3505 WILSHIRE TERRACE, SAN DIEGO, CA

24 UNITS (1 BED ROOM–DENSITY BONUS APPLIED) AFFORDABLE HOUSING DEVELOPMENT (3–V.L.I.)
(100% PRIVATELY FUNDED)

1

ABBREVIATIONS

A.B.	ANCHOR BOLT
A/C	AIR CONDITIONING
ALUM.	ALUMINUM
ARCH.	ARCHITECTURAL
BD.	BOARD
BLDG.	BUILDING
BLK.	BLOCK
BLK'G.	BLOCKING
B.W.	BACK OF WALL
C.	COMPACT
C.O.	CLEAR OUT
CONC.	CONCRETE
CONT.	CONTINUOUS
CSB.	CONCRETE SPLASH BLOCK
D.	DRYER
DBL.	DOUBLE
DN	DOWN
DWG	DRAWING
D.S.	DOWN SPOUT
DWR.	DRAWER
EL.	ELEVATION
EXIST'G.	EXISTING
EXT.	EXTERIOR
F.F.	FINISHED FLOOR
F.G.	FIXED GLASS
FIN.	FINISH/FINISHED
FL.	FLOOR
F.O.S.	FACE OF STUD OR STRUCTURE
F.P.	FIXED PANEL
F.S.	FINISHED SURFACE
FT.	FOOT/FEET
GA.	GAUGE
GALV.	GALVANIZED
GR.	GRADE
GYP.	GYPSUM
H.C.	HOLLOW CORE
HORIZ.	HORIZONTAL
INT.	INTERIOR
INV.	INVERT
MANFG.	MANUFACTURING
MANUF.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
M.T.	METAL THRESHOLD
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.H.	OVERHANG
P.C.	PULL CORD
PL.P.L.	PROPERTY LINE
P&S	POLE AND SHELF
PYWD.	PLYWOOD
REC.	RECREATION
REINF.	REINFORCED
R'M	ROOM
R.S.	ROUGH SWAN
S.C.	SOLID CORE
SCH.	SCHEDULE
SIM.	SIMILAR
STD.	STANDARD
STL.	STEEL
STRUC.	STRUCTURAL
SQ.	SQUARE
T.C.	TOP OF CURB
T&G	TONGUE & GROOVE
THRU	THROUGH
T.O.P.	TOP OF PLATE
T.O.S.	TOP OF SLAB
T.W.	TOP OF WALL
TYP.	TYPICAL
VERT.	VERTICAL
W.	WASHER
W/	WITH
WD.	WOOD
WP.	WATERPROOF OR WEATHERPROOF

LEGEND

- 1/A — WALL LINE: NUMBERS VERTICAL, LETTERS HORIZONTAL
- DOOR SYMBOL NUMBERS
- WINDOW TYPE – LETTERS
- DETAIL IDENTIFICATION / SHEET WHERE DETAIL IS DRAWN
- SECTIONAL DETAIL / DETAIL IDENTIFICATION / SHEET WHERE DETAIL IS DRAWN
- SECTION / SECTION IDENTIFICATION / SHEET WHERE SECTION IS DRAWN
- INTERIOR ELEVATION / ELEVATION IDENTIFICATION
- SHEAR WALL–LETTERS / REVISION – NUMBERS / CLOUD AROUND REVISION OPTICAL
- MATCH LINE / SHADED PORTION IS THE SIDE CONSIDERED
- WORK POINT
- 100 — NEW OR FINISHED CONTOURS
- (98) — EXISTING CONTOURS
- PROPERTY LINE
- CENTER LINE

MATERIALS

- EARTH
- SAND, MORTAR, PLASTER
- CONCRETE
- BRICK
- CONC. BLOCK
- OR — METAL
- METAL LATH
- WOOD FINISH
- WOOD FRAMING (THRU MEMBER)
- WOOD FRAMING (INTERRUPTED MEMBER)
- PLYWOOD
- OR — GLASS
- GYPSUM BOARD
- INSULATION, BATT
- INSULATION, RIGID

SUMMARY

OWNER ADDRESS:	5453 SHANNON RIDGE, SAN DIEGO, CA 92130
OWNER INFO:	WILSHIRE TERRACE PARTNERS, LLC SHAHRIAR AFSHAR PHONE: (619) 368–6790 EMAIL: AFSHAR@GMAIL.COM
BUILDING CODE EDITION:	LABC 2019
LEGAL DESCRIPTION:	LOT 2 – MAP 4471 BLOCK: APN: 453–282–12–00
CODE REFERENCE:	APPLICABLE BUILDING COND. ,2019 CA. BUILDING CODE ,2019 CA. MECHANICAL CODE ,2019 CA. ELECTRICAL CODE ,2019 CA. PLUMBING CODE ,2019 CA. ENERGY CODE ,2019 STANDARD 1 CA. GREEN BUILDING CODE ,2019
CONSTRUCTION TYPE:	TYPE V–A & 1A (4 STORY RESIDENTIAL TYPE V–A OVER COVERED PARKING TYPE IA)
FIRE ZONE:	VERY HAZARDOUS AREA
SPRINKLERS:	IN ACCORDANCE W/ "NFPA–13" PER 903.3.1.1 SPRINKLER ARE USED TO INCREASED ALLOWABLE BUILDING HEIGHT PER SECTION 504.2
FIRE ALARM:	PROVIDED. CBC. 907.2.9.1
ZONE:	RM–3–7
LOT AREA	7,800 S.F. 1
NUMBER OF UNITS:	24 (DENSITY BONUS INCREASE)
OCCUPANCY GROUP:	R–2 & S–2 1
FLOOR AREA RATIO:	2.41 (INCENTIVE APPLIED) SEE SCOPE OF PROJECT.
DENSITY CALC:	----------
SET BACKS:	
FRONT YARD:	RM–3–7 (See Table– 131–04G PROPOSED FSB) : 5–ft (Incentive applied) SEE SHEET A0.4 & A0.5
SIDE YARD:	RM–3–7 (SEE TABLE –04G PROPOSED SSB) 5–ft (waiver applied) SEE SHEET A0.4 & A0.5
REAR YARD:	RM–3–7 5–ft SEE SHEET A0.4 & A0.5
MAX. HEIGHT:	RM–3–7 Max. HT. 40'–0": proposed HT. 72'–2" (incentive applied) 1
PARKING:	1 –VAN ACCESSIBLE – COVERED SPACES 1 –STANDARD ACCESSIBLE – COVERED SPACES 4 –STANDARD – COVERED SPACES 12 – BICYCLES (SHORT TERM) 16 – BICYCLES (LONG TERM) SPACES 1 TO 5 W/ CHARGING 7– MICRO MOBILITY VEHICLE INFRASTRUCTURE (2 POINTS)
COMMON OPEN SPACE=	1,390.00 S.F.

DRAWING INDEX

ARCHITECTURAL DRAWING:

STRUCTURAL DRAWING:

GRADING DRAWING:

MEP DRAWING:

LANDSCAPING DRAWING:

COMPLIANCE DATA:

Public Right of Way Vacation: No. 2171894, 30–ft x 60–ft addition to existing 130–ft x 60–ft lot granting lot area increase to 7,800–SqFt (see attached PROW Vacation No. 2171894)

PDP: No. 2429095 for lot depth deviation of 60–ft where 100–ft is required in the RM–3–7 zone. (see attached PDP No. 2429095)

–Parking: SDMC S142.0525, Table 142–05C within Transit Priority Area/no Off–Street parking required. 6 off–street spaces proposed.

–Base Zone Density: RM–3–7 = 8 units (7800/1000=7.8, round up to 8).
Affordable Housing Density (pre–bonus): 1 VLI/8 Pre–Bonus = 12% VLI – Table 143–07A permits 38.75 % DensityBonus.
Total Units Permitted: 8 x 1.3875 = 11.1 round up to 12 units permitted.

Incentives –Incentives Permitted (VLI): Three (3) available incentives.

Front Setback: 5–ft proposed utilizing available incentive #1. with SDMC TABLE 131–04G

Structure Height: 72'–2" proposed utilizing available incentive #2. with SDMC TABLE 131–04G

F.A.R.: 2.41 (incentive applied) proposed utilizing available see incentive #3. with SDMC TABLE 131–04G

Waiver –Side Yard Setback: 5–ft proposed with waiver requested in accordance with SDMC S143.0750.
Waiver –Balcony: waiver requested in accordance with SDMC –_____.
Waiver –Long term bicycle: waiver requested in accordance with SDMC –_____.
Waiver –Storage: waiver requested in accordance with SDMC _____. 1

Affordable Housing Waiver for Side Setbacks (SSB) in the RM–3–7 Zone:
SDMC Section 131.0443(f)(2)(A) requires a 5–ft minimum side setback or 10 percent of the premises width, whichever is greater. The calculation for the Wilshire Terrace site would require 13–ft. The project proposes a 5–ft SSB.

A waiver is requested by Wilshire Terrace Partners to reduce the SSB development standard as it meets the applicable requirements of SDMC Section 143.0720. The basis for the waiver is provided as follows:

– Site constraints for development are limited to the original lot area of 60–ft x 100–ft with no building structures permitted in the remaining 30–ft x 60–ft portion of lot with easements reserved for water/sewer/storm drain/access easements identified on engineering dwg 40895–2–B.
– Wilshire Terrace lot depth at 60–ft is substandard for the RM–3–7 Zone with SSB regulations that are applicable to a lot depth of 100–ft reducing the development footprint area. While lot dimensions cannot be corrected ? a SSB reduction to 5–ft is reasonable and represents the lower SSB range provided by SDMC.

DEFERRED SUBMITTAL

- FIRE SPRINKLERS PER NFPA 13
- FIRE ALARM SYSTEM PER NFPA 72
- CLASS I STANDPIPES
- STEEL STAIRS
- STEEL GUARDS – BALCONIES
- ELEVATOR GUIDE RAILS
- SERVICE GUARD @ ROOF

BATHROOMS

1

OPTION 2 SHOWER TO BE MAIN

24 UNITS 1–BED ROOM	SHOWER (MAIN)	
UNITS 1 TO 24	1	
TOTAL # OF BATHROOMS	24	

NOTES:

_ COMPLETE PLANS, SPECIFICATIONS, MATERIAL DATA AND/ OR CALCULATIONS FOR THE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED IN A TIMELY MANNER BUT NOT LESS THAN 30 BUSINESS DAYS PRIOR INSTALLATION FOR CITY OF SAN DIEGO REVIEW AND APPROVAL.

_ THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

_ THE REGISTERED AND RESPONSIBLE DESIGN PROFESSIONAL SHALL REVIEW THE DEFERRED SUBMITTAL DOCUMENTS AND SUBMIT THEM TO THE BUILDING OFFICIAL, WITH ANNOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

_ PLANS FOR THE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED IN A TIMELY MANNER BUT NOT LESS THAN 30 BUSINESS DAYS PRIOR TO INSTALLATION FOR CITY REVIEW AND APPROVAL.

_ THE DEFERRED SUBMITTAL ITEMS SHALL NET BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL. (SDMC 129.0205)

_ THE REGISTERED AND RESPONSIBLE DESIGN PROFESSIONAL SHALL REVIEW THE DEFERRED SUBMITTAL DOCUMENTS AND SUBMIT THEM TO THE BUILDING OFFICIAL, WITH ANNOTATION INDICATING THAT THE DEFFERED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

– THIS PROJECT HAS PROPOSED "ENCLOSED PARKING GARAGE".

– A REVIEW OF YOUR PROJECT BY THE GEOLOGY REVIEW SECTION IS REQUIRED IN ACCORDANCE WITH SDMC SEC. 145.1803 AND TABLE 145.1803.

PROJECT SCOPE:

Affordable Housing development – Very Low Income households (1 unit or 12%).
26–unit (density bonus applied) requesting 3 incentives and 1 waiver (see Incentives & Waiver Report).
Base zone RM–3–7; land use is multi–family residential on a 7,800 sq ft lot.

Sustainable features:
Green wall (765 sf west elevation facing Wilshire Terrace)
1151 S.F. solar panels @ fifth level
6 off–street parking spaces on Garage on basement level.

Amenities (PROVIDED 4 POINTS SEE SHEET A0.1):
1– MICRO MOBILITY VEHICLE SPACES 1 TO 5 W/ CHARGING INFRASTRUCTURE (2 POINTS)
2– ON SITE BICYCLE PREPARE STATION (2 POINTS).
3– 1425.00 S.F. Common Open Space areas @ roof level (see sheet A2.1 site plan).
4– 16 BICYCLE– LONG TERM SEE SHEET A2.2
5– 12 BICYCLE– SHORT TERM SEE SHEET A2.2 1

24 UNITS–1.BED ROOM (DENSITY BONUS APPLIED) 1

1–BED ROOM	TOTAL
UNITS 1–2–3–4–5–6	3,608.83 S.F.
UNITS 7–8–9–10–11–12	3,608.83 S.F.
UNITS 13–14–15–16–17–18	3,608.83 S.F.
UNITS 19–20–21–22–23–24	3,608.83 S.F.
TOTAL S.F. OF 24 UNITS "ONE BEDROOM"	14,435.32 S.F.

AREA ANALYSIS 1

FAR:	BUILDING /SDMC 113.0234	
BASEMENT	1,732.09 S.F.	SEE A6.1
FIRST LEVEL (UNITS 1–2–3–4–5–6)	4,224.64 S.F.	SEE A6.1
SECOND LEVEL (UNITS 7–8–9–10–11–12)	4,178.78 S.F.	SEE A6.1
THIRD LEVEL (UNITS 13–14–15–16–17–18)	4,337.55 S.F.	SEE A6.1
FOURTH LEVEL (UNITS 19–20–21–22–23–24)	4,337.55 S.F.	SEE A6.2

TOTAL – 18,810.61 S.F. /SDMC 113.0234

FAR–18,810.61 S.F. / 7800 S.F. LOT AREA =2.41

MAX. BLDG. AREA PER TABLE 506.2 FOR R2 OCCUPANCY:
TYPE V–A (S13R): 12,000 S.F. (LEVEL 2 THROUGH 4)
TYPE III–A (S13R): 24,000 S.F. (LEVEL 1)
TYPE I–A : PRIVATE GARAGE (UL)
AREA MODIFICATIONS PER SECTION 506.2.3 SINGLE–OCCUPANCY, MULTISTORY BUILDINGS :

TYPE VA: Aa = [A_t + (NS X I_f)X S_s=]
Aa = [12,000 + (12,000 X 0)] X 3 = 36,000 S.F.

TYPE III–A: Aa = [A_t + (NS X I_f)X S_s=]
Aa = [24,000 + (24,000 X 0)] X 1 = 24,000 S.F.

TOTAL AREA ALLOWED: 60,000 S.F.

