

403 S GARNSEY ST UNIT #2, SANTA ANA, CA 92701

SCOPE OF WORK:

1. CONVERT (E) 256 SQ.FT. GARAGE INTO AN A.D.U. WITH 1 BEDROOM, 1 BATHROOM, KITCHEN, AND LIVING ROOM. NEW 150 SQ.FT. ADDITION FOR THE A.D.U. NEW A.D.U. TOTAL 406 SQ.FT.

DATA:

- OWNERS: DANIEL POON
- LOT SIZE: 3,049 SQ.FT.
- PARCEL NUMBER: 008-204-05
- TYPE OF CONSTRUCTION: V-B
- PROJECT DESIGN CRITERIA PER 2022 CBC, SECTION 1603.1
- **UNDERGROUND SERVICES ALERT: CALL TOLL FREE: 811 BEFORE YOU DIG
- CRC R106.1.1 & R106.2
- FLOOD ZONE: X (REDUCED FLOOD RISK)
- MAIN RESIDENCE FIRE SPRINKLERS: NONE
- PROPOSED ADU FIRE SPRINKLERS: NOT REQUIRED
- PROPOSED ADU AREA: 406 SQ.FT.
- VHFHSZ: NO
- OCCUPANCY: R-3
- STORY: 1 STORY

ADU sf / SFD sf	
406 SQ.FT. / 1040 SQ.FT.	39%

LEGEND

- CONCRETE
- LANDSCAPING
- PROPERTY LINE
- BUILDING FOOT PRINT

	Floor (sf)	Garage (sf)	Bedrooms	Bathrooms
Existing Main Dwelling	1040	256	2	2
New ADU	406	-256	1	1
Total	1446	0	3	3
Lot Coverage	1446	sf	Existing + ADU	
Lot Size	3,049	sf		
% of Lot Coverage	47.43%			

GENERAL NOTES:

- THE ADU SF / SFD SF RATIO IS FOR PARK & REC FEE PURPOSE ONLY. THE APPLICANT IS RESPONSIBLE FOR THE GIVEN "SFR SF" OF THE EXISTING PRIMARY RESIDENCE; BUILDING SAFETY STAFF ARE NOT RESPONSIBLE FOR THE ACCURACY OF THE GIVEN "SFR SF."
- ALL CONCEALED WORK INSTALLED WITHOUT PERMITS MUST BE EXPOSED FOR INSPECTION TO THE SATISFACTION OF THE BUILDING INSPECTOR. THIS INCLUDES METHODS OF ATTACHMENT AND ALL FOOTINGS, STRUCTURAL MEMBERS, MECHANICAL, ELECTRICAL, PLUMBING AND INSULATION.
- MECHANICAL, ELECTRICAL AND PLUMBING ARE NOT PART OF THIS PLAN REVIEW AND APPROVAL. MEP ARE SUBJECT TO BUILDING INSPECTION.
- EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68 F AT A POINT 3 FEET ABOVE THE FLOOR AND 2 FEET FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

PER SAMC SECTION 41-626, UTILITIES WILL BE UNDERGROUND.

CODE REQUIREMENT:

THIS PROJECT SHALL COMPLY WITH THE:

- 2022 CALIFORNIA RESIDENTIAL CODE (CRC)
- 2022 CALIFORNIA MECHANICAL CODE (CMC)
- 2022 CALIFORNIA PLUMBING CODE (CPC)
- 2022 CALIFORNIA ELECTRICAL CODE (CEC)
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)
- 2022 CALIFORNIA ENERGY EFFICIENCY STANDARDS (CEES)
- 2022 CALIFORNIA BUILDING CODE (CBC)

SHEET INDEX:

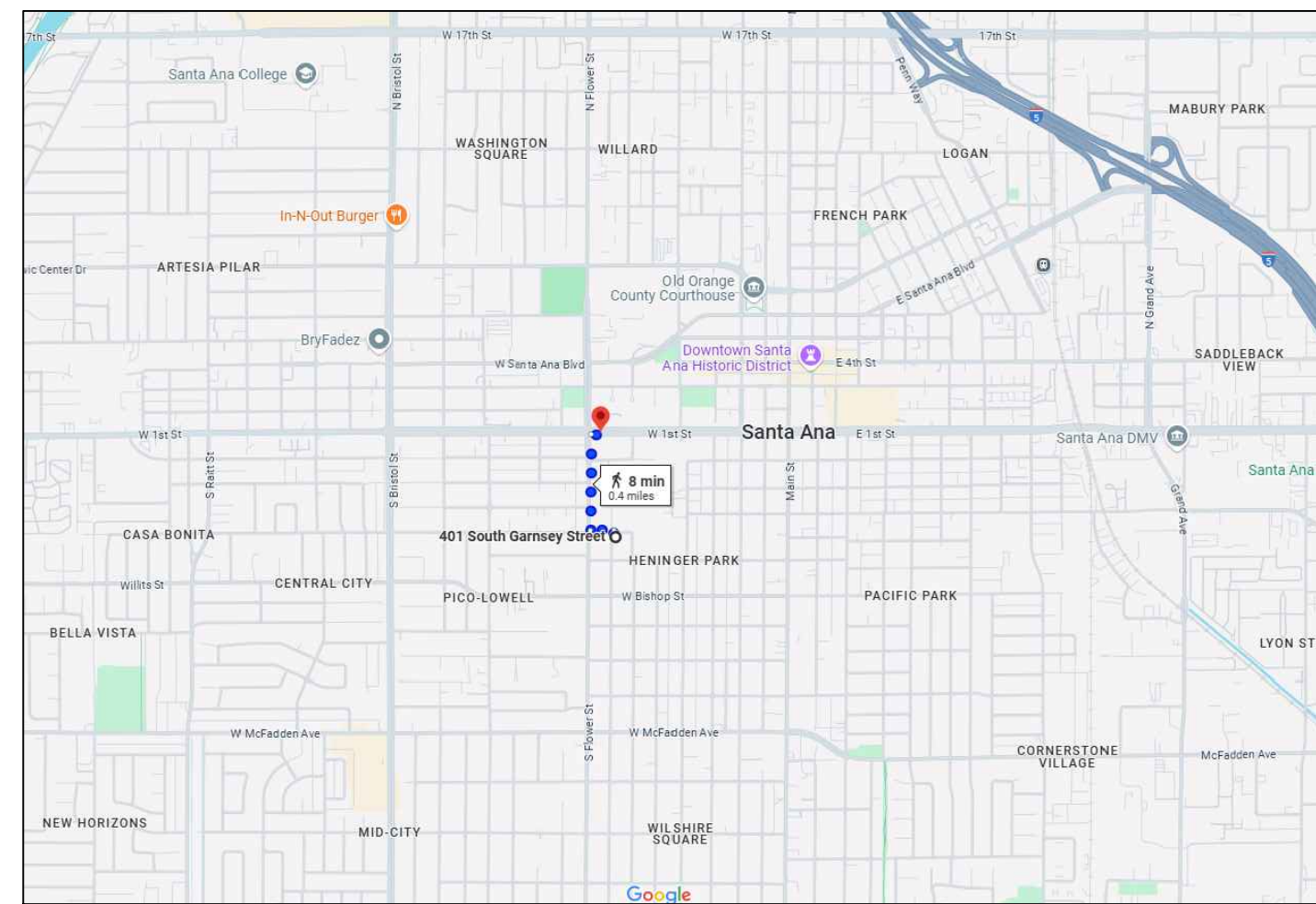
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CALGREEN NOTES:

- 65% OF NONHAZARDOUS CONSTRUCTION AND DEMOLITION DEBRIS SHALL BE SALVAGED, RECYCLED, AND/OR RESUSED.
- 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% MOISTURE CONTENT. INSULATION PRODUCTS WHICH ARE VISIBLY WET OR HAVE HIGH MOISTURE CONTENT SHALL BE REPLACED OR ALLOWED TO DRY PRIOR TO ENCLOSURE IN WALL OR FLOOR CAVITIES (CGBSC 4.505.3).
- PROJECTS, WHICH DISTURB LESS THAN 1-ACRE OF SOIL AND ARE NOT PART OF LARGER DEVELOPMENTS THAT DISTURB MORE THAN 1-ACRE, SHALL MANAGE STORM WATER DRAINAGE DURING CONSTRUCTION. THE FOLLOWING MEASURES MAY BE IMPLEMENTED TO PREVENT FLOODING OF ADJACENT PROPERTIES, PREVENT EROSION, AND RETAIN SOIL RUNOFF ON THE SITE:
 - 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.
 - COMPLIANCE WITH A LAWFULLY ENACTED STORM WATER MANAGEMENT ORDINANCE.
 - RETENTION BASINS OF SUFFICIENT SIZE SHALL BE UTILIZED TO RETAIN STORM WATER ON THE SITE.

CAL/OSHA NOTE:

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 COMMENCEMENT OF ANY WORK.



SUBJECT PROPERTY IS 0.4 MILES FROM THE NEAREST BUS STOP.

VICINITY MAP
N.T.S.

