REGIONAL STORMWATER PERMIT ORDER NO. R2-0074, TRANSIT-ORIENTED DEVELOPMENT PROJECTS ARE ELIGIBLE FOR LOW IMPACT DESIGN TREATMENT REDUCTION CREDITS. THE LID TREATMENT REDUCTION CREDIT IS THE MAXIMUM PERCENTAGE OF THE AMOUNT OF RUNOFF THAT MAY BE TREATED WITH EITHER TREE-BOX-TYPE HIGH FLOWRATE BIOFILTERS OR VAULT-BASED HIGH FLOWRATE MEDIA FILTERS. THIS PROJECT IS CLASSIFIED AS A CATEGORY C SPECIAL PROJECT (TRANSIT-ORIENTED DEVELOPMENT) AND QUALIFIES FOR A TOTAL LID TREATMENT REDUCTION CREDIT OF 100% AS DESCRIBED BELOW.

SPECIAL PROJECT CATEGORY "C"

a. IS THE PROJECT LOCATED WITHIN A 1/4 MILE OF AN EXISTING TRANSIT HUB?
YES, THE PROJECT IS WITHIN A 1/4 MILE OF THE 12TH STREET BART STATION.

b. IS THE PROJECT CHARACTERIZED AS A NON-AUTO-RELATED PROJECT?
YES, IS A RESIDENTIAL DEVELOPMENT.

c. DOES THE PROJECT HAVE A MINIMUM DENSITY OF 25 DWELLING UNITS PER ACRE?
YES, THE PROJECT HAS A DENSITY OF 336 DU/0.48 ACRES = 700 DU/ACRE.

LOCATION CREDIT
50% TREATMENT REDUCTION CREDIT WITHIN A 1/2 MILE OF A TRANSIT HUB.

DENSITY CREDIT
30% TREATMENT REDUCTION CREDIT FOR A DENSITY GREATER THAN 100 DWELLING UNITS PER ACRE.

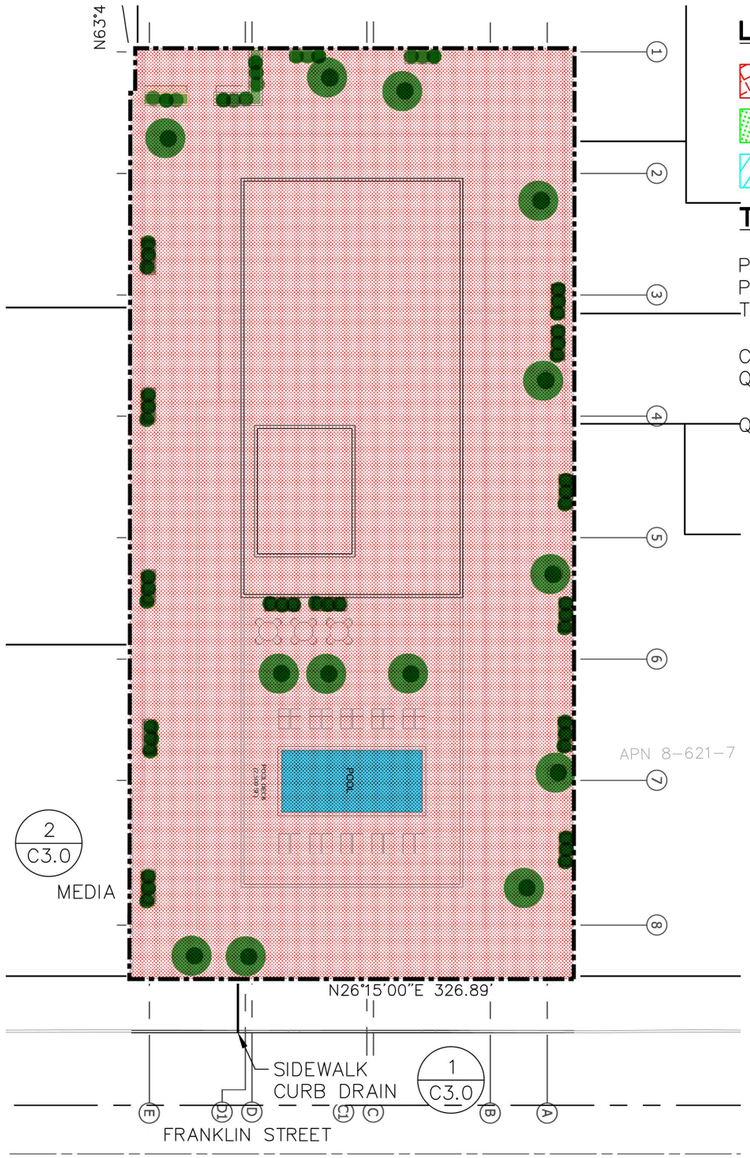
MINIMIZED SURFACE PARKING CREDIT
20% TREATMENT REDUCTION CREDIT FOR NOT HAVING SURFACE PARKING.

