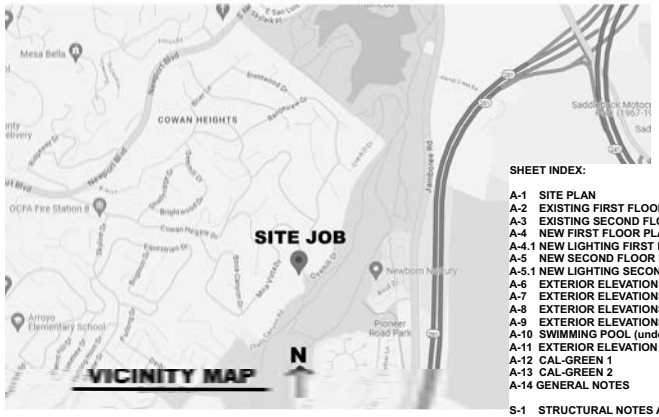
OC PublicWorks

NPDES Notes

1. In the case of emergency, call **SHELLA MANALANG** at Work Phone # or Home Phone # **(562) 728-7577**
2. Sediment from areas disturbed by construction shall be retained on site using structural controls to the maximum extent practicable.
3. Stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
4. Appropriate BMP's for construction-related materials, wastes, spills shall be implemented to minimize transport from the site to streets, drainage facilities, or adjoining properties by wind or runoff.
5. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to reduce or remove sediment and other pollutants.
6. All construction contractor and subcontractor personnel are to be made aware or the required best management practices and good housekeeping measures for the project site and any associated construction staging areas.
7. At the end of each day of construction activity all construction debris and waste materials shall be collected and properly disposed in trash or recycle bins.
8. Construction sites shall be maintained in such a condition that an anticipated storm does not carry wastes or pollutants off the site. Discharges of material other than stormwater only when necessary for performance and completion of construction practices and where they do not: cause or contribute to a violation of any water quality standard; cause or threaten to cause pollution, contamination, or nuisance; or contain a hazardous substance in a quantity reportable under Federal Regulations 40 CFR Parts 117 and 302.
9. Potential pollutants include but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, glues, limes, pesticides, herbicides, wood preservatives and solvents; asbestos fibers, paint flakes or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator or battery fluids; fertilizers, vehicle/equipment wash water and concrete wash water; concrete, detergent or floatable wastes; wastes from any engine/equipment steam cleaning or chemical degreasing and super chlorinated potable water line flushing. During construction, permittee shall dispose of such materials in a specified and controlled temporary area on-site, physically separated from potential stormwater runoff, with ultimate disposal in accordance with local, state and federal requirements.
10. Dewatering of contaminated groundwater, or discharging contaminated soils via surface erosion is prohibited. Dewatering of non-contaminated groundwater requires a National Pollutant Discharge Elimination System Permit from the respective State Regional Water Quality Control Board.
11. Graded areas on the perimeter must drain away from the face of slopes at the conclusion of each working day. Drainage is to be directed toward desilting facilities.
12. The permittee and contractor shall be responsible and shall take necessary precautions to prevent public trespass into areas where impounded water creates a hazardous condition.
13. The permittee and contractor shall inspect the erosion control work and insure that the work is in accordance with the approved plans.
14. The permittee shall notify all general contractors, subcontractors, material suppliers, lessees, and property owners that dumping of chemicals into the storm drain system or the watershed is prohibited.
15. Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available on site and stockpiled at convenient locations to facilitate rapid construction of temporary devices when rain is imminent.
16. All removable erosion protective devices shall be in place at the end of each working day when the 5-Day Rain Probability Forecast exceeds 40%.
17. Sediments from areas disturbed by construction shall be retained on site using an effective combination of erosion and sediment controls to the maximum extent practicable, and stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
18. Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented and retained on site to minimize transport from the site to streets, drainage facilities, or adjoining property by wind or runoff.

300 N. Flower Street, Santa Ana, CA 92703
P.O. Box 4048, Santa Ana, CA 92702-4048
Revised 02/2017

www.ocpublicworks.com
P: 714.667.8888 F: 714.667.7575
ocpCustomerCare@ocpw.ocgov.com



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T-2 CERTIFICATE OF COMPLIANCE
T-3 MANDATORY MEASURES

NOTES:

1. THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5 FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, OR OBTAIN PERMIT FROM STATE OF CALIFORNIA, DIVISION OF OCCUPATIONAL SAFETY AND HEALTH (CAL/OSHA). THIS PERMIT AND ANY OTHER SAFETY PERMIT SHALL BE OBTAINED PRIOR TO COMMENCE OF ANY WORK AND CONTACT CAL/OSHA AT (714) 558-4451 FOR ADDITIONAL INFORMATION.
2. FOR SITE DRAINAGE PLAN AND EROSION CONTROL, SEE GRADING PLANS.
3. PROVIDE 5 FEET HIGH FENCE POOL ENCLOSURE WITH SELF-CLOSING GATE AND SELF- LATCHING HARDWARE.

THIS PROJECT TO COMPLY WITH THE FOLLOWING CODES.
2022 CALIFORNIA:
RESIDENTIAL (CRC), BUILDING (CBC), ELECTRICAL (CEC), PLUMBING (CPC), MECHANICAL (CMC), ENERGY STANDARDS (CESC), GREEN BUILDING STANDARDS (CGBC), CALIFORNIA FIRE CODE AND ASCE 7-16. CODES WITH LOCAL AMENDMENTS

BUILDING DATA:

APN 503-541-04
LEGAL DESCRIPTION: N-TR 5369, LOT 35
OCCUPANCY R-3/U
CONSTRUCTION TYPE V-B

LOT SIZE: +/- 25,000 sq.ft. (0.5739 ACRES)
EXISTING TWO-STORY RESIDENCE 6,868 SQ.FT.
(FIRST FLOOR 3,129 S.F. + SECOND FLOOR 3,739 S.F.)

BUILDING BUILT 1989
FIRE SPRINKLERS PROVIDED (YES) AND FOR NEW ADDITION.

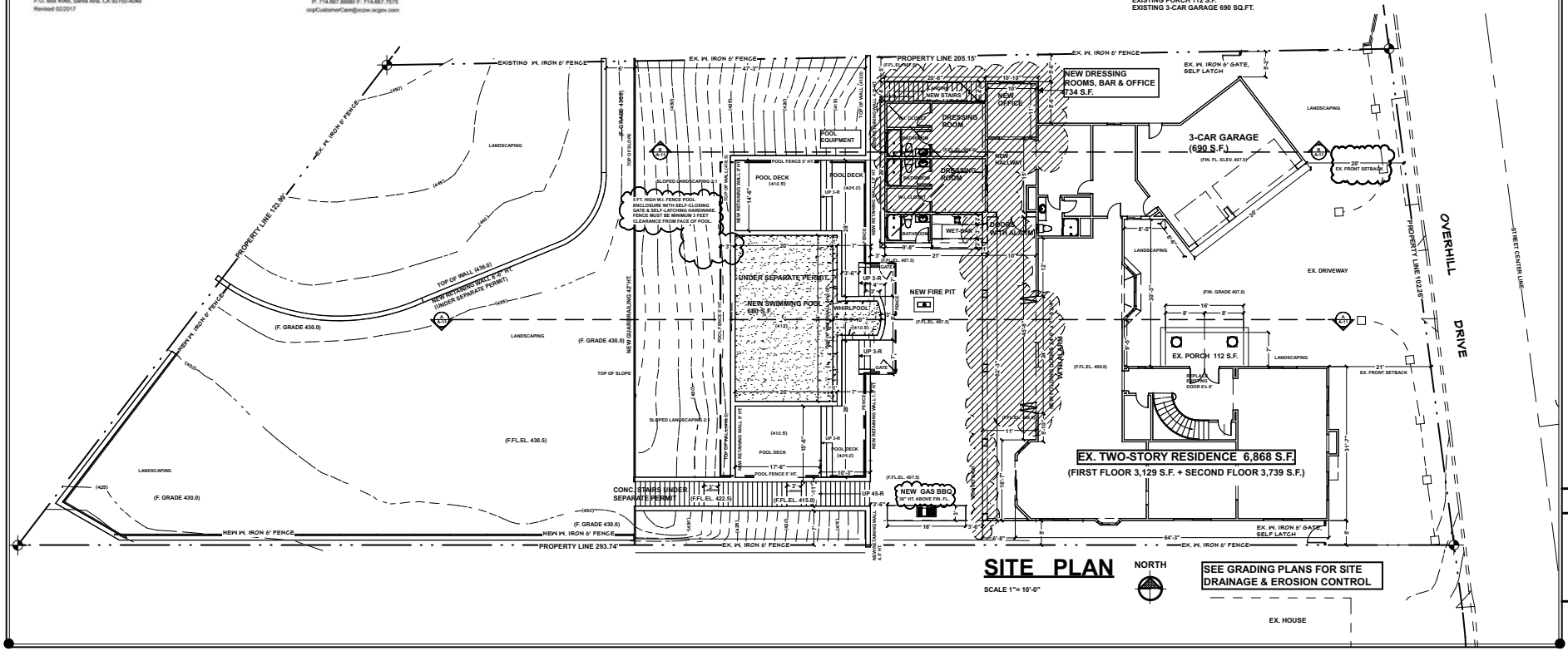
EXISTING PORCH 112 S.F.
EXISTING 3-CAR GARAGE 690 SQ.FT.

RELATED PERMITS:
BLD22-1968 for addition and interior remodel.
ELE22-1588 for electrical work.
MEC24-1028 for mechanical work.
PLB24-1291 for plumbing work.
DMO25-xxxx for demo patio (req'd to apply demo permit).

SCOPE OF WORK:
1. DEMO:
   Remove two existing balcony & bldg (169 sf.) at bedroom #1
   Remove existing patio (760 s.f.) at proposed new dressing & bathro
   Remove windows & walls see sheet AS-2 & A-3.
2. ADDITION:
   New dressing & bathroom 734. S.F.
   New covered patio & use as deck on top of patio.

LOT COVERAGE 6,123 S.F. / 25,000 S.F. = 24.5%

SEPARATE PERMITS:
SWIMMING POOL WITH POOL ENCLOSURE
EXTERIOR CONCRETE STAIRS
EXTERIOR HANDRAIL / GUARDRAIL
GRADING AND DRAINAGE
LANDSCAPING
GAS BBQ
FIRE PIT



SITE PLAN

SCALE 1"= 10'-0"

NORTH

SEE GRADING PLANS FOR SITE DRAINAGE & EROSION CONTROL

SEGORO ASSOCIATES
A.I.A. FIRST INTL. ITL. 101 RIVERSIDE, CA 92506 (951) 686-5455
SEGOROARCHITECTS@GS.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

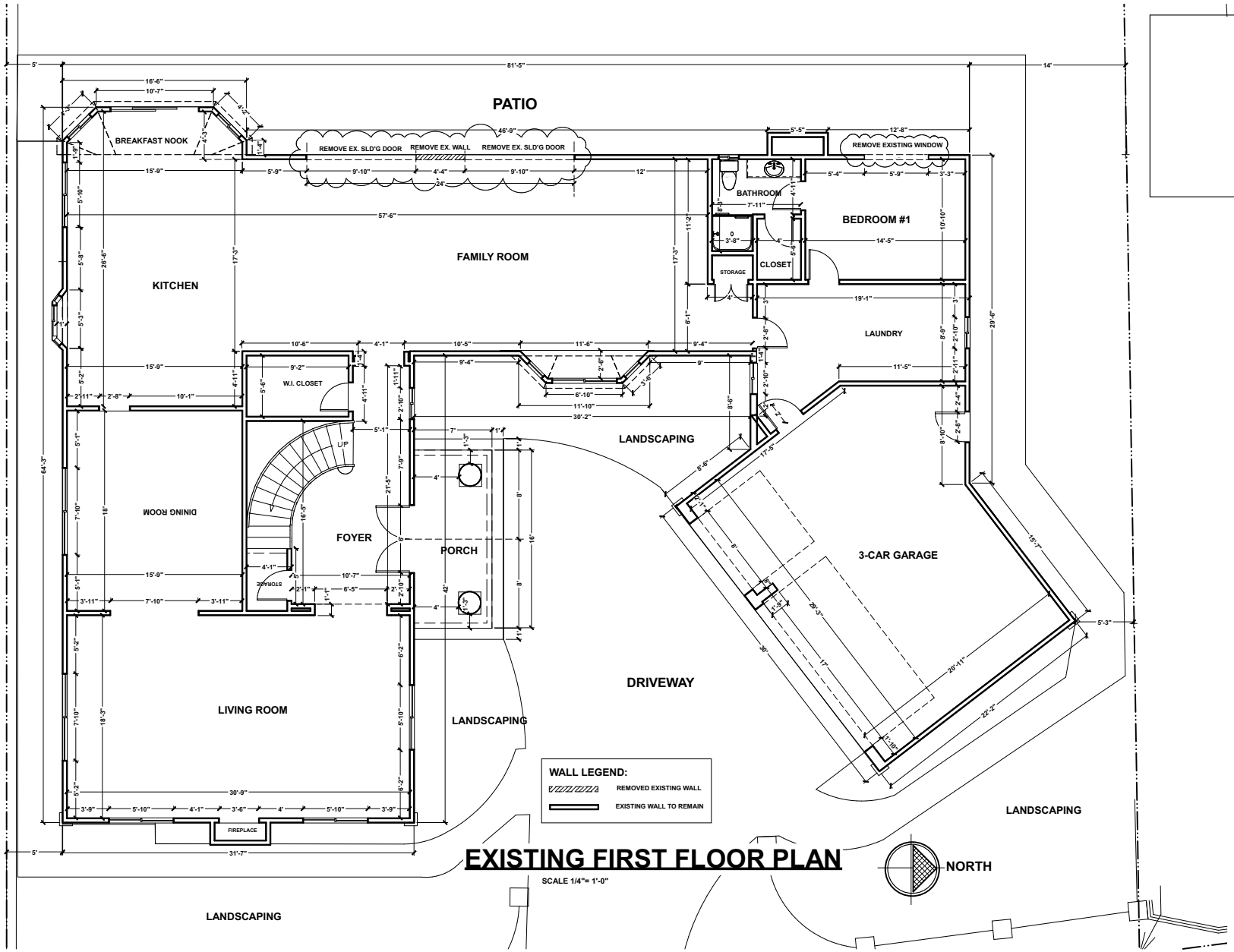
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

SITE PLAN

revisions:

DATE: 8/28/2025

SHEET #
A-1



EXISTING FIRST FLOOR PLAN

SCALE 1/4"= 1'-0"

EGORO ASSOCIATES
9.A. FIRST AVE., STE. 101 RIVERSIDE, CA 91109 (951) 359-5455
INFO@EGOROARCHITECTS.COM

Project #81921

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

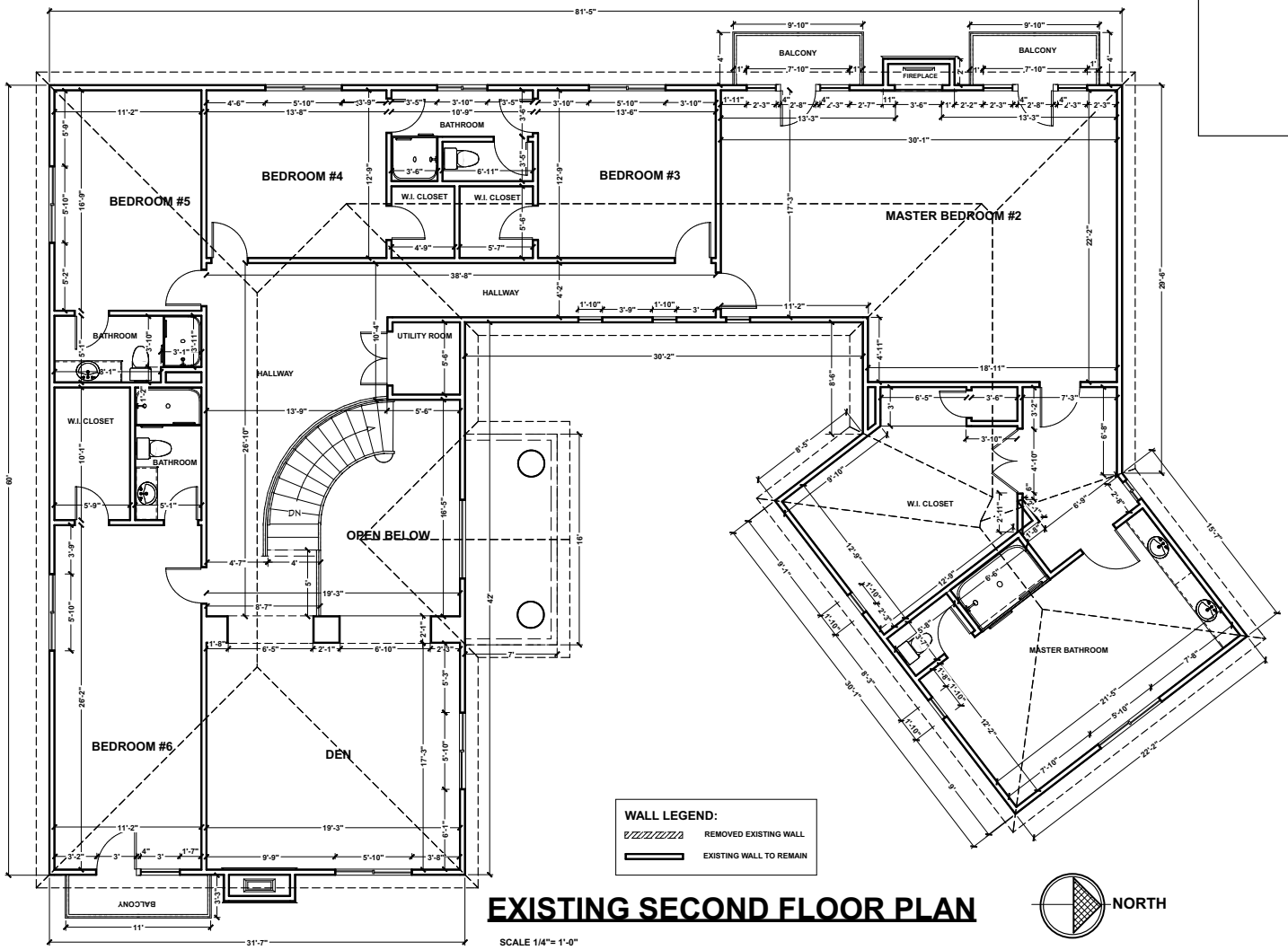
PROJECT:
EXISTING FIRST FLOOR PLAN
10201 OVERHILL DR., N. TUSTIN, CA 92705

EX. FIRST FLOOR PLAN

revisions:

DATE: 5/01/2025

SHEET #
A-2



EXISTING SECOND FLOOR PLAN

SCALE 1/4"= 1'-0"