ATTACHMENT A BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES*

Storm Water Pollution Control Requirements for Construction Activities Minimum Water Quality Protection Requirements for All Development Construction Projects/Certification Statement

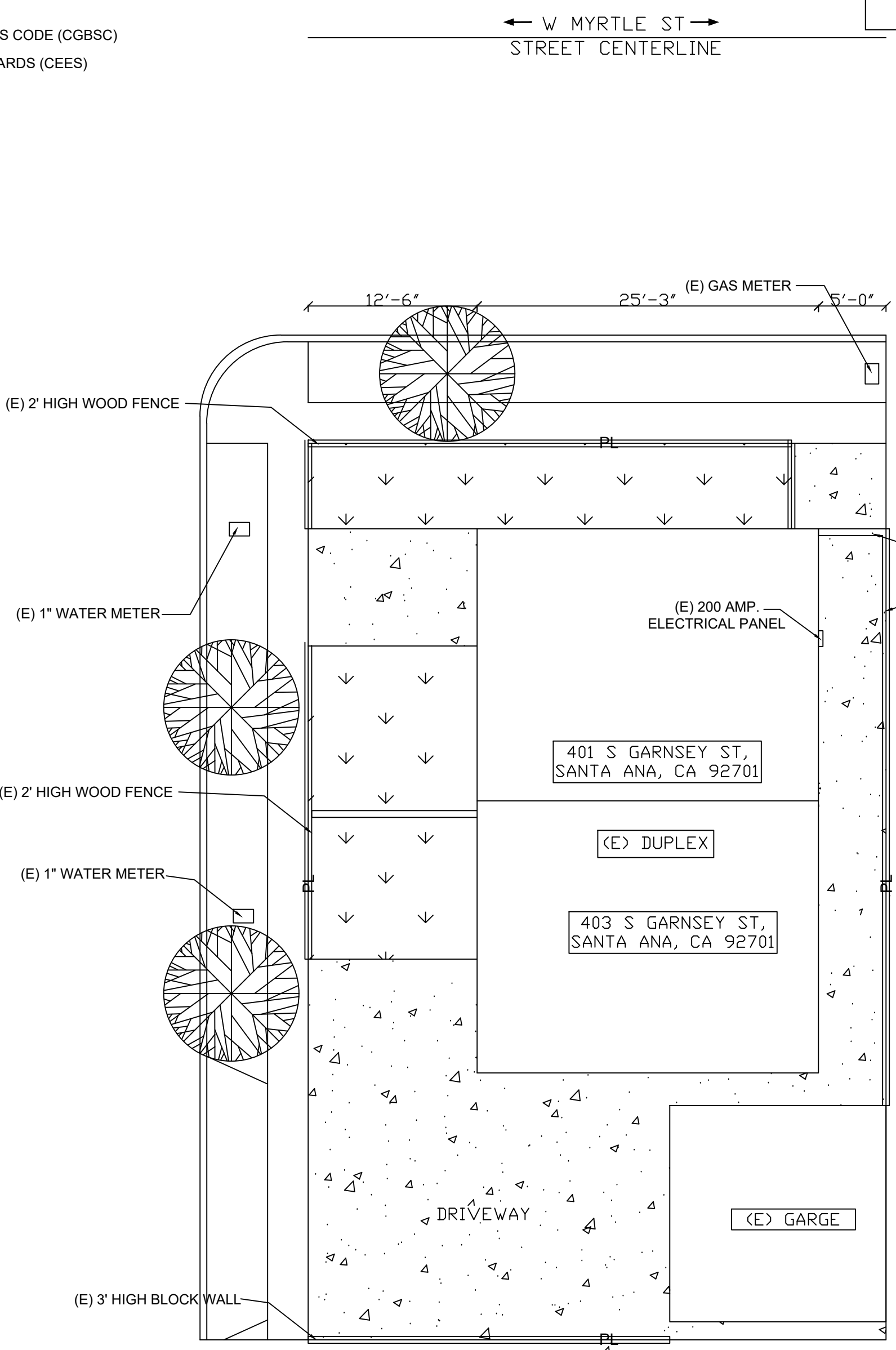
The following is intended as minimum notes or as an attachment for building and grading plans and represent the minimum standards of good housekeeping that must be implemented on all construction sites regardless of size. (Applies to all permits)

- Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
- Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
- Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
- Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
- Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.
- Other: _____

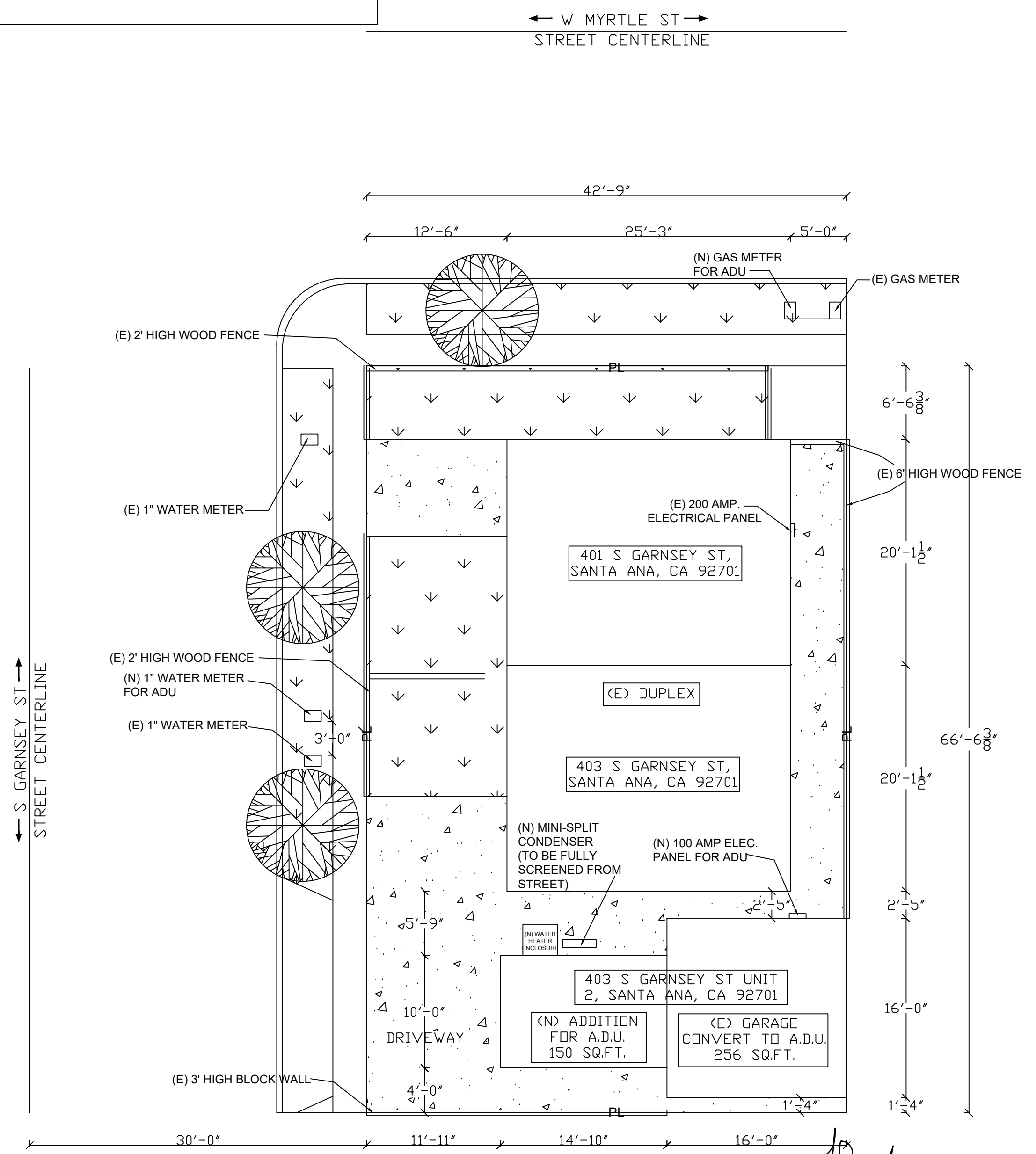
As the project owner or authorized agent of the owner, I have read and understand the requirements listed above, necessary to control storm water pollution from sediments, erosion, and construction materials, and I certify that I will comply with these requirements.