STORMWATER TREATMENT AREA DATA

TOTAL LID TREATMENT REDUCTION CREDIT = 100%

TOTAL IMPERVIOUS AREA = 19,907 SF

AREA ALLOWED TO BE TREATED W/ NON-LID TREATMENT MEASURES (MEDIA FILTER)
IMPERVIOUS AREA = 19,907 SF



LEGEND

- ROOF OR PODIUM
- TRADITIONAL PLANTER ON PODIUM
- SELF-TREATING AREA (POOL)

TREATMENT FLOW CALCULATION

PROPOSED IMPERVIOUS SURFACE	19,907 SF
PROPOSED PERVIOUS SURFACE	1,067 SF
TOTAL SITE AREA	20,974 SF

C = (19,907*0.9+1,067*0.1)/20,974 = 0.86
Q = CiA
= (0.86)(0.2"/HR)(0.48 AC)
Q = 0.082 CFS = 37.0 GPM

GRAPHIC SCALE
30 0 30 60

BKF 100+ YEARS
150 CALIFORNIA ST., SUITE 600
SAN FRANCISCO, CA 94111
(415) 930-7900
www.bkf.com
ENGINEERS . SURVEYORS . PLANNERS

1431 FRANKLIN STREET
PRELIMINARY STORMWATER CONTROL PLAN
PLANNING ENTITLEMENT
CITY OF OAKLAND ALEMEDA COUNTY CALIFORNIA

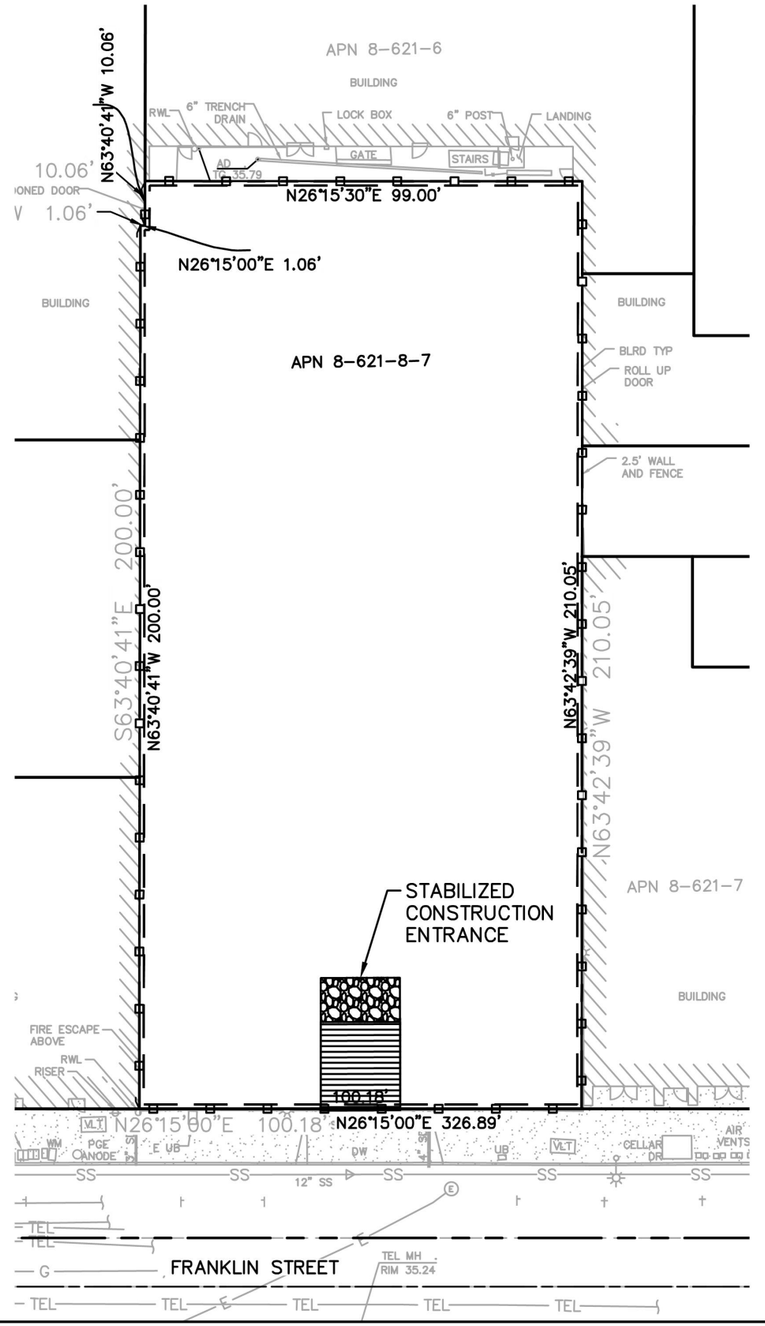
No.	Revisions

Date 07/20/20
Scale 1" = 30'
Design JCW
Drawn AR
Approved JCW
Job No 20200645

Sheet Number:
C1.0
1 OF 3

DRAWING NAME: K:\2020\200645_1431_franklin_st_oakland\ENG\SD\plotted sheets\C1.0 STORMWATER CONTROL.dwg
PLOT DATE: 07-30-20
PLOTTED BY: ramr

PRELIMINARY STORMWATER CONTROL PLAN



EROSION CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- FIBER ROLL
- CONSTRUCTION FENCE

NOTE:
EROSION CONTROL PLAN REPRESENTS INITIAL CONDITION ONLY. UPDATES TO PLAN ARE THE RESPONSIBILITY OF THE CONTRACTOR.