1

RM–3–7 Max. F.A.R.: 2.41 proposed utilizing available incentive #3.
TOTAL S.F. BUILDING (GROSS FLOOR AREA) 18,810.61 S.F. /SDMC 112.0234
(7800x2.41=18,810.61 S.F.) ALLOWABLE FAR.

1

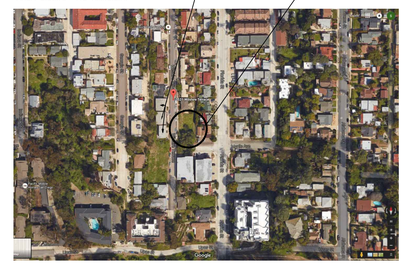
COMMON OPEN SPACE = 1,425.00 S.F. (180.00 S.F. LAWN ARE INCLUDED) /SDMC 131.0456
TOTAL LANDSCAPE AREA =2,150.00 (SEE LANDSCAPE DWG) + 180.00 @ ROOF LEVEL = 2,330.00 S.F.

VICINITY MAP :

THE PROPOSED PROJECT IS "SHIELDED" BY THESE THREE EXISTING CONSTRUCTIONS.

FAA– PART 77 NOTIFICATION AREA S.O.I.A. 115 A.M.S.L.A.

PROJECT SITE



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1	MARCH 2023

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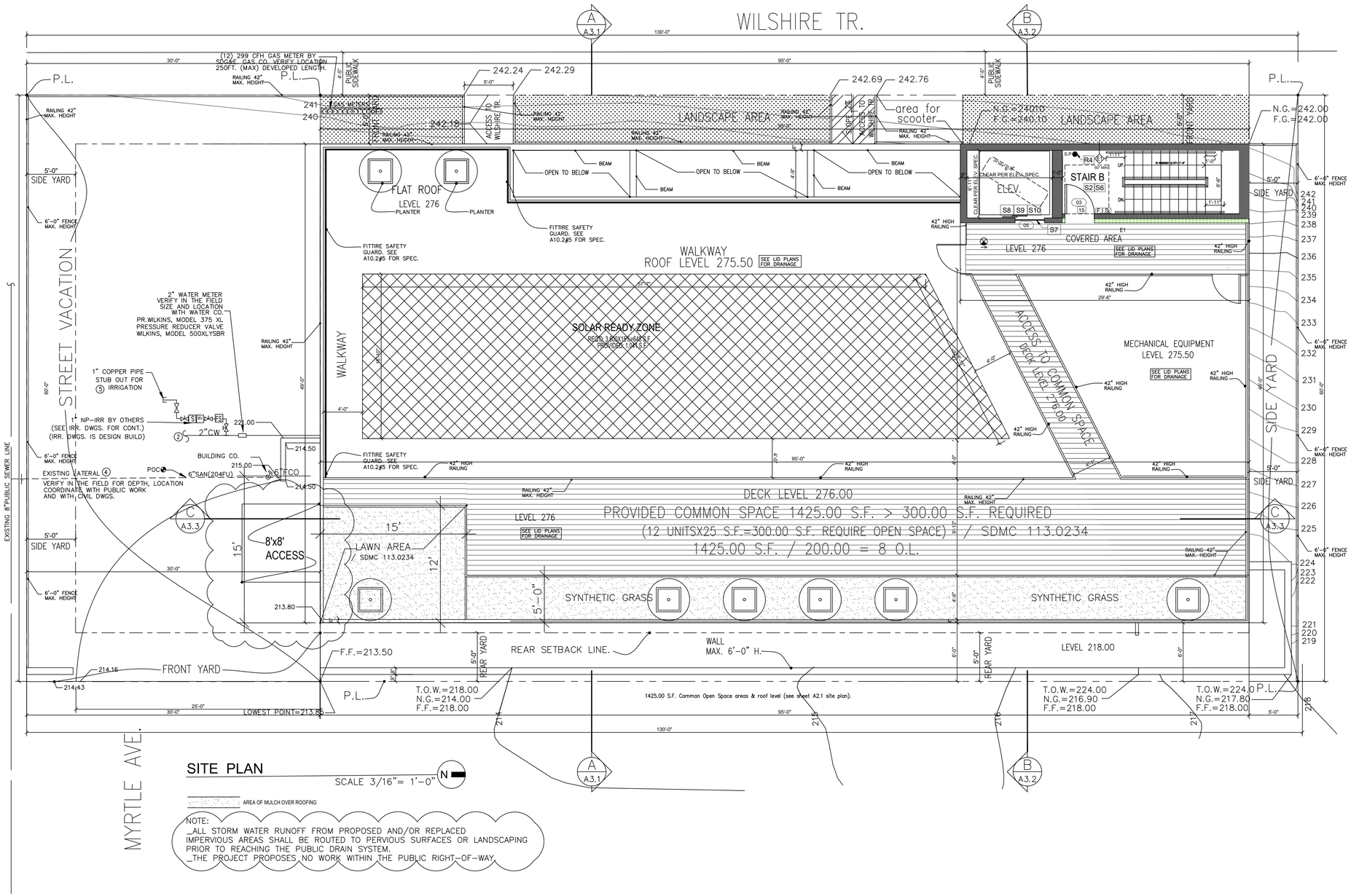

LEGEND

SYMBOL	DESCRIPTION
	LID PLANTER
	LANDSCAPE AREA
	DECK
	STEPPING STONE - CONC. TILE
	MAX. 6'-HIGH BLOCK WALL
	LID PLANTER WALL

KEY NOTES

NOTE NUMBER	NOTE SITE PLAN / NOTE TEXT
A1	LANDSCAPE
A2	RAISED FLOOR WITH DRAINGE UNDERNEATH
A3	DRIVEWAY
A4	MIN. 50"-DEEP FLOW-THRU PLANTER (SEE DRAINAGE PLANS FOR DETAILS)
A5	SHORT TERM BICYCLE RACKS (REFER TO NOTE 1)
A6	FUTURE SOLAR SYSTEM INVERTER AND METERING EQUIPMENT. SEE MEP DWGS
A7	LOCATION FOR INVERTERS, SOLAR METERING EQUIPMENT, MAIN SERVICE PANEL
A8	PERMEABLE PAVEMENT
A9	EXIT FROM BASEMENT LEVEL. SEE A9.3 FOR DETAILS @ STAIR & RAILING

NOTES:

1.SHORT TERM BICYCLE RACKS SHALL BE MIN. 2' WIDE,INDIVIDUAL RACKS INSTALLED SIDE BY SIDE TO ONE ANOTHER, SO THAT IT WOULD ALLOW BICYCLES TO BE LOCKED TO EITHER SIDE OF THE RACK. RACKS SHALL BE SPACED A MIN. OF 30" ON CENTER. RACKS SHALL ALLOW FOR THE BICYCLE FRAME AND AT LEAST ONE WHEEL TO BE LOCKED TO THE THE RACK SHALL ALLOW FOR THE USE OF CABLE AS WELL AS U-SHAPED LOCK. RACKS SHALL BE SECURELY ANCHORED TO A PERMANENT SURFACE.

2.AT LEAST 25% OF THE PATHWAYS, PATIOS, DRIVEWAYS AND OTHER PAVED AREAS COMPLY WITH ONE OR A COMBINATION OF THE FOLLOWING:
A. SHADE PROVIDED BY TREES OR PLANTINGS.
B. HARDSCAPE MATERIAL WITH AN INITIAL SOLAR REFLECTANCE OF AT LEAST 0.30
C. OPEN GRID OR PERMEABLE PAVEMENT SYSTEMS
D. SHADE PROVIDED BY A CANOPY SHADE SYSTEM CONSISTING OF SOLAR PANEL ARRAYS.

%100 OF HARDSCAPE TO BE UNCOLORED CONCRETE W/ SMOOTH CONCRETE FINISH W/ SOLAR REFLECTANCE >= 0.30 AS DETERMINED BY ASTM E1918 OR C1549= 3540 SF (SOLAR REFLECTANCE .39 SEE SPEC., A-13.2)

3.ALL ROOF DRAINS AND AREA DRAINS OPEN TO SKY SHALL DISCHARGE TO PERMAVOID PLANTERS PER LID PLANS.

4.ALL TRASH BINS SHALL BE COVERED.

5.AREAS OF REFUGE; SIGNS REQUIRED BY CHAPTER 10 SECTION 1009.11 TO PROVIDE INSTRUCTIONS. THEY SHALL COMPLY WITH 11B-703.5. SIGNS AT DOORS TO AREAS OF REFUGE ARE REQUIRED PER CHAPTER 10 SECTION 1009.9 . AREAS OF ASSISTED RESCUE SHALL COMPLY WITH SECTIONS 11B-703.1 THRU 11B-703.3 AND 11B-703.5. AREAS OF REFUGE SHOULD INCLUDE AN INTERNATIONAL SYMBOL OF ACCESSIBILITY COMPLYING WITH 11B-703.7.2.1. THEY NEED TO BE ON AN ACCESSIBLE ROUTE (1118A.1, 111A.1.2, 1138A.1.3) MANEUVERING SPACE (TURNING CIRCLE) SHALL BE PROVIDED. EXIT SIGNS SHOULD COMPLY WITH 11B-703.1 THRU 11B-703.3 AND 11B-703.5.

6.FOR LOCATION IOF GAS METER, ELECTRICAL METER, SOLAR SYSTEM INVERTER AND METERING EQUIPMENT, AND MAIN SERVICE PANEL SEE MEP DRAWINGS.

7.FOR PERMEABLE PAVEMENT, HARDSCAPE AND LANDSCAPE, SEE LANDSCAPE DRAWINGS.

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SITE PLAN

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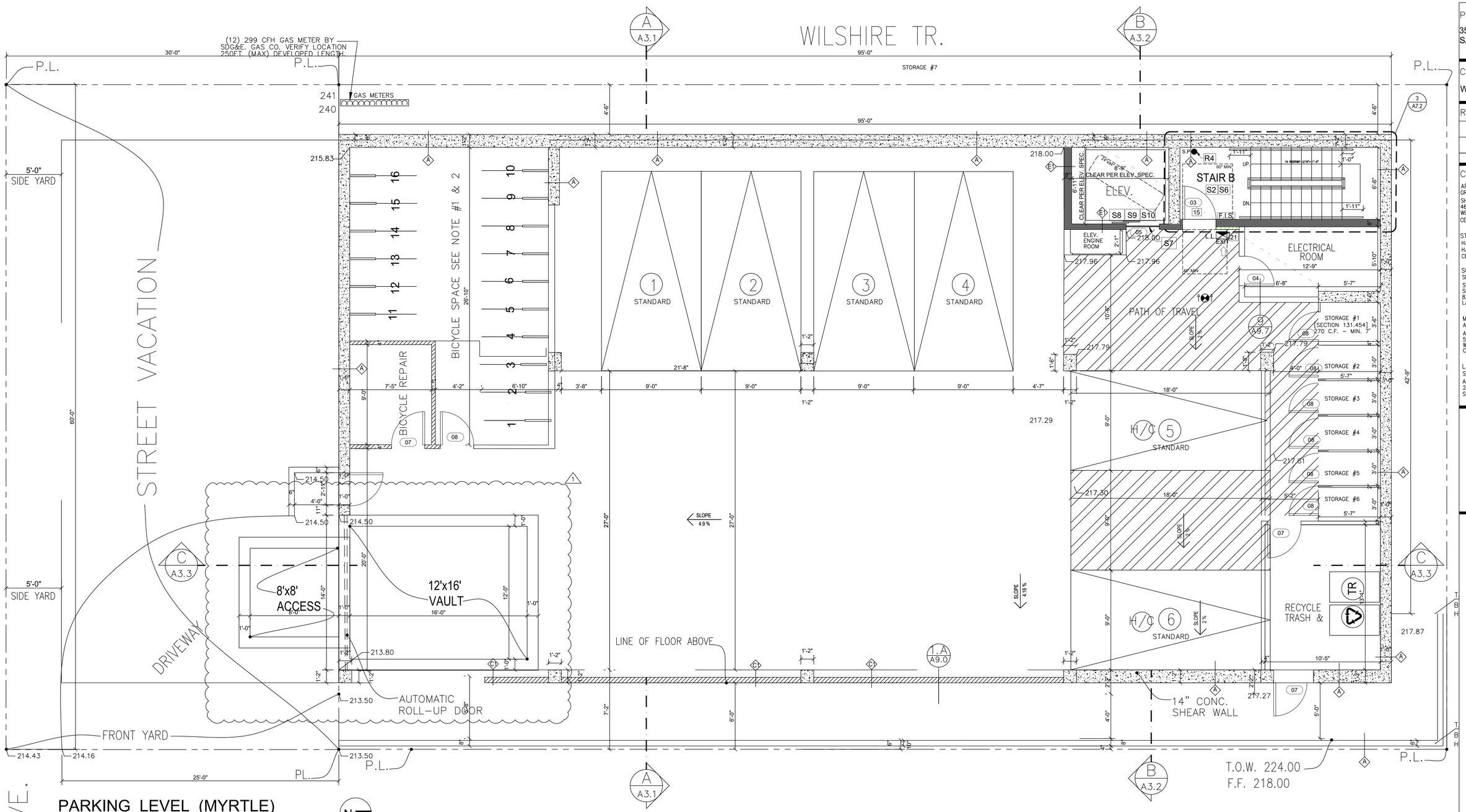

PARKING LEVEL (MYRTLE)

4,110.35 S.F.

SCALE 1/4"= 1'-0"

NOTES:

1– MICRO MOBILITY VEHICLE SPACES 1 TO 5 W/ CHARGING INFRASTRUCTURE (2 POINTS) (PROVIDED 4 POINTS SEE SHEET A0.1)

2– BICYCLE PARKING SPACES 6 TO 12 FOR RESIDENCE

3– ON SITE BICYCLE PREPARE STATION (2 POINTS). (PROVIDED 4 POINTS SEE SHEET A0.1)

4– 1 VAN ACCESSIBLE PARKING STALL & 1 STANDARD ACCESSIBLE PARKING STALL

5– ALL WALL ASSEMBLIES @ 1ST LEVEL TO BE NON–COMBUSTIBLE MATERIAL PER CBC–602.2

WALL LEGEND

SYMBOL	
	SEE A-9.1 FOR WALL TYPES DET.
	CONCRETE WALL 2 HR
	2 HOUR SHAFT WALL
	DOUBLE STUDS DEMISING WALL.STC >=50 (1HR)
	DOUBLE STUDS DEMISING WALL.STC >=50 (2 HR)
	2X4 STUD WALL (PLUMBING WALLS)
	1 HOUR EXTERIOR WALL
	2 HOUR EXTERIOR WALL
	2X4 STUD WALL- INTERIOR
	1 HOUR INTERIOR STUD WALL

NOTE:
FRAMIMG SHOWN ON THE PLANS IS NOT NECESSARY THE WAY THE FRAMING SHOULD BE. FOR CORRECT SHEAR WALL LENGTH AND SPECIALLY FRAMING IN THE CORNERS CHECK STRUCTURAL PLANS.