Print Name: Daniel Poon
(Owner or authorized agent of the owner)
Signature: _____ Date: 10/17/2025
(Owner or authorized agent of the owner)

*The above Best Management Practices are detailed in the California Storm Water Best Management Practices Handbook, January 2001
www.calbphandbook.com



EXISTING SITE PLAN
SCALE: 1/8" = 1'



PROPOSED SITE PLAN
SCALE: 1/8" = 1'

Handwritten signature

DESIGNER INFORMATION

PETER MAC

MAC.PETER.T@GMAIL.COM

714-312-8184

OWNER INFORMATION

DANIEL POON

CONVERT GARAGE INTO
ADU & NEW ADDITION

403 S GARNSEY ST UNIT#2,
SANTA ANA, CA 92701

ORIGIN DATE: 5/2025

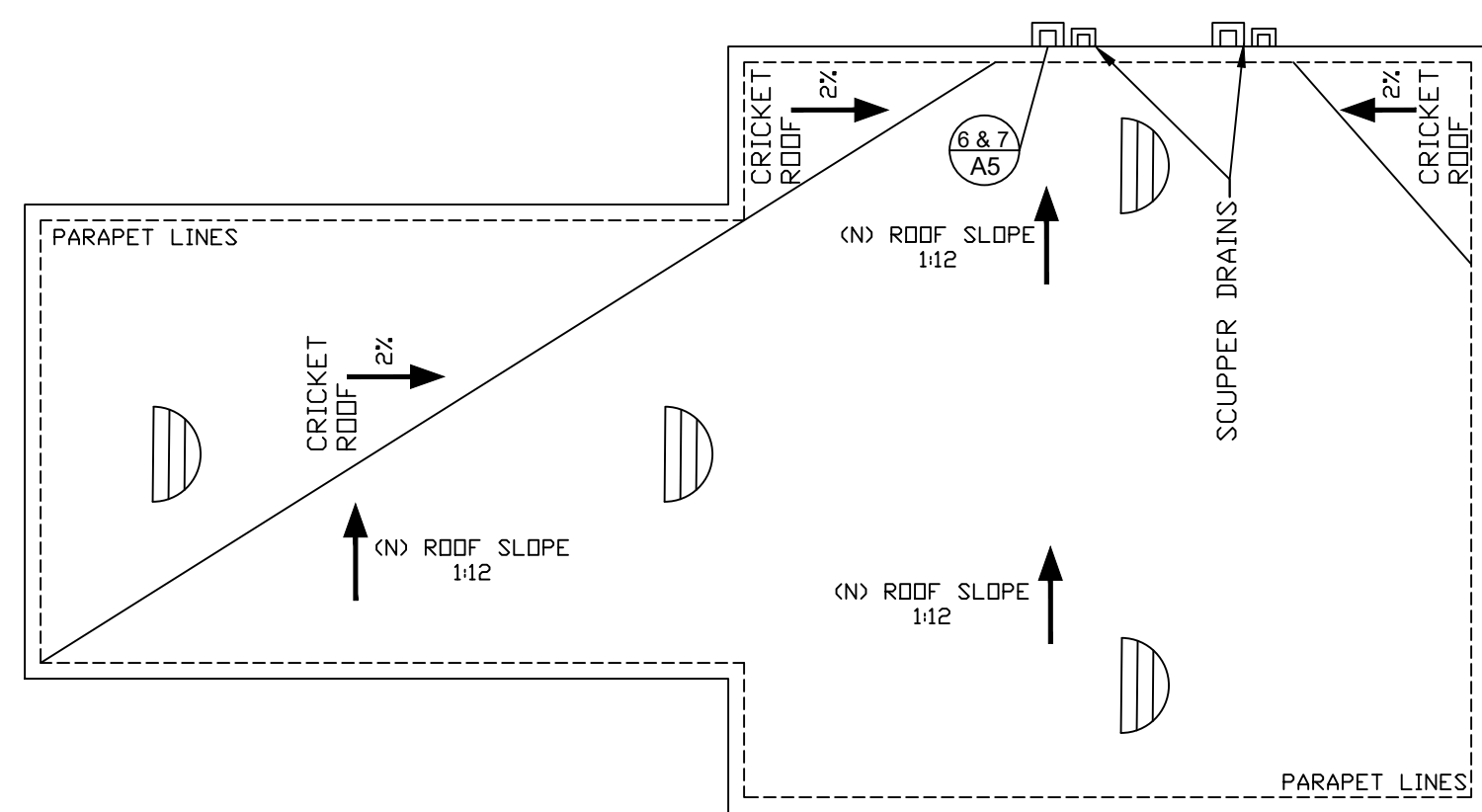
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SHEET TITLE
PROJECT DATA,
SITE PLAN

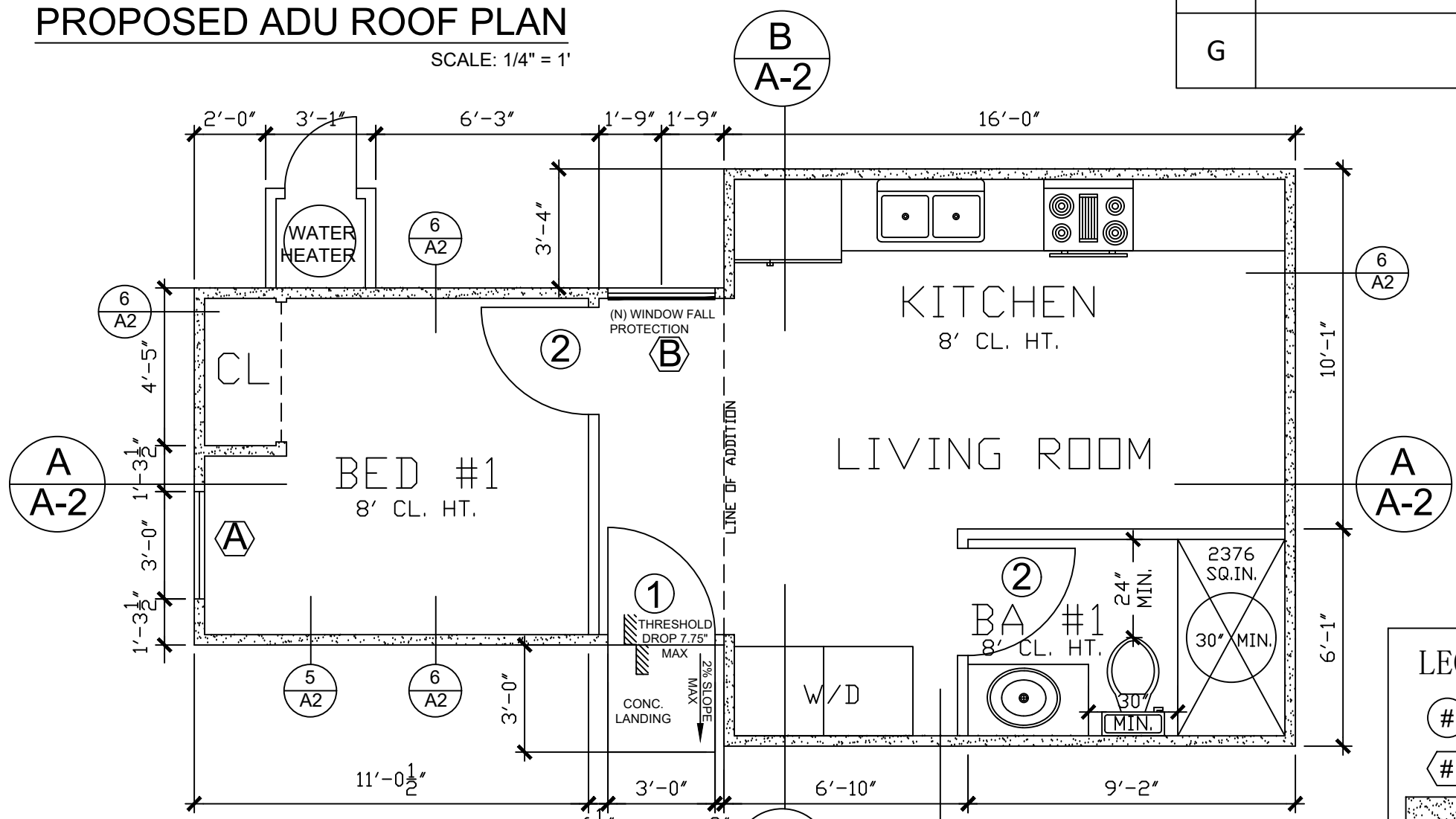
SHEET NUMBER

A1

1-9-2026



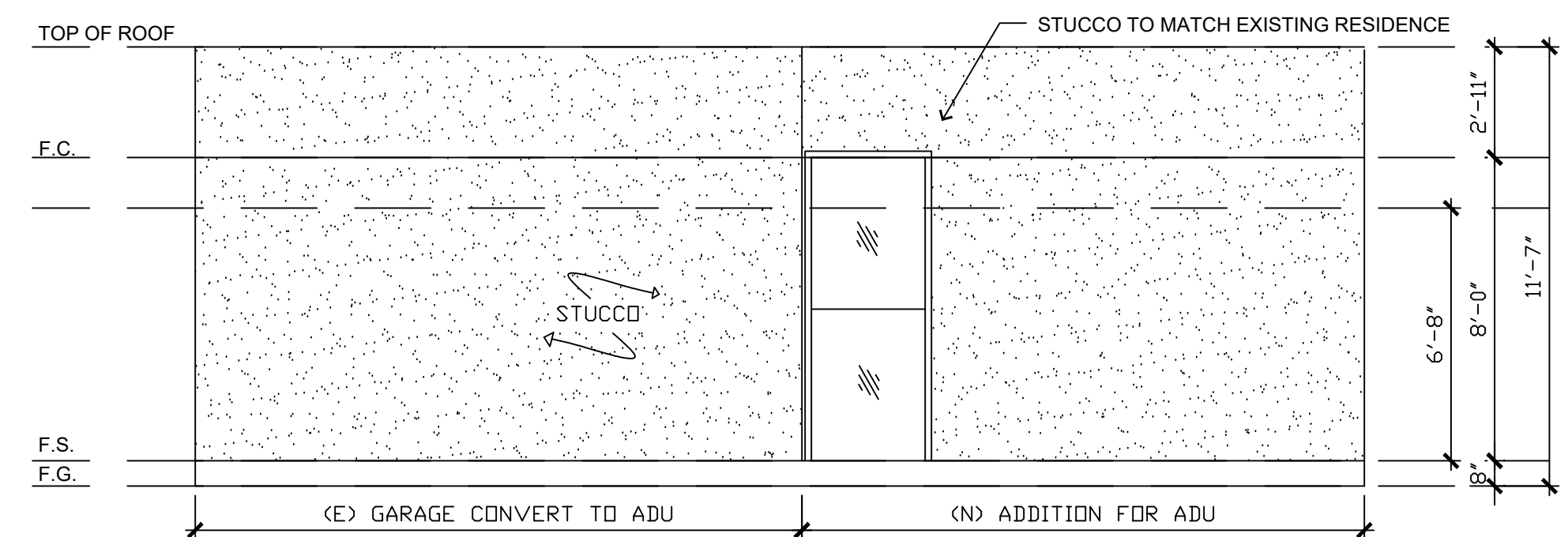
PROPOSED ADU ROOF PLAN
SCALE: 1/4" = 1'