GRAPHIC SCALE
30 0 30 60

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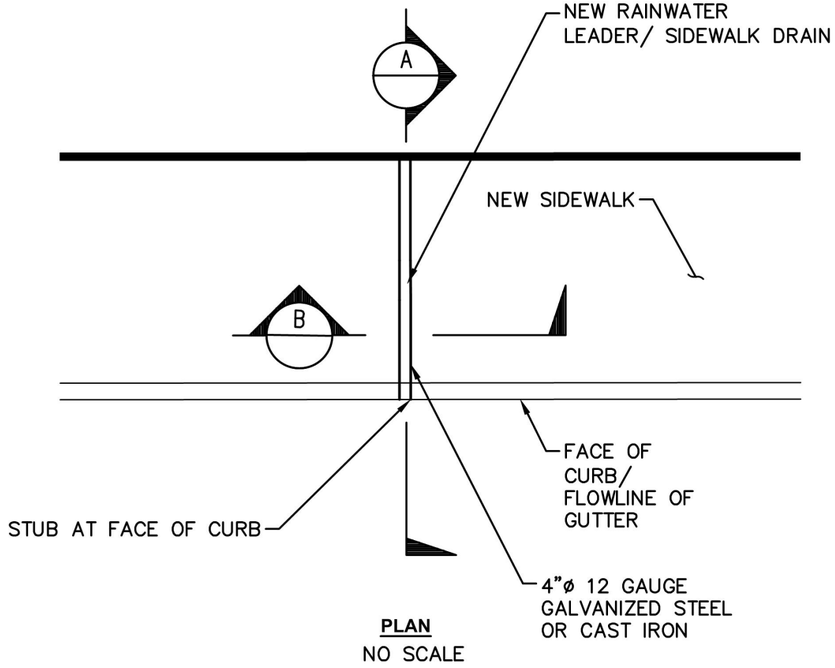
1431 FRANKLIN STREET
PLANNING ENTITLEMENT
PRELIMINARY EROSION CONTROL PLAN
ALEMEDA COUNTY CALIFORNIA
CITY OF OAKLAND

Revisions | No. | Date 07/30/20 | Scale 1" = 30' | Design JCW | Drawn MR | Approved JCW | Job No 20084S

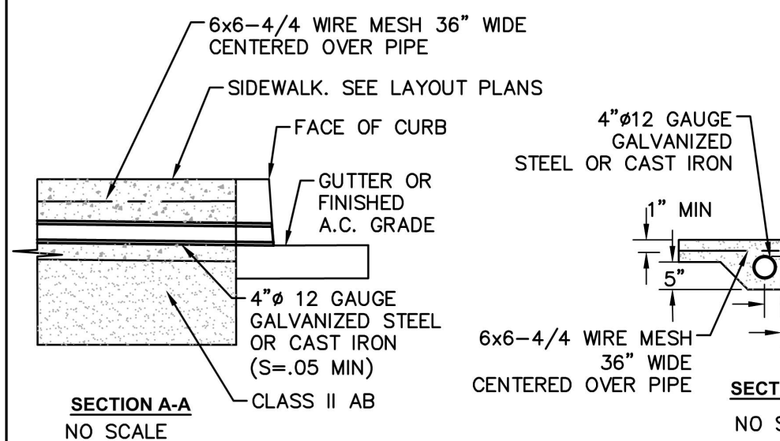
Sheet Number: C2.0
2 of 3

DRAWING NAME: K:\2020\200845_1431_franklin_st_oakland\ENG\SD\plotted sheets\C2.0 EROSION CONTROL PLAN.dwg
PLOT DATE: 07-30-20
PLOTTED BY: romr

PRELIMINARY EROSION CONTROL PLAN



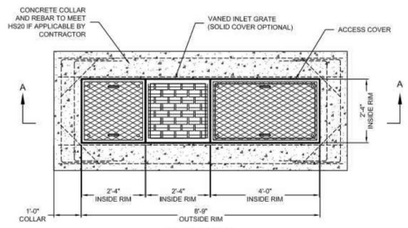
PLAN
NO SCALE



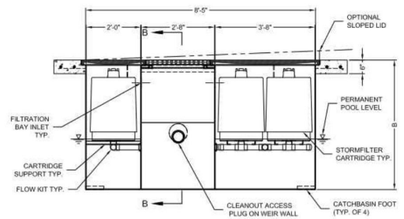
SECTION A-A
NO SCALE

SECTION B-B
NO SCALE

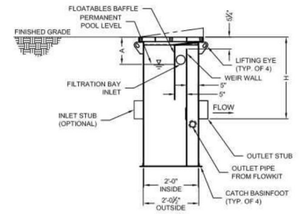
1 — CURB CUT
NTS



PLAN VIEW



SECTION A-A



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 3 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF THREE CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY	45			30			15		
INLET PERIMANENT POOL LEVEL (A)	1'-0"			1'-0"			1'-0"		
OVERALL STRUCTURE HEIGHT (B)	4'-8"			3'-8"			4'-8"		

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB™ (PSORB) MEDIA ONLY

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

3-CARTRIDGE CATCHBASIN STORMFILTER DATA

STRUCTURE ID		XXX
WATER QUALITY FLOW RATE (cfs)		X.XX
PEAK FLOW RATE (<1 cfs)		X.XX
RETURN PERIOD OF PEAK FLOW (yrs)		XXX
CARTRIDGE FLOW RATE (gpm)		XX
MEDIA TYPE (PERLITE, ZPG, PSORB)		XXXXX
RIM ELEVATION		XXX.XX'
PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"
CONFIGURATION	OUTLET / INLET	OUTLET / INLET
SLOPED LID		YES/NO
SOLID COVER		YES/NO
NOTES/SPECIAL REQUIREMENTS:		

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-526-3999 513-645-7000 513-645-7993 FAX

3 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL

2 — STORMFILTER
NTS

DRAWING NAME: K:\2020\200645_1431_franklin_st_oakland\ENG\SD\plotted sheets\C3.0 DETAILS.dwg
PLOT DATE: 07-30-20
PLOTTED BY: ramr

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1431 FRANKLIN STREET
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CITY OF OAKLAND ALEMEDA COUNTY CALIFORNIA

Revisions | No. | Date 07/30/20 | Scale 1" = 30' | Design JDW | Drawn AR | Approved JDW | Job No 200645

Sheet Number: C3.0
1 of 3

LEED v4 for Core and Shell Development

Project Name: 1431 Franklin Office
Date: July 28, 2020
Certification Level: Silver