FOR WATERPROOFING MATERIAL SPEC. @ CORRIDORS & BALCONIES SEE A10.1.1 & A10.2#4(CLASS "A")

Notes Parking	
Note Number	Note Text
P1	DOUBLE STRIPING OF STALLS SHALL BE PER ZONING CODE SECTION 12.21A5, CHART NO.5
P2	INSTALL A MINIMUM 1-INCH (INSIDE DIAMETER) RACEWAY TO ACCOMMODATE A DEDICATED 208 - 240 VOLT BRANCH CIRCUIT. RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND TERMINATE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF THE CHARGING SYSTEM INTO A LI
P3	WHERE MULTI-FAMILY DWELLINGS AND R OCCUPANCIES OTHER THAN ONE AND TWO-FAMILY DWELLINGS AND TOWNHOUSES ARE CONSTRUCTED ON A BUILDING SITE, 5% OF THE TOTAL PARKING SPACES, BUT NOT LESS THAN ONE, SHALL BE ELECTRIC VEHICLE CHARGING SPACES (EV SPACES) CAPABLE OF SUPPORTING FUTURE ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). CALCULATIONS FOR THE REQUIRED NUMBER OF EV SPACES SHALL BE ROUNDED UP TO THE NEAREST WHOLE NUMBER. THE ELECTRICAL SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO SIMULTANOUSLY CHARGE ALL DESIGNATED EV SPACES AT THE FULL RATED AMPERAGE OF THE EVSE. PLAN DESIGN SHALL BE BASED UPON A 40-AMPERE MINIMUM BRANCH CIRCUIT. A SEPARATE ELECTRICAL PERMIT SUBPANEL IS REQUIRED." THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING PURPOSES AS EV CAPABLE IN ACCORDANCE WITH THE LOS ANGELES ELECTRICAL CODE. (4.105.4.2)
P4	WHEEL STOP; A CURB OR WHEEL STOP SHALL BE PROVIDED IF REQUIRED TO PREVENT ENCROACHMENT OF VEHICLES OVER THE REQUIRED CLEAR WIDTH OF ADJACENT ACCESSIBLE ROUTES.
P6	LONG TERM DOUBLE BICYCLE RACK 18" WIDE BY 6' LONG. BICYCLE PARKING STALL SHALL PROVIDE A MEANS OF SECURING THE BICYCLE FRAME AT TWO POINTS TO A SECURELY ANCHORED RACK, EXCEPT IN THE CASE OF LOCKERS AND COMMERCIALLY OPERATED ATTENDED BICYCLE PARKING. INDIVIDUAL RACKS INSTALLED SIDE BY SIDE TO ONE ANOTHER WITHIN BICYCLE ROOMS OR BICYCLE CAGES THAT ALLOW BICYCLES TO BE LOCKED TO EITHER SIDE OF THE RACK SHALL BE SPACED A MINIMUM OF 30 INCHES ON CENTER. (REFERT TO SHEET A-10.4)
P7	GARAGE EXHUST DUCT (32"X78" CLEAR SPACE = 17 S.F.)
P8	70 SQ.IN. ACCESSIBILITY SIGN (PER SECTION 1109A8.8) - REFER TO FIG. 11A - 2B & ADA SIGNAGE @ A-11.5
P10	CEILING HEIGHT TO BE MIN 8'-2"

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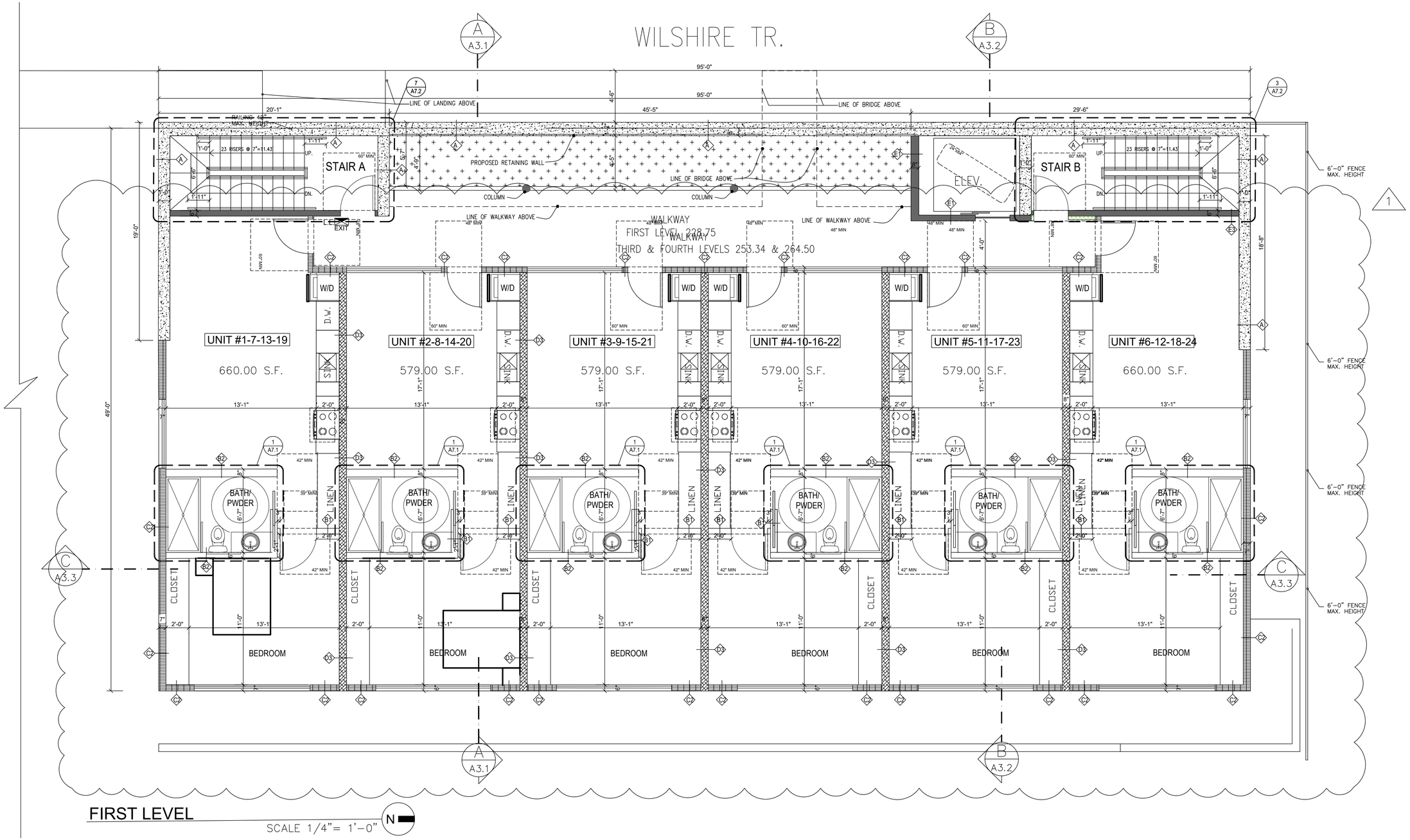
Sheet Title:
PARKING LEVEL

Sheet No.:
A2.2



FIRST LEVEL

SCALE 1/4"= 1'-0"

N

WALL LEGEND

SYMBOL	
SEE A-9.1 FOR WALL TYPES DET.	
2 HR CONCRETE WALL	
2 HR SHAFT WALL	
1 HR DOUBLE STUDS DEMISING WALL	
2 HR DOUBLE STUDS DEMISING WALL	
2X4 STUD WALL (PLUMBING WALLS)	
1 HR EXTERIOR WALL	
2 HR EXTERIOR WALL	
2X4 STUD WALL- INTERIOR	
1 HR INTERIOR STUD WALL	

NOTE:
FRAMIMG SHOWN ON THE PLANS IS NOT NECESSARY THE WAY THE FRAMING SHOULD BE. FOR CORRECT SHEAR WALL LENGTH AND SPECIALLY FRAMING IN THE CORNERS CHECK STRUCTURAL PLANS.

NOTE:
BUILDING HIGHER THAN 3 STORY TO USE 2X6 OR 3BY FRAMING IN ALL DETAILS. SEE STRUCTURAL DWG.

KEY NOTES

Note Number	NOTES FLOOR PLAN NOTE TEXT
01	PROVIDE 42" MIN. HIGH RAILING.SEE A9.2&A9.3
02	FLOW RATE FOR ALL PLUMBING FIXTURES SHALL COMPLY WITH 4.303.1
03	GARAGE EXHAUST DUCT. SEE MEP DRAWINGS
04	RAINWATER PIPE TO RUN BETWEEN BALCONY FLOOR JOIST TO THE FACE OF EXTERIOR WALL AND CONNECT DO DOWNSPOUT. SEE LID PLANS
05	DOWNSPOUT DRAIN TO BE DISCHARGED TO THE BMP SYSTEM
06	PLANTER PER DETAIL #11 @ A-9.6
07	LINE OF DROP CEILING
08	LINE OF FLOOR ABOVE
09	PROVIDE 6" WIDE COPPER DRAIN IN PARAPET WALL
10	ACCESSIBLE MAILBOXES FROM AF-FLORENCE MANUFACTURING
11	MAXIMUM 34" HIGH TABLE
12	PROVID ANTI GRAFFITI FINISH AT THE FIRST 9 FEET, MEASURED FROM GRADE, AT EXTERIOR WALLS AND DOORS.
13	FIRE ALARM ANNUNCIATOR
14	5% OF MAILBOXES TO COMPLY WITH 11B-308.2.1. HEIGHT OF MAILBOXES TO SHALL BE 48" MAX. AND 15" MIN. ABOVE THE FINISH FLOOR.
15	SEE A9.4 & A-11.4 FIGURE 11A-1F FOR THRESHOLDS
16	FOR CAPILLARY BREAK DETAIL @ FOUNDATIONS, SEE DET #5 @A-9.7

Note Number	NOTES FLOOR PLAN NOTE TEXT
16	INVERTERS, SOLAR METERING EQUIPMENT, MAIN SERVICE PANEL
17	WATER HEATER. SEE MEP
19	TOP OF CLOSETS TO BE ALIGNED W/T O.WDW.
20	HVAC UNITS TO BE ABOVE BATHROOMS.SEE MEP
21	EACH DWELLING UNIT IS PROVIDED WITH A PORTABLE FIRE EXTINGUISHER HAVING A MINIMUM RATING OF 1-A:10-B:C.
K1	ALL COUNTERTOP MATERIAL SHALL BE GRANITE SLAB @ 34" HIGH. (TYP. ALL UNITS)
K2	ENERGY STAR APPLIANCES. SEE A-2.3, UNIT 201 FOR CALLED OUT APPLIANCES
K3	PROVIDE MIN. 30" CLEAR WORK SPACE BY THE SINK (SEE FIGURE 11A-9D @ A-11.5)
K4	ALL SINK BASE CABINETS SHALL BE REMOVABLE
K5	FLOW RATE FOR ALL PLUMBING FIXTURES SHALL COMPLY WITH 4.303.1
K6	WATER HEATER - SEE MEP DWGS
K7	HEIGHT OF ISLAND CAB. TO BE 34". FOR ADA KNEE &TOE SPACE SEE A-11.5 - FIGURE 11A-9D
K8	1133A.2, 1133A.4 30" CLEAR COUNTER WORK SPACE

Note Number	NOTES FLOOR PLAN NOTE TEXT
K9	KITCHENS SHALL HAVE A MINIMUM CLEAR WIDTH MEASURED BETWEEN ANY CABINET, COUNTERTOP, OR THE FACE OF ANY APPLIANCE (EXCLUDING HANDLES AND CONTROLS) THAT PROJECTS INTO THE KITCHEN AND THE OPPOSING CABINET, COUNTERTOP, APPLIANCE, OR WALL AS FOLLOWS: (1133A.2.
K10	SEE A-11.5 FOR ADA TYP. KITCHEN SINK DETAIL.
K11	ALL KITCHEN WORK SURFACE TO BE PER 804.3.1. CABINETRY SHALL BE PERMITTED UNDER THE KITCHEN WORK SURFACE PROVIDED THAT ALL OF THE FOLLOWING CONDITIONS ARE MET: THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE KITCHEN WORK SURFACE; THE FINISH FLOOR EXTENDS UNDER THE CABINETRY; AND THE WALLS BEHIND AND SURROUNDING THE CABINETRY ARE FINISHED.
R1	ROOF DRAIN W/ OVERFLOW
R2	DOWNSPOUT TO CONNECT TO LID PLANTER
R3	HVAC / CONDENSING UNIT
R4	STANDPIPE-CLASS I - PER 905.3.1
R5	SOLAR READY ZONE
S1	EXIT DOOR 1 1/2 HOUR FIRE RATED
S2	APPROVED STAIRWAY SIGN INDICATING THE FLOOR LEVEL, TERMINUS OF THE TOP AND BOTTOM OF THE STAIR AND THE IDENTIFICATION NUMBER OF THE STAIR. IT SHALL BE LOCATED APPROXIMATELY 5 FT. ABOVE THE FLOOR LANDING AND BE READILY VISIBLE WHEN THE STAIR DOORS ARE IN AN OPEN OR CLOSED POSITION. (PER 1023.9) (REFER TO A-11.5)

Note Number	NOTES FLOOR PLAN NOTE TEXT
S3	STAIR STRIPING - REFER TO FIGURE 11A-6A @ A-11.4 (PER 1123A.5 AND 1115A.5) & A-9.2/#1&2
S4	FLAME SPREAD RATING OF PANELING MATERIALS ON THE WALLS OF ALL ROOMS AND ENCLOSED SPACES, CORRIDOR, LOBBY AND EXIT ENCLOSURE MUST BE CLASS "C" ACCORDING TO TABLE 803.9 INTERIOR FINISH MATERIALS APPLIED TO WALL AND CEILINGS SHALL BE TESTED AS SPECIFIED IN SECTION 803. APPLICATION OF SAID MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 803, 804, AND TABLE 803.9.
S5	HANDRAILS SHALL EXTEND A MINIMUM OF 12" BEYOND THE TOP NOSING AND 12" PLUS THE TREAD WIDTH BEYOND THE BOTTOM NOSING AND ENDS SHALL BE RETURNED OR TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS. (1120A.4.2.2 & 1120A.4.2.3). A-11.4 FIG. A11-6E
S6	SEE A-11.5,&A-11.4 FOR MORE DETAILS AND CODE COMPLIANCE
S7	1 1/2 HR RATED ELEVATOR SMOKE CURTAIN (TYP.) ESR# AND SEE DETAILS REFER TO SHEET "A-10.1"& A-10.3/#2. SMOKE GUARD TO COMPLY ICC-ES AC 77
S8	SEEA-11.4 FIGURE 11A-1F FOR THRESHOLDS
S9	INTERNATIONAL SYMBOL FOR EMERGENCY MEDICAL SERVICE
S10	KONE MONOSPACE500 ELEVATOR (3000-3500 LBS) - REFER TO SHEET A-10.6 &A-10.7/ #1 FOR SPECS
S11	FOR DOOR CEALRANCES (PULL SIDE AND PUSH SIDE) REFER TO SHEET A-11.5-FIGURES A11 - 8A THROUGH F