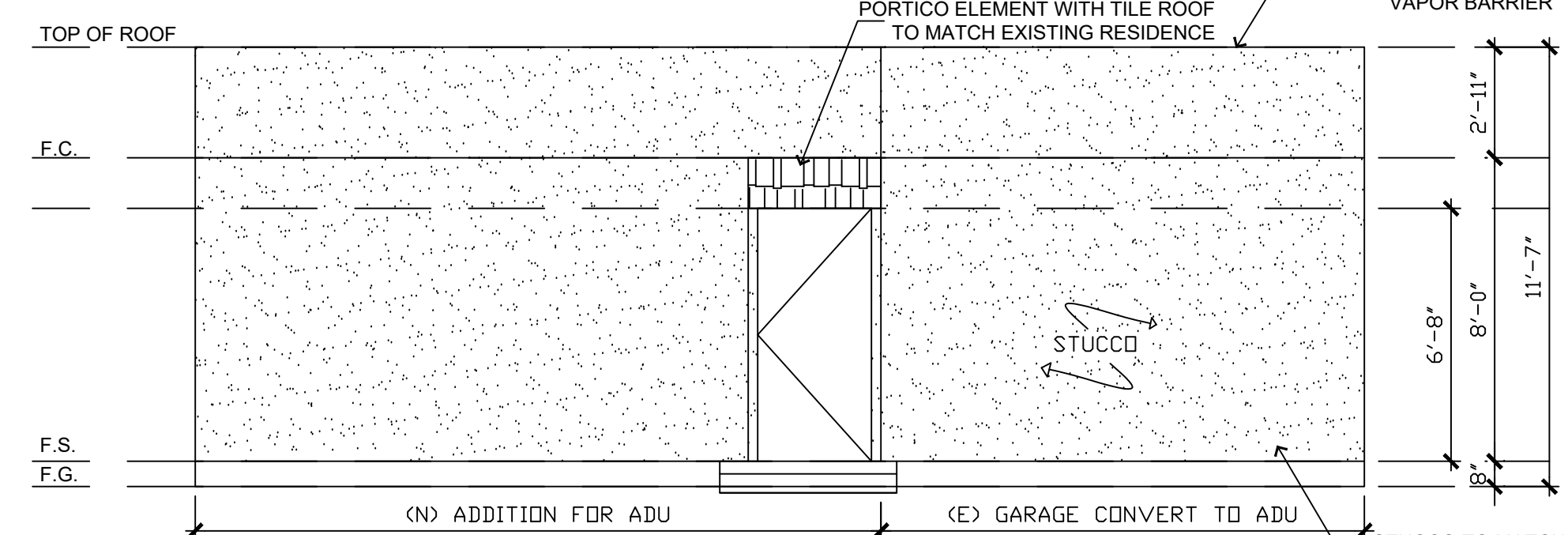
PROPOSED A.D.U. FLOOR PLAN
SCALE: 1/4" = 1'

NOTES:
1. THRESHOLDS MUST NOT EXCEED 1/2" IN HEIGHT AT DOOR ENTRANCE.

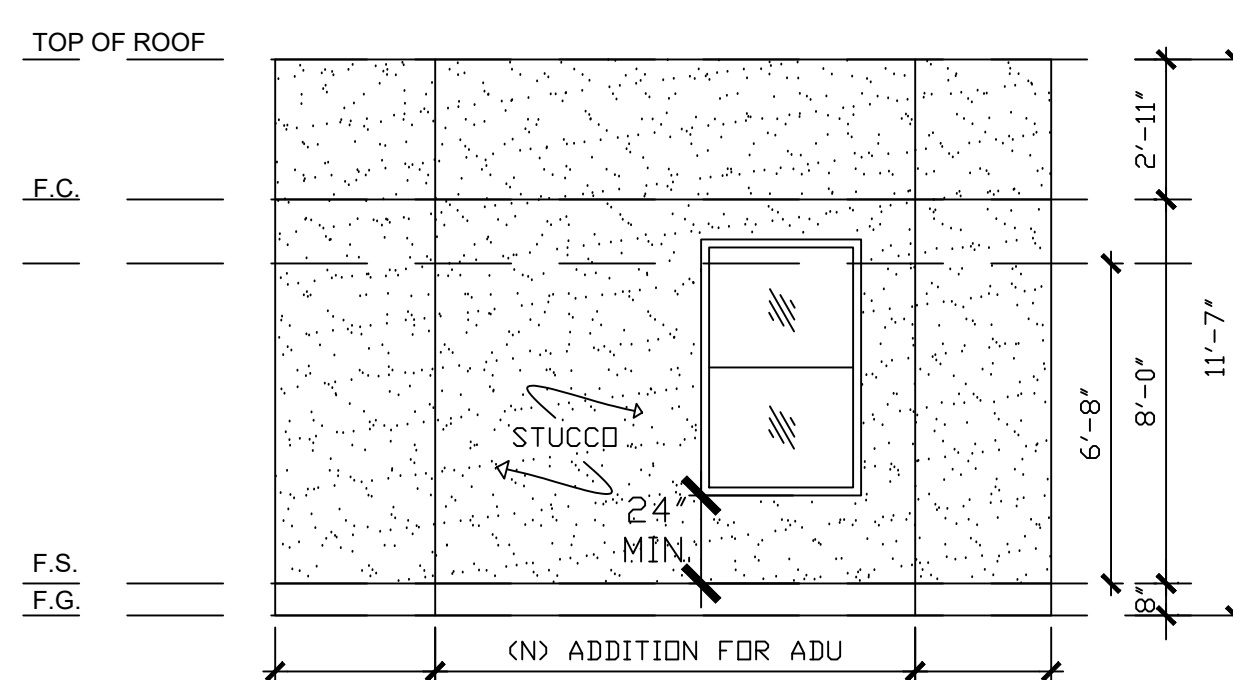
DOOR SCHEDULE				
DOOR ID	DOOR SIZE W" x H"	TYPE	STATUS	NOTES
1	36 x 80	SOLID	NEW	EXTERIOR DOOR
2	36 x 80	HOLLOW	NEW	INTERIOR DOOR



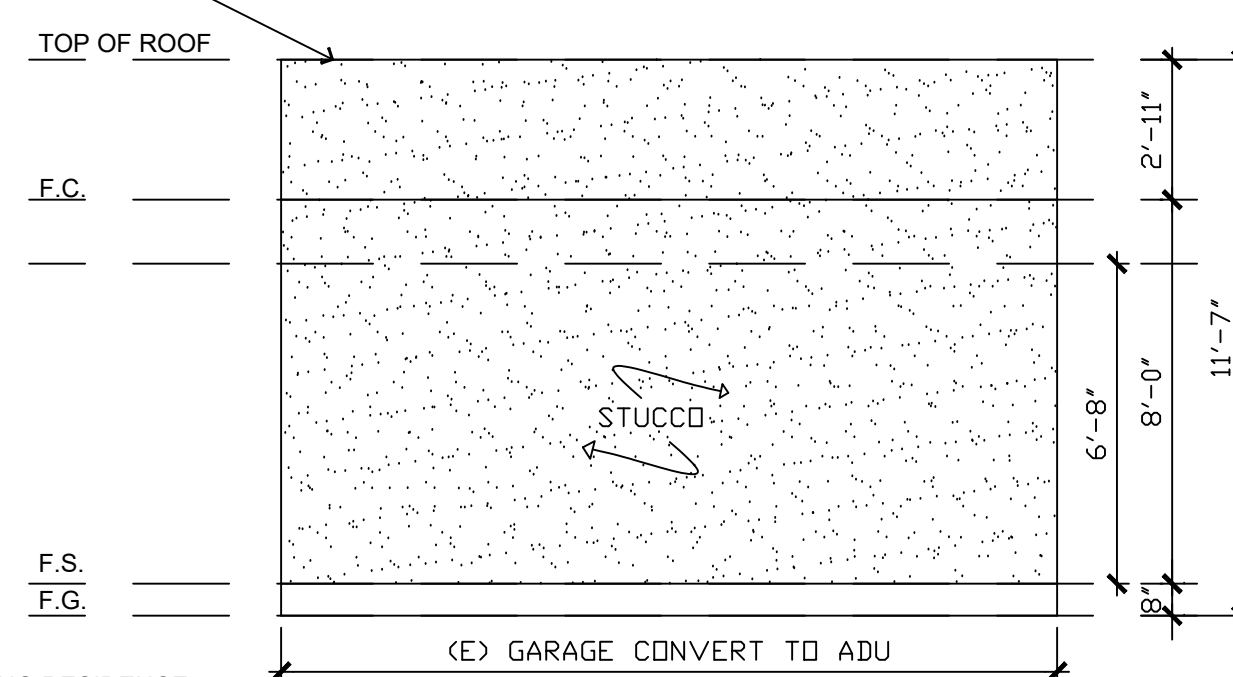
PROPOSED ADU NORTH ELEVATION
SCALE: 1/4" = 1'