SEGORO ASSOCIATES
A.A. FIRST, INC. STE. 101 RIVERSIDE, CA 92506 (951) 686-1455
INFO@SEGOROARCHITECTS.COM

Project #81921

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

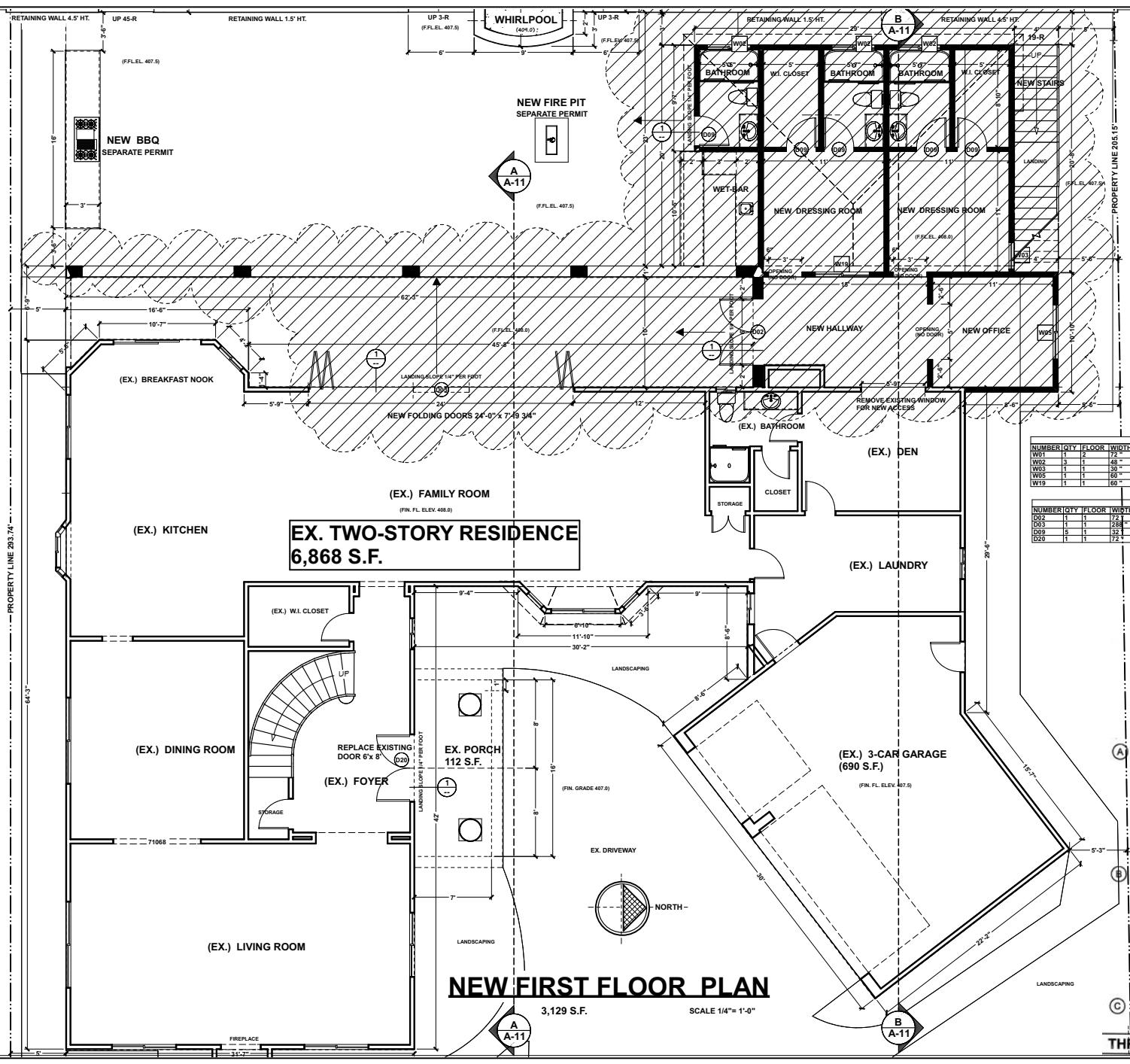
PROJECT:
EXISTING SECOND FLOOR PLAN
10201 OVERHILL DR., N. TUSTIN, CA 92705

EX. SECOND FLOOR PLAN

revisions:

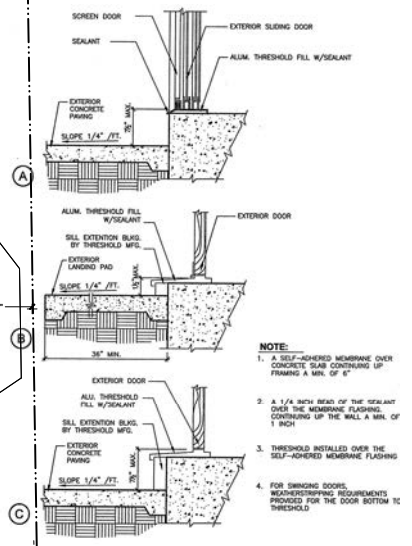
DATE: 5/01/2025

SHEET #
A-3



WINDOW SCHEDULE									
NUMBER	QTY	FLOOR	WIDTH	HEIGHT	EGRESS	DESCRIPTION	SHGC	U-FACTOR	TEMPERED
W01	1	2	72 "	48 "		LEFT SLIDING	0.3	0.3	YES
W02	3	1	48 "	18 "		LEFT SLIDING	0.3	0.3	YES
W03	1	1	30 "	54 "	YES	SINGLE CASEMENT-HL	0.3	0.3	
W05	1	1	60 "	54 "	YES	LEFT SLIDING	0.3	0.3	
W19	1	1	60 "	48 "	YES	LEFT SLIDING	0.3	0.3	

DOOR SCHEDULE									
NUMBER	QTY	FLOOR	WIDTH	HEIGHT	DESCRIPTION	SHGC	U-FACTOR	TEMPERED	COMM
D02	1	1	72 "	80 "	DOUBLE HINGED-GLASS PANEL	0.3	0.3	YES	WITH
D03	1	1	288 "	96 "	4+3 DR. BIFOLD-GLASS PANEL	0.3	0.3	YES	WITH
D09	5	1	32 "	80 "	HINGED-DOOR P04	0.3	0.3		
D20	1	1	72 "	96 "	DOUBLE HINGED-SCROLL DOOR 06	0.3	0.3		



NOTE:

1. A SELF-ADHERED MEMBRANE OVER CONCRETE SLAB CONTINUING UP FRAMING A MIN. OF 6"
2. A 1/4 INCH BEAD OF THE SEALANT OVER THE MEMBRANE FLASHING, CONTINUING UP THE WALL A MIN. OF 1 INCH
3. THRESHOLD INSTALLED OVER THE SELF-ADHERED MEMBRANE FLASHING
4. FOR SWINGING DOORS, WEATHERSTRIPPING REQUIREMENTS PROVIDED FOR THE DOOR BOTTOM TO THRESHOLD

THRESHOLD (DOOR THRESHOLD OVER CONCRETE WITHOUT A PAN FLASHING) 1

SEGORO ASSOCIATES
A.I.A. FIRST INTL. ITL. 101 MESQUITA, CA 91939 (619) 336-1455
SEGOROARCHITECTS@O1.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

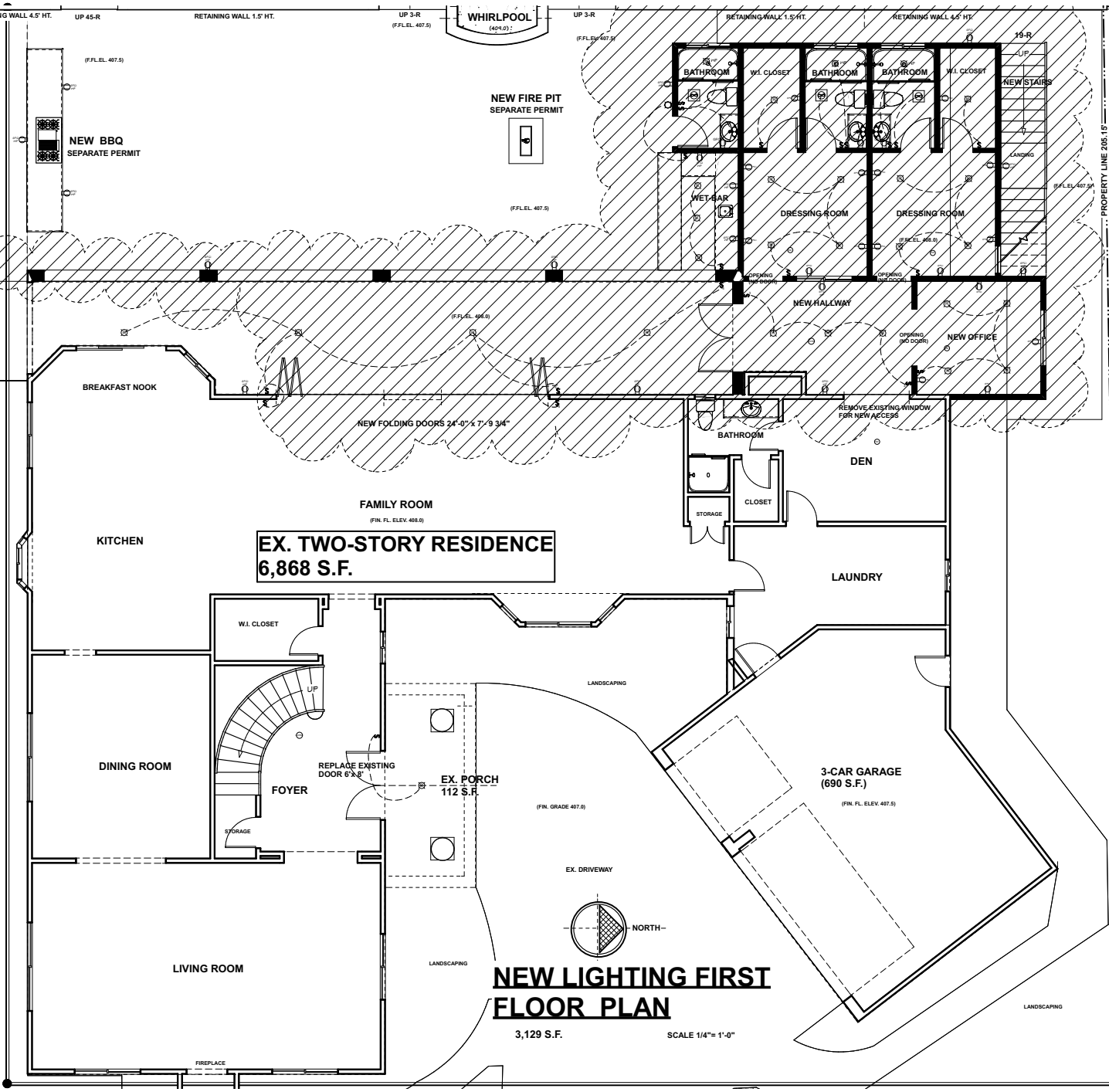
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

NEW FIRST FLOOR PLAN

revisions:

DATE: 8/28/2025

SHEET #
A-4



NEW LIGHTING FIRST FLOOR PLAN

3,129 S.F.

SCALE 1/4"= 1'-0"

NOTES:

01 ALL INSTALLED LUMINARIES SHALL BE HIGH EFFICIENCY FIXTURES. (CEnC 150.0 (k) 1.A)

02 EXHAUST FAN CONTROLLED BY HUMIDSTAT, 50 CFM. FOR INTERMITTENT VENTILATION AND 25 CFM FOR CONTINUOUS VENTILATION.

03 SMOKE ALARMS & CARBON MONOXIDE ALARMS HARD-WIRED, SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING, SHALL BE EQUIPPED WITH A BATTERY BACKUP AND INTERCONNECTED. INSTALLED PER CRC R314 & CRC R315.

04 ALL LIGHTING SHALL BE HIGH EFFICIENCY FIXTURES. BATHROOMS, CLOSETS, GARAGES, UTILITY ROOMS AND LAUNDRY ROOMS SHALL BE CONTROLLED WITH A VACANCY SENSORS. ALL OTHER ROOMS REQUIRE A VACANCY SENSOR OR DIMMER.

05 IN HABITABLE ROOMS AND HALLWAYS ALL LIGHTING SHALL BE HIGH EFFICACY LUMINAIRE OR SHALL BE CONTROLLED BY EITHER DIMMERS OR VACANCY SENSORS.

06 OUTDOOR LIGHTING ATTACHED TO THE BUILDING SHALL BE HIGH EFFICACY LUMINAIRE OR SHALL BE CONTROLLED BY A MANUAL ON and OFF SWITCH AND BY A MOTION SENSOR WITH INTEGRAL PHOTO CONTROL.

07 ALL RECEPTABLE OUTLETS SHALL BE LISTED TAMPER-RESISTANT RECEPTABLE.

08 BATHROOM AND LAUNDRY AREAS RECEPTABLES OUTLETS SHALL BE SERVED BY A DEDICATED 20 AMP CIRCUIT.(210.11 (2 & 3) CEC).

09 EXISTING NONCOMPLIANT PLUMBING FIXTURES SHALL BE REPLACED WITH WATER-CONSERVING PLUMBING FIXTURES FOR A RESIDENTIAL BUILDING UNDERGOING ADDITION OR ALTERATION.

10 FOR THE THANKLESS WATER HEATER, PROVIDE GAS SUPPLY LINE WITH A MINIMUM CAPACITY OF 200,000 BTU's , 120v OUTLET WITHIN 3 FEET AND ACCESSIBLE TO THE WATER HEATER AND CONDENSATE LINE THET IS NOT MORE THAN 2 INCHES HIGHER THAN THE BASE OF THE WATER HEATER AND ALOWS NATURAL DRAINING WITHOUT PUMP ASSISTANCE.

11 GFCI OUTLETS AT REMODELED KITCHEN COUNTER SHALL BE 24" o.c. FROM ANY POINT ON THE COUNTER AND LOCATED 12" ABOVE COUNTERTOP.

12 ALL 120-VOLT, SINGLE PHASE, 15 AND 20 AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNITS (INCLUDING CLOSETS AND HALLWAYS) SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRAND CIRCUIT. (CEC 210.12(B))

ELECTRICAL LEGEND:

- ARC1 WALL MOUNT OUTLET W/ARC FAULT INTERRUPTER
- GFCI WALL MOUNT OUTLET W/GROUND FAULT INTERRUPTER
- WP GFCI EXTERIOR WALL MOUNT OUTLET W/GROUND FAULT INTERRUPTER AND WATER PROOF
- SWITCH
- 3 3-WAY SWITCH
- 4" RECESSED CL'G. LIGHT LED FIXTURE
- W.P. 4" RECESSED CL'G. LIGHT LED FIXTURE W/ WATER PROOF
- SURFACE WALL LIGHT LED FIXTURE
- SURFACE WALL LIGHT LED FIXTURE @ VANITY
- SD SMOKE DETECTOR
- CO CO/ SMOKE DETECTOR
- EF EXHAUST FAN CONTROLLED BY HUMIDSTAT, 50 CFM. FOR INTERMITTENT VENTILATION AND 25 CFM FOR CONTINUOUS VENTILATION.

SEGORO ASSOCIATES
A.J. FIRST AVE., STE. 101 MESQUITA, CA 91194 (619) 336-1455
SEGOROARCHITECTS@CS.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

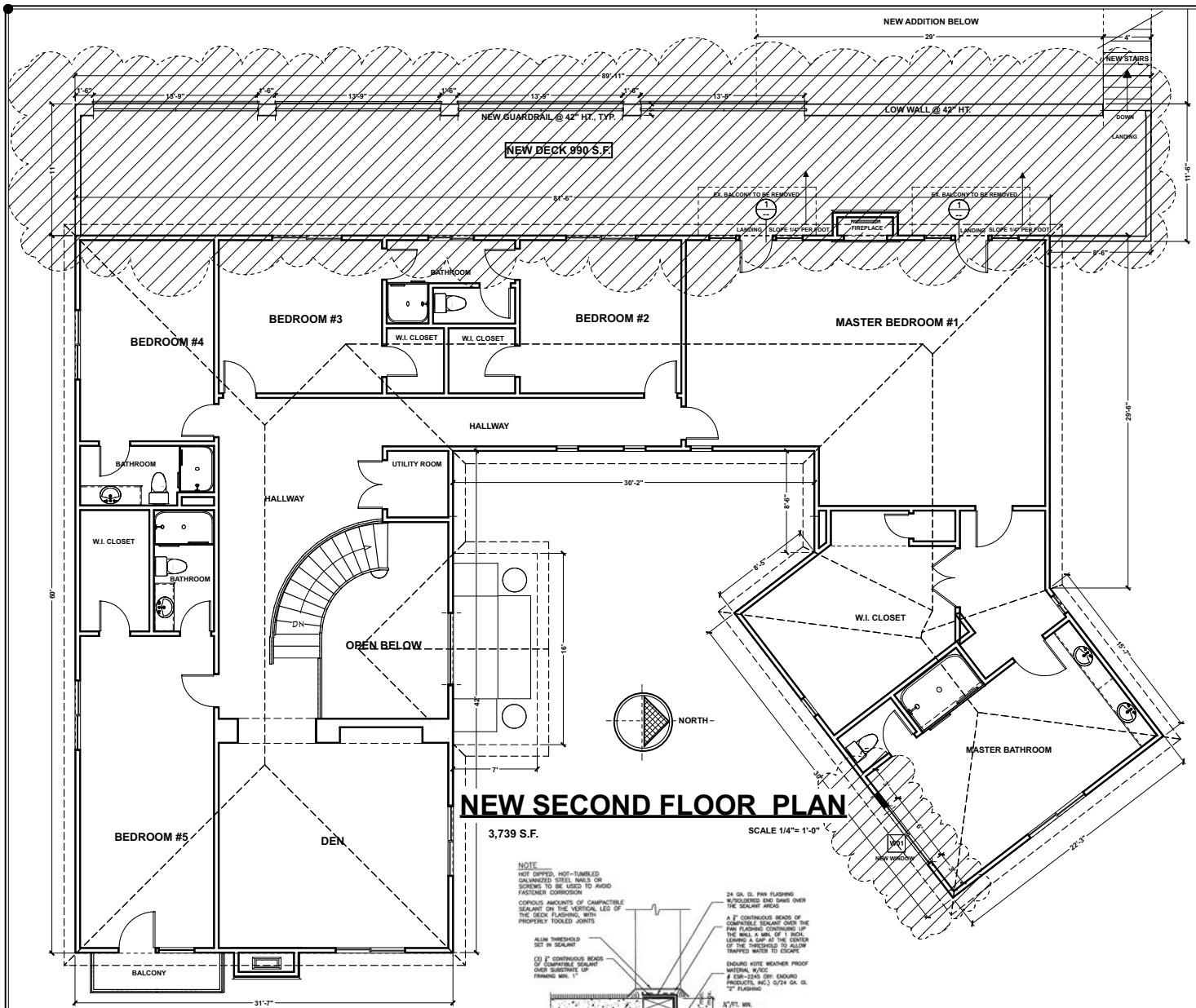
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

LIGHTING FIRST FLOOR PLAN

revisions:

DATE: 7/17/2025

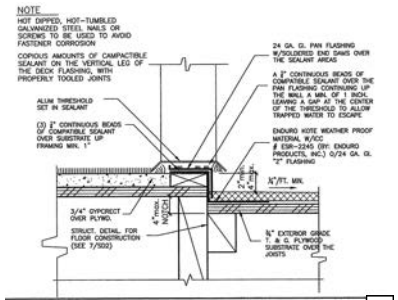
SHEET #
A-4.1



NEW SECOND FLOOR PLAN

3,739 S.F.

SCALE 1/4"= 1'-0"



DETAIL 1

PublicWorks Residential Kitchen Remodel Requirements

INTRODUCTION

Kitchen additions, alterations or renovations require Building permits. The following information can be used as a guideline for the minimum requirements for a kitchen renovation project. Additions, alterations or renovations require compliance with the following:
- 2019 California Residential Code (CRC)
- 2019California Plumbing Code (CPC)
- 2019 California Mechanical Code (CMC)
- 2019 California Electric Code (CEC)
- 2019 California Energy Code (CEnC)
- 2019 California Green Building Standards Code (CalGreen)

A kitchen renovation includes, but is not limited to, the removal and/or relocation of base cabinets, countertops, sinks, dishwasher, garbage disposal, installed appliances, changes to the lighting, removal and replacement of any wallboard, modifications to the structural elements of the dwelling and changes to the electrical, mechanical and plumbing systems. Removal and replacement of the base cabinets and countertop will require compliance with the electrical-outlet location requirements of the code.
The following details the minimum requirements for the kitchen electrical, mechanical, and plumbing systems:

ELECTRICAL

- All kitchen countertop outlets shall be GFCI protected. [CEC 210.8(A)(6)]
- Receptacles shall be listed as tamper resistant.
- 12" or wider countertops require an outlet. [CEC 210.52(C)(1)]
- Outlets are required within 24" of any location along the countertop. [CEC 210.52(C)(2)]
- Kitchen outlets positioned a maximum 20" above countertop. [CEC 210.52(C)(5)]
- Appliance garage outlets are not counted as a required countertop outlet. [CEC 210.52(C)(5)]
- Appliances and sinks break up the countertop run, requirement each side to comply individually. [CEC 210.52 (C)(4)]
- The electrical outlet requirements include islands, peninsulas, kitchen desktops, wet bars, and serving bars. A large window across the back of a sink or lack of a backsplash does not exempt the countertop from the outlet requirements. These outlets may be in a drop front cabinet face, under cabinet plug strip, pop up or tombstone- type receptacle. [CEC 210.52(C)(2),(3),(4)]
- Two small appliance outlet circuits, 20 amps each, are required for kitchens. Circuits shall be balanced and have no other outlets. [CEC 210.52(B)(1),(2)]
- Individual dedicated circuits are required for all major appliances. The rating of an individual branch circuit shall not be less than the marked rating of the appliance or the marked rating of an appliance having combined loads as provided in 422.62. [210.11 (C) & 422.10 (A)]
- Garbage disposal cord and plug connected 18" to 36" long. [CEC 422.16(B)(4)]
- Dishwasher cord 36" to 96" long. Remove installed with a plug is not an approved flexible cord. [CEC 422.16(B)(5)]
- Minimum 15-amp circuit for the dishwasher and a 15 amp circuit for the disposal [CEC 210.23(A)]
- If using a split outlet (two circuits on the same yoke) for dishwasher disposal, provide a fused handle tie at the two circuit breakers at the panel. [CEC 210.7]
- Residential Kitchen Lighting is required to meet the energy efficiency standards. [CEnC. 150(K)(1)]
- IC (direct contact) and AT (air tight) rated cans are required for recessed lighting if installed in an insulated ceiling. [CEnC 150(K)(C)]
- Fluorescent recessed lighting, when used to comply with the lighting requirements, must be of a pin base type design. **Incandescent screw-type bulbs are not approved.**
- AFCI Protection is required to kitchen by any of the means described in 210.12(A)(1) – through (6). [CEC 210.12 (A)].
- GFI protection for Laundry Area. [CEC 210.8 (A)(10)]
- GFI protection for Dishwasher. [CEC 210.8(D)].
- All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting JA8.