CORE AND SHELL DEVELOPMENT

Y	?Y	?N	N				
1	0	0	0	IP - Integrative Process	Possible Points:		1
1				d	1	Integrative Process	1
18	0	1	1	LT - Location and Transportation	Possible Points:		20
			20	d	1	LEED for Neighborhood Development Location	20
2				d	2	Sensitive Land Protection	2
2			1	d	3	High Priority Site	2 to 3
6				d	4	Surrounding Density and Diverse Uses	2 to 6
6				d	5	Access to Quality Transit	1 to 6
		1		d	6	Bicycle Facilities	1
1				d	7	Reduced Parking Footprint	1
1				d	8	Green Vehicles	1
5	0	1	5	SS - Sustainable Sites	Possible Points:		11
Y				c	Prereq 1	Construction Activity Pollution Prevention	
1				d	1	Site Assessment	1
		1	1	d	2	Site Development - Protect or Restore Habitat	1 to 2
			1	d	3	Open Space	1
			3	d	4	Rainwater Management	2 to 3
2				d	5	Heat Island Reduction	1 to 2
1				c	6	Light Pollution Reduction	1
1				d	7	Tenant Design and Construction Guidelines	1
5	2	2	2	WE - Water Efficiency	Possible Points:		11
Y				d	Prereq 1	Outdoor Water Use Reduction	
Y				d	Prereq 2	Indoor Water Use Reduction	
Y				d	Prereq 3	Building-Level Metering	
1	1		1	d	1	Outdoor Water Use Reduction (v4.1 credit)	1 to 3
3		1	1	d	2	Indoor Water Use Reduction	1 to 6
1		1		d	3	Cooling Tower Water Use	1 to 2
	1			d	4	Water Metering	1
12	5	3	13	EA - Energy and Atmosphere	Possible Points:		33
Y				c	Prereq 1	Fundamental Commissioning and Verification	
Y				d	Prereq 2	Minimum Energy Performance	
Y				d	Prereq 3	Building-Level Energy Metering	
Y				d	Prereq 4	Fundamental Refrigerant Management	
3		1	2	c	1	Enhanced Commissioning	2 to 6
8	2	2	6	d	2	Optimize Energy Performance (17%)	1 to 18
	1			d	3	Advanced Energy Metering	1
			2	c	4	Demand Response	1 to 2
			3	d	5	Renewable Energy Production	1 to 3
1				d	6	Enhanced Refrigerant Management	1
	2			c	7	Green Power and Carbon Offsets	1 to 2
4	1	3	6	MR - Materials and Resources	Possible Points:		14
Y				d	Prereq 1	Storage and Collection of Recyclables	
Y				c	Prereq 2	Construction Waste Management	
		3	3	c	1	Building Life-Cycle Impact Reduction	2 to 6
1			1	c	2	BPDO - Environmental Product Declarations (v4.1)	1 to 2
	1		1	c	3	BPDO - Sourcing Raw Materials (v4.1)	1 to 2
1			1	c	4	BPDO - Material Ingredients (v4.1)	1 to 2
2				c	5	Construction Waste Management	1 to 2
3	0	2	5	Indoor Environmental Quality	Possible Points:		10
Y				d	Prereq 1	Minimum Indoor Air Quality Performance	
Y				d	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	1	d	1	Enhanced Indoor Air Quality Strategies	1 to 2
2		1		c	2	Low-Emitting Materials	1 to 3
1				c	3	Construction IAQ Management Plan	1
			3	d	4	Daylight	1 to 3
			1	d	5	Quality Views	1
2	2	2	0	Innovation and Design Process	Possible Points:		6
Y	?Y	?N	N				
	1				1.1	Innovation in Design	1
		1			1.2	Innovation in Design	1
	1				1.3	Pilot Credit	1
1					1.4	Exemplary Performance: Reduced Parking Footprint	1
		1			1.5	Exemplary Performance	1
1				c	2	LEED Accredited Professional	1
1	2	1	0	Regional Priority Credits	Possible Points:		4
Y	?Y	?N	N				
1					1.1	Access to Quality Transit (5 points)	1
	1				1.2	Optimize Energy Performance (10 points)	1
		1			1.3	Building Lifecycle Impact Reduction (3 points)	1
	1				1.4	BPDO Sourcing of Raw Materials (1 point)	1
				Alternates:		Rainwater Management (3 points), Indoor Water Use Reduction (4 points)	
51	12	15	32	Total		Possible Points:	110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110 points

CHECKLIST

AIA California

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie; ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y | N/A | RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG] The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of $200,000 or above (for occupancies within the authority of California Building Standards Commission). Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered within the scope of the permitted work.

A code section will be designated by a banner to indicate where the code section only applies to newly constructed buildings [N] or to additions and/or alterations [A]. When the code section applies to both, no banner will be used.

301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only:

Note: On and after January 1, 2014, certain commercial real property, as defined in Civil Code Section 1101.3, shall have its noncompliant plumbing fixtures replaced with appropriate water-conserving plumbing fixtures under specific circumstances. See Civil Code Section 1101.1 *et seq.* for definitions, types of commercial real property affected, effective dates, circumstances necessitating replacement of noncompliant plumbing fixtures, and duties and responsibilities for ensuring compliance.

301.3.2 Waste Diversion. The requirements of Section 5.408 shall be required for additions and alterations whenever a permit is required for work.

301.4 PUBLIC SCHOOLS AND COMMUNITY COLLEGES. (see GBSC)
301.5 HEALTH FACILITIES. (see GBSC)

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

SECTION 303 PHASED PROJECTS

303.1 PHASED PROJECTS. For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction (or newly constructed) shall apply.

303.1.1 Initial Tenant Improvements. The provisions of this code shall apply only to the initial tenant improvements to a project. Subsequent tenant improvements shall comply with the scoping provisions in Section 301.3 non-residential additions and alterations.