SYMBOLS

SYMBOL	KEY NOTE
S.P	CLASS 'I' STANDPIPE (PER 905.3.1)
S/D C/M	COMBINED CARBON MONOXIDE & SMOKE DETECTOR.AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES. CARBON MONOXIDE ALARM SHALL BE PROVIDED OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S) AND ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS (R315)
EXIT	EXIT SIGN
	DIRECTIONAL EXIT SIGN
DS	DOWN SPOUT
DS	DOWN SPOUT W/OVER FLOW
	FLOOR DRAIN (TYP.)
	ELECTRICAL VEHICLE SUPPLY EQUIPMENT
L.L.	LOCATION OF TACTILE FLOOR ID. SIGN PER SEC. 1022.8. ALSO SEE A-11.5 FOR MORE INFO.
	MIN. 8'-2" VERTICAL CLR TO AND FROM ACCESSIBLE PARKING STALLS AND LANDING AISLES

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REVISION:

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FIRST LEVEL

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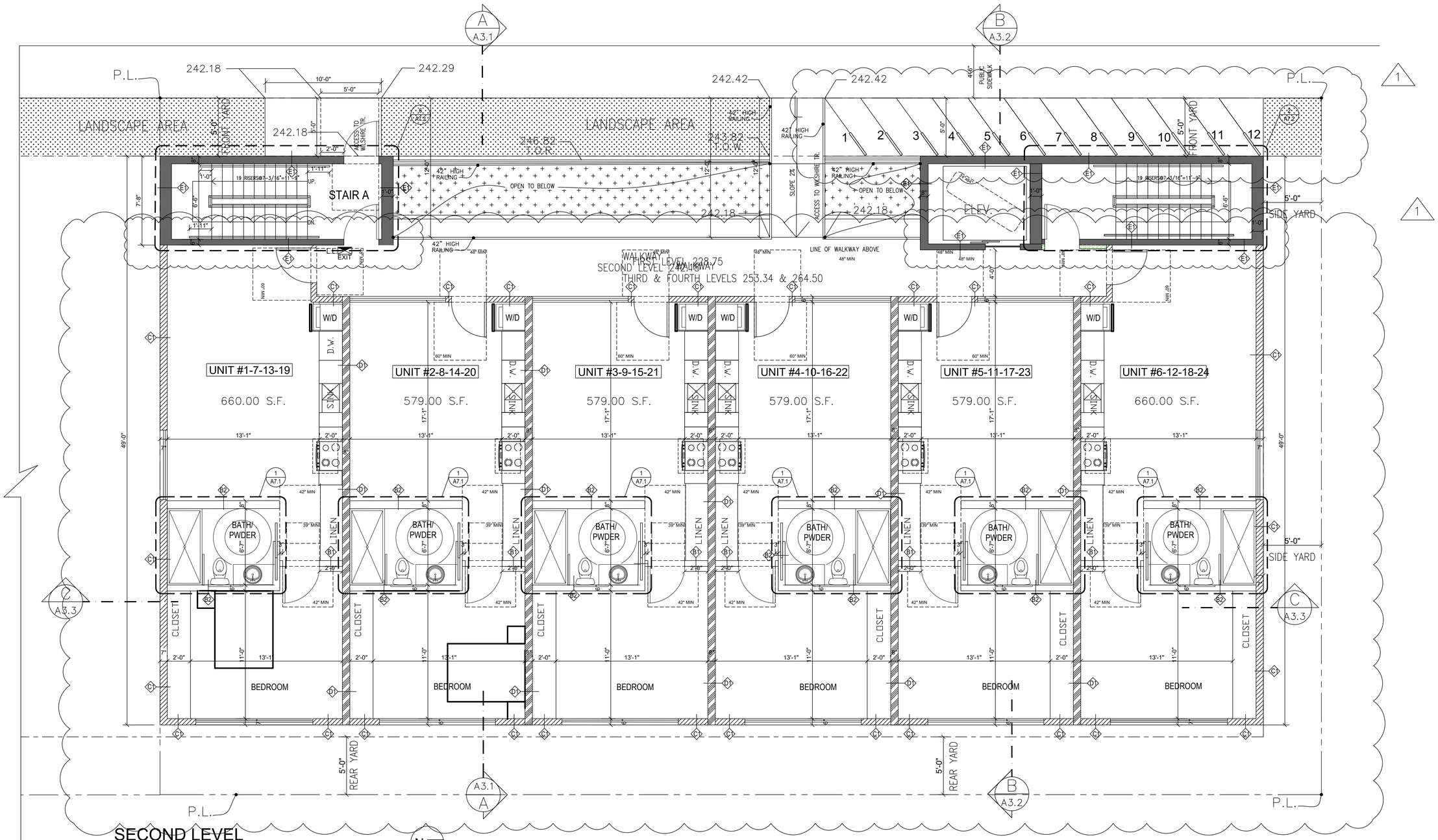

SECOND LEVEL

SCALE 1/4"= 1'-0"

N

WALL LEGEND

SYMBOL	SEE A-9.1 FOR WALL TYPES DET.
	CONCRETE WALL 2 HR
	2 HOUR SHAFT WALL
	DOUBLE STUDS DEMISING WALL.STC >=50 (1HR)
	DOUBLE STUDS DEMISING WALL.STC >=50 (2 HR)
	2X4 STUD WALL (PLUMBING WALLS)
	1 HOUR EXTERIOR WALL
	2 HOUR EXTERIOR WALL
	2X4 STUD WALL- INTERIOR
	1 HOUR INTERIOR STUD WALL

FOR WATERPROOFING MATERIAL SPEC. @ CORRIDORS & BALCONIES SEE A10.1.1 & A10.2#4(CLASS "A")

NOTE:
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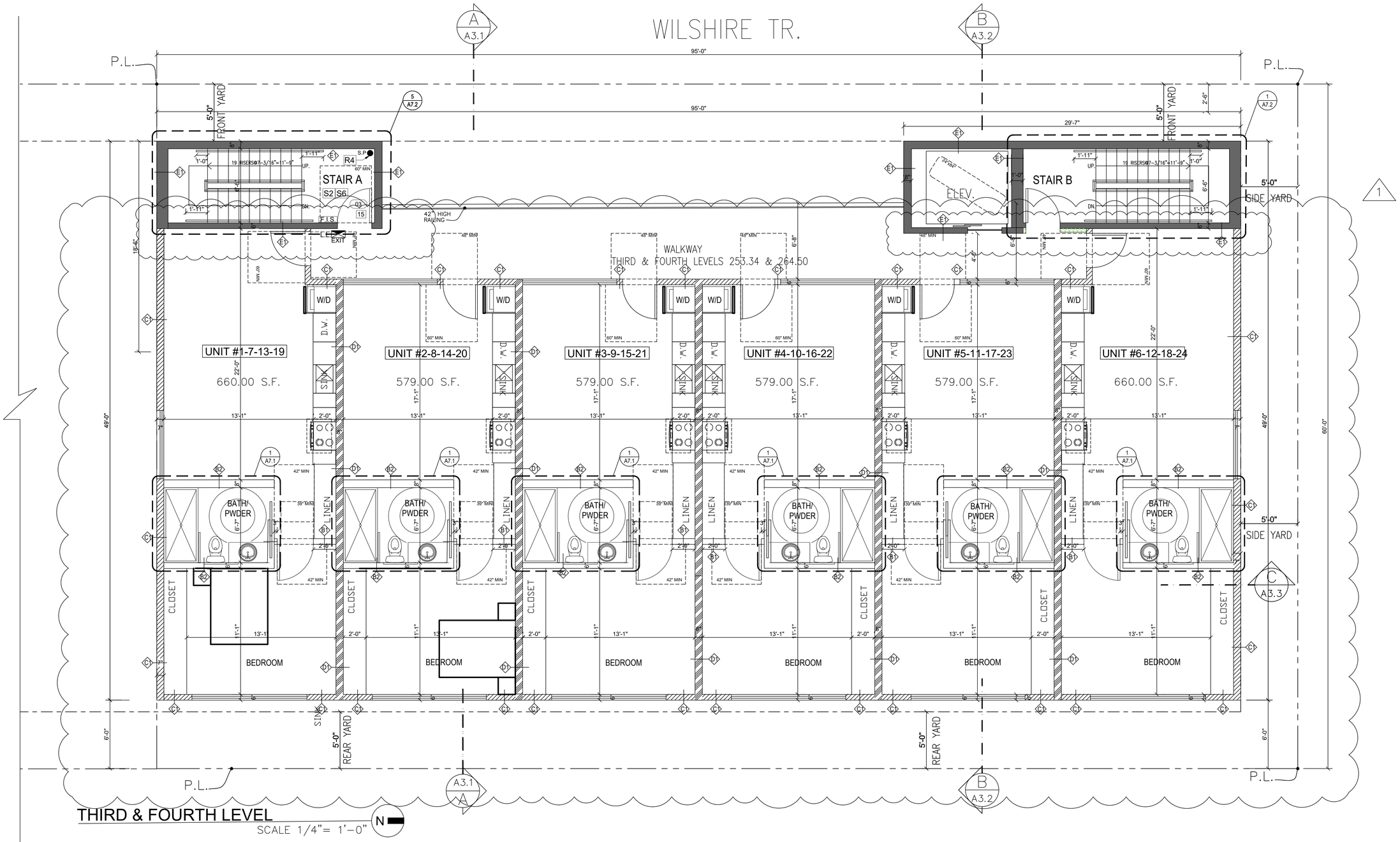

THIRD & FOURTH LEVEL

SCALE 1/4"= 1'-0"

N

WALL LEGEND

SYMBOL	SEE A-9.1 FOR WALL TYPES DET.
	CONCRETE WALL 2 HR
	2 HOUR SHAFT WALL
	DOUBLE STUDS DEMISING WALL.STC >=50 (1HR)
	DOUBLE STUDS DEMISING WALL.STC >=50 (2 HR)
	2X4 STUD WALL (PLUMBING WALLS)
	1 HOUR EXTERIOR WALL
	2 HOUR EXTERIOR WALL
	2X4 STUD WALL- INTERIOR
	1 HOUR INTERIOR STUD WALL

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FOR WATERPROOFING MATERIAL SPEC. @ CORRIDORS & BALCONIES SEE A10.1.1 & A10.2#4(CLASS "A")

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Sheet Title:
THIRD & FOURTH LEVEL

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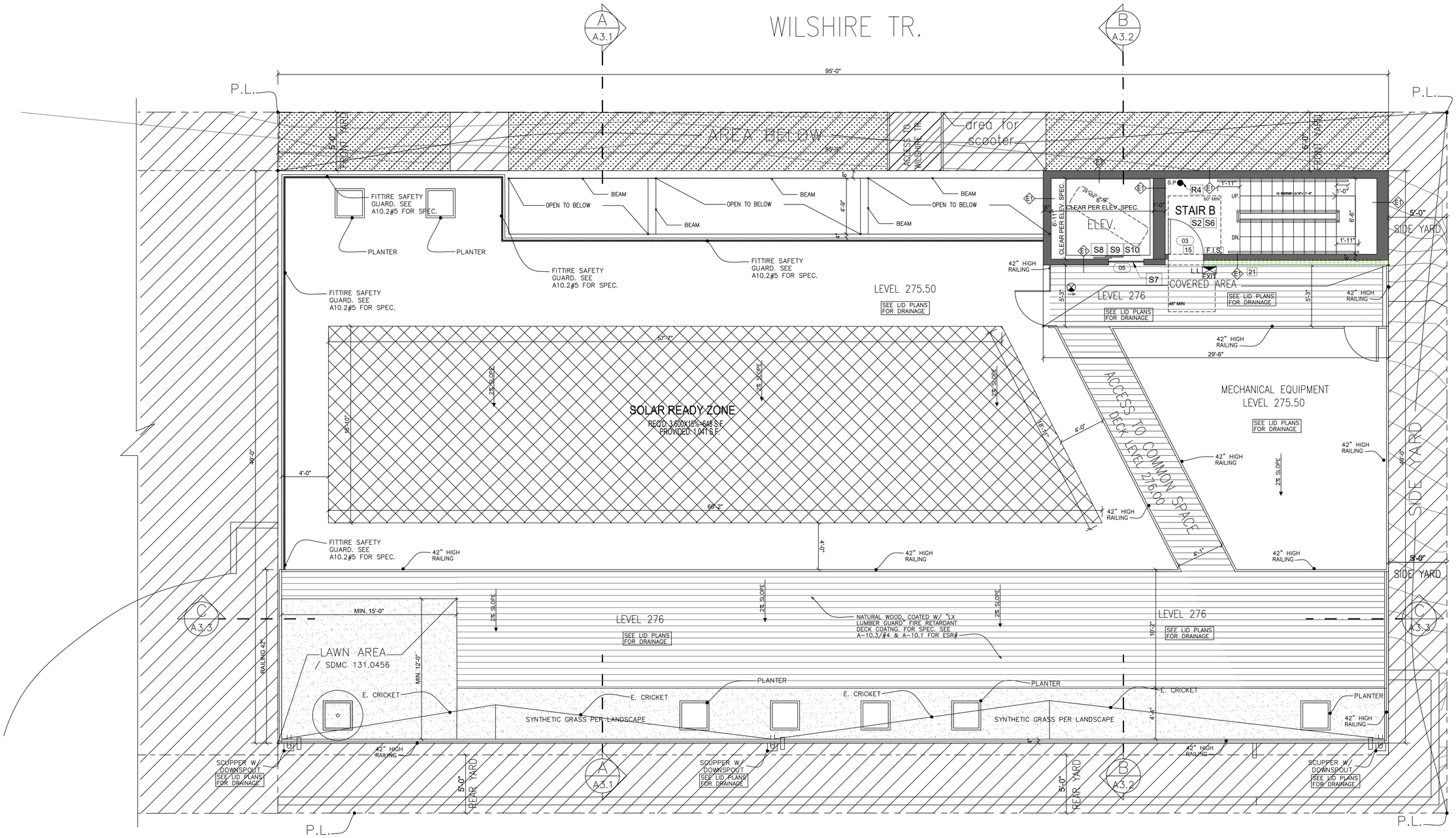
A2.5