MECHANICAL

- A ducted residential exhaust hood is required. A metal, smooth interior surface duct required on vent hood or down draft exhaust vent. Aluminum flex duct not approved. Provide back draft damper [504.3]
- Minimum 30" vertical clearance to combustibles from cook top surface.
- Kitchen local exhaust ventilation requires a minimum rate of 100cfm meeting the requirements of ASHRA 62.2. This includes a maximum sound rating of 3 sones @ 100cfm.

PLUMBING

- A gas test is required on piping modifications (10 psi for 15 minutes). A minimum 15 psi gauge is required for the gas test. A low-gas pressure test may be performed when using a recording test gauge per Section 1213.3 of the CPC.
- Gas lines that run under a slab shall run through an approved, vented, gas tight conduit. Gas line shall be encased in an approved conduit designed to withstand the imposed loads and installed in accordance with Sect. 1210.1.6.1 or 1210.1.6.2. Or encasement system that is listed for installation beneath building.
- An accessible shutoff valve shall be installed outside each appliance and ahead of the union connected thereto and in addition to any valve on the appliance [CPC 1210.09]
- Provide maximum 6-ft- long listed gas flexible connector and shut off to freestanding range.
- A listed air gap is required for the dishwasher drain. [CPC 807.3]
- The maximum flow rate standards for the sink faucets are 1.8 GPM at 60psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 GPM at 60psi, and must default to a maximum flow rate of 1.8 GPM. [CPC 420.21]

PLUMBING FIXTURE REPLACEMENT:

Effective January 1, 2014, Senate Bill (SB) 407 and California Civil Code Section 1101.1-1101.8 requires all noncompliant plumbing fixtures to be replaced with water-conserving plumbing fixtures when building is undergoing alterations or improvements if the residential property was built and available for use on or before January 1, 1994. Please refer to "Plumbing Fixture Replacement (SB407) Requirements and Policy" to determine if the project requires compliance.

SMOKE ALARMS & CARBON MONOXIDE ALARMS:

-Kitchen renovations will require the smoke and carbon monoxide alarms for the dwelling to meet the current code prior to the final inspection as follows: [CRC R314 & R315]
-Smoke alarms are required in all sleeping rooms, outside each sleeping area in the immediate vicinity of the bedrooms, on each floor level including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
- Carbon Monoxide alarms are required in dwelling units and sleeping units when fuel-burning appliances are installed, and/or dwelling units have attached garages. Either condition requires alarms.
-When more than one alarm of either type is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that activation of one alarm will activate all the other alarms.
-In existing conditions, alarms may be battery operated when the repairs or alterations do not result in the removal of the wall and ceiling finishes or there is no access by means of an attic, basement or crawlspace.
-Multipurpose alarms that combine both a smoke alarm and carbon monoxide alarm shall comply with all applicable standards of both CRC Sections R314 and R315 and be listed by the Office of the State Fire Marshal.
-Smoke alarms shall be listed in accordance with UL217. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL217 and UL2034.
Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance. [R314.3.1]

SEGORO ASSOCIATES
A.D. FIRST PET., STE. 101 MISSION VIE., CA 92691 (949) 586-1455
SEGOROARCHITECTS@CS.COM

Project #4822

OWNER: SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT: NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

NEW SECOND FLOOR PLAN

revisions:

DATE: 5/01/2025

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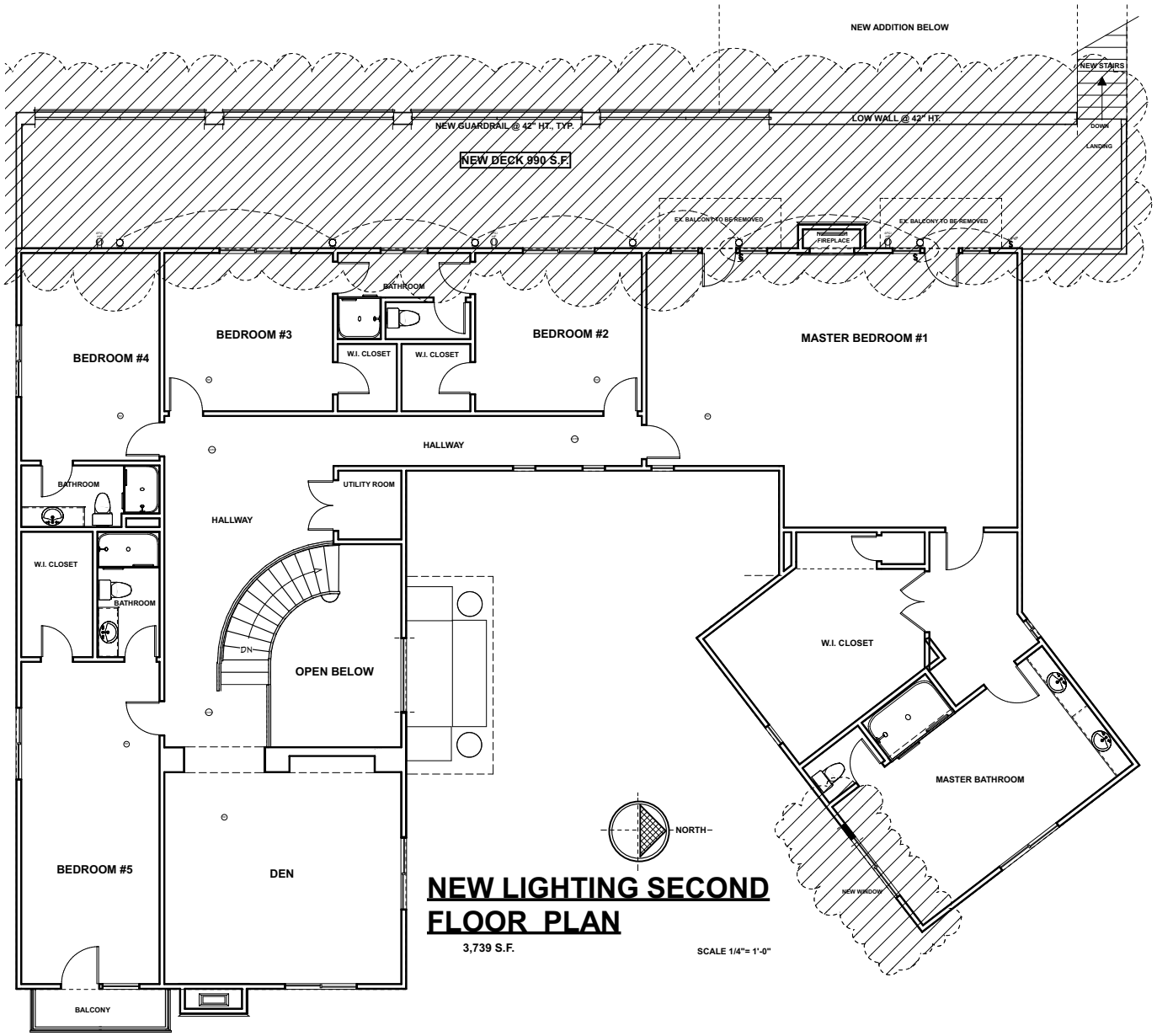
SHEET # A-5



NEW LIGHTING SECOND FLOOR PLAN

3,739 S.F.

SCALE 1/4"= 1'-0"

CC PublicWorks
2019 Residential Bathroom Remodel Requirements

INTRODUCTION

Bathroom remodels generally require permits. The following information can be used as a guideline for the bathroom requirements. Bathroom remodels require compliance with the following:

- 2019 California Residential Code (CRC)
- 2019 California Plumbing Code (CPC)
- 2019 California Mechanical Code (CMC)
- 2019 California Electric Code (CEC)
- 2019 California Energy Code (CEnC)
- 2019 California Green Building Standards Code (CalGreen)

A bathroom remodel includes the removal and replacement and/or relocation of vanity cabinets, toilets, sinks, tubs & showers, replacement/changes to the lighting or removal & replacement of the wallboard. The replacement of the towel bars, mirrors, paint, and floor coverings where no other work is included is considered a maintenance item and no permit is required for these items.
The following details the minimum requirements of the bathroom-electrical, mechanical and plumbing systems:

ELECTRICAL

- Provide a 20 AMP GFCI protected electrical outlet within 36" of the outside edge of each bathroom sink basin. Outlet shall be located on a wall or partition that is adjacent to the basin or installed on the side or face of the basin cabinet not more than 12" below the countertop. [CEC 210.52(D)]
- Receptacles shall be listed as tamper-resistant.
- A minimum of one (1) 20-amp circuit is required for bathrooms. Such circuits shall have no other outlets. This circuit may serve more than one bathroom. [CEC 210.52(D)]
- No pendant light fixtures in zone, 3 ft. away and 8 ft. above the bathtub or shower. [CEC 410.10(D)]
- Luminaries located within the actual outside dimensions of the tub, shower, and ceiling suspended paddle fans, up to 8 feet vertically from the top of the bathtub rim or shower threshold, shall be marked as suitable for damp locations, provided with a solic lens and be GFCI protected. [CEC 410.10(D)]
- Bathroom lighting shall be high efficacy luminaries in accordance with Table 150.0-A and have at least one luminaire in each space controlled by a vacancy sensor 150.0(K)2I.
- Recessed luminaries installed in an insulated ceiling shall be IC rated (zero clearance) and AT rated (air tight) and shall be sealed and/or gasket between ceiling and housing. For occupancies with a horizontal (floor/ceiling assembly) rated separation, tsc recessed fixtures shall be protected to the rating of the separation (1 hour) or be listed for the required protection. This generally applied to residential condominium construction where units are above or below other units.
- Hydro-massage tubs (i.e. Jacuzzi tubs) shall have access to the motor, be supplied by a GFCI protected dedicated circuit, and listed by a recognized testing agency. All piping, fitting, metal cables or other metal surfaces, within 5 feet of the inside wall o' the Hydro-massage tub shall be properly bonded. Hydro-massage tubs shall be bonded with a minimum #8 AWG bare copper wire and the bonding shall be accessible. [CEC 680.60]

All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting IA8.

MECHANICAL

- A bath exhaust fan w/back draft damper is required regardless of the presence of a window. Exhaust must vent to outdoors in an approved duct. Terminate the outlet a minimum of 3 ft from an opening or property line. [CMC 502.2.1] A minimum rate of 50 cfm is required. Fan shall meet ASHRA standard 62.2. A maximum of 3-one rating is required.

PLUMBING

- Provide tempered glass at tub/shower doors and at windows less than 60" from tub/shower drain.
- Shower and tub/shower control valves shall be pressure balancing set at a maximum 120 degrees F. The water-filler valve in bathtub/whirlpools shall have a temperature limiting device set a maximum of 120 degrees F. The water heater thermostat cannot be used to meet these provisions. [CPC 408.3, 409.4]
- Fixtures shall meet the following maximum flow rates: [CPC 407.0 ,408.2 & 411.0]
  Water Closets = 1.28 gallons/flush — Shower Heads = 1.8 GPM — Sink Faucets = 1.2 GPM
- Minimum shower size is 1024 square inches (30" circle). [CPC 408.6] Shower without threshold shall be considered a vet location and shall comply with California Building, Residential, and Electrical Codes.
- Site built shower stalls shall comply with CPC 408.7.
- Stall shower door to provide a min. of 22" wide unobstructed opening. [CPC 408.5].
- Toilet and/or Bidet require a total minimum 30" clear space, 15" from the center of the fixture to the wall, and a minimum of 24" clear space in front of the fixture. [CPC 402.5]
- When additional water closets (toilets) are installed, a maximum of 4 water closets are allowed on a 3" waste line. [Tabe 703.2, Note 4]
- The hot water valve shall be installed on the left side. [CPC 417.5]
- A minimum 12" x 12" access panel is required when a slip joint p-trap waste & overflow is provided. [402.10]
- Where plumbing features (water closets, tubs, etc.) comes into contact with the wall or floor, the joint shall be caulked and sealed to be watertight. [CPC 402.2]

WHIRLPOOL/SPA TUBS

- Whirlpool (spa) bathtubs shall have a readily accessible access panel. [CPC 409.6]
- The circulation pump shall be located above the crown weir of the trap. [CPC 409.6]
- The pump and the circulation piping shall be self-draining to minimize water retention. [CPC 409.6]
- Suction fittings on whirlpool bathtubs shall comply with the listed standards. [CPC 409.6]
- The maximum hot water temperature discharging from a bidet is limited to 110 degrees by a device that conforms to ASSE 1070, *Standard for Water Temperature Limiting Devices*, or CSA B125. 70, *Standard for Plumbing Fittings*. The water heater thermostat shall not be considered a control for meeting this provision. [CPC 410.3]

Flexible PVC hoses and tubing for whirlpool bathtubs must comply with IAPMOZ1033. [409.6.1].

BIDETS

- The water supply shall be protected with air gap or vacuum breaker. [CPC 410.2]
- The maximum hot water temperature discharging from a bidet is limited to 110 degrees by a device that conforms to ASSE 1070, *Standard for Water Temperature Limiting Devices*, or CSA B125. 70, *Standard for Plumbing Fittings*. The water heater thermostat shall not be considered a control for meeting this provision.

PLUMBING FIXTURE REPLACEMENT:

Effective January 1, 2014, Senate Bill (SB) 407 and California Civil Code Section 1101.1-1101.8 requires all noncompliant plumbing fixtures to be replaced with water-conserving plumbing fixtures when building is undergoing alterations or improvements: if the residential property was built and available for use on or before January 1, 1994. Please refer to "Plumbing Fixture Replacement (SB407) Requirements and Policy" to determine if the project requires compliance.

SMOKE ALARMS & CARBON MONOXIDE ALARMS:

Bathroom remodels (projects over $1,000) will require the smoke and carbon monoxide alarms for the dwelling to meet the current code prior to the final inspection as follows: [CRC R314 & R315]

- o Smoke alarms are required in all sleeping rooms, outside each sleeping area in the immediate vicinity of the bedrooms, on each floor level including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
- o Carbon Monoxide alarms are required in dwelling units and sleeping units when fuel-burning appliances are installed, ind/or dwelling units have attached garages. Either condition requires alarms.
- o When more than one alarm of either type is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that activation of one alarm will activate all the other alarms.
- o In existing conditions, alarms may be battery operated when the repairs or alterations do not result in the removal of the wall and ceiling finishes or there is no access by means of an attic, basement or crawlspace.
- o Multipurpose alarms that combine both a smoke alarm and carbon monoxide alarm shall comply with all applicable standards of both CRC Sections R314 and R315 and be listed by the Office of the State Fire Marshal.
- o Smoke alarms shall be listed in accordance with UL217. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL217and UL2034.
- o Smoke alarms shall not be installed less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower. [R314.3]

601 N. Ross Street, Santa Ana, CA 92701
P.O. Box 4048, Santa Ana, CA 92702-4048
Revised: 2/2/2020
http://ocpublicworks.com
P: 714.667.8888 | F: 714.667.7575
CustomerCare@ocpw.ocgov.com

SEGORO ASSOCIATES
A.A. FIRST AVE., STE. 101 ... MESQUITE, CA 91939 ... (619) 390-5455
SEGOROARCHITECTS@CS.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

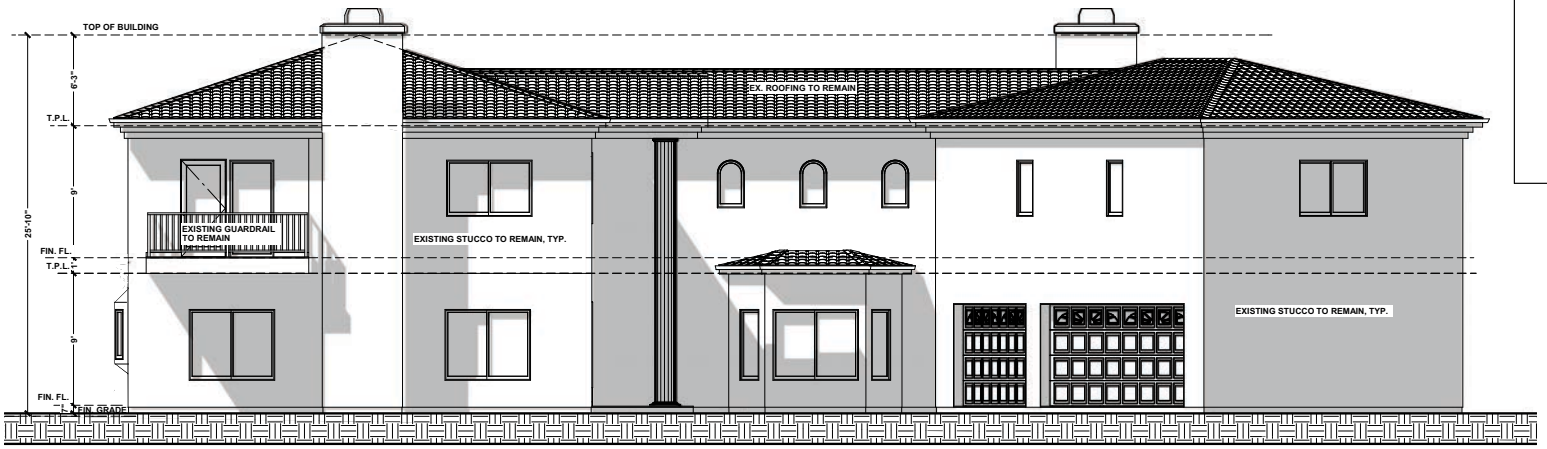
LIGHTING SECOND FLOOR PLAN

revisions:

DATE: 5/01/2025

No. C058075

SHEET #
A-5.1



EXISTING EAST ELEVATION

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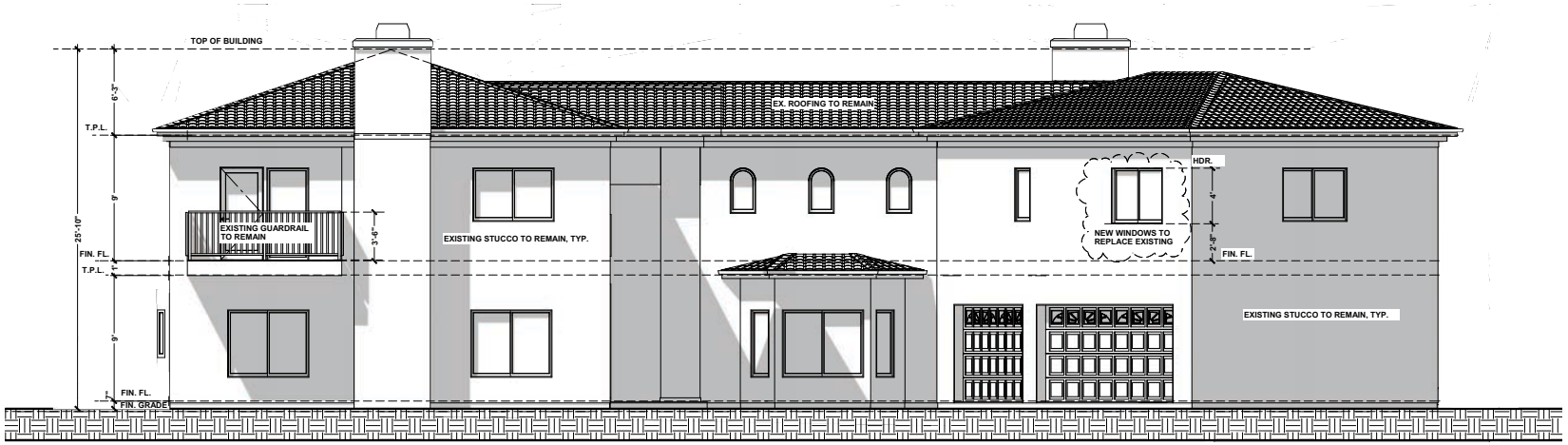


NEW EAST ELEVATION

SCALE 1/4"= 1'-0"