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

DIVISION 5.1 PLANNING AND DESIGN

SECTION 5.101 GENERAL
5.101.1 SCOPE
The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

SECTION 5.102 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

LOW-EMITTING AND FUEL EFFICIENT VEHICLES.
Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), including neighborhood electric vehicles (NEV), partial zero emission vehicle (PZEV), advanced technology PZEV (AT ZEV) or CNG fueled (original equipment manufacturer only) regulated under Health and Safety Code section 43800 and CCR, Title 13, Sections 1961 and 1962.
2. High-efficiency vehicles, regulated by U.S. EPA, bearing High-Occupancy Vehicle (HOV) car pool lane stickers issued by the Department of Motor Vehicles.

NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" either in Section 385.5 of the Vehicle Code or in 49CFR571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

TENANT-OCCUPANTS. Building occupants who inhabit a building during its normal hours of operation as permanent occupants, such as employees, as distinguished from customers and other transient visitors.

VANPOOL VEHICLE. Eligible vehicles are limited to any motor vehicle, other than a motortruck or truck tractor, designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used primarily for the nonprofit work-related transportation of adults for the purpose of ridesharing.

Note: Source: Vehicle Code, Division 1, Section 668

ZEV. Any vehicle certified to zero-emission standards.

SECTION 5.106 SITE DEVELOPMENT
X BKF

5.106.1 STORM WATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB LESS THAN ONE ACRE OF LAND. Newly constructed projects and additions which disturb less than one acre of land, and are not part of a larger common plan of development or sale, shall prevent the pollution of storm water runoff from the construction activities through one or more of the following measures:

5.106.1.1 Local ordinance. Comply with a lawfully enacted storm water management and/or erosion control ordinance.

5.106.1.2 Best Management Practices (BMPs). Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMPs.

1. Soil loss BMPs that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Scheduling construction activity during dry weather, when possible.
   b. Preservation of natural features, vegetation, soil, and buffers around surface waters.
   c. Drainage swales or lined ditches to control stormwater flow.
   d. Mulching or hydroseeding to stabilize disturbed soils.
   e. Erosion control to protect slopes.
   f. Protection of storm drain inlets (gravel bags or catch basin inserts).
   g. Perimeter sediment control (perimeter silt fence, fiber rolls).
   h. Sediment trap or sediment basin to retain sediment on site.
   i. Stabilized construction exits.
   j. Wind erosion control.
   k. Other soil loss BMPs acceptable to the enforcing agency.
2. Good housekeeping BMPs to manage construction equipment, materials, non-stormwater discharges and wastes that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Dewatering activities.
   b. Material handling and waste management.
   c. Building materials stockpile management.
   d. Management of washout areas (concrete, paints, stucco, etc.).
   e. Control of vehicle/equipment fueling to contractor's staging area.
   f. Vehicle and equipment cleaning performed off site.
   g. Spill prevention and control.
   h. Other housekeeping BMPs acceptable to the enforcing agency.

Y | N/A | RESPON. PARTY

X

5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale.

Note: Projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of the larger common plan of development or sale must comply with the post-construction requirements detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board or the Lahontan Regional Water Quality Control Board (for projects in the Lake Tahoe Hydrologic Unit).

The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff (pre-project hydrology) with the installation of postconstruction stormwater management measures. The NPDES permits emphasize runoff reduction through on-site stormwater use, interception, evapotranspiration, and infiltration through nonstructural controls, such as Low Impact Development (LID) practices, and conversation design measures. Stormwater volume that cannot be addressed using nonstructural practices is required to be captured in structural practices and be approved by the enforcing agency.

Refer to the current applicable permits on the State Water Resources Control Board website at: www.waterboards.ca.gov/constructionstormwater. Consideration to the stormwater runoff management measures should be given during the initial design process for appropriate integration into site development.

X LRG

5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 105, comply with Section 5.106.4.2

5.106.4.1 Bicycle parking. [BSC-CG] Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the applicable local ordinance, whichever is stricter.

5.106.4.1.1 Short-term bicycle parking. If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.
Exception: Additions or alterations which add nine or less visitor vehicular parking spaces.

5.106.4.1.2 Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.3 For additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a minimum of one bicycle parking facility.

5.106.4.1.4 For new shell buildings in phased projects provide secure bicycle parking for 5 percent of the anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.5 Acceptable bicycle parking facility for Sections 5.106.4.1.2, 5.106.4.1.3, and 5.106.4.1.4 shall be convenient from the street and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

Note: Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections 5.106.4.2.1 and 5.106.4.2.2

5.106.4.2.1 Student bicycle parking. Provide permanently anchored bicycle racks conveniently accessed with a minimum of four two-bike capacity racks per new building.
5.106.4.2.2 Staff bicycle parking. Provide permanent, secure bicycle parking conveniently accessed with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

X LRG

5.106.5.2 DESIGNATED PARKING FOR CLEAN AIR VEHICLES. In new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:

TABLE 5.106.5.2 - PARKING

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0-9	0
10-25	1
25-50	3
51-75	6
76-100	8
101-150	11
151-200	16
201 AND OVER	AT LEAST 8% OF TOTAL

5.106.5.2.1 - Parking stall marking. Paint, In the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: CLEAN AIR / VAN POOL / EV

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.

X ELEC

5.106.5.3 Electric vehicle (EV) charging. [N] Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the *California Building Code*, the *California Electrical Code* and as follows:

5.106.5.3.1 Single charging space requirements. [N] When only a single charging space is required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code*. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. A listed raceway capable of accommodating a 208/240 -volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1".
4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and listed suitable cabinet, box, enclosure or equivalent.
5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40-ampere dedicated branch circuit for the future installation of the EVSE.