PROPOSED ADU SOUTH ELEVATION
SCALE: 1/4" = 1'



PROPOSED ADU WEST ELEVATION
SCALE: 1/4" = 1'



PROPOSED ADU EAST ELEVATION
SCALE: 1/4" = 1'

ATTIC VENTILATION CALCULATION FOR NEW ADU				
A	ATTIC AREA (SQ.FT.)	406		
B	REQ'D VENTING (SQ.IN.)	389.76	=A / 150 * 144	
VENT	QTY.	NET FREE AREA (SQ.IN.)	TOTAL VENT (SQ.IN.)	DESCRIPTION
C	14"x18" GABLE END VENT	0	110	EA. 14"x18" GABLE VENT NET FREE AREA = 110 SQ.IN.
D	24"x12" DORMER VENT	4	100	400
E	2.5" SCREENED 3-HOLE VENTS	0	15	=(2.5"/2)^2 * 3.14 * 3 = 15 SQ.IN.
F	5.5"x14.5" SOFFIT VENTS	0	65	0
G			TOTAL VENTILATION PROVIDED	400 SQ.IN.

VENTILATION NOTES:

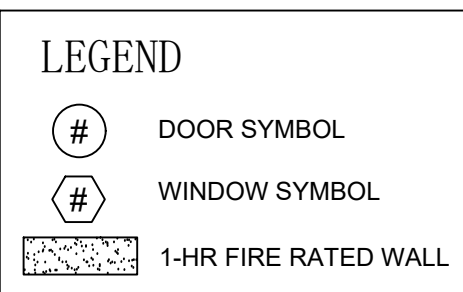
- THE ATTIC ACCESS SHALL BE A MINIMUM OF 22" X 30". A THIRTY-INCH MINIMUM CLEAR HEAD ROOM SHALL BE PROVIDED ABOVE THE ATTIC ACCESS. ATTIC ACCESS SHALL BE LOCATED AT A READILY ACCESSIBLE LOCATION.
- MECHANICAL VENTILATION IS NOT LESS THAN 6 AIR CHANGES PER HOUR TYPE. THE POINT OF DISCHARGE OF EXHAUST AIR SHALL BE AT LEAST 3 FEET FROM ANY OPENING INTO THE BUILDING. THE EXHAUST VENT SHALL BE EQUIPPED WITH BACK-DRAFT DAMPER TO COMPLY WITH ENERGY REGULATIONS.
- PROVIDE OUTDOOR COMBUSTION AIR OPENINGS FOR THE MECHANICAL CLOSET WITH THE 2 PERMANENT OPENINGS METHOD PER CMC SECTION 701.4.1. ONE OPENING SHALL COMMENCE WITHIN 12 INCHES OF THE TOP AND THE OTHER COMMENCING WITHIN 12 INCHES OF THE BOTTOM OF THE ENCLOSURE.

SAFETY OR TEMPERED GLAZING REQUIRED IN THE FOLLOWING LOCATIONS: GLAZING IN ENCLOSURES FOR OR WALLS FACING HOT TUBS, WHIRLPOOLS, BATHTUBS AND SHOWERS WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES MEASURED VERTICALLY ABOVE A STANDING OR WALKING SURFACE (CRC R308.4).

CEMENT, FIBER-CEMENT, FIBER-MAT REINFORCED CEMENT, GLASS MAT GYPSUM OR FIBER-REINFORCED GYPSUM BACKERS SHALL BE USED AS A BASE FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL AND CEILING PANELS IN SHOWER AREAS UP TO 72" ABOVE DRAIN. (R702.4.2 CRC)

SHOWERS AND TUB-SHOWER COMBINATION VALVES SHALL BE EQUIPPED WITH A MEANS TO LIMIT THE MAXIMUM SETTING OF THE VALVE TO 120 DEGREES F (CPC 408.3)

WINDOW SCHEDULE							
ID	QTY.	W x H	DESCRIPTION	MATERIAL	UL FACTOR	SHGC	NOTES
A	1	3'-0" x 5'-0"	SINGLE HUNG	VINYL FRAME W/ LOW E - DOUBLE PANE GLASS	0.3	0.22	Windows to be an off-shade white color. No stark or cool white color windows.
B	1	3'-0" x 8'-0"	DOUBLE HUNG	VINYL FRAME W/ LOW E - DOUBLE PANE GLASS	0.3	0.22	TEMPERED