SEGORO ASSOCIATES
A.A. FIRST INTL. FTL. 101 MESQUITA, CA 91009 (626) 330-1455
SEGOROARCHITECTS@O2.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

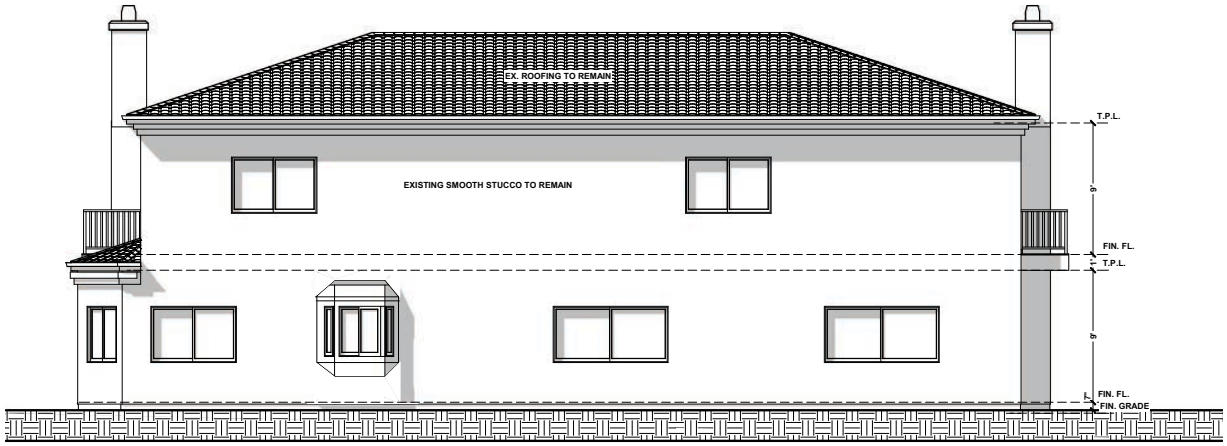
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

EXTERIOR ELEVATIONS

revisions:

DATE: 5/01/2025

SHEET #
A-6



EXISTING SOUTH ELEVATION

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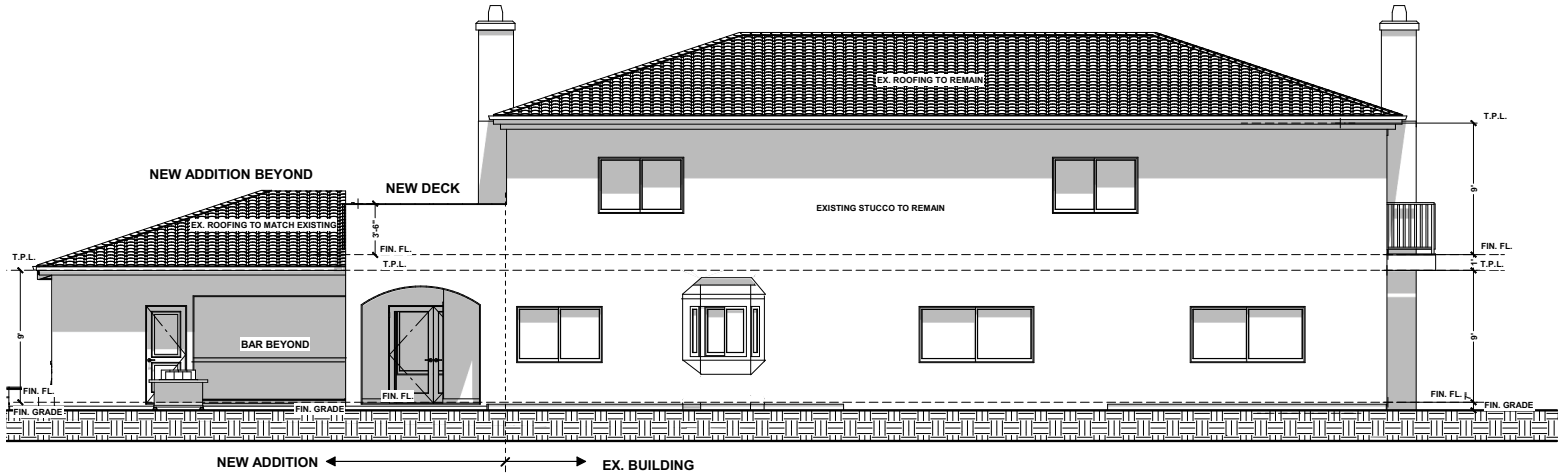


NEW SOUTH ELEVATION

SCALE 1/4"= 1'-0"

SEGORO ASSOCIATES
A.A. FIRST AVE., STE. 101 MESQUITA, CA 91109 (619) 336-1435
SEGOROARCHITECTS@O2.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

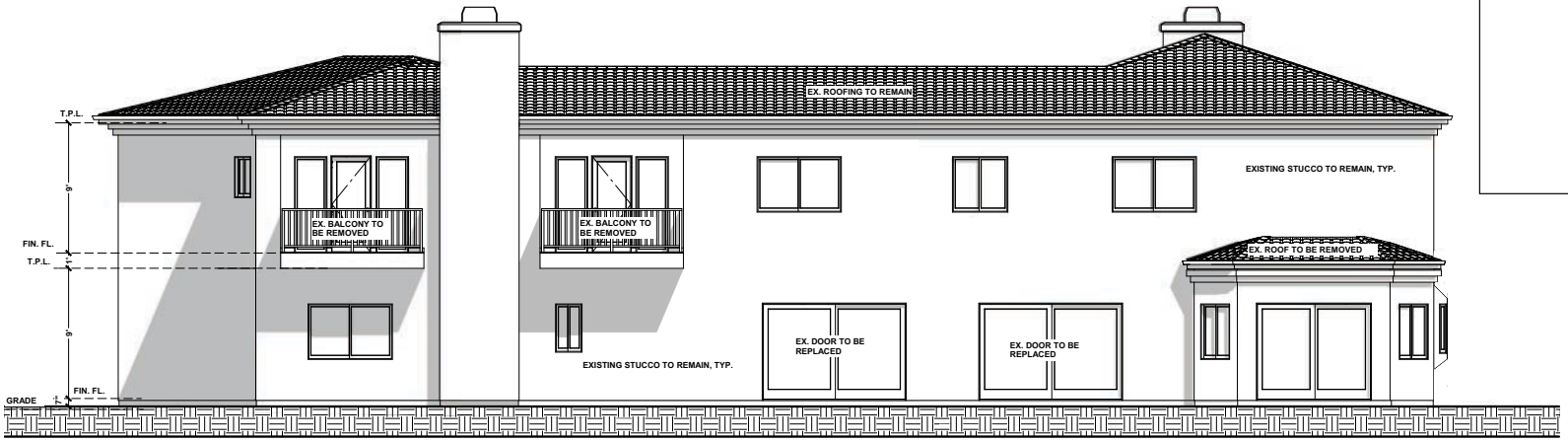
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

EXTERIOR ELEVATIONS

revisions:

DATE: 7/17/2025

SHEET #
A-7



EXISTING WEST ELEVATION

SCALE 1/4"= 1'-0"

NEW WEST ELEVATION

SCALE 1/4"= 1'-0"

SEGORO ASSOCIATES
A.J. FIRST PET., STE. 101 MESQUITA, CA 91009 (818) 996-1455
SEGOROARCHITECTS@O2.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

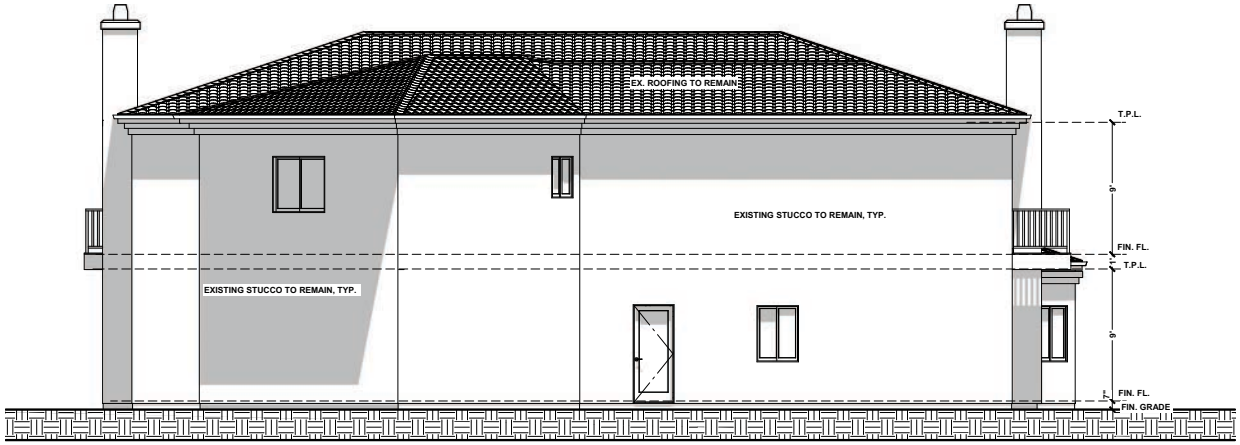
EXTERIOR ELEVATIONS

revisions:

DATE: 7/17/2025

No. C058075

SHEET #
A-8



EXISTING NORTH ELEVATION

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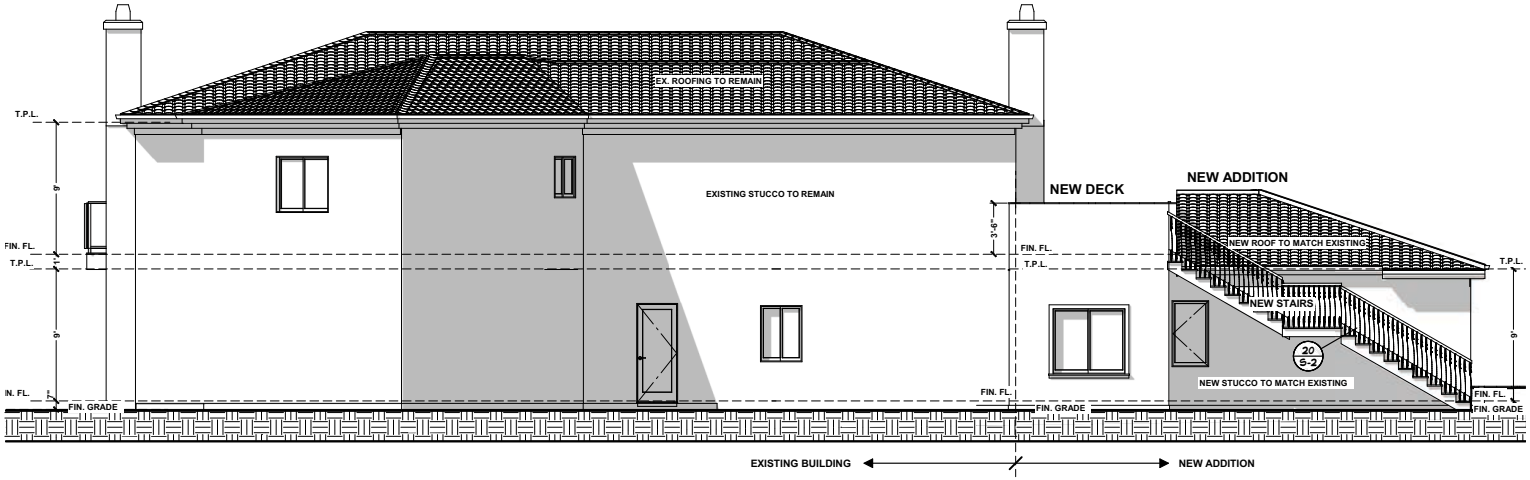


NEW NORTH ELEVATION

SCALE 1/4"= 1'-0"

SEGORO ASSOCIATES
A.D. FIRST AVE., STE. 101 MESQUITE, CA 91030 (818) 330-1435
SEGOROARCHITECTS@O2.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

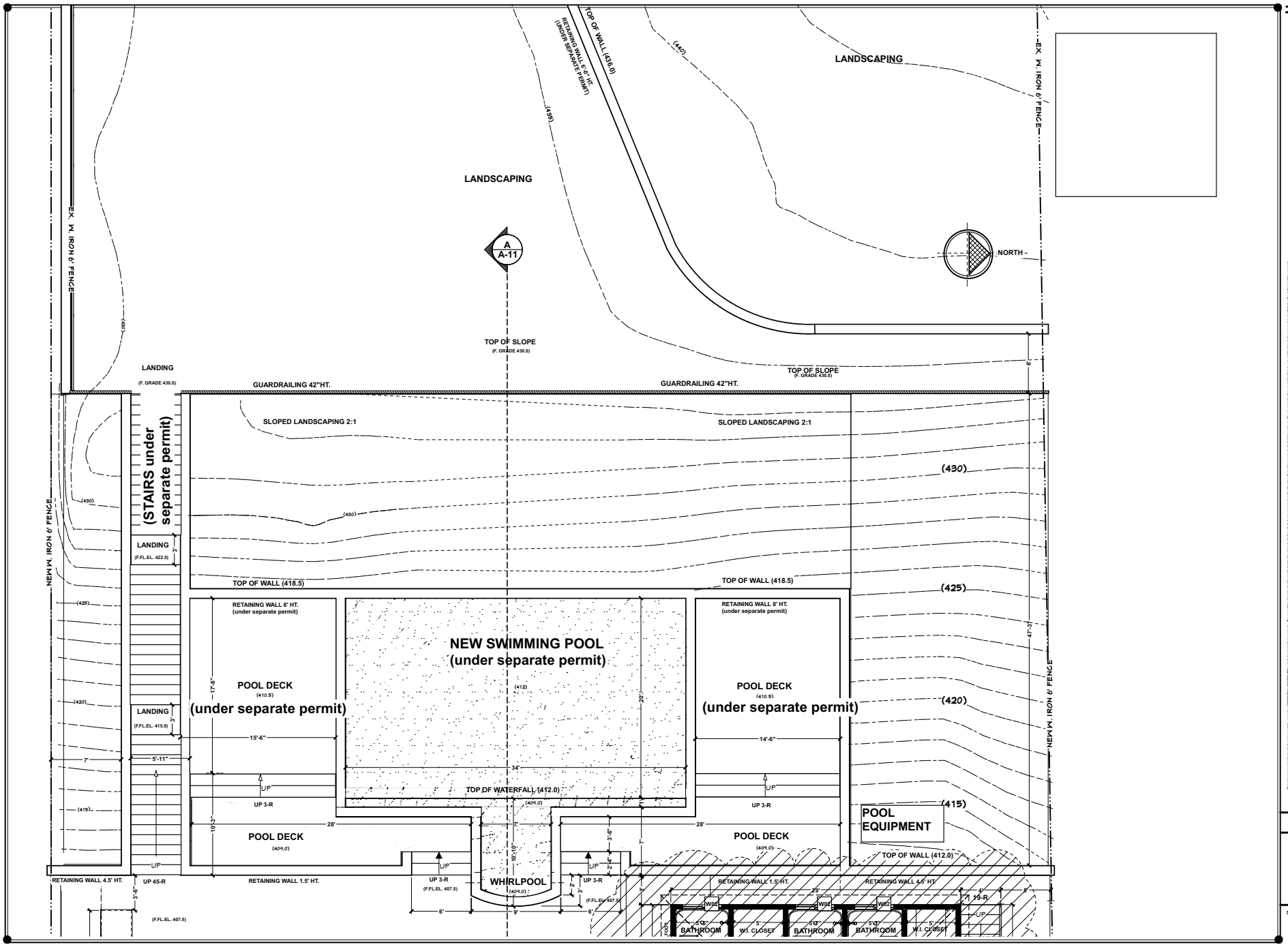
EXTERIOR ELEVATIONS

revisions:

DATE: 5/01/2025

No. C058075

SHEET #
A-9



SEGORO ASSOCIATES
A.A. FIRST INT., STE. 101 MISSION VIEJO, CA 92691 (949) 586-8455
SEGOROARCHITECTS@OL.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

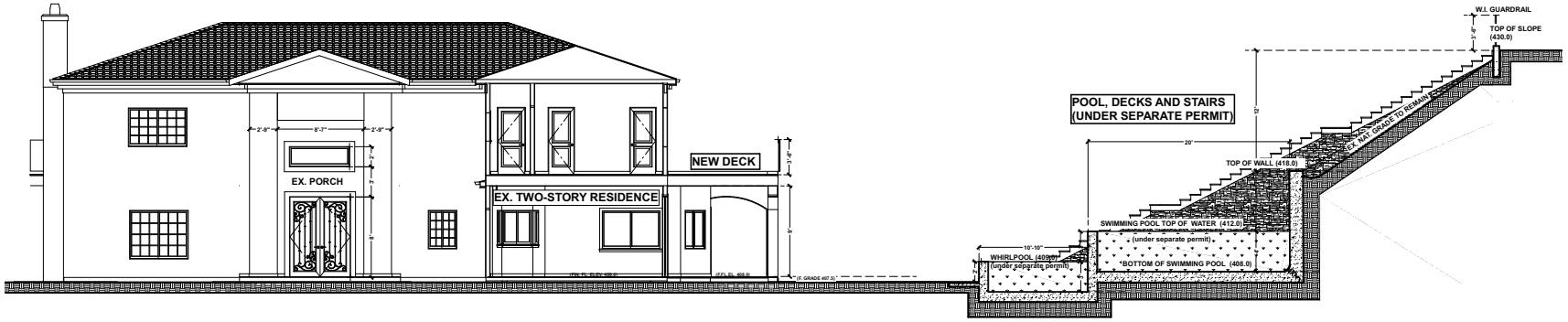
PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

SWIMMING POOL

revisions:

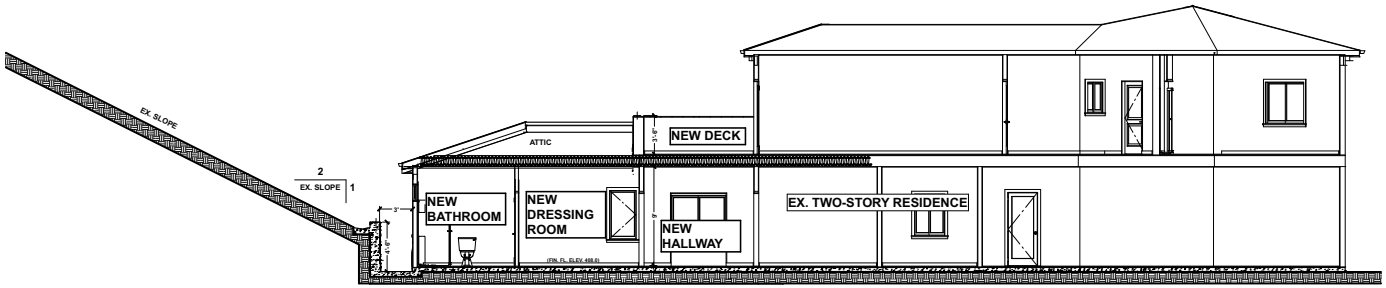
DATE: 7/17/2025

SHEET #
A-10



SECTION -A-

SCALE 3/16"= 1'-0"



SECTION -B-

SCALE 3/16"= 1'-0"

SEGORO ASSOCIATES
A.A. FIRST ST., STE. 101 MESQUITA, CA 91009 (818) 330-1455
SEGOROARCHITECTS@O1.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

SECTION -A-

revisions:

DATE: 8/28/2025

SHEET #
A-11

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

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

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified is 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.

301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.

The mandatory provision of Section 4.106.4.2 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multifamily buildings. See Section 4.106.4.3 for application.

Note: Repairs including, but not limited to, resurfacing, restriping and repairing or maintaining existing lighting fixtures are not considered alterations for the purpose of this section.

Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final compection, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.

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.
Exceptions:
1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
2. [HCD] For purposes of CALGreen, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.

DIVISION 4.1 PLANNING AND DESIGN

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 4
RESIDENTIAL MANDATORY MEASURES

SECTION 4.102 DEFINITIONS
4.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

4.106 SITE DEVELOPMENT
4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency.
3. Compliance with a lawfully enacted storm water management ordinance.

Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.

(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)

4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or 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.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1 or 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625.

Exceptions:
1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:
   1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power.
   1.2 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 4.106.4, may adversely impact the construction cost of the project.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere 208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the *California Electrical Code*.

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

4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities.
When parking is provided, parking spaces for new multifamily dwellings, hotels and motels shall meet the requirements of Sections 4.106.4.2.1 and 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.

4.106.4.2.1Multifamily development projects with less than 20 dwelling units, and hotels and motels with less than 20 sleeping units or guest rooms.
The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section.

1.EV Capable. Ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes.

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 California Electrical Code.

Exceptions:

1.When EV chargers (Level 2 EVSE) are installed in a number equal to or greater than the required number of EV capable spaces.