ROOF PLAN

SCALE 1/4"= 1'-0"

N

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Sheet Title:
ROOF LEVEL

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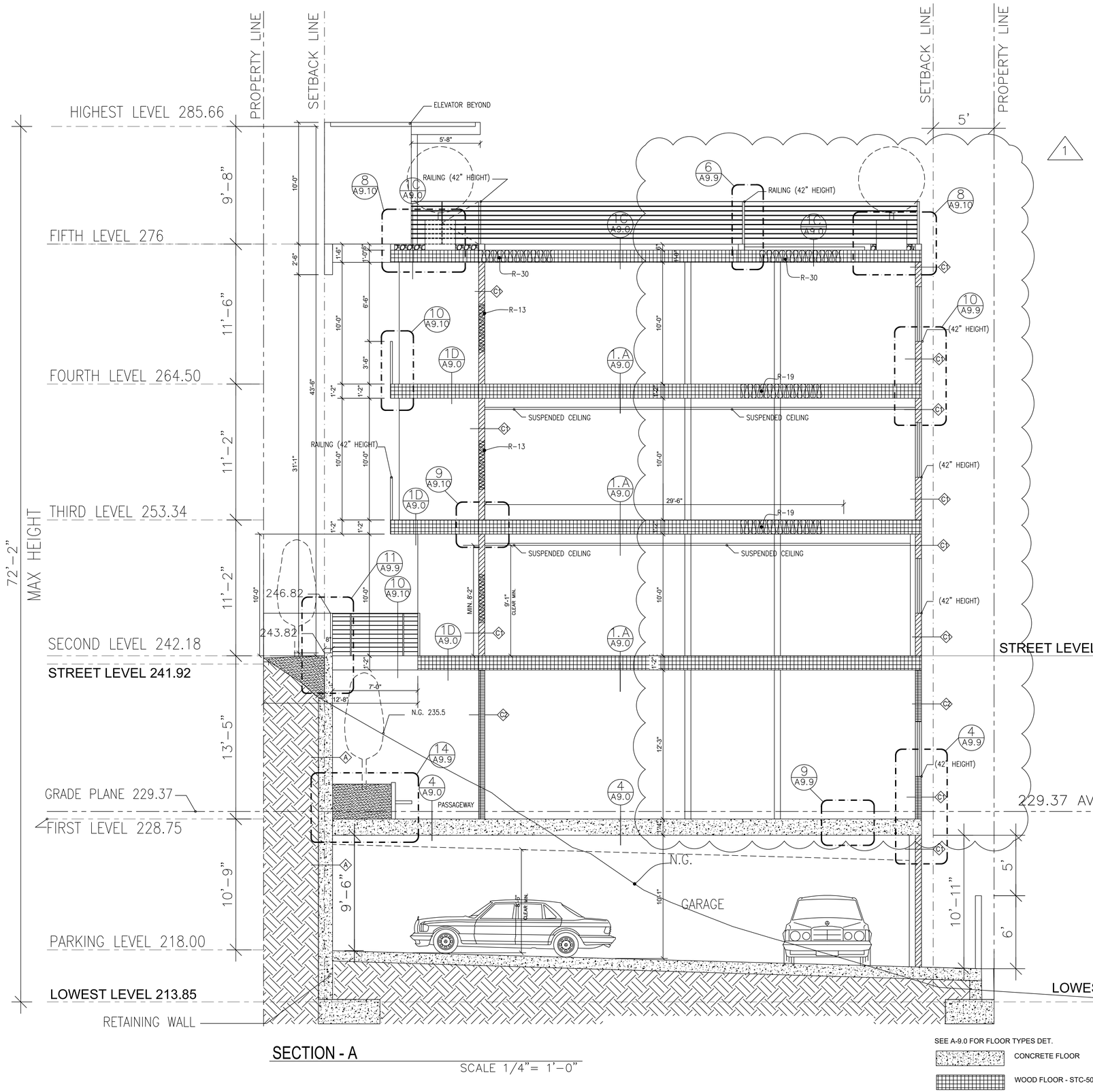

SEE A-9.0 FOR FLOOR TYPES DET.

CONCRETE FLOOR

WOOD FLOOR - STC-50

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Sheet Title:
SECTION - A

Sheet No.:
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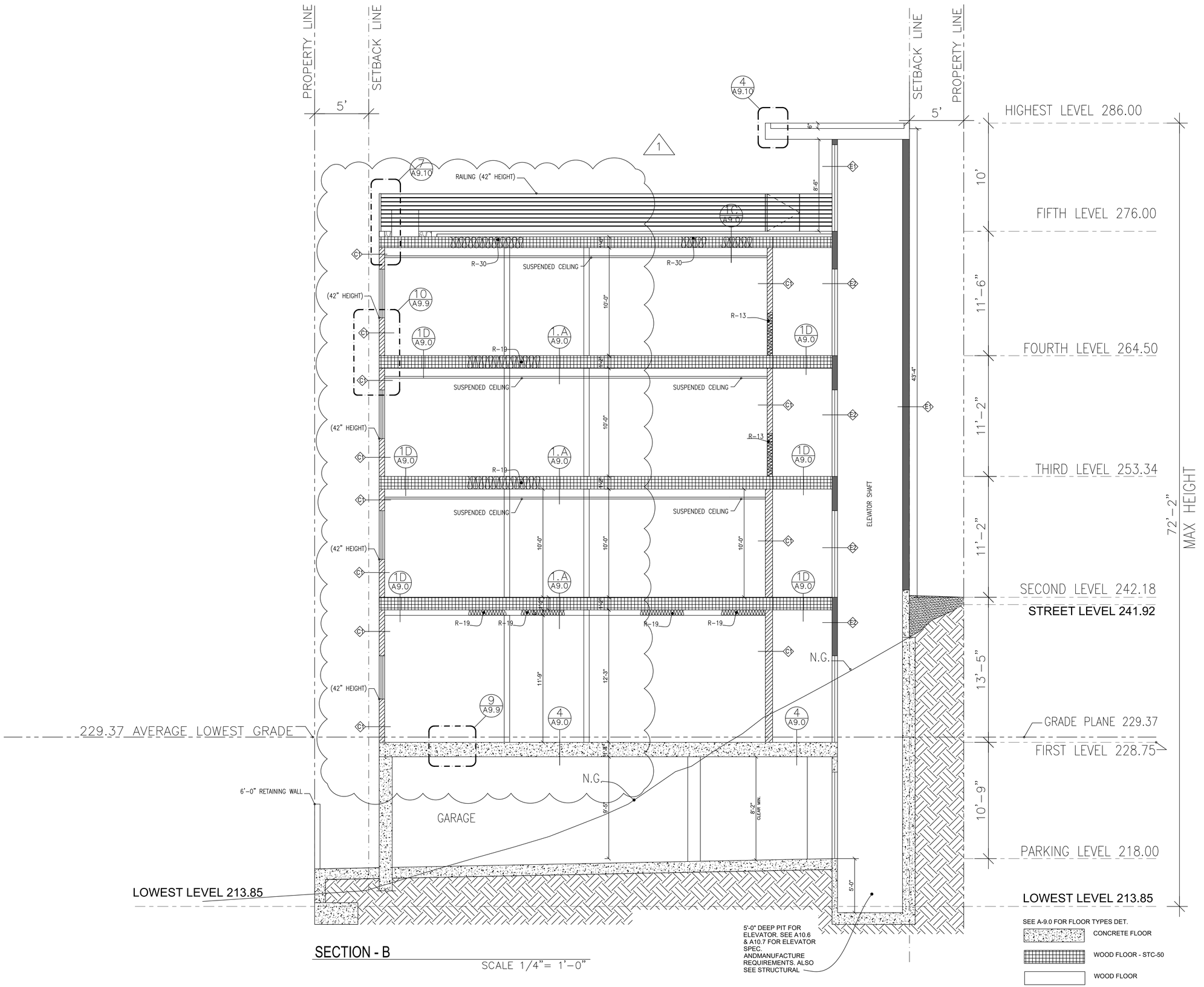

SECTION - B

SCALE 1/4"= 1'-0"

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SECTION - B

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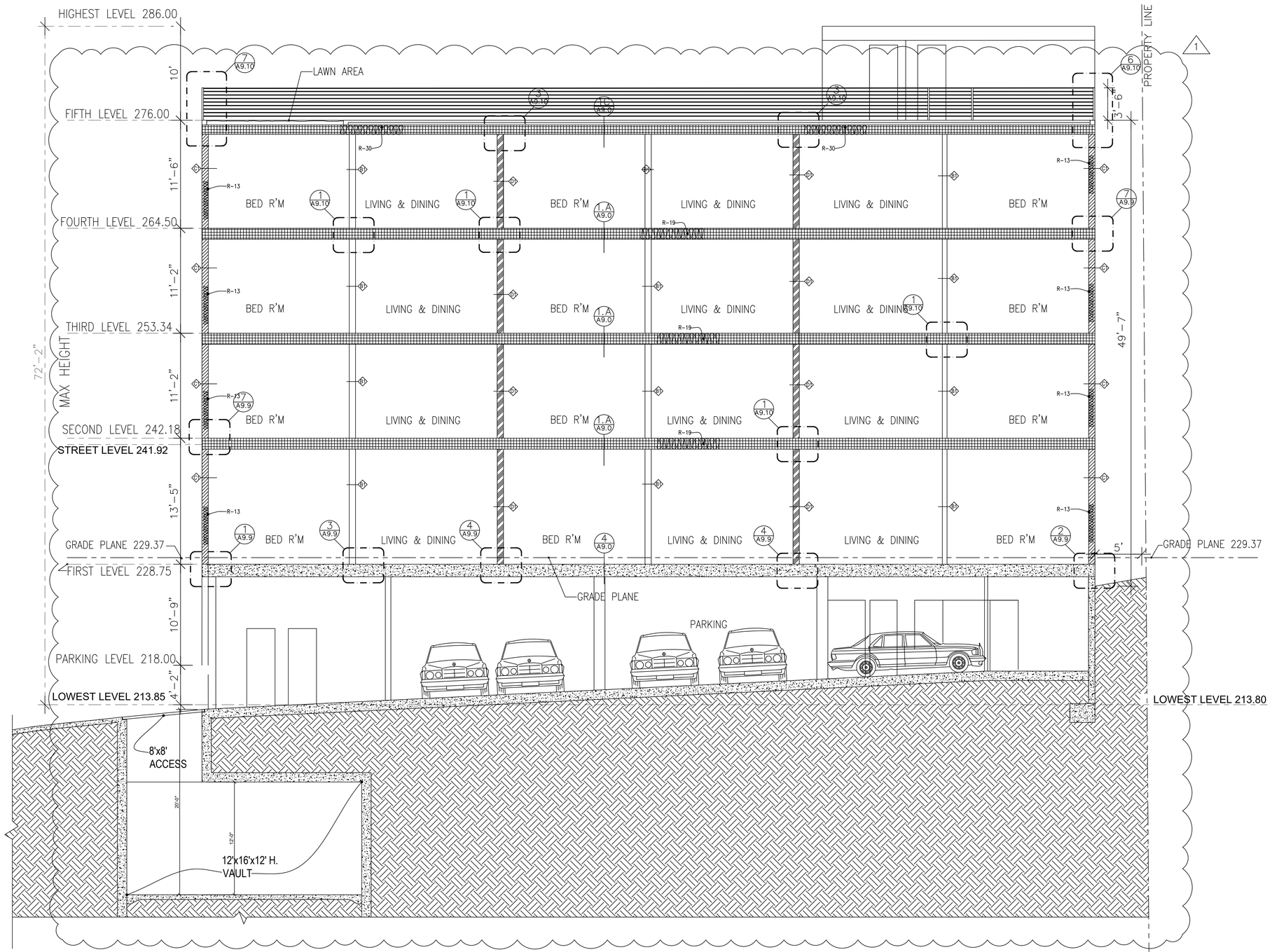

SECTION - C

SCALE 3/16"= 1'-0"

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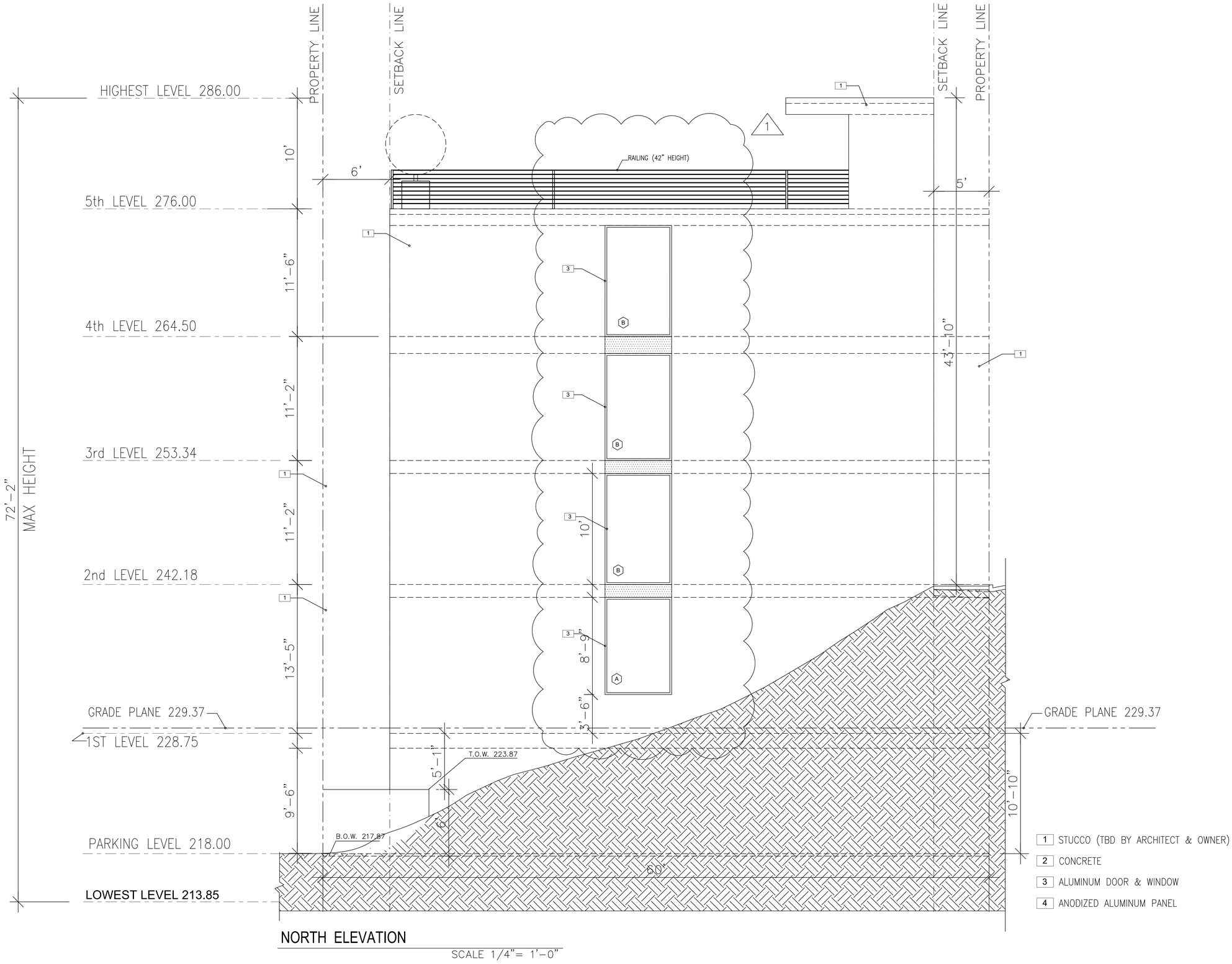

NORTH ELEVATION

SCALE 1/4"= 1'-0"

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Sheet Title:
NORTH ELEVATION

Sheet No.:
A4.1

WEST ELEVATION

SCALE 1/4"= 1'-0"

1. STUCCO (TBD BY ARCHITECT & OWNER)
2. CONCRETE
3. ALUMINUM DOOR & WINDOW
4. ANODIZED ALUMINUM PANEL

Project:
3505 WILSHIRE TERRACE
SAN DIEGO, CA. 92104

Client:
WILSHIRE TERRACE LLC.