EXTERIOR CONSTRUCTION ASSEMBLY

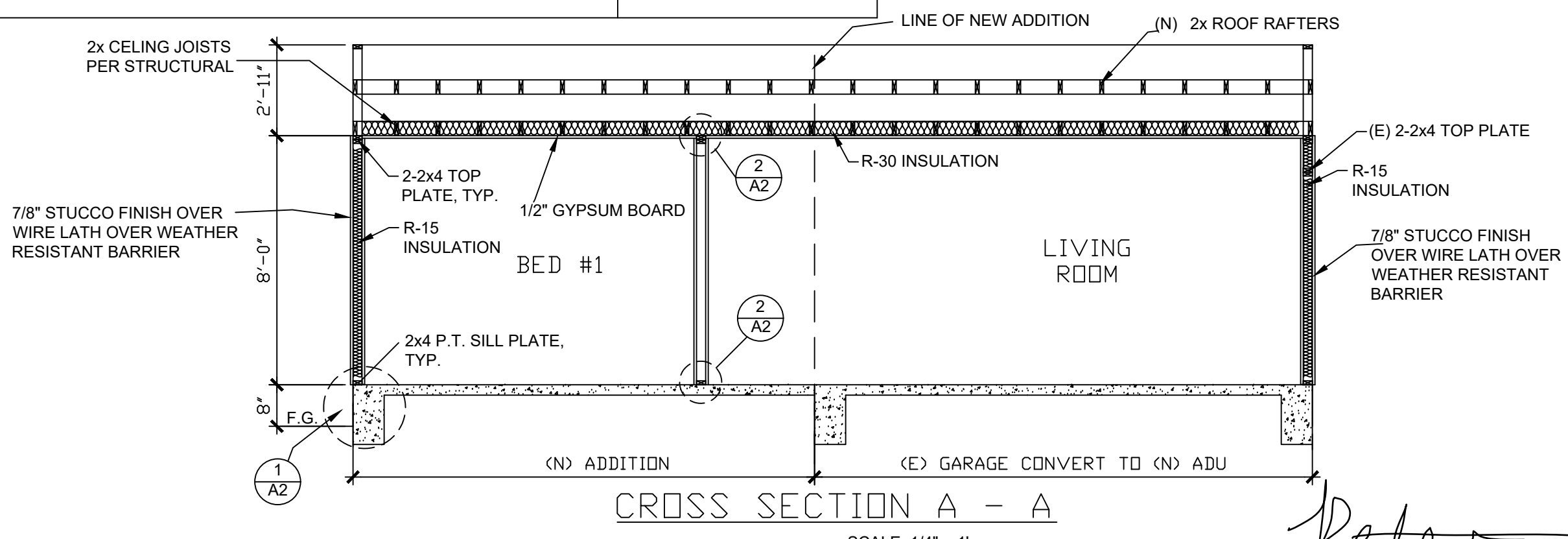
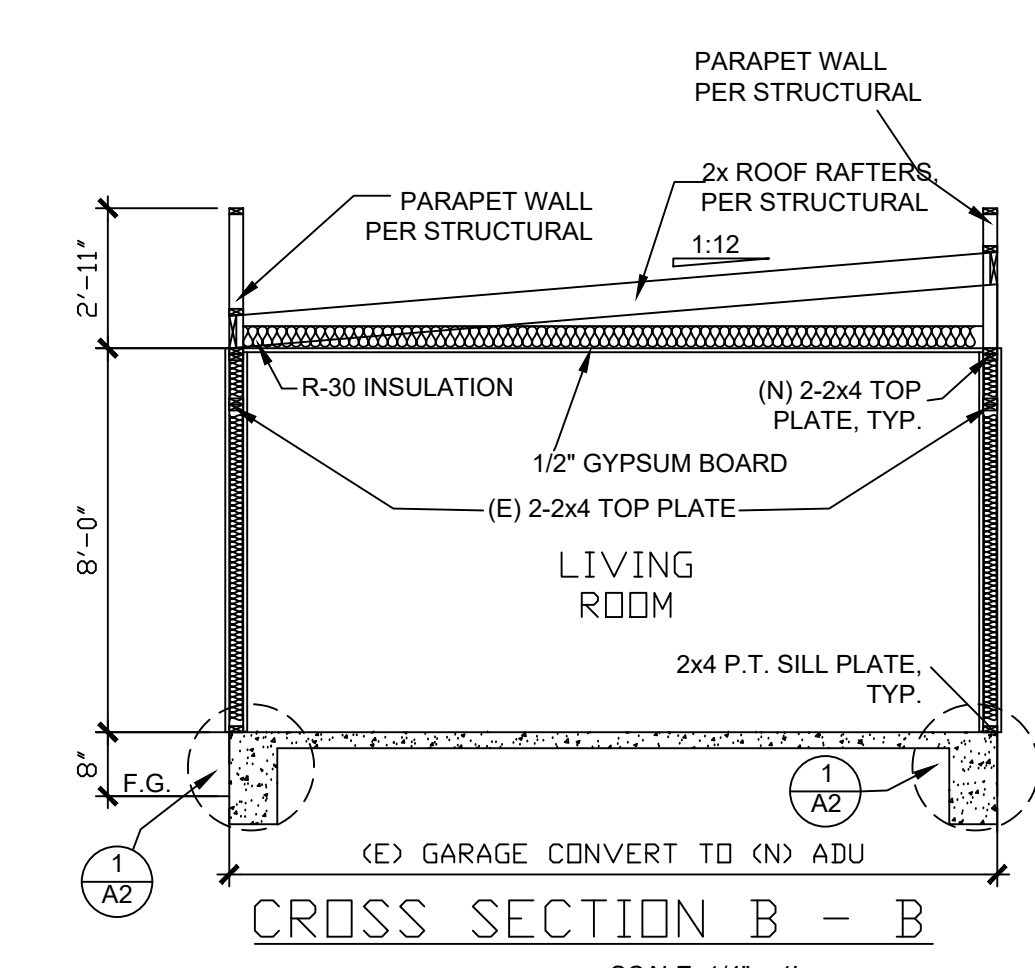
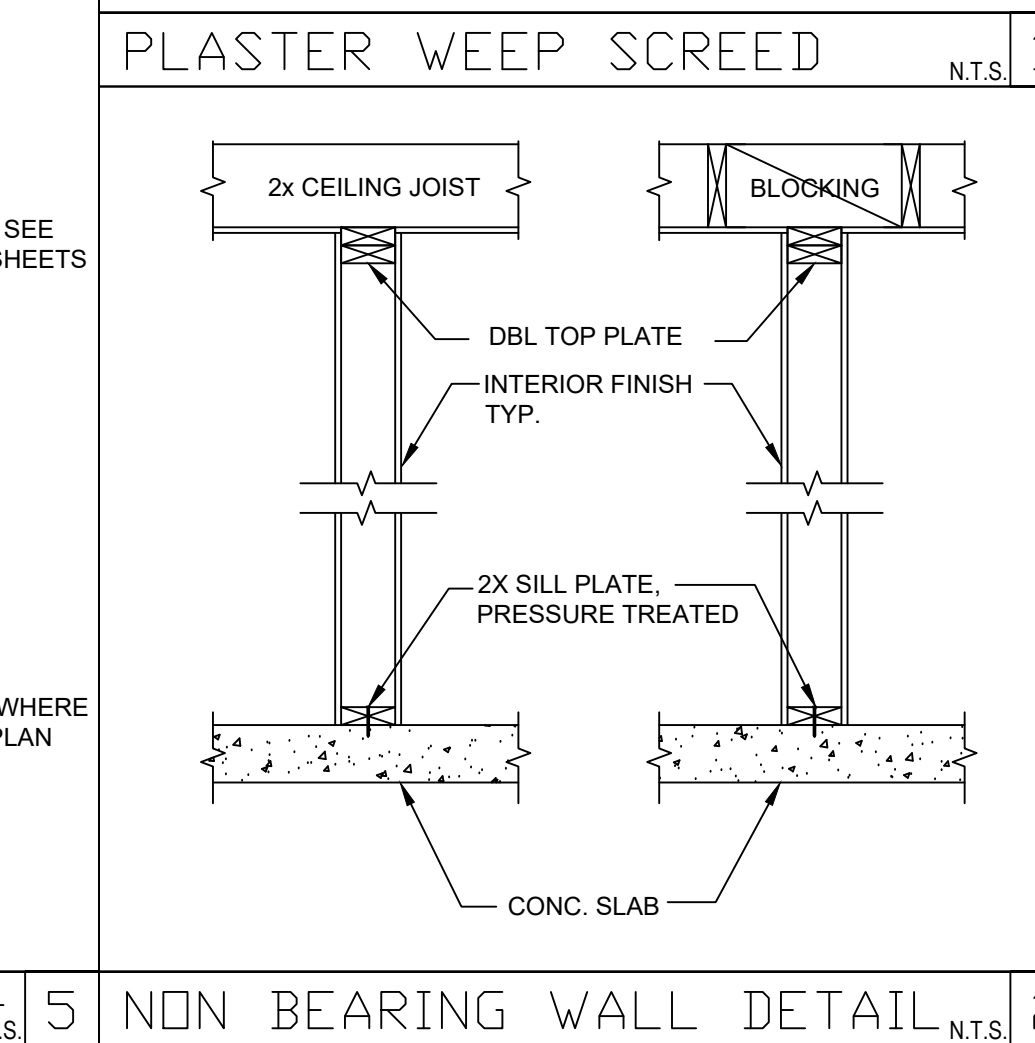
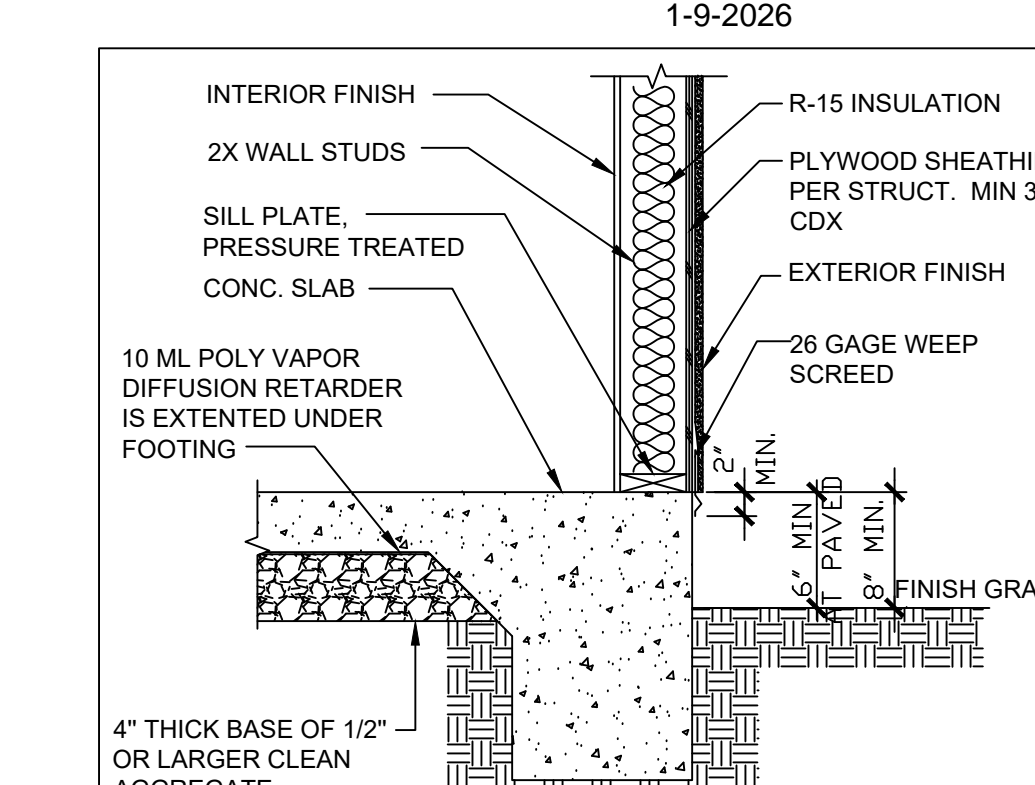
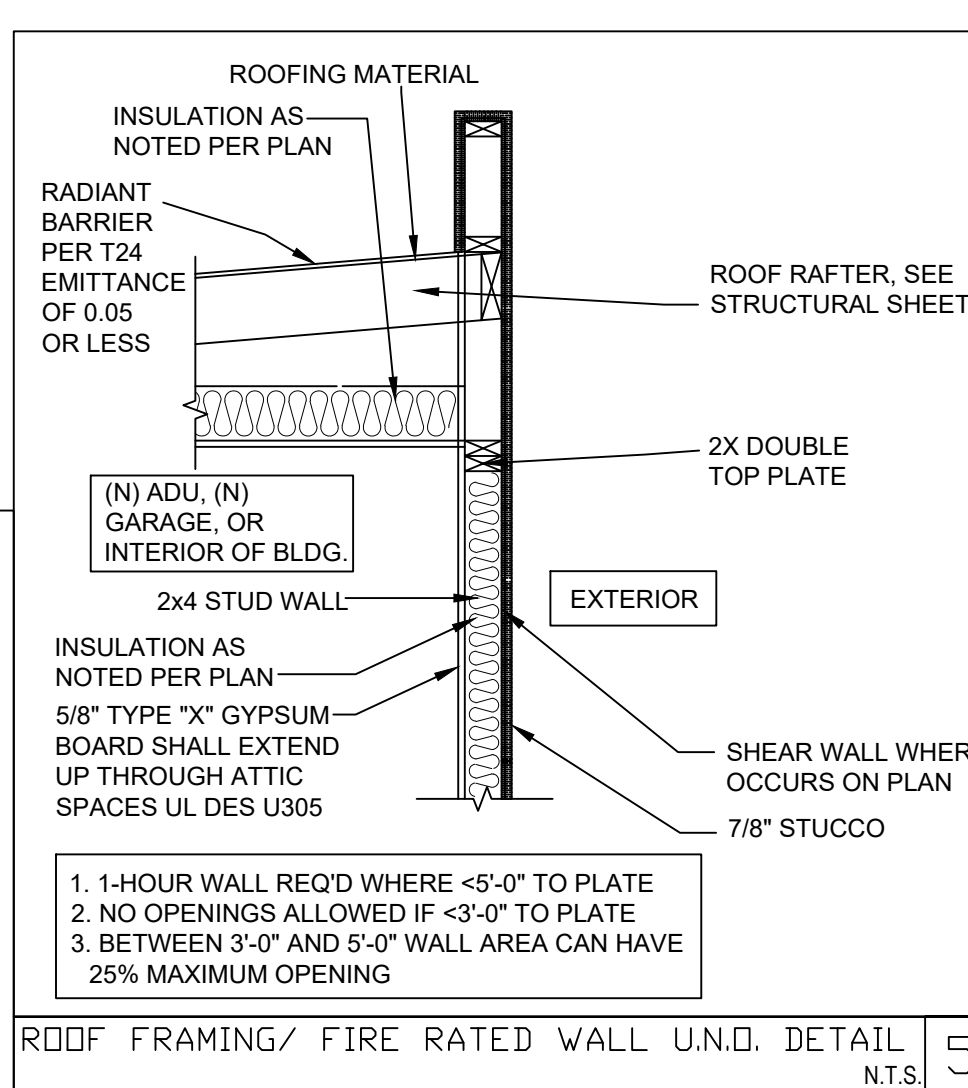
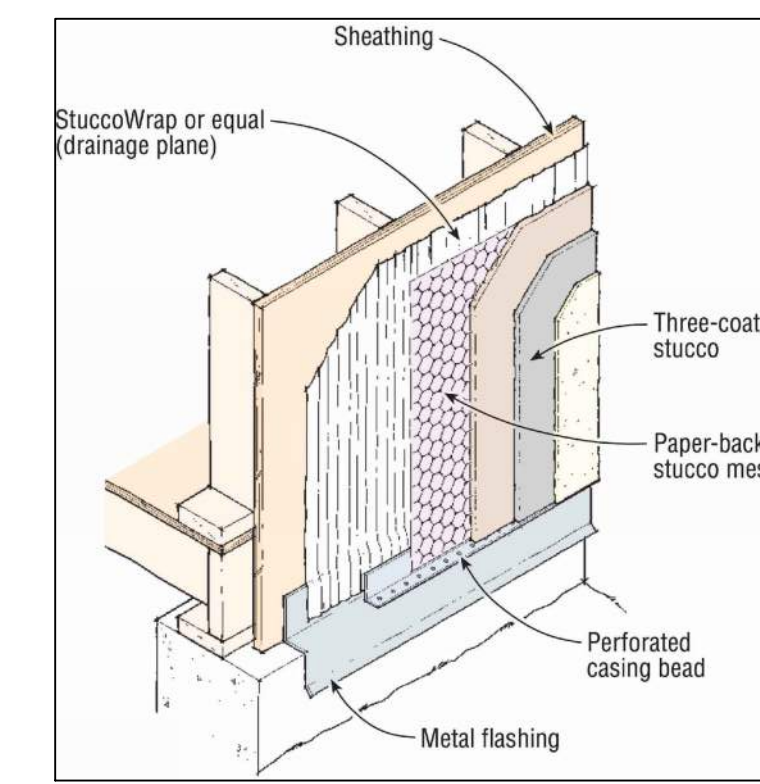
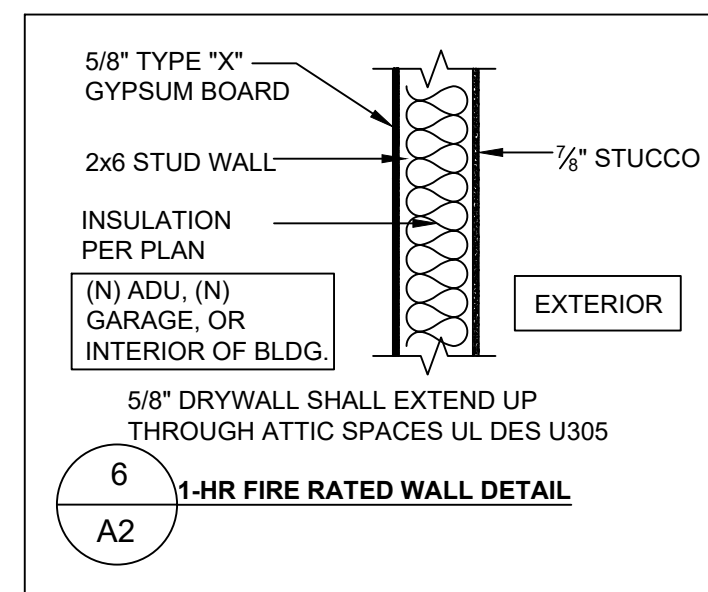
- ALL EXTERIOR WALL ASSEMBLIES SHALL INCLUDE:
- TWO LAYERS OF GRADE D OR 60 MINUTE GRADE D PAPER APPLIED OVER ALL WOOD BASE SHEATHING. (CRC R703.7.3 & R703.2)
 - A MINIMUM 0.019 INCH (NO. 26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT WEEP SCREED. (CRC 703.1.1 & R703.7.2.1)
 - THE SCREED SHALL BE INSTALLED WITH THE WEEP OPENINGS LOCATED A MINIMUM 1 INCH BELOW FOUNDATION PLATE LINE AND 4 INCHES ABOVE FINISH GRADE OR 2-INCHES ABOVE PAVED AREAS. (CRC R703.1.1 & R703.7.2.1)