5.106.5.3.2 Multiple charging space requirements. [N] When multiple charging spaces are required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code*. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-ampere minimum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
5. The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

5.106.5.3.3 EV charging space calculations. [N] Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.

Exceptions: On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure is not feasible based upon one or more of the following conditions:

Y | N/A | RESPON. PARTY

1. Where there is insufficient electrical supply.
2. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

TABLE 5.106.5.3.3

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 AND OVER	6% of total[1]

1. Calculation for spaces shall be rounded up to the nearest whole number.

5.106.5.3.4 [N] Identification. The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

5.106.5.3.5 [N] Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.

X ELEC

5.106.8 LIGHT POLLUTION REDUCTION. [N].I Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the California Administrative Code; and
2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8);
3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in Chapter 8) and
4. Allowable BUG ratings not exceeding those shown in Table 5.106.8, [N] or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions: [N]

1. Luminaires that qualify as exceptions in Section 140.7 of the California Energy Code.
2. Emergency lighting.
3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6.
4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction.

Note: [N]
1. See also California Building Code, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways.
2. Refer to Chapter 6 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table A-1, California Energy Code Tables 130.2-A and 130.2-B.
3. Refer to the California Building Code for requirements for additions and alterations.

TABLE 5.106.8 [N] MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS 1,2

ALLOWABLE RATING	LIGHTING ZONE LZ0	LIGHTING ZONE LZ1	LIGHTING ZONE LZ2	LIGHTING ZONE LZ3	LIGHTING ZONE LZ4
MAXIMUM ALLOWABLE BACKLIGHT RATING 3					
Luminaire greater than 2 mounting heights (MH) from property line	N/A	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1-2 MH from property line	N/A	B2	B3	B4	B4
Luminaire back hemisphere is 0.5-1 MH from property line	N/A	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	N/A	B0	B0	B1	B2
MAXIMUM ALLOWABLE UPLIGHT RATING (U)					
For area lighting 4	N/A	U0	U0	U0	U0
For all other outdoor lighting,Including decorative luminaires	N/A	U1	U2	U3	UR
MAXIMUM ALLOWABLE GLARE RATING 5 **(G)**					
Luminaire greater than 2 MH from property line	N/A	G1	G2	G3	G4
Luminaire front hemisphere is 1-2 MH from property line	N/A	G0	G1	G1	G2
Luminaire front hemisphere is 0.5-1 MH from property line	N/A	G0	G0	G1	G1
Luminaire back hemisphere is less than 0.5 MH from property line	N/A	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.

2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.

3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.

4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet *U*-value limits for "all other outdoor lighting".

5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

X BKF

5.106.10 GRADING AND PAVING. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales.
2. Water collection and disposal systems.
3. French drains.
4. Water retention gardens.
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exception: Additions and alterations not altering the drainage path.

Y | N/A | RESPON. PARTY

X

5.106.12 SHADE TREES [DSA-SS]. Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6.

5.106.12.1 Surface parking areas. Shade tree plantings, minimum #10 container size or equal, shall be installed to provide shade over 50 percent of the parking area within 15 years.

Exceptions: The surface parking area covered by solar photovoltaic shade structures, or shade structures, with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not included in the total area calculations.

5.106.12.2 Landscape areas. Shade trees plantings, minimum #10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years.

Exceptions: Playfields for organized sport activity are not included in the total area calculation.

5.106.12.3. Hardscape areas. Shade tree plantings, minimum #10 container size or equal shall be installed to provide shade over 20 percent of the hardscape area within 15 years.

Exceptions: Walks, hardscape areas covered by solar photovoltaic shade structures, and hardscape areas covered by shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not included in the total area calculation.

DIVISION 5.2 ENERGY EFFICIENCY

SECTION 5.201 GENERAL
5.201.1 Scope [BSC-CG]. *California Energy Code [DSA-SS].* For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION

SECTION 5.301 GENERAL
5.301.1 Scope. The provisions of this chapter shall establish the means of conserving water use indoors, outdoors and in wastewater conveyance.

SECTION 5.302 DEFINITIONS
5.302.1 Definitions. The following terms are defined in Chapter 2 *(and are included here for reference)*

EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) [DSA-SS]. An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which ae two major influences on the amount of water that needs to be applied to the landscape.

FOOTPRINT AREA [DSA-SS]. The total area of the furthest exterior wall of the structure projected to natural grade, not including exterior areas such as stairs, covered walkways, patios and decks.

METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines and laundry tubs, but does not include waste water from kitchen sinks or dishwashers.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area and climatological parameters.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO), [HCD] The California model ordinance (California Code of Regulations, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and maintenance practices. Local agencies are required to adopt the updated MWELO, or adopt a local ordinance at least as effective as the MWELO.

POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the California Plumbing Code, Part 5.

POTABLE WATER, [HCD] Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority Having Jurisdiction.

RECYCLED WATER. Water which, as a result of treatment of waste, Is suitable for a direct beneficial use or a controlled use that would not otherwise occur [Water Code Section 13050 (n)]. Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

SUBMETER. A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape Irrigation. For the purposes of CALGreen, a dedicated meter may be considered a submeter.

WATER BUDGET. Is the estimated total landscape irrigation water use which shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MWELO).

SECTION 5.303 INDOOR WATER USE
X

5.303.1 METERS. Separate submeters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.

5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:
   a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s),
   b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s).
   c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW).

5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day.

X PLUMB

5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

5.303.3.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

5.303.3.2 Urinals.
5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

5.303.3.3 Showerheads. [BSC-CG]
5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.
Note: A hand-held shower shall be considered a showerhead.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

AIA California

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

5.303.3.4 Faucets and fountains.

5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than1.8 gallons per minute/20 [rim space (inches) at 60 psi].

5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.