2.When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed.

Notes:

a.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.

b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use.

2.EV Ready. Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.

Exception: Areas of parking facilities served by parking lifts.

4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels and motels with 20 or more sleeping units or guest rooms.
The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section.

1.EV Capable. Ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes.

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 California Electrical Code.

Exception: When EV chargers (Level 2 EVSE) are installed in a number greater than five (5) percent of parking spaces required by Section 4.106.4.2.2, Item 3, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed over the five (5) percent required.

Notes:

a.Construction documents shall show locations of future EV spaces.

b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use.

2.EV Ready. Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.

Exception: Areas of parking facilities served by parking lifts.

3.EV Chargers. Five (5) percent of the total number of parking spaces shall be equipped with Level 2 EVSE. Where common use parking is provided, at least one EV charger shall be located in the common use parking area and shall be available for use by all residents or guests.

When low power Level 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces.

4.106.4.2.2.1 Electric vehicle charging stations (EVCS).
Electric vehicle charging stations required by Section 4.106.4.2.2, Item 3, shall comply with Section 4.106.4.2.2.1.

Exception: Electric vehicle charging stations serving public accommodations, public housing, motels and hotels shall not be required to comply with this section. See California Building Code, Chapter 11B, for applicable requirements.

4.106.4.2.2.1.1 Location.
EVCS shall comply with at least one of the following options:

1.The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space.

2.The charging space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.

Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1 and Section 4.106.4.2.2.1.2, Item 3.

4.106.4.2.2.1.2 Electric vehicle charging stations (EVCS) dimensions.
The charging spaces shall be designed to comply with the following:

1.The minimum length of each EV space shall be 18 feet (5486 mm).

2.The minimum width of each EV space shall be 9 feet (2743 mm).

3.One in every 25 charging spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).

a.Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.2.1.3 Accessible EV spaces.
In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.

4.106.4.2.3 EV space requirements.
1.Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the location or the proposed location of the EV space. Construction documents shall identify the raceway termination point, receptacle or charger location, as applicable. The service panel and/ or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective device installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space, at the time of original construction in accordance with the California Electrical Code.

2.Multiple EV spaces required. Construction documents shall indicate the raceway termination point and the location of installed or future EV spaces, receptacles or EV chargers. Construction documents shall also provide information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics and electrical load calculations. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space at the time of original construction in accordance with the California Electrical Code.

4.106.4.2.4 Identification.
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 California Electrical Code.

4.106.4.2.5 Electric Vehicle Ready Space Signage.
Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings.
When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE.

Notes:

1.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.

2.There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

DIVISION 4.2 ENERGY EFFICIENCY

4.201 GENERAL
4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

4.303 INDOOR WATER USE
4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

4.303.1.1 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.

4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 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.

4.303.1.3.2 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 only allow one shower outlet to be in operation at a time.

Note: A hand-held shower shall be considered a showerhead.

4.303.1.4 Faucets.

4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.

4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 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.

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

4.303.1.4.5 Pre-rinse spray valves.
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7) and shall be equipped with an integral automatic shutoff.

FOR REFERENCE ONLY: The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations),Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019

PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)
Product Class 1 (≤ 5.0 ozf)	1.00
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20
Product Class 3 (> 8.0 ozf)	1.28

Title 20 Section 1605.3 (h)(4)(A): Commercial premise spray values manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force [ozf][113 grams-force(gf)]

4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential/commercial buildings.
Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the *California Plumbing Code.*

4.303.3 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*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.301.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

4.304 OUTDOOR WATER USE
4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential 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.

NOTES:

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

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE
4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING
4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.

Exceptions:

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 or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.

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

4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.

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

4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1

4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1

4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4..

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section.
2. Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

4.410 BUILDING MAINTENANCE AND OPERATION
4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following will be placed in the building:

1. Directions to the owner or occupan that the manual shall remain with the building throughout the life cycle of the structure.
2. Operation and maintenance instructions for the following:
   a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment.
   b. Roof and yard drainage, including gutters and downspouts.
   c. Space conditioning systems, including condensers and air filters.
   d. Landscape irrigation systems.
   e. Water reuse systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspections verifications required by the enforcing agency or this code.
11. Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.
12. Information and/or drawings identifying the location of grab bar reinforcements.

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site 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.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this section.

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL
4.501.1 Scope
The provisions of this chapter shall outline means of reducing the quality 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 4.502 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

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

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 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.

SEGORO ASSOCIATES
A.A. FIRST AVE., STE. 101 ___ MESQUITE, CA 91010 ___ (619) 590-1455
SEGOROARCHITECT@G1.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

CAL-GREEN 1

revisions:

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DATE: 01/01/2024

REGISTERED PROFESSIONAL ENGINEER No. C058075 STATE OF CALIFORNIA

SHEET # A-12

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

Y | N/A | RESPON. PARTY

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 hundredths of a gram (g O³/g ROG).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients n 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).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

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

VOC. A volatile organic compound (VOC) 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).

4.503 FIREPLACES
4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove 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. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504 POLLUTANT CONTROL
4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

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 Table 4.504.1 or 4.504.2, as applicable. 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 1 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.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, 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 4.504.3 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 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) 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.

4.504.2.4 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.

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]
(Less Water and Less Exempt Compounds in Grams per Liter)

ARCHITECTURAL APPLICATIONS	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 ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT 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.

Y | N/A | RESPON. PARTY

TABLE 4.504.2 - SEALANT VOC LIMIT
(Less Water and Less Exempt Compounds in Grams per Liter)

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

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[1,2,3]
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NON-FLAT 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[5]	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.

Y | N/A | RESPON. PARTY

TABLE 4.504.5 - 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 CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.
2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM)

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Healths website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed , at least 80% of floor area receiving resilient flooring shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.5 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 for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

4.504.5.1 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 Australiar AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL
4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

4.506 INDOOR AIR QUALITY AND EXHAUST
4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
   a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 84%. A humidity control may utilize manual or automatic means of adjustment.
   b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Notes:

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
2. Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

4.507 ENVIRONMENTAL COMFORT
4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.

Y | N/A | RESPON. PARTY

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 inspecors 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] 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.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 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.*

SEGORO ASSOCIATES
A.A. FIRST RT.A. - STE. 101 ... RIVERSIDE, CA. 92506 ... (951) 686-5455
SEGOROARCHITECT@GS.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

CAL-GREEN 2

revisions:

DATE: 01/01/2024

REGISTERED PROFESSIONAL ENGINEER No. C058075 STATE OF CALIFORNIA

SHEET #
A-13

GENERAL NOTES:

(305 mm) from original design grade or where approved by the building official.

1808.4 Vibratory loads. Where machinery operations or other vibrations are transmitted through the foundation, consideration shall be given in the foundation design to prevent detrimental disturbances of the soil.

1808.5 Shifting or moving soils. Where it is known that the shallow subsoils are of a shifting or moving character, foundations shall be carried to a sufficient depth to ensure stability.

1808.6 Design for expansive soils. Foundations for buildings and structures founded on expansive soils shall be designed in accordance with Section 1808.6.1 or 1808.6.2.

Exception: Foundation design need not comply with Section 1808.6.1 or 1808.6.2 where one of the following conditions is satisfied:

1. The soil is removed in accordance with Section 1808.6.3.
2. The building official approves stabilization of the soil in accordance with Section 1808.6.4.

1808.6.1 Foundations. Foundations placed on or within the active zone of expansive soils shall be designed to resist differential volume changes and to prevent structural damage to the supported structure. Deflection and racking of the supported structure shall be limited to that which will not interfere with the usability and serviceability of the structure.

Foundations placed below where volume change occurs or below expansive soil shall comply with the following provisions:

1. Foundations extending into or penetrating expansive soils shall be designed to prevent uplift of the supported structure.
2. Foundations penetrating expansive soils shall be designed to resist forces exerted on the foundation due to soil volume changes or shall be isolated from the expansive soil.

1808.6.2 Slab-on-ground foundations. Moments, shears and deflections for use in designing slab-on-ground, mat or raft foundations on expansive soils shall be determined in accordance with *WRI/CRSI Design of Slab-on-Ground Foundations* or *PTI DC 10.5*. Using the moments, shears and deflections determined above, nonprestressed slab-on-ground, mat or raft foundations on expansive soils shall be designed in accordance with *WRI/CRSI Design of Slab-on-Ground Foundations* and post-tensioned slab-on-ground, mat or raft foundations on expansive soils shall be designed in accordance with *PTI DC 10.5*. It shall be permitted to analyze and design such slabs by other methods that account for soil-structure interaction, the deformed shape of the soil support, the plate or stiffened plate action of the slab as well as both center lift and edge lift conditions. Such alternative methods shall be rational and the basis for all aspects and parameters of the method shall be available for peer review.

1808.6.3 Removal of expansive soil. Where expansive soil is removed in lieu of designing foundations in accordance with Section 1808.6.1 or 1808.6.2, the soil shall be removed to a depth sufficient to ensure a constant moisture content in the remaining soil. Fill material shall not contain expansive soils and shall comply with Section 1804.5 or 1804.6.

Exception: Expansive soil need not be removed to the depth of constant moisture, provided the confining pressure in the expansive soil created by the fill and supported structure exceeds the swell pressure.

1808.6.4 Stabilization. Where the active zone of expansive soils is stabilized in lieu of designing foundations in accordance with Section 1808.6.1 or 1808.6.2, the soil shall be stabilized by chemical, dewatering, presaturation or equivalent techniques.

1808.7 Foundations on or adjacent to slopes. The placement of buildings and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal (33.3-percent slope) shall comply with Sections 1808.7.1 through 1808.7.5.

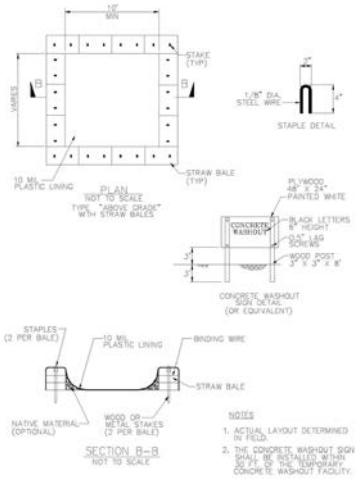
1808.7.1 Building clearance from ascending slopes. In general, buildings below slopes shall be set a sufficient distance from the slope to provide protection from slope drainage, erosion and shallow failures. Except as provided in Section 1808.7.5 and Figure 1808.7.1, the following criteria will be assumed to provide this protection. Where the existing slope is steeper than one unit vertical in one unit horizontal (100-percent slope), the toe of the slope shall be assumed to be at the intersection of a horizontal plane drawn from the top of the foundation and a plane drawn tangent to the slope at an angle of 45 degrees (0.79 rad) to the horizontal. Where a retaining wall is constructed at the toe of the slope, the height of the slope shall be measured from the top of the wall to the top of the slope.

1808.7.2 Foundation setback from descending slope surface. Foundations on or adjacent to slope surfaces shall be founded in firm material with an embedment and set back from the slope surface sufficient to provide vertical and lateral support for the foundation without detrimental settlement. Except as provided for in Section 1808.7.5 and Figure 1808.7.1, the following setback is deemed adequate to meet the criteria. Where the slope is steeper than 1 unit vertical in 1 unit horizontal (100-percent slope), the required setback shall be measured from an imaginary plane 45 degrees (0.79 rad) to the horizontal, projected upward from the toe of the slope.

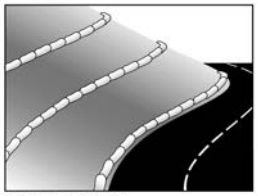
1808.7.3 Pools. The setback between pools regulated by this code and slopes shall be equal to one-half the building footing setback distance required by this section. That portion of the pool wall within a horizontal distance of 7 feet (2134 mm) from the top of the slope shall be capable of supporting the water in the pool without soil support.

1808.7.4 Foundation elevation. On graded sites, the top of any exterior foundation shall extend above the elevation of the street gutter at point of discharge or be inlet of an approved drainage device a minimum of 12 inches (305 mm) plus 2 percent. Alternate elevations are permitted

Concrete Waste Management WM-8



Gravel Bag Berm SE-6



Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As a linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-12 Temporary Silt Dike
SE-14 Biofilter Bags

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SEGORO ASSOCIATES
P.O. FIRST PLA., STE. 101 RIVERSIDE, CA 91506 (951) 686-1455
SEGOROARCHITECTS@GS.COM

Project #4822

OWNER:
SHELLA MANALANG
10201 OVERHILL DR., N. TUSTIN, CA 92705
(562) 728-7577

PROJECT:
NEW ADDITIONS
10201 OVERHILL DR., N. TUSTIN, CA 92705

GENERAL NOTES

revisions:

DATE: 11/01/2024

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SHEET #
A-14

GENERAL NOTES:

1. "Code" where referred to herein refers to 2019 CBC.
2. All work shall conform to the requirements of the code.
3. All materials and workmanship shall conform to the drawing and specifications.
4. The contractor shall be responsible for the safety of the building during construction and shall provide adequate shoring, bracing and guide during construction. Safety and bracing requirements shall be in accordance with all National State and Local safety ordinances.
5. The contractor shall be responsible for coordinating the work of all trades and shall check all dimensions.
6. See mechanical, plumbing and electrical drawing for size and location of all openings required for ducts, pipes and for all pipe sleeves, electrical conduits and other items to be embedded in concrete or otherwise incorporated in structural work.
7. In all cases where a conflict may occur, such as between items covered in specifications and notes on the drawings or between general notes and specific details, the Architect shall be notified and he will interpret the intent of the contract documents.
8. Where construction materials are temporarily stored on roof or floor framing, they shall be distributed so that the load does not exceed the design live load.

WOOD FRAMING:

1.1 All Douglas-Fir Larch shall comply with DOC PS20 standards.
1. All horizontal load carrying members and posts to be Douglas Fir Larch north.
   a. 2x grade No. 2 typical U.N.O.
   b. 4x, 6x grade No. 1 typical U.N.O.
   c. post grade NO. 1 typical U.N.O.
2. Studs, plates, sills and blocking to be grade #2 Douglas Fir or better.
3. Sills under stud partitions in contact with Concrete shall pressure treated Douglas Fir bolted to concrete with 5/8" x10" anchor bolts spaced not more than 4'-0" O.C unless noted otherwise, there shall be one bolt within 9" of each end of each sill piece. Minimum of 2 bolts per piece.
4. The bridging shall be provided as per code.
5. A.B into wood framing require 3X3X0.229" plate washers
6. Framing members shall not be notched in any manner except where specifically detailed or approved by the Architect.
7. Minimum nailing for all wood members shall be as per code unless specifically noted.
8. Structural plywood shall be DEPA grade, Structural CDX, thickness as noted on plans with exterior glue conforming to product DOS PS1 or PS2. Each sheet shall be identified by a registered stamp or brand.
9. Edges of all openings through roof or floor shall be nailed per boundary of plywood diaphragm nailing requirements.
10. All wood bearing on concrete or masonry shall be pressure treated Douglas Fir.
11. All wood framing Max. moisture content to be 19%.
12. Joist hangers and other connectors shall be Simpson strong ties or equal.

STRUCTURAL GLUE LAMINATED TIMBER:

1. Materials, manufacture and quality control shall be in conformance with commercial standard, CS-253, "Structural Glued Laminated Timber".
2. Glued laminated beams shall be combination 24F-V8, Douglas Fir and Larch per AITC 117 or combination 24F-V8 with hem fir lamination per AITC.
3. All structural glued laminated timber shall be inspected during lamination by an approved inspection agency. A certificate of inspection shall be provided for the Architect & building department prior to erection.
4. Each glued laminated beam shall be stamped with identification number and shall be accompanied by a Certificate of Inspection.
5. The glued laminated beams shall be furnished by a licensed fabricator specializing in this type of work. The fabricator shall submit complete shop drawings to the Architect for approval prior to fabrication.

SHEAR WALL SCHEDULE

MARK	CAPACITY #/L.F.	Structural I plywood or OSB	NAIL	SPACING BOUND	SPACING EDGE	SPACING INTERM	SILL NAIL	SILL BOLTS	REMARK
7	260	15/32 CDX	8d	4	4	12	16 d @ 3"O.C.	5/8"ø @ 24"O.C.	
8	380	15/32 CDX	8d	3	3	12	3/8"øx5"L.@@10"O.C.	5/8"ø @ 16"O.C.	SEE #2&3
9	490	15/32 CDX	8d	2	2	12	3/8"øx5"L.@@6"O.C.	5/8"ø @ 12"O.C.	SEE #2&3
10	640	15/32 CDX	10d	2	2	12	3/8"øx5"L.@@4"O.C.	5/8"ø @ 8"O.C.	SEE #2&3

7 7/8" STUCCO OVER PAPER BACK'D LATH WITH 11 GA. FUR NAILS @6" O.C. @7.& 8. PLATE EDGE & FIELD (16 @SILL NAIL @ 6" O.C.) CBC TABLE 2306.4.5

1. Hold-down hardware secured in place prior to calling inspector.
2. Shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the seismic force-resisting system, where the fastener spacing of the sheathing is < 4" o.c. req'd deputy inspection
3. Sill PL.& studs @ edge of plywood for shear walls with lateral loads greater than 300 pounds/foot require a 3 inch nominal or greater member.
4. All bolt holes shall be drilled a Max. of 1/16" oversized.
5. 1/2" edge distance for plywood boundary nailing.
6. 1/8" gap at all plywood panel edges required.

STRUCTURAL STEEL

1. Shall conform to the provisions of A.S.T.M. A-572 GR50 unless otherwise noted on plans.
2. All welding is to comply with A.W.S. specifications and is to be done by welders approved by the Department of Building and Safety. All weldings will be done electric arc process and shall be performed with approved electrodes as required per the A.I.S.C. specification. Welds are designed at full stress and must be done in the shop of a licensed fabricator, except where otherwise noted on plans. Continuous inspection is required for field welds.
3. All bolts used shall conform to A325 unless otherwise noted.
4. All structural steel shall be fabricated and erected by a licensed fabricator approved by the L.A. city or county building department and a certificate of fabrication or report from the special inspection must be furnished to the job inspector prior to framing approval.
5. Shop drawings for all structural and miscellaneous steel shall be sumitted to the the Architect and approval obtained prior to fabrication.
6. All grout under steel bearing plates shall be solid drypack or non-shrink grout placed as directed by the manufacturer.
7. Continuous Inspection required during installation of High-Strength bolts field welding and ordinary framing.
8. Ordinary moment framing shall be test by nondestructive methods for compliance with approved standards and job specifications. This testing shall be a part of the special inspection required of section.
9. Electric arc weld process by operators approved by board of AWS using E-70xx electrodes in conformation to local building code. All welding shall be done by experienced and certified welders in accordance w/ the standards and requirements for electric arc welding of AWS Spec. The contractor shall provide suitable means for clamping or holding members during welding in order that warping or distortion of the structural members be minimized. Length of welds noted on details are net and do not include allowance for craters. All welds shall have 1/4" extra length each end to allow for craters. Weld shall be deposited by not more than 1/4" thick passes. Particular care shall be exercised to prevent undercutting or reducing the selection of materials at welds.
10. a certificate of fabrication or report from the special inspector must be funished to the job inspector prior to framing approval

Anchorrage:

1.Min. Two bolts per piece of sill plate and one located within 12-inch and not less than 7 bolt diameter or 4 inch of each end of each sill plate.
2.Min. of 5/8" diameter A.B. embeded 7 inch into footing and spaced not more than 6' on center for one-story buildings or 4 feet on centertwo-story buildings.
3. 3"x3"X0.229" plate washer shall be used on each A.B.
4.all anchor bolts and holdowns shall be tied in place prior to foundation inspection.

FRAMING NOTES:

1. Roof sheathing to be 1/2" CDX plywood or OSB (INDEX 24/0) with 8d common nail at: 6" O.C. in boundary, 12" O.C. in intermediated (field).
2. Floor sheathing to be 5/8" CD T & G plywood or OSB (INDEX 32/16) with 10d common nail at: 6" O.C. in boundary, 10" O.C.in intermediated (field).
3. Wood diaphragm to be inspected and approved by Building Department prior to covering.
4. See detail 5/S-1 for typical wall sheathing detail.
5. See detail 4/S-1 for typical diaphragm detail and notes.
6. See detail on framing plan for shear wall indicated by ◇
7. See shear wall ◇ denote full length and full height of the walls.
8. Structural observation will be performed when required by the Building Official.
9. A certificate of compliance will be provided for the laminated beams.
10. The max. depth of notching shall not exceed 1/6 the depth of the member, and shall not be located in the middle 1/3 of the span.
11. The max. depth of notching shall not exceed 1/4 the depth at end of spans.
12. Provide solid 2x blocking under partitions perpendicular to floor joist
13. Provide double joist under parallel bearing partitions
14. Roof sheathing requires nailing inspection before covered.
15. Holdown shall be tight before covered plywood sheathing.
16. 2-layer #15 black paper covered plywood sheathing for shear wall.
17. Stucco lath& drywall shall be nailed to all studs & to top & bottom PL.
18. roof plywd shall be bond w/ INT. & EXT. glue & be of EXT. type where exposed to weather.