REVISION:

1	MARCH 2023

Consultants:

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Drawn By: S.S
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Date: MARCH 2023
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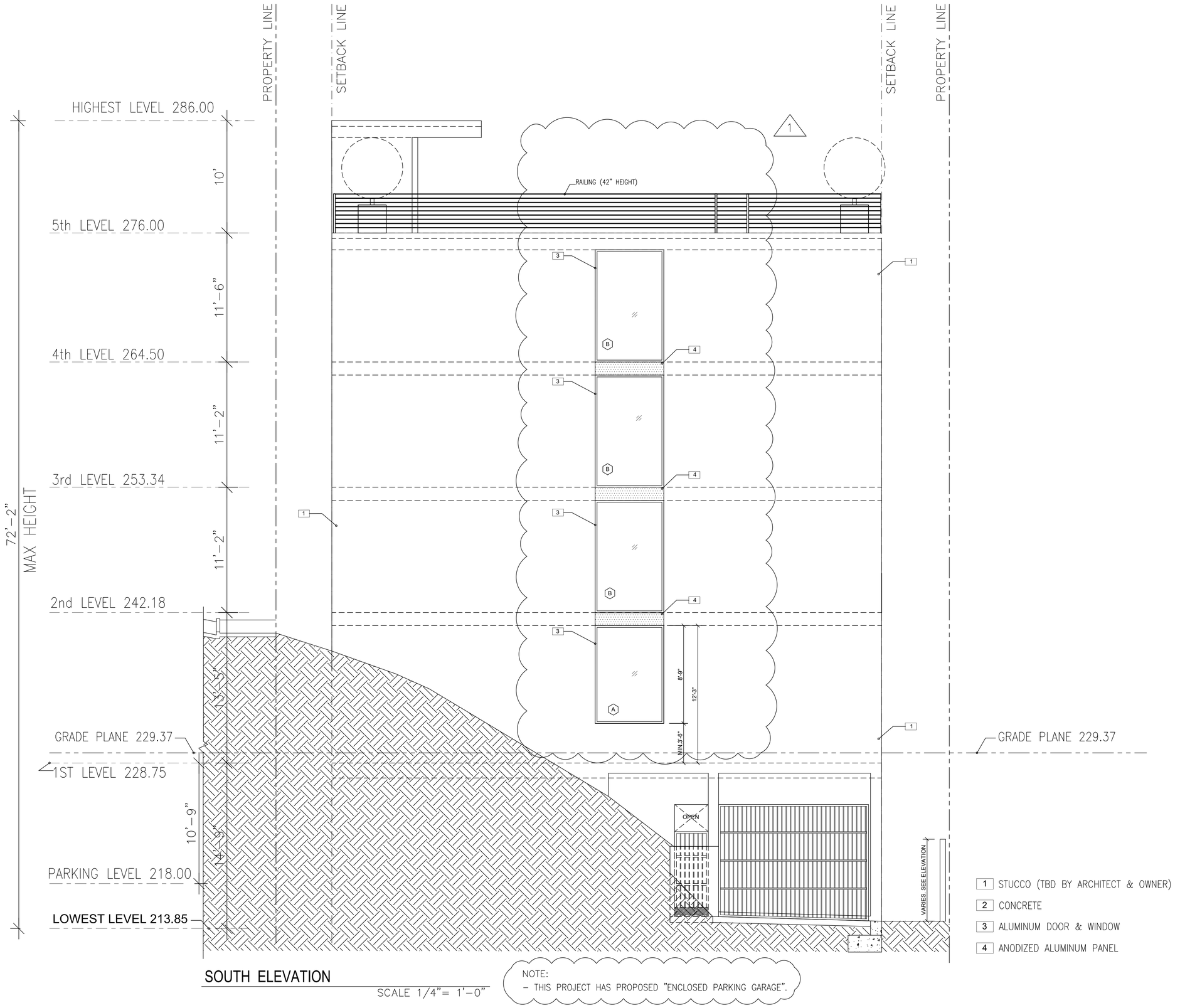
Sheet Title:
WEST ELEVATION

Sheet No.:
A4.2



SOUTH ELEVATION

SCALE 1/4"= 1'-0"

NOTE:
- THIS PROJECT HAS PROPOSED "ENCLOSED PARKING GARAGE".

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SOUTH ELEVATION

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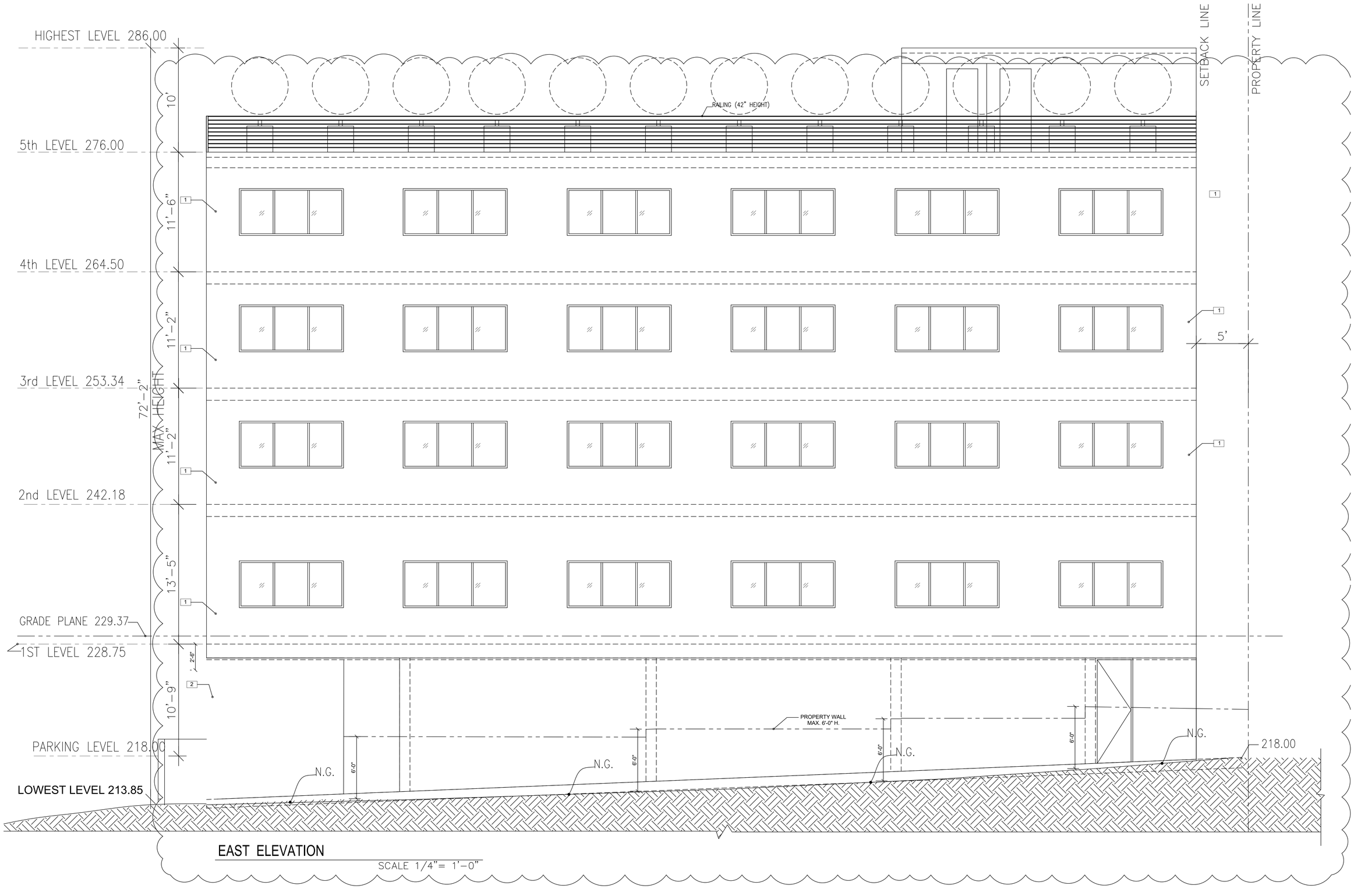

EAST ELEVATION

SCALE 1/4"= 1'-0"

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Sheet Title:
EAST ELEVATION

Sheet No.:
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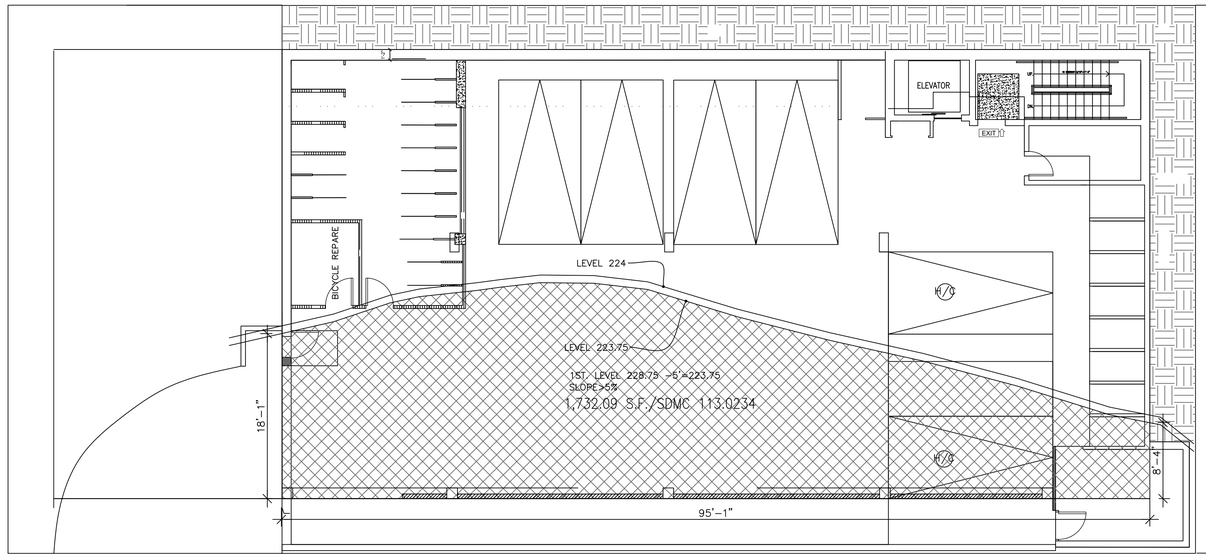
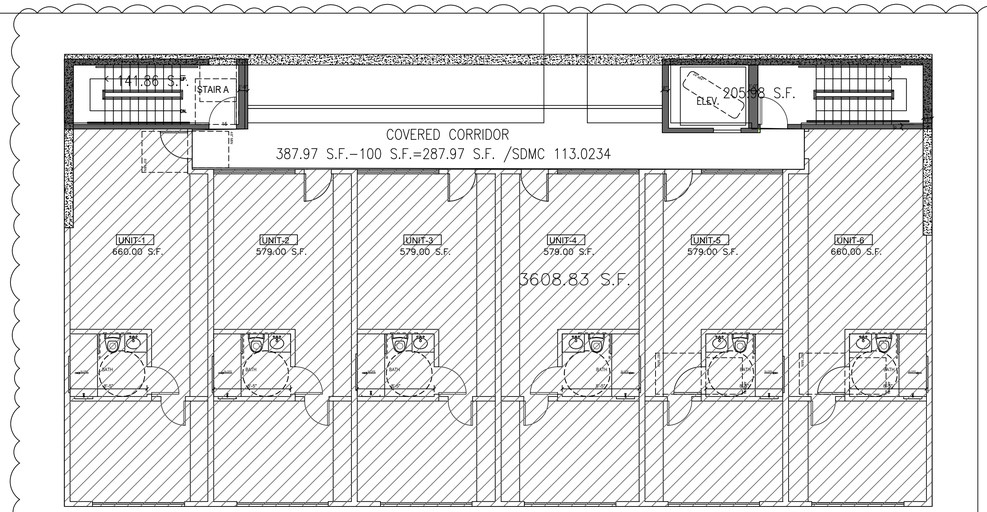


FIRST LEVEL (BASEMENT) 1,732.09 S.F./ SDMC 113.0234

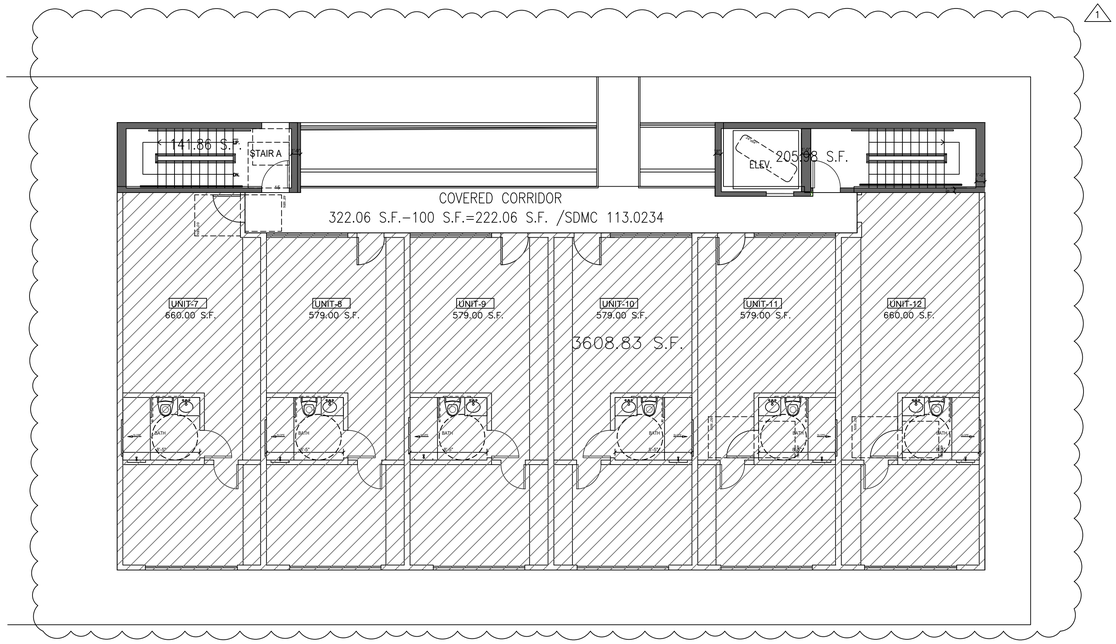


STAIRS =347.84 S.F.