ALL EXTERIOR FINISHES SHALL MATCH BETWEEN THE EXISTING PRIMARY DWELLING UNIT AND THE NEW A.D.U. AND SHALL INCLUDE:
A) DESIGN, PITCH, COLOR, MATERIAL, AND TEXTURE OF THE ROOF OF THE A.D.U. SHALL BE SUBSTANTIALLY THE SAME AS THE PRIMARY UNIT.
B) THE COLOR, MATERIAL, TEXTURE OF ALL BUILDING WALLS, STUCCO, WINDOWS AND DOORS OF AN A.D.U. SHALL BE SIMILAR TO AND COMPATIBLE WITH THE PRIMARY UNIT.

EXTERIOR WALL COVERING WITH WATER-RESISTIVE BARRIER

NOT FEWER THAN ONE LAYER OF WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS WITH FLASHING AS INDICATED IN SECTION R703.4. IN SUCH A MANNER AS TO PROVIDE A CONTINUOUS WATER-RESISTIVE BARRIER BEHIND THE EXTERIOR WALL VENEER. THE WATER-RESISTIVE BARRIER MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PENETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R703.1. WATER-RESISTIVE BARRIER MATERIALS SHALL COMPLY WITH ONE OF THE FOLLOWING:

- NO. 15 FELT COMPLYING WITH ASTM D226, TYPE 1.
 - ASTM E2556, TYPE 1 OR 2.
 - ASTM E331 IN ACCORDANCE WITH SECTION R103.1.1.
 - OTHER APPROVED MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- NO. 15 ASPHALT FELT AND WATER-RESISTIVE BARRIERS COMPLYING WITH ASTM E2556 SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM), AND WHERE JOINTS OCCUR, SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM).