FOUNDATION NOTES:

1. For floor dimension, curbs, under floor ducts, conduits, etc.
2. Verify all conditions in field.
3. See detail on plan/S-1 for shear wall indicated by ◇
4. See detail 1/S-1 for typical slab on grade, control joints, and slab depression details.
5. Shear walls ◇ denote full length and full height of the wall
6. Anchor bolts are 5/8"ø @46"O.C with galvanized plate washer 3"x3"x0.229". Anchor bolts shall be 12" at each end with 7" Min. embeddment@6" o.c TYP.
7. All Holdown hardware, anchor bolts & rebars to be secured in place prior to call for inspection.
8. Saturate the soil 18" deep before placeing the concrete slab.
9. Grading & footing to be inspected & certified by the soil engineer prior to pouring the concrete.
10. Fasteners in preservative treated wood or fire retardant treated wood shall be of hot dipped zinc coated galvanized steel or stainless steel. in accordance w/ASTM A153.

CONCRETE:

1. Cement: Type II conforming to A.S.T.M. C-150 C.B.C.
2. All concrete unless otherwise noted on plans will be regular weight hard rock type (150 1b/cu.ft.). Aggregate shall conform to A.S.T.M. C-33 with proven shrinkage characteristics of less than 0.04% as per A.S.T.M. C-157.
3. Strengths: Ultimate compressive strength at 28 days - F'c=2500 psi., ACI 318-14
4. Maximum slump of concrete used in floor slab at flat work shall be four(4) inches.
5. Vibration: Vibration of concrete shall be in accordance with the general provisions outlined in Portland Cement Association Spec. ST26.
6. Curing: Concrete shall be maintained in a moist condition for a minimum of five days after its placement. Approved curing compounds may be used in lieu of moist curing.
7. Strength tests of concrete shall be required as per code and as outlined in specification reports to be forward to the structural engineer.
8. Anchor bolts, dowels, inserts, etc. shall be securely tied in place prior to foundation inspection.
9. Location of construction and pour joints shall be approved by the Architect pouring concrete.
10. Continuous inspection required for concrete F'c greater than 2500 psi.

SOIL INFO.:

1. The foundation designed is based on the recommendations by DBA QUARTECH CONSULTANTS, PROJECT NO. 21-019-026EG, DATED JULY 26, 2021.
2. The soil bearing value used for design of footing upon undisturbed soils and 24" below lowest finished grade is: 2000 PSF for spread footings, 2000 PSF for continuous footings.
3. Soil engineer must inspect and approve footing excavation prior to placing rebars and approval to be provided to the building inspector before City approval of foundation.

REINFORCING STEEL:

1. a. All reinforced steel to conform to A.S.T.M. specification A615 Grade 60 unless noted otherwise on plans.
   b. Deformations shall be in accordance with A.S.T.M. A615.
2. Unless otherwise noted, all reinforcing steel shall be lapped 36 bar diameter or 2'-0" minimum whichever governs. All splices shall be located as detailed on plans.
3. certification and testing of reinforcing steel shall be in accordance with the provision of A.S.T.M. standards.
4. All reinforcing steel shall be supported and tied in conformance with the latest edition of "The manual of Reinforcing Steel Practice for Reinforced Concrete Structures".
5. Provide the following minimum protective covering of concrete unless otherwise noted: Deposited against earth 3" clear
   in contact with earth (formed) 2" clear

LOS ANGELES REGIONAL UNIFORM CODE PROGRAM
SPECIAL INSPECTION PROGRAM
This form to be attached to the construction plans prior to permit approval

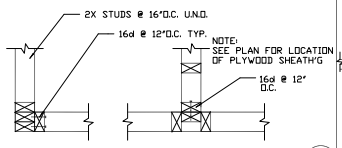
ITEMS (only checked items are required)	DESCRIPTION (only checked items are required)	individual/company/firm performed by
☐ Concrete	☐ All Concrete ☐ All mortar	
	☐ Test __ @__/__/__ @ 3 days __@ 28 days __hold	
☐ Bolts installed in Concrete	☐ Bolts in existing Concrete/masonry ☐ Bolts in shear walls	
☐ Special Moment-Resisting Concrete Frame	☐ Location as indicated ☐ All concrete frames	
	☐	
	☐ Test __@__/__/__ @ 3 days __@ 28 days __hold	
☐ Reinforcing steel and Pre-stressing Tendons	☐ Stressing and grouting of tendons	
	Steel placement: ☐ Periodic Inspection ☐ Continuous Inspection	
☐ Structural Welding	☐ All welding Except	
	Periodic: ☐ Single pass fillet welds - 5/16" ☐ Cladding Connection	
	☐ Welded studs ☐ Cold formed steel ☐ Metal deck	
	☐ Welded Rebar ☐ Reinforcing steel	
	NDT: ☐ UT	
	☐ PT	
	☐ MPT	
	☐ HT	
	☐	
☐ High-strength Bolting	Snug tight: ☐ All ☐ as indicated	
	Pretension: ☐ All ☐ as indicated	
☐ Structural Masonry	☐ Working stress Design ☐ 0.0 ☐ As shown ☐ as indicated	
	☐ Strength Design	
	☐ Empirical Design f'm=____psi	
	☐ PASTING Before During ☐ Other Remarks	
	Prisms ☐ ☐	
	Grout ☐ ☐	
	Mortar ☐ ☐	
	Units ☐ ☐	
☐ Piling, Drilled piers and Caissons	☐ Inspection by Geotechnical Engineer in addition to S. I.	
	☐ Load testing	
	Driving ☐ Continuous Inspection ☐ Periodic Inspection	
	Drilling ☐ Continuous Inspection ☐ Periodic Inspection	
☐ Shotcrete	☐ Pre-construction panel testing	
	☐ Hopkins cores testing	
☒ Others	☒ Epoxy holdown and anchorage system (periodic).	
	☒ SW AND SSW Wall (periodic).	

ITEMS:	LARR#:
HD	25720
CB	25293
CC	25714
SW	25457
LUS	25076
AB	25716
MST	25713

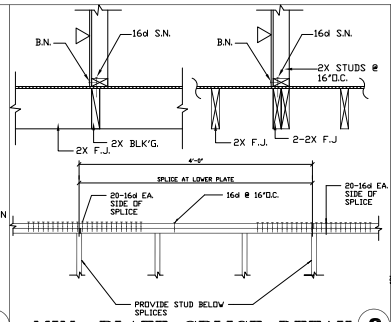
L.A R.R.# FOR SIMPTON

STUDS	MAX. UNSUPPORTED HEIGHT* BEAR'G WALL	NON BAR'G WALL
2 X 4 @ 16"	10'-0"	14'-0"
2 X 6 @ 16"	14'-0"	20'-0"
2 X 8 @ 16"	18'-0"	24'-0"

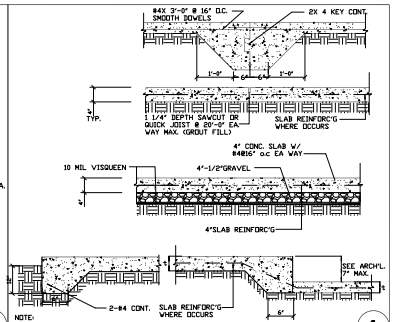
* MAX. DISTANCE BETWEEN FLOOR & ROOF.



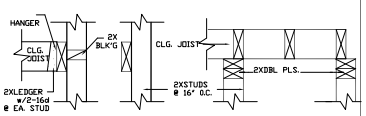
WOOD STUD SCHEDULE 3



MIN. PLATE SPLICE DETAIL 2



CONC. SLAB ON GRADE 1

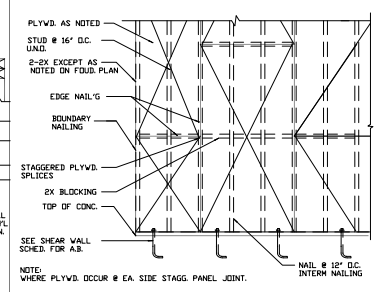


CEILING JOIST SCHEDULE

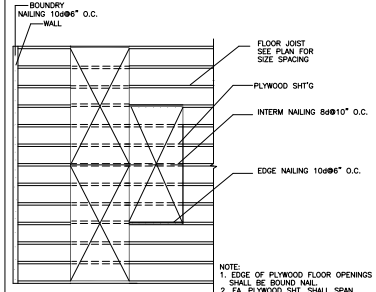
CLG. JOISTS ARE DESIGNED FOR DRYWALL DR PLAST (DL.=5 P.S.F. NLL.=10 P.S.F.)

SIZE	SPACING	JOIST SPAN (MAX.)	REMARKS
2X4	12" O.C.	12'-0"	THIS SCHEDULE APPLIES TO ALL RMS. U.N.O. ON PLANS SEE ARCH'L DRAWINGS FOR CLG. HEIGHT FIN. & SPECIFIC REQMTS.
	16" O.C.	10'-0"	
2X6	12" O.C.	18'-0"	
	16" O.C.	16'-0"	
2X8	12" O.C.	24'-0"	
	16" O.C.	21'-0"	
2X10	12" O.C.	26'-0"	
	16" O.C.	24'-0"	

CEILING JOISTS SCHEDULE 6



TYPICAL WALL SHEATHING 5



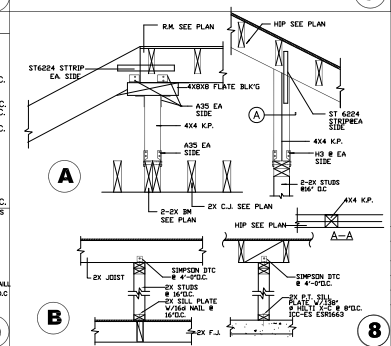
TYPICAL DIAPHRAGM 4

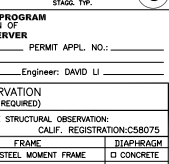
NAILING SCHEDULE (CBC 2019 TABLE 2304.10.1)
(ALL NAILS SHALL BE UTILIZE COMMON NAILS.)

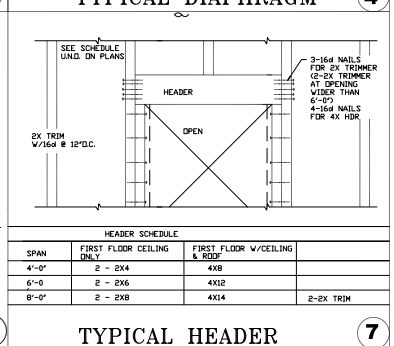
		NAILING
1.	JOIST TO SILL OR GIRDER TOE NAIL.	3 - 8d
2.	BRIDGING TO JOIST TOE NAIL EA. END.	2 - 8d
3.	1X6 SUB FIR OR LESS TO EA. JOIST FACE NAIL	2 - 8d
4.	WIDER THAN 1X6 SUB FLR. TO EA. JOIST FACE NAIL	3 - 8d
5.	2" SUB FLOOR TO JOIST OR GIRDER BLIND & FACE NAIL.	2 - 16d
6.	SOLE PL. TO JOIST OR BLKING FACE NAIL.	16d @ 16" O.C.
7.	TOP PL. TO STUD END NAIL.	2 - 16d
8.	STUD TO SOLE PL. 4-8d TOE NAIL OR 2-20d END NAIL.	16d @ 24" O.C.
9.	DOUBLE STUDS FACE NAIL.	16d @ 16" O.C.
10.	DOUBLE TOP PLS. FACE NAIL	2 - 16d
11.	TOP PLS. LAPS & INTERSECTIONS FACE NAIL.	16d @ 16" O.C.
12.	CONTINUOUS HDR. TWO PIECES.	3 - 8d
13.	CLG. JOISTS TO PL. TOE NAIL.	4 - 8d
14.	CONTINUOUS HDR. TO STUD TOE NAIL.	3 - 16d
15.	CLG. JOISTS LAPS OVER PARTITIONS FACE NAIL.	3 - 16d
16.	CLG. JOISTS TO PARALLEL RAFTERS FACE NAIL.	3 - 8d
17.	RAFTER TO PL. TOE NAIL.	2 - 8d
18.	1" BRACE TO EA. STUD & PL. FACE NAIL.	3 - 8d
19.	1X8 SHT'G OR LESS TO EA. BEARING FACE NAIL.	3 - 8d
20.	WIDER THAN 1X8 SHT'G TO EA. BEARING FACE NAIL.	16d @ 24" O.C.
21.	BUILT-UP CNR. STUDS.	

WIND & EARTHQUAKE DESIGN DATA:

1. BASIC WIND SPEED=110 MPH
2. WIND IMPORTANCE FACTOR I=1.0, RISK CATEGORY II
3. WIND EXPOSURE=C
4. ROOF DL=14 PSF, ROOF LL=20 PSF,
5. FLOOR DL=14 PSF, FLOOR LL=40 PSF,
6. MAPPED SPECTRAL RESPONSE ACCELERATIONS Ss=2.54, S1=0.848
6. SITE CLASS E
7. SPECTRAL RESPONSE COEFFIENTS, Sds=1.693, Sd1=0.848
8. SEISMIC DESIGN CATEGORY D
9. BASIC SEISMIC-FORCE-RESISTING SYSTEM: WOOD SHEAR WALL SYSTEM
10. DESIGN BASE SHEAR: V=Cs*W
11. SESMIC RESPONSE COEFFIENT: Cs=0.261
12. RESPONSE MODIFICATION FACTOR: R=6.5
13. ANALYSIS PROCEDURE USED: SEE LATERAL DESIGN
14. REDNANDUNCY FACTOR Rho=1.3







HEADER SCHEDULE			
SPAN	FIRST FLOOR CEILING ON.Y.	FIRST FLOOR W/CEILING & ROOF	
4'-0"	2 - 2X4	4X8	
6'-0	2 - 2X6	4X12	
8'-0"	2 - 2X8	4X14	2-2X TRIM

TYPICAL HEADER 7

QUALITY CONTROL PROGRAM
AND DESIGNATION OF
STRUCTURAL OBSERVER

PROJECT ADDRESS:_____ PERMIT APPL. NO.:_____
Description of Work:_____
Owner: _____ Architect: _____ Engineer: DAVID LI

STRUCTURAL OBSERVATION
(ONLY CHECKED ITEMS ARE REQUIRED)

FIRM OR INDIVIDUAL TO BE RESPONSIBLE FOR THE STRUCTURAL OBSERVATION:
NAME:DAVID LI PHONE:(626)288-1216 CALIF. REGISTRATION:C58075

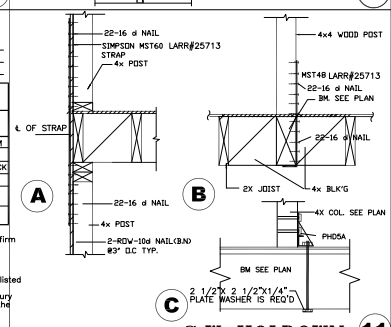
FOUNDATION	WALL	FRAME	DIAPHRAGM
☒ FOOTING, STEM WALLS, PIERS	☐ CONCRETE	☐ STEEL MOMENT FRAME	☐ CONCRETE
☐ MAT FOUNDATION	☐ MASONRY	☐ STEEL BRACED FRAME	☐ STEEL DECK
☐ CAISSON, PILES, GRADE BEAMS	☒ WOOD	☐ CONCRETE MOMENT FRAME	☒ WOOD
☐ STEEP'G/RETAIN'G FOUNDATION, HILLSIDE SPECIAL ANCHORS	☐ OTHERS: SIMPSON STRONG WALL	☐ MASONRY WALL FRAME	☐ OTHERS:
☐ OTHERS:		☐ OTHERS:	

DELARATION BY OWNER(required in any case)
I, the owner of the project, declare under penalty of perjury that the above listed firm or individual is hired by me, and not by others, to be the Structrual Observer.

Signature _____ Date _____

DECLARATION BY ENGINEER OR ARCHITECT OF RECORD(required if different from the listed Structural Observer)
I, the Engineer or Architect of record for the project, declare under penalty of perjury that the above listed firm or individual is designated by me to be responsible for the Structural Observation.

Signature _____ Date _____



S.W HOLDOWN 11

DAVID LI & ASSOCIATES
Consulting Engineers
1300 S. Gale Ave. #101
Rosemead, Ca 91770
(626) 288-1216
E-Mail dla1997@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER JACK E. LEE No. 2153 Exp. 3/31 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER No. C058075 CIVIL STATE OF CALIFORNIA

JOB LOCATION:
10201 Overhill Dr
Santa Ana, CA 92705

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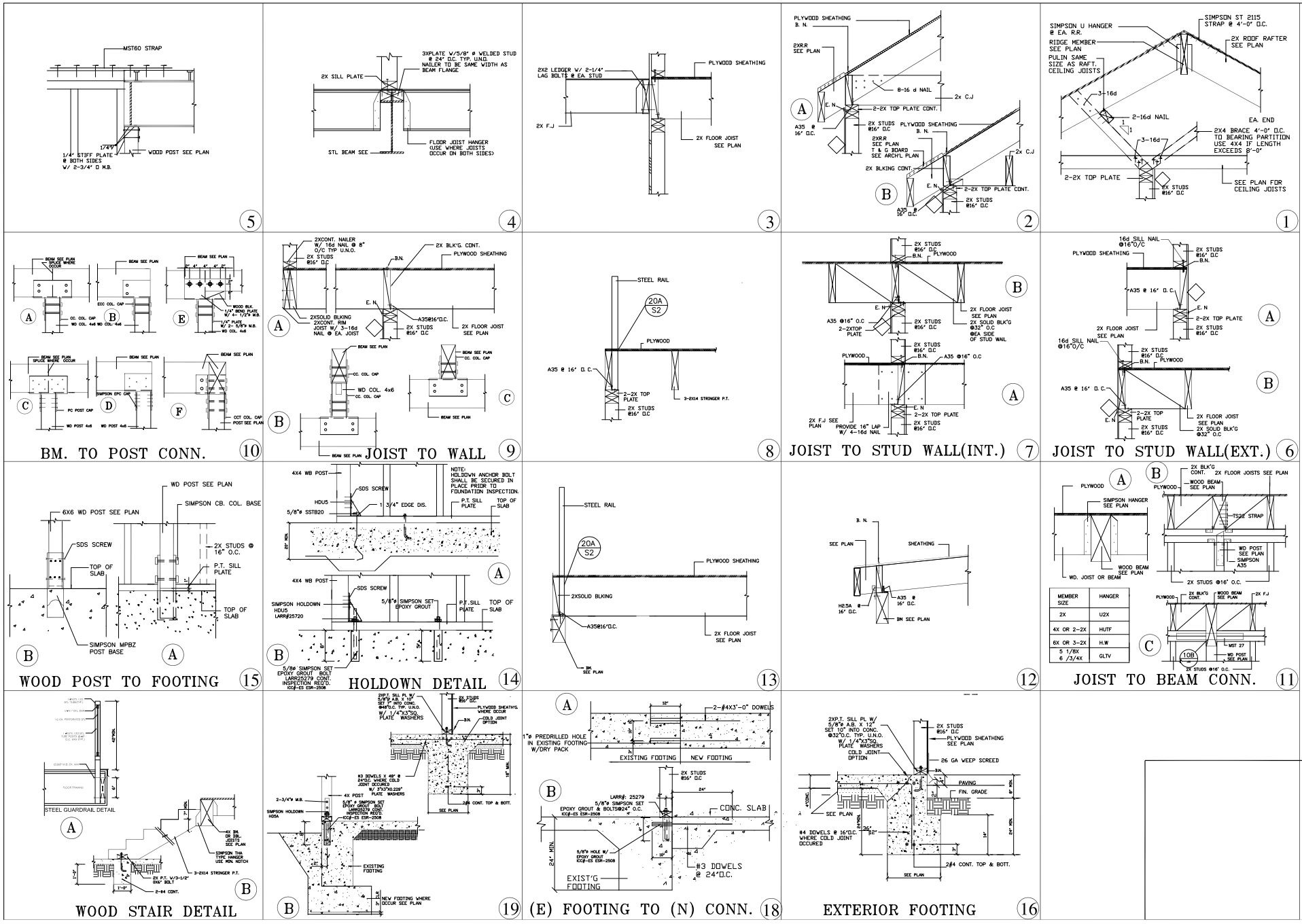