5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

X — **5.303.4 COMMERCIAL KITCHEN EQUIPMENT.**

5.303.4.1 Food Waste Disposers. Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.
Note: This code section does not affect local jurisdiction authority to prohibit or require disposer installation.

X — **5.303.5 AREAS OF ADDITION OR ALTERATION.** For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 and 5.303.4 shall apply to new fixtures in additions or areas of alteration to the building.

X — **5.303.6 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS.** Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code* and in Chapter 6 of this code.

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SECTION 5.304 OUTDOOR WATER USE

X — **5.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS.** Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

L-ARCH

Notes:
1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2.
2. MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/.

X — **5.304.6 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS.** For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, California Code of Regulations, except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.

Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.

5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.

5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.

DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 5.401 GENERAL

5.401.1 SCOPE. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing and adjusting.

SECTION 5.402 DEFINITIONS

5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities.

BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements.

ORGANIC WASTE. Food waste, green waste, landscape and pruning wste, nonhazardous wood waste, and food soiled paper waste that is mixed in with food waste.

TEST. A procedure to determine quantitative performance of a system or equipment

SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT

5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent.

X — **5.407.2 MOISTURE CONTROL.** Employ moisture control measures by the following methods.

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5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows:

5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:

1. An installed awning at least 4 feet in depth.
2. The door is protected by a roof overhang at least 4 feet in depth.
3. The door is recessed at least 4 feet.
4. Other methods which provide equivalent protection.

5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.

SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

X — **5.408.1 CONSTRUCTION WASTE MANAGEMENT.** Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

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5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan that:

1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identifies diversion facilities where construction and demolition waste material collected will be taken.
4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.

Exceptions to Sections 5.408.1.1 and 5.408.1.2:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
3. Materials for waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65% minimum requirement as approved by the enforcing agency.

5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1 through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located at www.bsc.ca.gov/Home/CALGreen.aspx may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

X — **5.408.2 UNIVERSAL WASTE. [A]** Additions and alterations to a building or tenant space that meet the scoping provisions in Section 301.3 for nonresidential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste materials shall be included in the construction documents.

Note: Refer to the Universal Waste Rule link at:
http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/OEAR-A_REGS_UWR_FinalText.pdf

X — **5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS.** 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

GC

Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation.

Notes:

1. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material.
2. For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)

SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS

X — **5.410.1 RECYCLING BY OCCUPANTS.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive.

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Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.

5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.

Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.

5.410.1.2 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the *Public Resources Code*. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.

X — **5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over.** For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated y the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.

CxA

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, Indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements

Commissioning requirements shall include:

1. Owner's or Owner representative's project requirements.
2. Basis of design.
3. Commissioning measures shown In the construction documents.
4. Commissioning plan.
5. Functional performance testing.
6. Documentation and training.
7. Commissioning report.

Exceptions:

1. Unconditioned warehouses of any size.
2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses.
3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1.
4. Open parking garages of any size, or open parking garage areas, of any size, within a structure.

Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and or air conditioning.

Informational Notes:

1. IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 des not certify individuals to conduct functional performance tests or to adjust and balance systems.
2. Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the *California Energy Code*.

5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:
1. Environmental and sustainability goals.
2. Building sustainable goals.
3. Indoor environmental quality requirements.
4. Project program, including facility functions and hours of operation, and need for after hours operation.
5. Equipment and systems expectations.
6. Building occupant and operation and maintenance (O&M) personnel expectations.

5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. The Basis of Design document shall cover the following systems:

1. Renewable energy systems.
2. Landscape Irrigation systems.
3. Water reuse system.

5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:
1. General project Information.
2. Commissioning goals.
3. Systems to be commissioned. Plans to test systems and components shall include:
   a. An explanation of the original design intent.
   b. Equipment and systems to be tested, including the extent of tests.
   c. Functions to be tested.
   d. Conditions under which the test shall be performed.
   e. Measurable criteria for acceptable performance.
4. Commissioning team Information.
5. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included.

5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain Information addressing each of the building components tested, the testing methods utilized, and Include any readings and adjustments made.

5.410.2.5 Documentation and training. [N] A Systems Manual and Systems Operations Training are required, Including Occupational Safety and Health Act (OSHA) requirements in *California Code of Regulations* (CCR), Title 8, Section 5142, and other related regulations.

5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:
1. Site information, including facility description, history and current requirements.
2. Site contact information.
3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log.
4. Major systems.
5. Site equipment Inventory and maintenance notes.
6. A copy of verifications required by the enforcing agency or this code.
7. Other resources and documentation, if applicable.

5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented In the commissioning report and shall include the following:
1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces).
2. Review and demonstration of servicing/preventive maintenance.
3. Review of the information in the Systems Manual.
4. Review of the record drawings on the system/equipment.

5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.

X — **5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet.** Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1.

5.410.4.2 (Reserved)

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b)3 for additional testing requirements of specific systems.

5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. Renewable energy systems.
2. Landscape irrigation systems.
3. Water reuse systems.

5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.

5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency.

5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance Instructions and copies of guaranties/warranties for each system. O & M Instructions shall be consistent with OSHA requirements In CCR, Title 8, Section 5142, and other related regulations.

5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.

DIVISION 5.5 ENVIRONMENTAL QUALITY

SECTION 5.501 GENERAL

5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

SECTION 5.502 DEFINITIONS

5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.

A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made.

1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32° Fahrenheit.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn), except that a 5 decibel adjustment is added to the equivalent continuous sound exposure level for evening hours (7pm to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a).

Note: See CCR, Title 17, Section 93120.1.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.).

DECIBEL (db). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

ELECTRIC VEHICLE CHARGING STATION(S) (EVCS). One or more spaces intended for charging electric vehicles.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

ENERGY EQUIVALENT (NOISE) LEVEL (Leq). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time of period of interest.

EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.

FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.

GLOBAL WARMING POTENTIAL (GWP). The radiative forcing Impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. Carbon dioxide is the reference compound with a GWP of one.

GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995) or its Fourth Assessment A-3 Report (AR4) (IPCC, 2007). The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hdrochlorofluorocarbon, a hydrofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).

LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter.

LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2–1999.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base REactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundreths of a gram (g O^3/g ROC).

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

PSIG. Pounds per square inch, guage.

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

SCHRADER ACCESS VALVES. Access fittings with a valve core installed.

SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter.

SUPERMARKET. For the purposes of Section 5.508.2, a supermarket Is any retail food facility with 8,000 square feet or more conditioned area, and that utilizes either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a)

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 5.503 FIREPLACES

X — **5.503.1 FIREPLACES.** Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements In the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label Indicating they are certified to meet the emission limits.

SECTION 5.504 POLLUTANT CONTROL

X — **5.504.1 TEMPORARY VENTILATION.** The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy, or, if the building is occupied during alteration, at the conclusion of construction.

GC

X — **5.504.3 Covering of duct openings and protection of mechanical equipment during construction.** At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.

GC

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

AIA California

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie; ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY
X		LRG GC

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection 2, below.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

TABLE 5.504.4.1 - ADHESIVE VOC LIMIT[1,2]

Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVES	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT SPECIFICALLY LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF

TABLE 5.504.4.2 - SEALANT VOC LIMIT

Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NONPOROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

NOTE: FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THESE TABLES, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

5.504.4.3.1 Aerosol Paints and coatings. Aerosol paints and coatings shall meet the PWMR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

TABLE 5.504.4.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]

GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	CURRENT VOC LIMIT
FLAT COATINGS	50
NONFLAT COATINGS	100
NONFLAT HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH-TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS:	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS

2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.

3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification
2. Field verification of on-site product containers

5.504.4.4 Carpet Systems. All carpet installed in the building interior shall meet at least one of the testing and product requirements:

1. Carpet and Rug Institute's Green Label Plus Program.
2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as CDPH Standard Method V1.1 or Specification 01350).
3. NSF/ANSI 140 at the Gold level or higher.
4. Scientific Certifications Systems Sustainable Choice; or
5. Compliant with the Collaborative for High Performance Schools California (2014 CA-CHPS) Criteria listed in the CHPS High Performance Product Database.

5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.

5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et seq.). Those materials not exempted under the ATCM must meet the specified emission limits, as shown in Table 5.504.4.5.

5.504.4.5.3 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards.
5. Other methods acceptable to the enforcing agency.

Y	N/A	RESPON. PARTY
	X	OWNER
X		LRG
X		MECH
X		MECH
X		LRG
	X	MECH
X		

TABLE 5.504.4.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM).

5.504.4.6 Resilient flooring systems. For 80 percent of floor area receiving resilient flooring, Installed resilient flooring shall meet at least one of the following:

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010;
3. Compliant with the Collaborative for High Performance Schools California (2014 CA-CHPS) Criteria and listed in the CHPS High Performance Product Database; or
4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program).

5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

Exceptions: Existing mechanical equipment.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.

5.504.7 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.

SECTION 5.505 INDOOR MOISTURE CONTROL

5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.

SECTION 5.506 INDOOR AIR QUALITY

5.506.1 OUTSIDE AIR DELIVERY. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

5.506.2 CARBON DIOXIDE (CO_2) MONITORING. For buildings or additions equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120(c)(4).

SECTION 5.507 ENVIRONMENTAL COMFORT

5.507.4 ACOUSTICAL CONTROL. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413, or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.

   Exceptions:

   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

5.507.4.1.1. Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq} - 1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance Method. For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site Features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of Compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by persons approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

SECTION 5.508 OUTDOOR AIR QUALITY

5.508.1 Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

5.508.2 Supermarket refrigerant leak reduction. New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.

Exception: Refrigeration systems containing low-global warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO_2), and potentially other refrigerants.

5.508.2.1 Refrigerant piping. Piping compliant with the California Mechanical Code shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below.

5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.

5.508.2.1.2 Copper pipe. Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less.

5.508.2.1.2.1 Anchorage. One-fouth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.

5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.

Exception: Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations.

5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of long radius elbows.

5.508.2.2 Valves. Valves Valves and fittings shall comply with the *California Mechanical Code* and as follows.

5.508.2.2.1 Pressure relief valves. For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve.

5.508.2.2.1.1 Pressure detection. A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve.

5.508.2.2.2 Access valves. Only Schrader access valves with a brass or steel body are permitted for use.

5.508.2.2.2.1 Valve caps. For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic.

5.508.2.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.

5.508.2.2.2.2.1 Chain tethers. Chain tethers to fit ovr the stem are required for valves designed to have seal caps.

Exception: Valves with seal caps that are not removed from the valve during stem operation.

5.508.2.3 Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel; or be coated to prevent corrosion from these substances.

5.508.2.3.1 Coil coating. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.

5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device tha indicates the level of refrigerant in the receiver.

5.508.2.5 Pressure testing. The system shall be pressure tested during Installation prior to evacuation and charging.

5.508.2.5.1 Minimum pressure. The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum.

5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same gauge.

5.508.2.5.3 Allowable pressure change. The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge.

5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.

5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.

5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes.

5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system Installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special Inspectors to provide Inspection or other duties necessary to substantiate compliance with this code. Special Inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of Inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC-CG] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special Inspectors to provide Inspection or other duties necessary to substantiate compliance with this code. Special Inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of Inspection or task to be performed. In addition, the special Inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, Inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.