COVERED CORRIDOR = 287.97 S.F. /SDMC 113.0234

(UNITS #1,#2,#¾#5#6)=3,608.83 S.F.

1ST LEVEL 3,608.83+347.84+287.97=4,224.64 S.F. /SDMC 113.0234

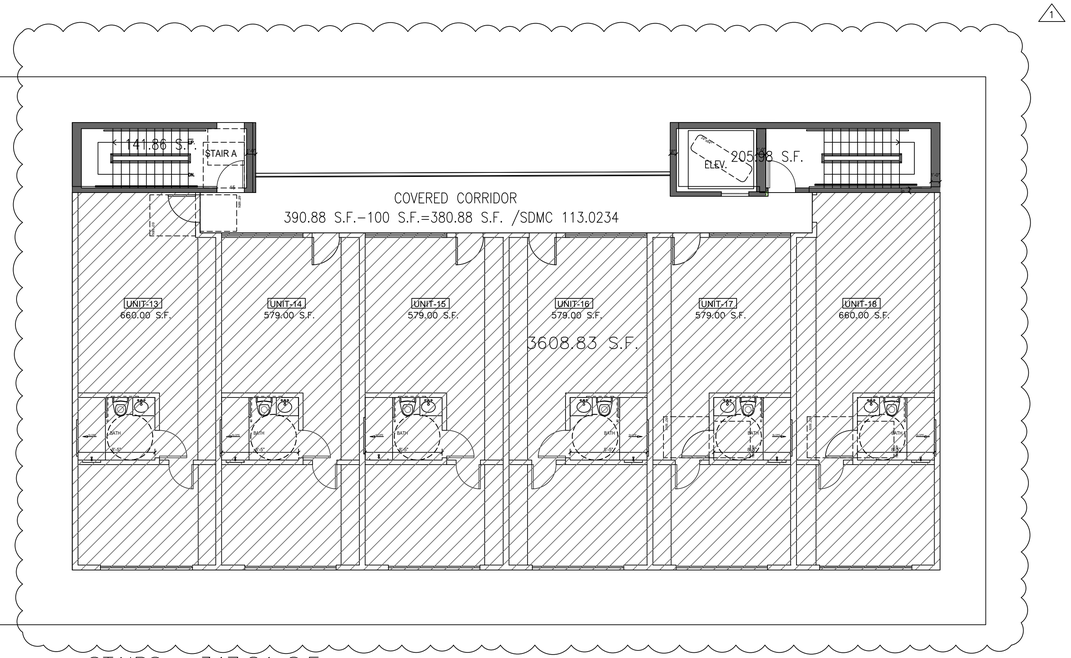


STAIRS =347.84 S.F.

COVERED CORRIDOR = 222.06 S.F. /SDMC 113.0234

(UNITS #7#8#9#11#12)=3,608.83 S.F.

2ND. LEVEL 3,608.83+347.84+222.06=4,178.73 S.F./SDMC 113.0234



STAIRS =347.84 S.F.

COVERED CORRIDOR = 380.88 S.F. /SDMC 113.0234

(UNITS #13#14#15#17#18)=3,608.83 S.F.

3 RD. LEVEL 3,608.83+347.84+380.88=4,337.55 S.F/SDMC 113.0234

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Sheet Title:
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Sheet No.:
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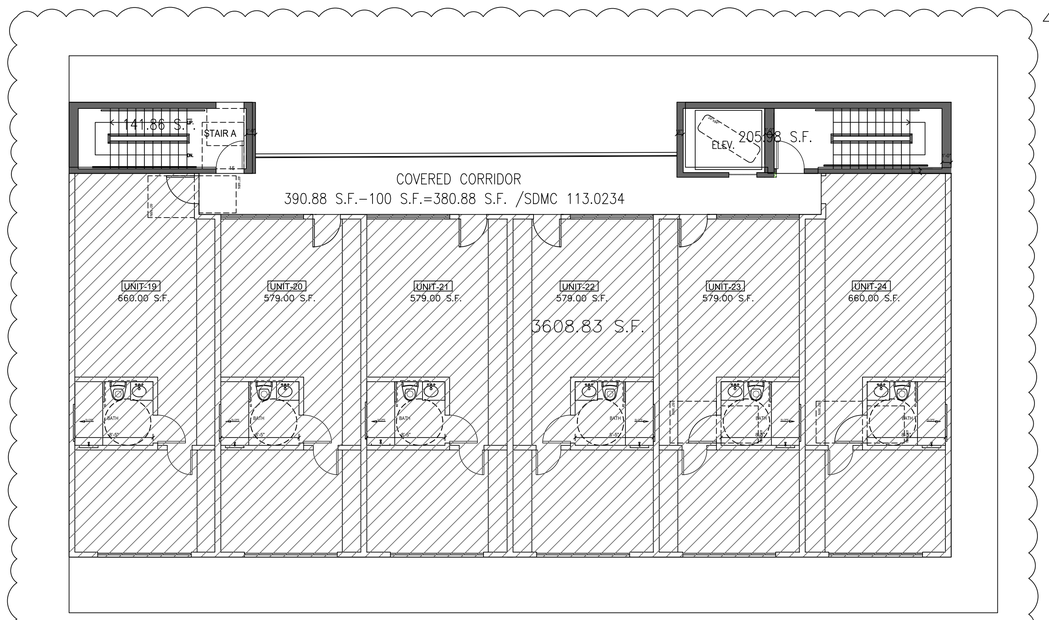

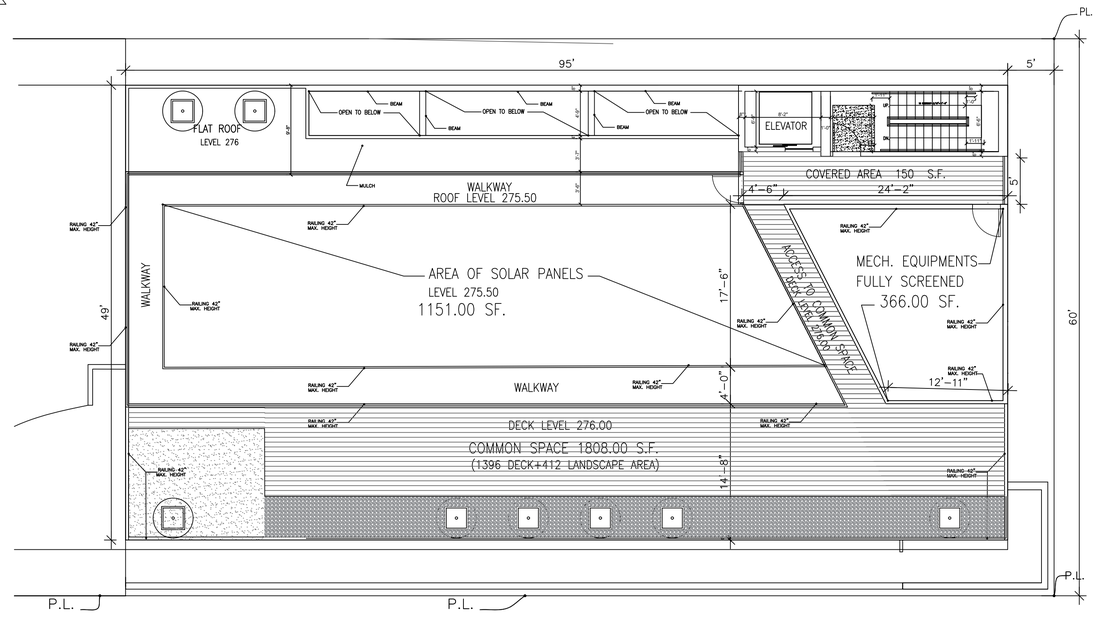

STAIRS = 347.84 S.F.

COVERED CORRIDOR = 380.88 S.F. /SDMC 113.0234

(UNITS #19#20#21#22#23#24)=3,608.83 S.F.

4TH. LEVEL 3,608.83+347.84+380.88=4,337.55 S.F./SDMC 113.0234

STAIR = 205.98 S.F. ~~STAIR~~ = 205.98 S.F.

COVERED CORRIDOR = 150.00 S.F. -150.00 S.F.=0.00 S.F. /SDMC 113.0234

COMMON OPEN SPACE = 1,808.00 S.F.

LANDSCAPE AREA = 6.25 S.F.(PLANTER)X10 = 62.50 S.F.

FAR:	BUILDING /SDMC 113.0234	
BASEMENT	1,732.09 S.F.	
FIRST LEVEL (UNITS 1-2-3)	4,224.64 S.F.	
SECOND LEVEL (UNITS 4-5-6)	4,178.78 S.F.	
THIRD LEVEL (UNITS 7-8-9)	4,337.55 S.F.	
FOURTH LEVEL (UNITS 10-11-12)	4,337.55 S.F.	
TOTAL -	18,810.61 S.F. /SDMC 113.0234	

RM-3-7 Max. F.A.R.: 2.41 proposed utilizing available incentive #3.

TOTAL S.F. BUILDING (GROSS FLOOR AREA) 18,810.61 S.F. / 7800 S.F. LOT AREA =241 ALLOWABLE FAR.

COMMON OPEN SPACE = 1,808.00 S.F.

Project:
3505 WILSHIRE TERRACE
SAN DIEGO, CA. 92104

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Sheet No.:
A6.2

WALL SCHEDULE

TAG	SYMBOL	TYPE	DETAIL	CONSTRUCTION ASSEMBLY	FIRE RATING	STC RATING	APPROVAL NO.	NOTES
A		CONC RETAINING WALL	6"	CONCRETE WALL THICKNESS AS NOTED ON DRAWINGS RATING AS NOTED ON DRAWINGS REFER TO STRUCTURAL DRAWINGS	2 HR		CBC TABLE 721.1 ITEM 4-1.1	REFER TO STRUCTURAL DRAWINGS FOR CONCRETE DETAILS & DIMENSIONS
B1		INTERIOR WALL	4 1/2"	⅝" GYPSUM WALLBOARD 3½" WOOD STUDS @ 16" O.C. ⅝" GYPSUM WALLBOARD	0	N/A	N/A	TYPICAL FOR INTERIOR WALLS
B2		INTERIOR PLUMBING WALL	6"	⅝" WATER RESISTANT GYPSUM WALLBOARD ½" PLYWOOD SHEATHING--WHERE OCCURS, SEE STRUCTURAL) 3½" WOOD STUDS @ 16" O.C. R-13 ACOUSTICAL INSULATION ½" WATER RESISTANT GYPSUM WALLBOARD TILE (WHERE REQUIRED)	0	N/A	N/A	TYPICAL FOR INTERIOR PLUMBING WALLS
B3		INTERIOR BEARING WALL	5 1/2"	⅝" TYPE "X" GYPSUM WALLBOARD ½" PLYWOOD SHEATHING--WHERE OCCURS, SEE STRUCTURAL 3½" WOOD STUDS @ 16" O.C. ⅝" TYPE "X" GYPSUM WALLBOARD	1 HR	NA	CBC TABLE 721.1(2), ITEM 14-1.3	TYPICAL FOR LOAD BEARING INTERIOR WALLS. SEE STRUCTURAL
B4		INTERIOR FURRED WALL	5 1/2"	⅝" GYPSUM WALLBOARD 3½" WOOD STUDS @ 16" O.C. ACOUSTICAL INSULATION	0	N/A	N/A	TYPICAL FOR INTERIOR PLUMBING CHASE
C1		EXTERIOR WALL, CEMENT PLASTER	7 1/2"	¾" CEMENT PLASTER ½" PLYWOOD SHEATHING, WHERE OCCURS, SEE STRUCTURAL ⅝ WOOD STUDS @ 16" O.C. R-19 THERMAL INSULATION TYP. IN CLASS A ONLY ⅝" TYPE "X" GYPSUM WALLBOARD/ TILE WHERE OCCURS	1 HR	N/A	CBC TABLE 721.1(2), ITEM 15--1.3	EXTERIOR WALLS WITH CEMENT PLASTER, ONE--HOUR RATED WHERE HATCHED ON FLOOR PLAN
C2		EXTERIOR WALL, CEMENT PLASTER	11 1/2"	2 LAYERS 5/8" THICK GYPSUM BOARD (UL TYPE SCX™) 1/2" 25 GA. RESILIENT CHANNEL SPACED 24" O.C. (SOUND TESTED WITH RC DELUXE®) 2X6 WOOD STUDS, 16" O.C. 3--1/2" BATT INSULATION IN CAVITY 2 LAYERS 5/8" THICK GYPSUM BOARD (UL TYPE SCX™)	2 HR	54 STC	UL U301 (SIMILAR)	TYPICAL FOR 2 HOUR EXTERIOR WALLS
D1		PARTY WALL	7 1/2"	⅝" TYPE 'X' GYPSUM WALLBOARD -- ⅝" CEMENT PLASTER WHERE OCCURS ½" PLYWOOD SHEATHING-- WHERE OCCURS, SEE STRUCTURAL 3½" WOOD STUDS @ 24" O.C., STAGGERED 12" O.C. ON 5½"PLATE R--13 ACOUSTICAL BATT INSULATION ½" RESILIENT CHANNEL ⅝" TYPE 'X' GYPSUM WALLBOARD-- ⅝" CEMENT PLASTER WHERE OCCURS	1 HR	50 STC	UL U340 (SIMILAR)	TYPICAL FOR PARTY WALLS
D2		PARTY WALL (PLUMBING ONE SIDE)	9"	⅝" TYPE 'X' GYPSUM WALLBOARD ½" PLYWOOD SHEATHING-- WHERE OCCURS, SEE STRUCTURAL 3½" WOOD STUDS @ 16" O.C. ON 3 ½" PLATE R--13 ACOUSTICAL INSULATION 3½" WOOD STUDS PLUMB. CHASE @ 24" O.C. ON 3½" PLATE ½" RESILIENT CHANNEL ⅝" TYPE 'X' WATER RESISTANT GYPSUM WALLBOARD TILE (WHERE REQUIRED)	1 HR	50 STC	UL U340 (SIMILAR)	TYPICAL FOR PARTY WALLS WITH PLUMBING ON ONE SIDE
D3		PARTY WALL	10"	2x⅝" TYPE 'X' GYPSUM WALLBOARD ½" PLYWOOD SHEATHING-- WHERE OCCURS, SEE STRUCTURAL 3½" WOOD STUDS @ 16" O.C. ON 3 ½" PLATE R--13 ACOUSTICAL INSULATION ½" RESILIENT CHANNEL 2x⅝" TYPE 'X' WATER RESISTANT GYPSUM WALLBOARD TILE (WHERE REQUIRED)	2 HR	50--54 STC	GA--WP--3910	TYPICAL FOR 2 HOUR RATED PARTY WALLS
E1		EXTERIOR SHAFT WALL	6 5/8"	¾" CEMENT PLASTER ½" FIRE SHIELD GYPSUM SHEATHING ½" PLYWOOD SHEATHING--WHERE OCCURS 3½" WOOD STUDS @ 16" O.C. ON 3 ½" PLATE 2 LAYERS ⅝" TYPE "X" GYPSUM WALLBOARD	2 HR	N/A	GA FILE # WP 8417 UL# U371	TYPICAL FOR ELEV. & STAIR SHAFTS @ EXTERIOR SIDE, FIRE BLOCK @ EVERY 10 FT.
E2		INTERIOR SHAFT WALL	6 5/8"	2 LAYERS ⅝" TYPE "X" GYPSUM WALLBOARD ½" PLYWOOD SHEATHING--WHERE OCCURS SEE STRUCTURAL 3 1/2" WOOD STUDS @ 16" O.C. R--13 ACOUSTICAL BATT INSULATION 2 LAYERS ⅝" TYPE "X" GYPSUM WALLBOARD	2 HR	50 STC	CBC TABLE 721.1(2), ITEM 14--1.5	TYPICAL FOR ELEV. & STAIR SHAFTS @ INTERIOR SIDE, FIRE BLOCK @ EVERY 10 FT.
E3		INTERIOR SHAFT WALL (PLUMBING)	10"	2 LAYERS ⅝" TYPE "X" GYPSUM WALLBOARD 3 1/2" WOOD STUDS PLUMB. CHASE @ 24" O.C. ½" PLYWOOD SHEATHING--WHERE OCCURS SEE STRUCTURAL 3 1/2" WOOD STUDS @ 16" O.C. R--13 ACOUSTICAL INSULATION 2 LAYERS ⅝" TYPE "X" GYPSUM WALLBOARD	2 HR	50 STC	CBC TABLE 721.1(2), ITEM 14--1.5	TYPICAL FOR ELEV. & STAIR SHAFTS @ INTERIOR SIDE, FIRE BLOCK @ EVERY 10 FT.