REVISIONS

DAVID LI & ASSOCIATES
Consulting Engineers
1306 N. San Gabriel Blvd. #101
Rosemead, CA 91770
(626) 288-1216

JOB LOCATION:
10201 Overhill Dr
Santa Ana, CA 92705

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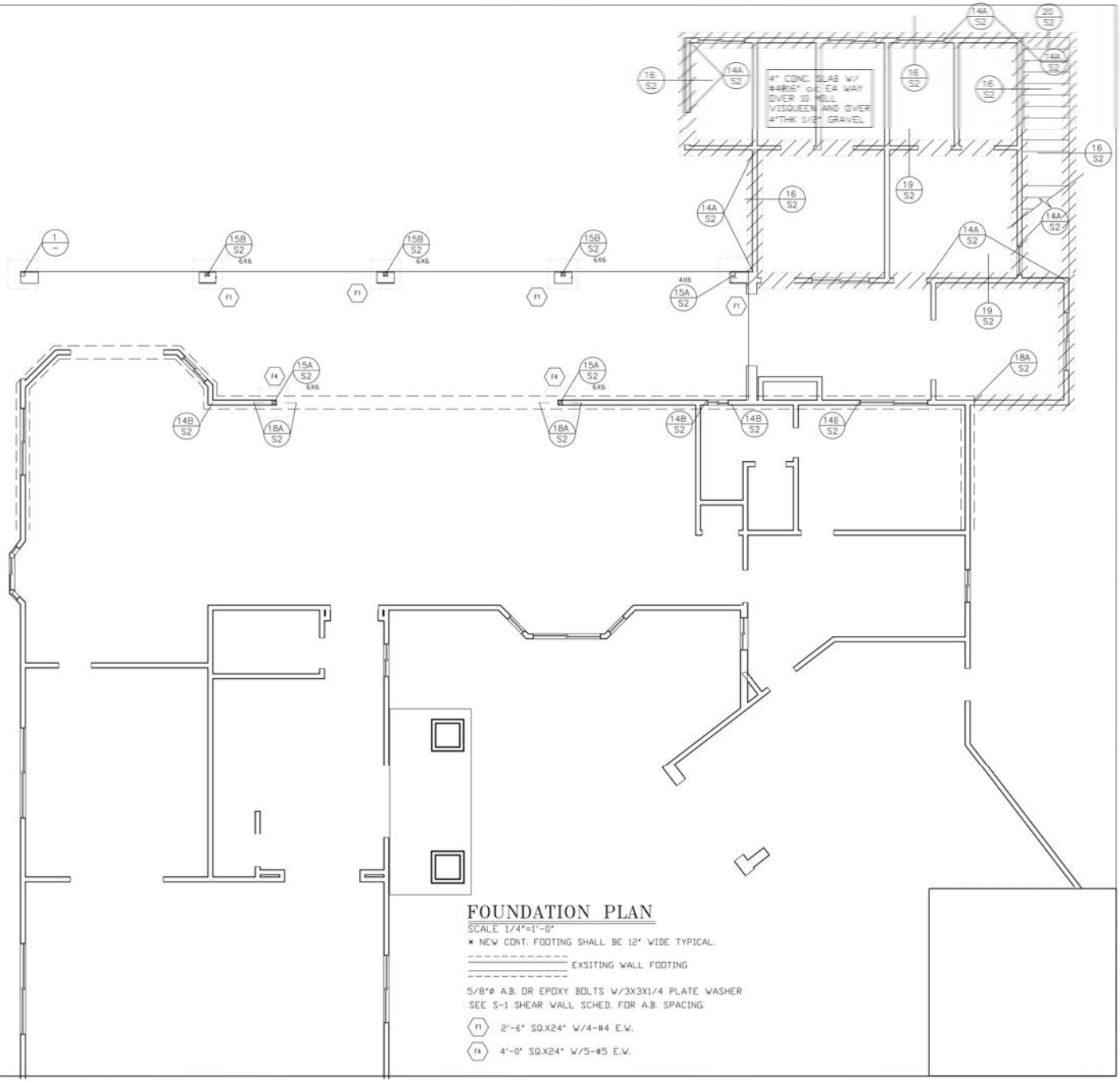

FOUNDATION PLAN

SCALE 1/4"=1'-0"

* NEW CONT. FOOTING SHALL BE 12" WIDE TYPICAL.

EXSITING WALL FOOTING

5/8"ø A.B. OR EPOXY BOLTS W/3X3X1/4 PLATE WASHER
SEE S-1 SHEAR WALL SCHED. FOR A.B. SPACING.

F1 2'-6" SQ.X24" W/4-#4 E.W.

F4 4'-0" SQ.X24" W/5-#5 E.W.

DAVID LI & ASSOCIATES
Consulting Engineers

JOB LOCATION:
10201 Quail Hill Dr
Santa Ana, CA 92705

Date
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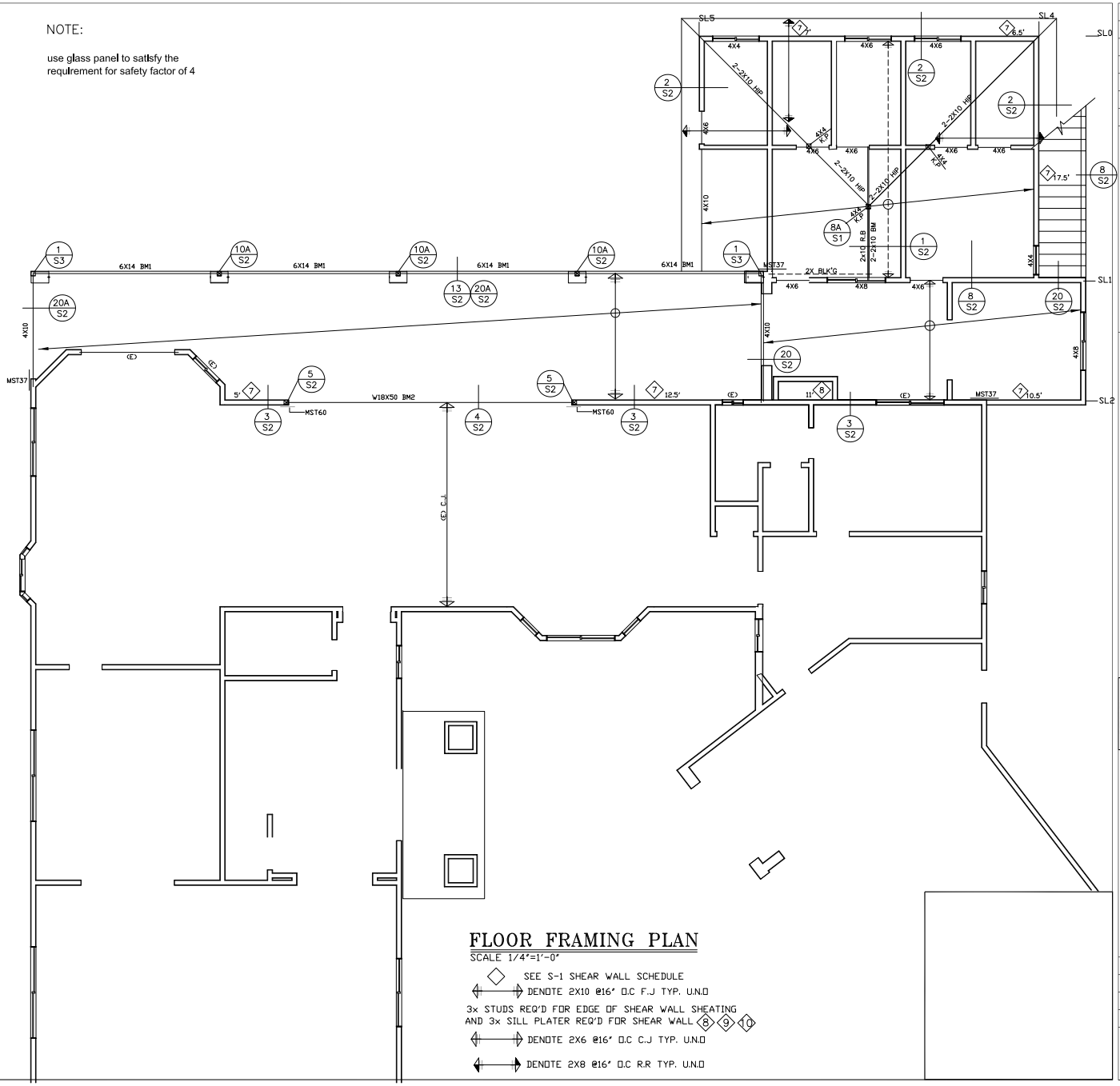
NOTE:

use glass panel to satisfy the
requirement for safety factor of 4



FLOOR FRAMING PLAN

SCALE 1/4"=1'-0"

SEE S-1 SHEAR WALL SCHEDULE

DENOTE 2X10 @16" O.C F.J TYP. U.N.O

3x STUDS REQ'D FOR EDGE OF SHEAR WALL SHEATING
AND 3x SILL PLATER REQ'D FOR SHEAR WALL 8 9 10

DENOTE 2X6 @16" O.C C.J TYP. U.N.O

DENOTE 2X8 @16" O.C R.R TYP. U.N.O

DAVID LI & ASSOCIATES
Consulting Engineers
1305 San Gabriel Blvd. #101
Rosemead, Ca 91770
(626) 288-1216
dla1997@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER
JACK C. K. LEE
No. 2153
Exp. 3/31
GEOTECHNICAL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
CHARLES DAVID GARRETT
No. C056075
CIVIL
STATE OF CALIFORNIA

JOB LOCATION:
10201 Overhill Dr
Santa Ana, CA 92705

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Passive earth pressure may be computed as an equivalent fluid pressure of 300 psf for the portion of foundation embedded within competent bedrock with a maximum earth pressure of 3000 psf. An allowable coefficient of friction between soil and concrete of 0.35 may be used with the dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third (1/3).

7.2.4 Wall Seismic Loading

Earthquake earth pressure distribution on retaining walls retaining more than 6 feet of soils when the slope of the backfill behind the wall is level may be computed as 20H psf. Resultant seismic lateral earth pressure can be applied assuming an inverted triangular distribution, with the resultant applied at a height of 2/3H measured from the bottom of wall footings. The earthquake-induced pressure should be added to the static earth pressure. Design of walls less than 6 feet in height may neglect the additional seismic pressure.

7.2.5 Retaining Wall Backfill and Wall Drainage

Walls may be backfilled with onsite soils. A free-drainage, selected backfill (SE of 30 or greater), should be used against the retaining wall to the top of the wall. The upper 18 inches of backfill should consist of native soils. All backfill should be compacted to at least 90 percent of the laboratory maximum dry density (ASTM D-1557-12).

Any proposed retaining walls at the site should be provided with backdrains to reduce the potential for the buildup of hydrostatic pressure. Backdrains should consist of 4-inch (minimum) diameter perforated PVC pipe surrounded by a minimum of 1 cubic foot per lineal foot of clean coarse gravel wrapped in filter fabric (Mirafi 140 or the equivalent) placed at the base of the wall. The drain should be covered by no less than 18 inches (vertical) of compacted wall backfill soils. The backdrain should outlet through non-perforated PVC pipe or weepholes. Alternatively, commercially available drainage fabric (i.e., J-drain) could be used. The fabric manufacturer's recommendations should be followed in the installation of the drainage fabric backdrain.

If there is not enough room for placing the above mentioned drainage systems, an alternative system such as pre-fabricated drainage system AQUADRAIN 100 BD with a 3-inch drain pipe set in gravel behind the wall, to prevent the buildup of hydrostatic pressure. This drainpipe may be connected to a 3-inch drain collector pipe connected to a sump pump.

7.1.4 Temporary Near Surface Soil Removal

Based on our subsurface investigation and accordance with our stability analysis of the temporary excavation, it is anticipated temporary near surface soil vertical excavation up to 5 feet in height is expected to have a factor of safety of at least 1.25 against soil failure.

However, it should be noted that leaving a backcut open and unsupported greatly increases the risk for soil failure. It is recommended that, once started, backcuts should be excavated and filled continuously in an expeditious manner. The time between excavation and filling operation should be minimized. Careful examination of the soil during excavation and inspection of the backfill materials by the project geotechnical engineer is mandatory to verify the conditions or to make such recommendations as are pertinent if different conditions are disclosed.

7.2 Shallow Foundation Design

The site is underlain by the surficial fills and bedrock. Foundations should be setback from the adjacent slope face per current Building Code. The following recommendations should be incorporated in the design and construction phases of the project.

7.2.1 Shallow Foundation System

An allowable bearing value of 2000 pounds per square foot (psf) may be used for design of continuous and pad footings with a minimum of 12 and 24 inches in width, respectively. This value may be increased by 200 pounds per square foot for each additional foot of depth or width to a maximum value of 3000 pounds per square foot. All footings should be a minimum of 24 inches deep and founded on competent bedrock. This bearing value may be increased by one third (1/3) when considering short duration seismic or wind loads.

7.2.2 Settlement

Settlement of the footings placed as recommended and subject to no more than allowable loads is not expected to exceed 3/4 inch. Differential settlement between adjacent columns is not anticipated to exceed 1/2 inch.

7.2.3 Lateral Pressure

The active earth pressure to be utilized for cantilever retaining wall designs may be computed as an equivalent fluid having a density of 35 pounds per cubic foot when the slope of the backfill behind the wall is level. Where the slope of the back'fill is 2 to 1, an equivalent fluid pressure of 60 pounds per cubic foot may be used.

PublicWorks

Structural Observation Report Form

STRUCTURAL OBSERVATION: means the visual observation of the structural system, for general conformance to the approved plans and specifications, at significant construction stages, and at completion of the structural system. Structural observation does not include or waive the responsibility for the inspections required by Section 110, 1704 or other sections of the Code.

Report No. ____
This report includes all construction work through _____ days of _____, 20____. Page No. ____ of ____

PROJECT ADDRESS:		STRUCTURAL OBSERVER OF RECORD (SOR):	SOR PHONE NO.:
Building Permit No.:	Structural Observation performed by:	Observer Professional Lic./Reg. No.:	Observer Phone No.:

OBSERVED STRUCTURAL ELEMENTS AND THEIR CONNECTIONS

FOUNDATION	WALL	FRAMES	FLOOR	PORTION OBSERVED, IF NOT WHOLE
☐ Footing, Stem Walls	☐ Concrete	☐ Steel Moment Frame	☐ Concrete	
☐ Mat Foundation	☐ Masonry	☐ Steel Braced Frame	☐ Steel Deck	
☐ Caisson, Piles, Grade Beams	☐ Wood	☐ Concrete Moment Frame	☐ Wood	
☐ Retaining Foundation Hillside Special Anchors	☐ Other:	☐ Masonry Wall Frame	☐ Others:	
☐ Others:		☐ Others:		

Remarks: _____

I DECLARE THAT THE FOLLOWING ARE TRUE TO THE BEST OF MY KNOWLEDGE:

1. I am the engineer or architect retained by the owner to be in responsible charge for the structural observation in accordance with the requirements of the County of Orange.
2. I, or another Engineer or Architect who I have designated above and is under my responsible charge, has performed the required site visits at each significant construction stage to verify if the structure is in general conformance with approved plans and specifications;

SIGNATURE _____ DATE 7/17/2025

STAMP OF STRUCTURAL OBSERVER OF RECORD

PublicWorks

Special Inspection Program and Designation of Special Inspectors

SPECIAL INSPECTIONS
(Only checked items are required)

INSPECTION ITEMS	SPECIAL INSPECTOR(S): NAME, PHONE NUMBER, REGISTRATION #
☐ Concrete (Design Mix, Form Work, Placement, etc., per table 1705.3)	
☐ Erection of Pre-Cast Concrete Members	
☐ Bolts Installed in Concrete	
☐ Reinforcing Steel and Pre-Stressing Steel Tendons	
☐ Structural Welding/Rebar Welding	
☐ High-Strength Bolting/Material Verification	
☐ Steel Frame Joint Details	
☐ All Masonry Construction	
☐ Sprayed Fire-Resistive Materials	
☐ Shotcrete (Curing Temperature, Design Mix, Placement, Strength etc. per table 1705.3)	
☐ Soils (Excavation, Fill, etc. per table 1705.6)	
☐ Smoke-Control System	
☐ Driven Piles per Table 1705.7	
☐ Cast in Place Piles per Table 1705.8	
☐ Mastic and Intumescent Fire-Resistant Coatings	
☐ Exterior Insulation and Finish Systems (EIFS)	
☐ Wood for High-Load Diaphragms	
☐ Others	
☐ Others	
☐ Others	
☐ Others	

DECLARATION BY OWNER OR ARCHITECT/ENGINEER OF RECORD:

I, the ☐ Owner ☐ Engineer or ☐ Architect of record, declare that the above listed Special Inspector(s) is/are hired by me.

SHELL MANALANG		7/17/2025
Print Name	Signature	Date

DAVID LI & ASSOCIATES
Consulting Engineers
1305 San Gabriel Blvd. #101

JOB LOCATION:
10201 Overhill Dr
Santa Ana, CA 92705

Date
Scale
Drawn
Job 224
Sheet
S-6
Of

10. **Administrative Requirements:** The following notes (items) represent the administrative requirements for all buildings and shall appear as notes on the plans.

A) The person in charge of the construction or installation, who is eligible under Division 3 of the Business and Professions Code to accept responsibility for the construction or installation of regulated manufactured devices shall post, or make available with the building permit(s) issued for the building, the Certificate of Installation documentation for manufactured devices regulated by the Appliance Efficiency Regulations or Part 6. Such Certificate of Installation documentation shall be made available to the enforcement agency for all applicable inspections. These certificates shall:

i) Identify features, materials, components, manufactured devices, and system diagnostic results required to verify compliance with the Appliance Efficiency Regulations and Part 6.

ii) State the number of the building permit under which the construction or installation was performed. Sections of the certificate(s), for which submittal to a HERS provider data registry is required, shall display the unique registration number assigned by the HERS data registry.

iii) Include a declaration statement indicating that the constructed or installed features, materials, components, or manufactured devices conform to all applicable codes and regulations, and to the requirements for such devices given in the plans and specifications approved by the local enforcement agency.

iv) Be signed by the documentation author to certify the documentation is accurate and complete.

v) Be signed by the individual eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or installation in the applicable classification for the scope of work specified on the Certificate of Installation document(s). Sec. 10-103 (a) 3 A

B) The builder shall provide the building owner or the person(s) responsible for operation and maintenance of the feature, material, component or mechanical device installed (in case of multi-tenant or centrally operated buildings) with the following at the time of occupancy:

i) Compliance information. The appropriate completed and signed Certificate(s) of Compliance, Certificate(s) of Installation, and if applicable Certificate(s) of Verification documentation submitted.

ii) Operating information. The appropriate Certificate(s) of Compliance and a list of the features, materials, components, and mechanical devices installed in the building and instructions on how to operate them correctly and efficiently.

iii) Maintenance information. Required routine maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying the operation and maintenance manual.

iv) Ventilation Information. A description of the quantity of outdoor air that the ventilation system is designed to provide to the building conditioned space, and instructions for proper operation and maintenance. Sec. 10-103 (b)

C) The Enforcement agency shall not issue a Certificate of Occupancy until all required Certificates of Verification are posted and made available to the building department for all applicable inspections, and that all Certificates of Verification conform to the specifications of Section 10-103(a)5. Sec. 10-103 (d) 2

11. Mandatory Measures: The following circled items represent the Mandatory Measures for all buildings and **shall appear as notes on the plans**.

A) Manufactured fenestration products and exterior doors shall:
1) Have a clearly visible temporary label meeting the requirements of Sec. 10-111 (a) 1, not to be removed before inspection by the enforcement agency, listing the certified U-factor, the solar heat gains coefficient (SHGC), and Visible Transmittance (VT) certifying that the air leakage requirements of Sec. 110.6 (a) 1 are met for each product line; and
2) Have a permanent label meeting the requirements of Sec. 10-111 (a) 2 if the product is rated using NFRC procedures.

Sec. 110.6 (a)

B) Field-fabricated fenestration and field-fabricated exterior doors shall be caulked between the fenestration products or exterior door and the building, and shall be weather stripped. EXCEPTION: Unframed glass doors and fire doors.

Sec. 110.6 (b)

C) Joints, penetrations and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather stripped, or otherwise sealed to limit infiltration and exfiltration.

Sec. 110.7

D) All insulating material shall be installed in compliance with the flamespread rating and smoke density requirements of the CBC.

Sec. 110.8 (c)

E) No mechanical equipment nor plumbing vents shall be located within the designated "Solar Zone" areas.

Sec 110.10 (b) 1-B

F) Any roofing product used as a cool roof shall be certified and labeled in accordance with the requirements of Sec. 10-113 by the Cool Roof Rating Council (CRRC) and meet conditions set in Sec. 110.8 (i)

G) New space conditioning equipment shall meet the applicable efficiency requirements of Tables 110.2-(A-K).

Sec. 110.2 (a)

H) All unitary systems not controlled by EMCS shall have setback thermostats; capable to program temperature setpoints for at least four periods within a 24 hr. period.

Sec. 110.2 (2) (c)

I) Heat pumps with supplementary electric resistance heaters shall have controls:
1) That prevent supplementary heater operation when the heating load can be met by the heat pump alone; and
2) Cut-on temperature for compression heating is higher than cut-on temperature for supplementary heating, cut-off temperature for compression heating is higher than the cut-off temperature for supplemental heating.

Sec. 110.2 (b)

J) Unfired water tanks (storage tanks or backup storage tanks for solar water heating) shall be externally wrapped with an insulation of R-12 or greater or have internal insulation of R-16 or greater with a label showing the insulation R-value.

Sec. 150.0 (j)

K) All factory fabricated duct systems shall comply with UL 181. This includes all ducts, and closure systems such as collars, connections and splices. Labeled, complying to UL 181.

Sec. 150.0 (m)2

L) For single family dwellings and townhouses with the ducts connected directly to the air handler, the total leakage of the duct system shall not exceed 5 percent of the nominal system air handler airflow as determined utilizing the procedures in Reference Residential Appendix Section RA3.1.4.3.1. If the single-family dwellings and townhouses are in the "rough-in stage of construction" prior to installation and the air-handling unit is not yet installed the leakage shall not exceed 4 percent of the air-handler systems manufactured listed airflow.

Sec. 150.0 (m)11-A

M) All air distribution system ducts and plenums, including, but not limited to, building cavities, mechanical closets, air-handler boxes and support platforms used as ducts or plenums, shall be installed, sealed and insulated to meet the requirements of the 2019 California Mechanical Code and ANSI/SMACNA - 006.2006 HVAC Duct Construction Standards Metal and Flexible. Supply-air ducts conveying heated or cooled air shall be insulated to a minimum installed level of R-4.2 (R-6.0 in unconditioned space), unless ducts are in conditioned space.

Sec. 150.0 (m)

N) All dwelling buildings shall meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

Sec. 150.0 (o)

O) The piping for all space conditioning and service water heating systems shall be insulated in accordance with TABLE 120.3 -A.

P) Service water heating systems and equipment shall meet the applicable requirements of the Appliance Efficiency Regulations as required by Sec. 110.1.

Sec. 110.3 (b)

Q) Service hot water systems with circulating pumps or with electrical heat trace systems shall be capable of automatically turning off the system.

Sec. 110.3 (c) 2

R) Instantaneous water heaters with an input rating greater than 6.8 kBTU/hr. (2 kW) shall have isolation valves on both the cold water supply and the hot water pipe leaving the water heater. Hose bibs or other fittings shall be installed on each valve for flushing the water heater when the valves are closed. Provide detail.

Section 110.3 (c) 6

CERTIFICATE OF COMPLIANCE

Project Name: NEW DRESSING ROOM / BAR / OFFICE — Calculation Date/Ti

Calculation Description: Title 24 Analysis — Input File Name: L2

GENERAL INFORMATION

01	Project Name	NEW DRESSING ROOM / BAR / OFFICE	
02	Run Title	Title 24 Analysis	
03	Project Location	10201 OVERHILL DR, N	
04	City	TUSTIN	05
06	Zip code	92705	07
08	Climate Zone	8	09
10	Building Type	Single family	11
12	Project Scope	AdditionOnly	13
14	Addition Cond. Floor Area (ft²)	734	15
16	Existing Cond. Floor Area (ft²)	6868	17
18	Total Cond. Floor Area (ft²)	7602	19
20	ADU Bedroom Count	n/a	21
22	Is Natural Gas Available?	Yes	

Addition Alone Project Analysis Parameters

01	02	03
Existing Area (excl. new addition) (ft2)	Addition Area (excl. existing) (ft2)	Total Area (ft2)
6868	734	7602

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS-r
03	This building incorporates one or more Special Features shown below

Registration Number: 423-P010136267A-000-000-00000000-0000 — Registration Date/Time: 09/1

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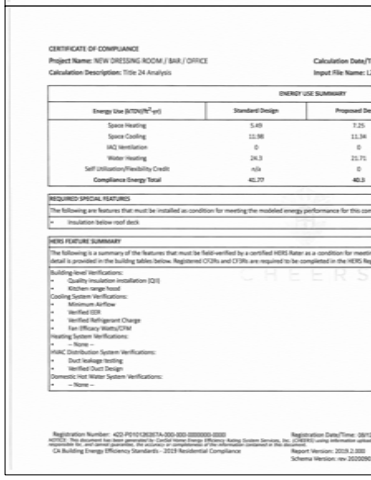
Schema Version: rev.20200901



CERTIFICATE OF COMPLIANCE

Project Name: NEW DRESSING ROOM / BAR / OFFICE — Calculation Date/T

Calculation Description: Title 24 Analysis — Input File Name: L2

ENERGY USE SUMMARY

Energy Use (kTON/ft²-yr)	Standard Design	Proposed De
Space Heating	5.49	7.25
Space Cooling	11.98	11.34
IAQ Ventilation	0	0
Water Heating	24.3	21.71
Self Utilization/Flexibility Credit	n/a	0
Compliance Energy Total	41.77	40.3

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this con

- Insulation below roof deck

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meetin
detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Re

Building-level Verifications:
- Quality Insulation Installation (QII)
- Kitchen range hood

Cooling System Verifications:
- Minimum Airflow
- Verified EER
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM

Heating System Verifications:
- — None —

HVAC Distribution System Verifications:
- Duct leakage testing
- Verified Duct Design

Domestic Hot Water System Verifications:
- — None —

Registration Number: 423-P010136267A-000-000-00000000-0000 — Registration Date/Time: 09/1

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Schema Version: rev.20200901

CERTIFICATE OF COMPLIANCE — CF1R-PRF-01E

Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation Date/Time:** 2022-08-12T16:52:10-07:00 — (Page 3 of 8)

Calculation Description: Title 24 Analysis — **Input File Name:** L22-3559.rbd19x

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
FLOOR PLAN	Conditioned	NEW DRESSING ROOM / BAR /1	734	9	DHW Sys 1	N/A

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status
WEST WALL	FLOOR PLAN	R-19 Wall	270	Back	297	18	90	none	New
EAST WALL	FLOOR PLAN	R-19 Wall	90	Front	297	20	90	none	New
NORTH WALL	FLOOR PLAN	R-19 Wall	0	Right	284.4	33.8	90	none	New
SOUTH WALL	FLOOR PLAN	R-19 Wall	180	Left	284.4	33.3	90	none	New
R-30 Roof	FLOOR PLAN	R-30 Roof Attic	n/a	n/a	734	n/a	n/a		New

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic FLOOR PLAN	Attic RoofFLOOR PLAN	Ventilated	4	0.1	0.85	Yes	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
WINDOWS	Window	WEST WALL	Back	270			1	18	0.3	NFRC	0.23	NFRC	Bug Screen
WINDOWS.2	Window	EAST WALL	Front	90			1	20	0.3	NFRC	0.23	NFRC	Bug Screen
WINDOWS.3	Window	NORTH WALL	Right	0			1	33.8	0.3	NFRC	0.23	NFRC	Bug Screen
WINDOWS.4	Window	SOUTH WALL	Left	180			1	33.3	0.3	NFRC	0.23	NFRC	Bug Screen

Registration Number: 422-P010126367A-000-000-0000000-0000 — Registration Date/Time: 08/12/2022 16:44 — HERS Provider: CHEERS

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CERTIFICATE OF COMPLIANCE — CF1R-PRF-01E

Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation Date/Time:** 2022-08-12T16:52:10-07:00 — (Page 4 of 8)

Calculation Description: Title 24 Analysis — **Input File Name:** L22-3559.rbd19x

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Covered Slab	FLOOR PLAN	734	129.2	none	0	80%	No

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R-19	None / None	0.074	Inside Finish: Gypsum Board Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6 Exterior Finish: 3 Coat Stucco
Attic RoofFLOOR PLAN	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in. O.C.	R-19	None / None	0.052	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Roof Deck: Wood Siding/Sheathing/Decking Cavity / Frame: R-19 / 2x6
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x8 @ 16 in. O.C.	R-30	None / None	0.033	Over Ceiling Joists: R-11.2 insul. Cavity / Frame: R-18.9 / 2x8 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFMI50
Required	Not Required	Not Required	n/a

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CERTIFICATE OF COMPLIANCE

Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation**

Calculation Description: Title 24 Analysis — **Input File**

WATER HEATING SYSTEMS

01	02	03	04
Name	System Type	Distribution Type	Water Heater Name (#)
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1-(1)

WATER HEATERS

01	02	03	04	05	06	07	08	09
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (hr/ft2)	Stand Loss Recover
DHW Heater 1	Gas	Consumer Instantaneous	1	0	0.95-UEF	<= 200 kBtu/hr	0	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact D
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	N

SPACE CONDITIONING SYSTEMS

01	02	03	04	05
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name
NEW DRESSING ROOM / BAR /1	Heating and cooling system other	Heating Component 1	Cooling Component 1	HVAC Fan 1

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CERTIFICATE OF COMPLIANCE — CF1R-PRF-01E

Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation Date/Time:** 2022-08-12T16:52:10-07:00 — (Page 6 of 8)

Calculation Description: Title 24 Analysis — **Input File Name:** L22-3559.rbd19x

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Heating Efficiency
Heating Component 1	Central gas furnace	1	AFUE-80

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER/CEER	Efficiency SEER	Zonally Controlled	Multi-speed Compressor	HERS Verification
Cooling Component 1	Central split AC	1	12.2	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Not Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
			Duct Ins. R-value		Duct Location		Surface Area								
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification	Status	Verified Existing Condition	Existing Distribution system	New Ducts 40 ft
Air Distribution System 1	Unconditioned attic	Verified Design	See duct design	See duct design	Attic	Attic	24.64	0	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist	New	n/a	n/a	n/a

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Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation Date/Time:** 2022-08-12T16:52:10-07:00 — (Page 7 of 8)

Calculation Description: Title 24 Analysis — **Input File Name:** L22-3559.rbd19x

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 1-hers-dist	Yes	5.0	Not Required	Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan 1	HVAC fan	0.45	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.45

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CERTIFICATE OF COMPLIANCE

Project Name: NEW DRESSING ROOM / BAR / OFFICE — **Calculation**

Calculation Description: Title 24 Analysis — **Input File**

DOCUMENTATION-AUTHOR'S DECLARATION STATEMENT

I, I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Raymond Zhong	Documentation
Company: Perfect Design	Signature Da 08/12/202
Address: 2416 W. Valley Boulevard	CEA/HERS Ce
City/State/Zip: Alhambra, CA 91803	Phone: 626-289-8

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building desig
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance con
3. The building design features or system design features identified on this Certificate of Compliance are consistent calculations, plans and specifications submitted to the enforcement agency for approval with this building perm

Responsible Designer Name: SERGIO GONZALEZ	Responsible
Company: SEGORO AND ASSOCIATES	Date Signed:
Address: 6 N. FIRST AVE., STE.101	
City/State/Zip: ARCADIA, CA 91006	Phone:

Digitally signed by CentCal Home Energy Efficiency Rating System Services, Inc. (CHEERS). This digital signature is generated in a content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information

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RESIDENTIAL MEASURES SUMMARY

RMS-1

Project Name	Building Type	Date
NEW DRESSING ROOM / BAR / OFFICE	☒ Single Family ☐ Multi Family ☒ Addition Alone ☐ Existing+ Addition/Alteration	8/12/2022

Project Address	Climate Zone	Total Const. Floor Area	Addition	# of Units
10201 OVERHILL DR. N. TUSTIN	CA Climate Zone 08	734	734	1

INSULATION

Construction Type		Cavity	Area (ft^2)	Special Features	Status
Roof	Wood Framed Attic	R 30	734	Addl=R-18.0	New
Wall	Wood Framed	R 19	1,088		New
Slab	Unheated Slab-on-Grade	- no insulation	734	Perim = 129'	New

FENESTRATION

Total Area: 105 | Glazing Percentage: 14.3% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Rear (W)	18.0	0.300	0.23	none	none	N/A	New
Front (E)	20.0	0.300	0.23	none	none	N/A	New
Right (N)	33.8	0.300	0.23	none	none	N/A	New
Left (S)	33.3	0.300	0.23	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Central Furnace	80% AFUE	Split Air Conditioner	14.0 SEER	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
NEW DRESSING ROOM /	Ducted	Ducted	Attic	8.0	New

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Small Instantaneous Gas	1	0.95	Standard	New

2019 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. "Exceptions may apply.
(01/2020)

Building Envelope Measures:

§ 110.6(a)1 **Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.

§ 110.6(a)5 **Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).

§ 110.6(b) **Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.3 for exterior doors. They must be caulked and/or weather-stripped.

§ 110.7 **Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.

§ 110.8(a) **Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).

§ 110.8(g) **Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).

§ 110.8(i) **Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.

§ 110.8(j) **Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.

§ 150.0(a) **Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling, or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.

§ 150.0(b) **Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.

§ 150.0(c) **Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B.

§ 150.0(d) **Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.

§ 150.0(f) **Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).

§ 150.0(g)1 **Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).

§ 150.0(g)2 **Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air permeable insulation.

§ 150.0(q) **Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58, or the weighted average U-factor of all fenestration must not exceed 0.58.

Fireplaces, Decorative Gas Appliances, and Gas Log Measures:

§ 110.5(a) **Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.

§ 150.0(e)1 **Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.

§ 150.0(e)2 **Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion air control device.

§ 150.0(e)3 **Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.

Space Conditioning, Water Heating, and Plumbing System Measures:

§ 110.0 § 110.3 **Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.

§ 110.2(a) **HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.

§ 110.2(b) **Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone, and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.

§ 110.2(c) **Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.

§ 110.3(a)4 **Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(a)1.

§ 110.3(c)6 **Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

§ 110.5 **Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 100 Btu per hour); and pool and spa heaters.

§ 150.0(n) **Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume, the SMACNA Residential Comfort System Installation Standards Manual, or the ACCA Manual J using design conditions specified in § 150.0(h)2.

2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)3A **Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.

§ 150.0(h)3B **Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.

§ 150.0(j)1 **Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

§ 150.0(j)2A **Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7 : the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*

§ 150.0(j)3 **Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.

§ 150.0(n)1 **Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use". a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed, a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance, and a gas supply line with a capacity of at least 200,000 Btu per hour.

§ 150.0(o)2 **Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.

§ 150.0(p)3 **Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.

Ducts and Fans Measures:

§ 110.8(d)3 **Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.

§ 150.0(m)1 **CMC Compliance.** All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.

§ 150.0(m)2 **Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures, joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.

§ 150.0(m)3 **Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.

§ 150.0(m)7 **Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.

§ 150.0(n)8 **Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.

§ 150.0(q)6 **Protection of Insulation.** Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.

§ 150.0(n)10 **Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.

§ 150.0(n)11 **Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.

§ 150.0(n)12 **Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in §150.0(n)12. Filters must be accessible for regular service.*

§ 150.0(n)13 **Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*

2019 Low-R

Requirements for Ventilation and Indoor Air Qu

§ 150.0(o)1 **Requirements for Ventilation** and Acceptable Indoor Air Qu

§ 150.0(o)1C **Single Family Detached Dwe** other dwelling units, occupiab determined by ASHRAE 62.2

§ 150.0(o)1E **Multifamily Attached Dwellin** accordance with Equation 150 system is not used, all units in

§ 150.0(o)1F **Multifamily Building Central** ventilation airflow for each dw within 20 percent of the unit w

§ 150.0(o)1G **Kitchen Range Hoods.** Kitch

§ 150.0(o)2 **Field Verification and Diagn** Appendix RA3.7. A kitchen ran rated by HVI to comply with th

Pool and Spa Systems and Equipment Measure

§ 110.4(a) **Certification by Manufacture** that complies with the Appliance without adjusting the thermost resistance heating.

§ 110.4(b)1 **Piping.** Any pool or spa heater dedicated suction and return

§ 110.4(b)2 **Covers.** Outdoor pools or spa

§ 110.4(b)3 **Directional Inlets and Time** will allow all pumps to be set

§ 110.5 **Pilot Light.** Natural gas pool a

§ 150.0(p) **Pool Systems and Equipme** rate, piping, filters, and valves

Lighting Measures:

§ 110.9 **Lighting Controls and Com** of § 110.9.

§ 150.0(k)1A **Luminaire Efficacy.** All instal

§ 150.0(k)1B **Blank Electrical Boxes.** The other device must be no great fan speed control.

§ 150.0(k)1C **Recessed Downlight Lumina** labeling, air leakage, sealing,

§ 150.0(k)1D **Electronic Ballasts for Fluor** output frequency no less than

§ 150.0(k)1E **Night Lights, Step Lights, an** that comply with Table 150.0-A or controlled by vacancy sensors

§ 150.0(k)1F **Lighting Integral to Exhaust** must meet the applicable requ

§ 150.0(k)1G **Screw based luminaires.** Scr

§ 150.0(k)1H **Light Sources in Enclosed** temperature requirements, inc

§ 150.0(k)1I **Light Sources in Drawers, C** comply with Table 150.0-A or t more than 150 lumens, and an

§ 150.0(k)2A **Interior Switches and Contro**

§ 150.0(k)2B **Interior Switches and Contro**

§ 150.0(k)2C **Interior Switches and Contro** turned ON and OFF.*

§ 150.0(k)2D **Interior Switches and Contro**

§ 150.0(k)2E **Interior Switches and Contro** comply with § 150.0(k).

§ 150.0(k)2F **Interior Switches and Contro**

2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(k)2G **Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it provides functionality of the specified control according to § 110.9, meets the Installation Certificate requirements of § 130.4, meets the EMCS requirements of § 130.0(a), and meets all other requirements in § 150.0(k)2.

§ 150.0(k)2H **Interior Switches and Controls.** A multisource programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.

§ 150.0(k)3I **Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.

§ 150.0(k)2J **Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*

§ 150.0(k)2K **Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.

§ 150.0(k)3A **Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in Item § 150.0(k)3A1 (ON and OFF switch) and the requirements in either § 150.0(k)3A2 (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3A3 (astronomical time clock), or an EMCS.

§ 150.0(k)3B **Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches, and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.

§ 150.0(k)3C **Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.

§ 150.0(k)4 **Internally Illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).

§ 150.0(k)5 **Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

§ 150.0(k)6A **Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.

§ 150.0(k)6B **Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must:
i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and
ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.

Solar Ready Buildings:

§ 110.10(a)1 **Single Family Residences.** Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b) through § 110.10(e).

§ 110.10(a)2 **Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).

§ 110.10(b)1 **Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.

§ 110.10(b)2 **Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.

§ 110.10(b)3A **Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.*

§ 110.10(b)3B **Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.

§ 110.10(b)4 **Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.

§ 110.10(c) **Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single family residences and central water heating systems, a pathway reserved for routing plumbing from the solar zone to the water heating system.

§ 110.10(d) **Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.

§ 110.10(e)1 **Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.

§ 110.10(e)2 **Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric".

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	Date
NEW DRESSING ROOM / BAR / OFFICE	8/12/2022
System Name	Floor Area
NEW DRESSING ROOM / BAR / OFFICE	734

ENGINEERING CHECKS	
Number of Systems	1
Heating System	
Output per System	40,800
Total Output (Btu/h)	40,800
Output (Btu/h/sqft)	55.6
Cooling System	
Output per System	22,800
Total Output (Btu/h)	22,800
Total Output (Tons)	1.9
Total Output (Btu/h/sqft)	31.1
Total Output (sqft/Ton)	386.3
Air System	
CFM per System	800
Airflow (cfm)	800
Airflow (cfm/sqft)	1.09
Airflow (cfm/Ton)	421.1
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

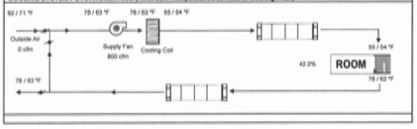
Note: values above given at AR conditions

SYSTEM LOAD

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads	244	5,887	489	277	10,600
Return Vented Lighting		0			
Return Air Ducts		218			556
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		218			556
TOTAL SYSTEM LOAD		6,323	489		11,602
Total Adjusted System Output (Adjusted for Peak Design conditions)		17,815	3,987		40,800
TIME OF SYSTEM PEAK		Aug 3 PM			Jan 1 AM

HVAC EQUIPMENT SELECTION

CARRIER 24ABB0324A060/CVA-070-12 (2 TON) 17,815 3,987 40,800

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)

COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)