NOTES: (APPLICABLE TO ALL DETAILS SHOWN ON THIS SHEET)

FIRE BLOCKING MUST BE PROVIDED IN ACCORDANCE WITH SECTION 708.2.1 IN THE FOLLOWING LOCATIONS:

A. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AT THE CEILING AND FLOOR LEVELS.

B. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AT 10--FOOT INTERVALS ALONG THE LENGTH OF THE WALL.

C. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVERED CEILINGS.

D. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN AND BETWEEN STUDS ALONG AND IN LINE WITH THE RUN OF STAIRS IF THE WALL UNDER THE STAIRS IS UNFINISHED.

E. IN OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS, FIREPLACES AND SIMILAR OPENINGS WHICH AFFORD A PASSAGE FOR FIRE AT CEILING AND FLOOR LEVELS, WITH NONCOMBUSTIBLE MATERIALS.

1-- WHERE DRAFT STOPPING IS REQUIRED ACROSS THE STUDS, THE DRAFT STOPPING SHALL BE MINERAL WOOL OR FIBERGLASS BATT INSULATION STAPLED TO THE STUDS. NO MATERIAL, LIKE GYPSUM BOARD, WILL BE ACCEPTED.

2-- NO MATERIALS SHALL BE ALLOWED IN THE AIR SPACE BETWEEN THE 2 STUDS, STUD PLATED, ETC.

3--ALL INTERIOR FINISHES SHALL COMPLY WITH CBC 803.

4-- NO GAPS OR OPENINGS SHALL BE ALLOWED IN THE RESILIENT MATTING. JOINTS SHALL BE TAPED OR SEALED TO THE SATISFACTION OF THE ACOUSTICAL CONSULTANT. A LETTER FROM THE MANUFACTURER OF THE RESILIENT MATTING SHOULD BE REQUIRED STATING THAT THE INSTALLATION OF THE MATTING CONFORMS TO THEIR STANDARDS.

5-- THERE SHALL BE NO CONTACT BETWEEN ANY PENETRATIONS, LIGHT CANS, DUCT RUNS, EXHAUST, ETC. AND THE CEILING (ANY LAYER OF MATERIAL). GYPSUM BOARD RECESSED BOXES MUST NOT BE IN CONTACT WITH CEILING GYPSUM BOARD.

Atlas BLOCK — concrete masonry technology

NATIONAL CONCRETE MASONRY ASSOCIATION
Sustainable Concrete Products for Structures and Hardscapes

SOUND TRANSMISSION CLASS RATINGS FOR CONCRETE MASONRY WALLS

TEK 13-1C
Sound (2012)

INTRODUCTION

Unwanted noise can be a major distraction, whether at school, work or home. Concrete masonry walls are often used for their ability to isolate and dissipate noise. Concrete masonry offers excellent noise control in two ways. First, it effectively blocks airborne sound transmission over a wide range of frequencies. Second, concrete masonry effectively absorbs noise, thereby diminishing noise intensity. Because of these abilities, concrete masonry has been used successfully in applications ranging from party walls to hotel separation walls, and even highway sound barriers.

Sound is caused by vibrations transmitted through air or other mediums, and is characterized by its frequency and intensity. Frequency (the number of vibrations or cycles per second) is measured in hertz (Hz). Intensity is measured in decibels (dB), a relative logarithmic intensity scale. For each 20 dB increase in sound there is a corresponding tenfold increase in pressure.

This logarithmic scale is particularly appropriate for sound because the perception of sound by the human ear is also logarithmic. For example, a 10 dB sound level increase is perceived by the ear as a doubling of the loudness.

The speed of sound through a particular medium, such as a party wall, depends on both the density and stiffness of the medium. All solid materials have a natural frequency of vibration. If the natural frequency of a solid is at or near the frequency of the sound which strikes it, the solid will vibrate in sympathy with the sound, which will be regenerated on the opposite side. The effect is especially noticeable in walls or partitions that are light, thin or flexible. Conversely, the vibration is effectively stopped if the partition is heavy and rigid, as is the case with concrete masonry walls. In this case, the natural frequency of vibration is relatively low, so only sounds of low frequency will cause sympathetic vibration. Because of its mass (and resulting inertia) and rigidity, concrete masonry is especially effective at reducing sound transmission.

DETERMINING SOUND TRANSMISSION CLASS (*STC*) FOR CONCRETE MASONRY

Sound transmission class (*STC*) provides an estimate of the acoustic performance of a wall in certain common airborne sound insulation applications.

The *STC* of a wall is determined by comparing sound transmission loss (*STL*) values at various frequencies to a standard contour. *STL* is the decrease or attenuation in sound energy, in dB, of airborne sound as it passes through a wall. In general, the *STL* of a concrete masonry wall increases with increasing frequency of the sound.

Many sound transmission loss tests have been performed on various concrete masonry walls. These tests have indicated a direct relationship between wall weight and the resulting *STC*—heavier concrete masonry walls have higher *STC* ratings. A wide variety of *STC* ratings is available with concrete masonry construction, depending on wall weight, wall construction and finishes.

In the absence of test data, standard calculation methods exist, which tend to be conservative. *Standard Method for Determining Sound Transmission Ratings for Masonry Walls*, TMS 0302 (ref. 1), contains procedures for determining *STC* values of concrete masonry walls. According to the standard, *STC* can be determined by field or laboratory testing in accordance with standard test methods or by calculation. The calculation in TMS 0302 is based on a best-fit relationship between concrete masonry wall weight and *STC* based on a wide range of test results:

$$STC = 20.5W^{0.234} \quad \text{Eqn. 1}$$

[SI: $STC = 14.1W^{0.234}$]

Equation 1 is applicable to uncoated fine- or medium-textured concrete masonry and to coated coarse-textured concrete masonry. Because coarse-textured units may allow airborne sound to enter the wall, they require a surface treatment to seal at least one side of the wall. At least one coat of acrylic latex, alkyd or cement-based paint, or plaster are specifically called out in TMS 0302, although other coatings that effectively seal the surface are also acceptable. One example is a layer of drywall with sealed penetrations, as shown in Figure 2. Architectural concrete masonry units are considered sealed without surface treatment for the purposes of using Equation 1.

Equation 1 also assumes the following:

1. walls have a thickness of 3 in. (76 mm) or greater,
2. hollow units are laid with face shell mortar bedding, with mortar joints the full thickness of the face shell,
3. solid units are fully mortar bedded, and
4. all holes, cracks and voids in the masonry that are intended to be filled with mortar are solidly filled.

Calculated values of *STC* are listed in Table 1.

Because the best-fit equation is based solely on wall weight, the calculation tends to underestimate the STC of masonry walls that incorporate dead air spaces, which contribute to sound attenuation. See the following section for the effect of drywall with furring spaces on STC.

For multi-wythe walls where both wythes are concrete masonry, the weight of both wythes is used in Equation 1 to determine *STC*. For multi-wythe walls having both concrete masonry and clay brick wythes, however, a different procedure must be used, because concrete and clay masonry have different acoustical properties. In this case, Equation 2, representing a best-fit relationship for clay masonry, must also be used. To determine a single *STC* for the wall system, first calculate the *STC* using both Equations 1 and 2, based on the combined weight of both wythes, then linearly interpolate between the two resulting *STC* ratings based on the relative weights of the wythes. Equation 2 is the *STC* equation for clay masonry (ref. 1):

$$STC = 19.6W^{0.230} \quad \text{Eqn. 2}$$

[SI: $STC = 13.6W^{0.230}$]

For example, consider a masonry cavity wall with an 8-in. (203-mm) concrete masonry backup wythe ($W = 33$ psf, 161 kg/m^2) and a 4-in. (102-mm) clay brick veneer ($W = 38$ psf, 186 kg/m^2).

STC (Eqn. 1) = $20.5(33 + 38)^{0.234} = 55$
STC (Eqn. 2) = $19.6(33 + 38)^{0.230} = 52$
Interpolating:
STC = $55(33/71) + 52(38/71) = 53$

When *STC* tests are performed, the TMS 0302 requires the testing to be in accordance with ASTM E90, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements* (ref. 2) for laboratory testing or ASTM E413, *Standard Classification for Rating Sound Insulation* (ref. 3) for field testing.

CONTRIBUTION OF DRYWALL

Drywall attached directly to the surface of a concrete masonry wall has very little effect on sound attenuation other than the same benefit as sealing the surface. Adding ½ or ⅝ in. (13 or 16 mm) gypsum wall board to one side of the wall with an unfilled furring space will generally result in a slight increase in *STC*. However, when placed on both sides of the wall with a furring space of less than 0.8 in. (19 mm) a reduction in *STC* is realized due to mass-air-mass resonance similar to the action of drum. Better results are realized when the furring space is filled with sound insulation. Sound insulation consists of fibrous materials, such as cellulose fiber, glass fiber or rock wool insulation, are good materials for absorbing sound; closed-cell materials, such as expanded polystyrene, are not, as they do not

Table 1—Calculated *STC* Ratings for Concrete Masonry Walls (ref. 1)

Nominal unit thickness, in. (mm)	Density, pcf (kg/m^3)	*STC*[A]			
		Hollow unit	Grout-filled unit	Sand-filled unit	Solid unit
4 (102)	85 (1,362)	40	45[B]	44	44
	95 (1,522)	41	46[B]	44	45
	105 (1,682)	42	46[B]	45	46
	115 (1,842)	43	47[B]	46	46
	125 (2,002)	44	48[B]	46	47
	135 (2,162)	45	48[B]	47	48
6 (152)	85 (1,362)	42	51	48	48
	95 (1,522)	43	51	49	49
	105 (1,682)	44	52	50	50
	115 (1,842)	45	52	50	51
	125 (2,002)	45	53	51	52
	135 (2,162)	46	53	51	53
8 (203)	85 (1,362)	44	55	52	52
	95 (1,522)	45	55	52	53
	105 (1,682)	46	56	53	54
	115 (1,842)	47	56	54	55
	125 (2,002)	48	57	54	56
	135 (2,162)	49	57	55	57
10 (254)	85 (1,362)	46	58	55	55
	95 (1,522)	48	58	55	56
	105 (1,682)	49	59	56	57
	115 (1,842)	50	59	57	58
	125 (2,002)	50	60	57	59
	135 (2,162)	51	60	58	60
12 (305)	85 (1,362)	48	61	57	57
	95 (1,522)	49	61	58	58
	105 (1,682)	50	62	58	60
	115 (1,842)	51	62	59	61
	125 (2,002)	52	63	60	62
	135 (2,162)	53	63	60	63

[A] Based on: grout density of 140 lb/ft^3 (2,243 kg/m^3); mortar density of 130 lb/ft^3 (2,082 kg/m^3) sand density of 90 lb/ft^3 (1,442 kg/m^3); unit percentage solid from mold manufacturer's literature for typical units (4-in. (100-mm) 73.8% solid, 6-in. (150-mm) 55.0% solid, 8-in. (200-mm) 53.0% solid, 10-in. (250-mm) 51.7% solid, 12-in. (300-mm) 48.7% solid). Other unit configurations may have different *STC* values. *STC* values for grout-filled and sand-filled units assume the fill materials completely occupy all voids in and around the units. *STC* values for solid units are based on all mortar joints solidly filled with mortar.
[B] Because of small core size and the resulting difficulty consolidating grout, these units are rarely grouted.

Related TEK:
13-2A

Keywords: : acoustics, noise control, sound insulation, sound transmission class, sound transmission loss, *STC*, *STL*, testing

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