DESIGNER INFORMATION
PETER MAC
MAC.PETER.T@GMAIL.COM
714-312-8184

OWNER INFORMATION
DANIEL POON
CONVERT GARAGE INTO ADU & NEW ADDITION
403 S GARNSEY ST UNIT#2
SANTA ANA, CA 92701

ORIGIN DATE: 5/2025
DRAWN BY: PM

SHEET TITLE
PROPOSED ADU UNIT PLAN

SHEET NUMBER
A2

**DETACHED ADU
 GRADING PERMIT
 WAIVER REQUEST**

PCC-20

THIS WAIVER SHALL BE COMPLETED BY THE LEGAL PROPERTY OWNER(S)

A grading permit is required for all new detached buildings including new detached Accessory Dwelling Unit (ADU) projects. Precise grading plans prepared and stamped by a registered professional engineer shall be required to be submitted before or concurrently with the architectural plans submittal to the Building Safety Division.

Grading Permit Waiver: Residential detached Accessory Dwelling Unit (ADU) projects with a total building area of 1,200 sq. feet or less may be eligible for a grading permit waiver request if all of the following conditions are met. The property owner(s) shall take full responsibility for the site drainage by signing this waiver request agreement below. In order to qualify for the grading permit waiver, the property owner(s) shall complete all sections, check appropriate boxes, and sign this waiver request. A copy of this completed checklist shall be made part of the each set of plans. **If answering NO to any of the questions, a grading plan and permit shall be required.**

Project Property Address: 401 & 403 S Gamsey St, Santa Ana, CA 92701

	Yes	No	
1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project property is NOT located on a FEMA designated flood zone (Zone A or AE).
2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The total amount of soil being cut or filled on this project is less than 50 cubic yards.
3.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The site drainage shall be constructed such that surface water flows away from buildings and adjoining property lines, in accordance with all applicable codes.
4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The site drainage shall be constructed such that the drainage will not adversely affect the adjoining properties.
5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project plans includes a site plan that shows site drainage patterns.

Grading Permit Waiver Request

I/we are requesting a waiver from the standard requirements for a precise grading plan and permit for our ADU project to be constructed at the project address indicated above. In doing so, I/we accept that the design of the site drainage patterns must adhere to the minimum requirements set forth in the current building codes and the County of Orange Drainage Design Manual. By signing this waiver request: (1) I/we certify that I/we are the legal property owner(s); (2) I/we agree to take full liability for the site drainage; (3) I/we agree that the checked box conditions above are true; and (4) I/we agree to defend, indemnify, and hold harmless the City of Santa Ana, its officials, employees, and agents against any and all claims for damages and costs arising out of the site drainage at the project property.

Owner Name(s): (Print) Daniel Poon

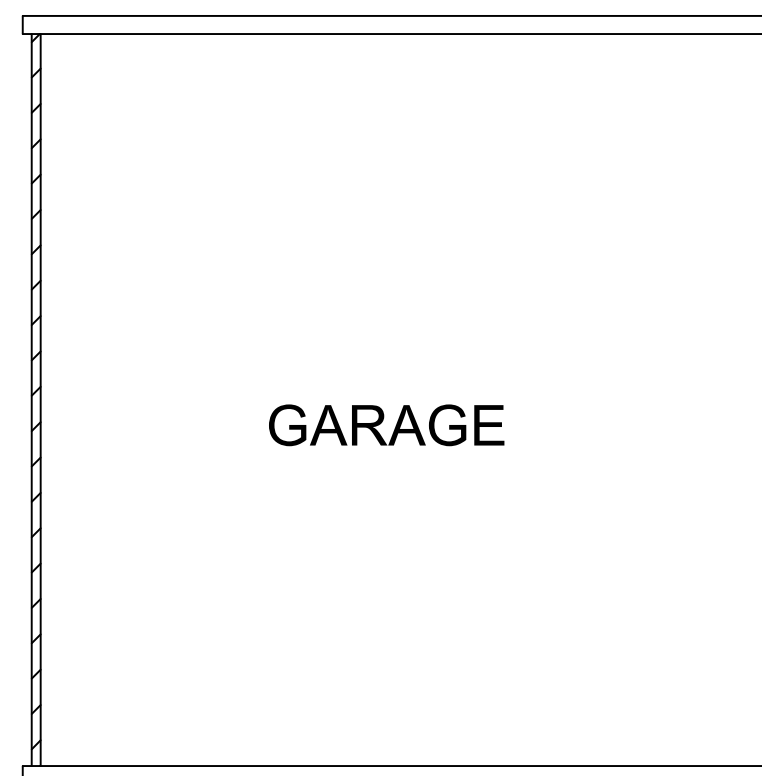
Owner Signature(s): *[Signature]*

Date: 05/19/2025 Phone Number: 714-720-6088

Notes: 1. The building official reserves the right to require a grading permit based on site conditions.
 2. This grading permit waiver request does not apply to projects in the FEMA Flood Zones.

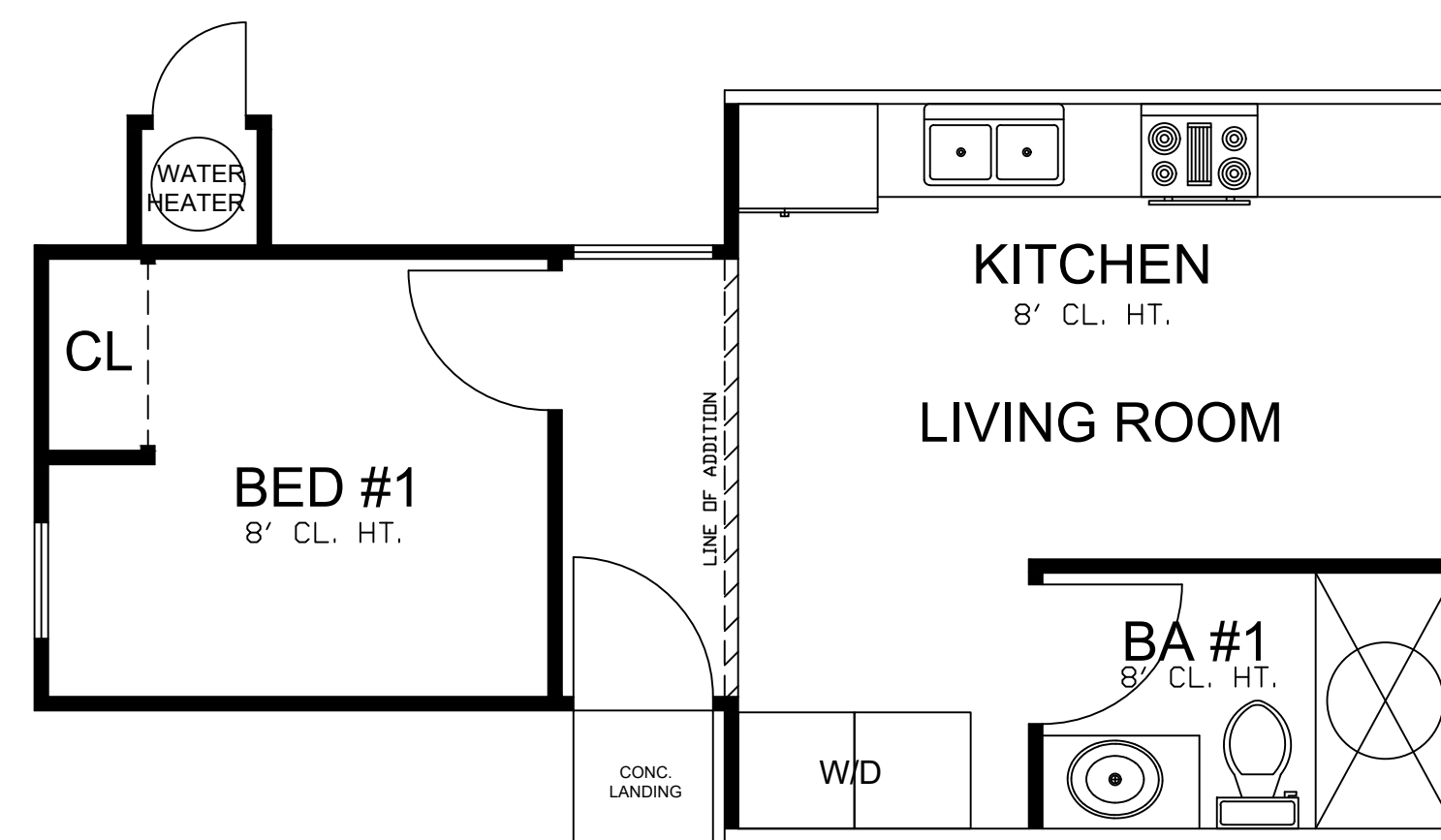
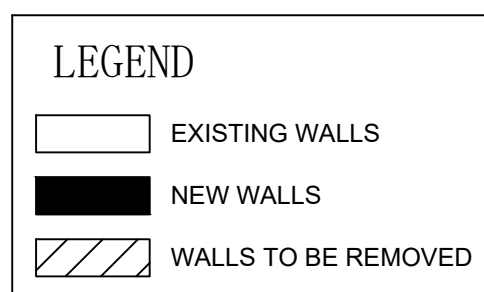
ISSUED: 7/1/2024

Page 1 of 1



EXISTING FLOOR PLAN

SCALE: 1/4" = 1'



PROPOSED A.D.U. FLOOR PLAN

SCALE: 1/4" = 1'

RADIANT BARRIER INSTALLATION SHALL COMPLY WITH THE FOLLOWING:

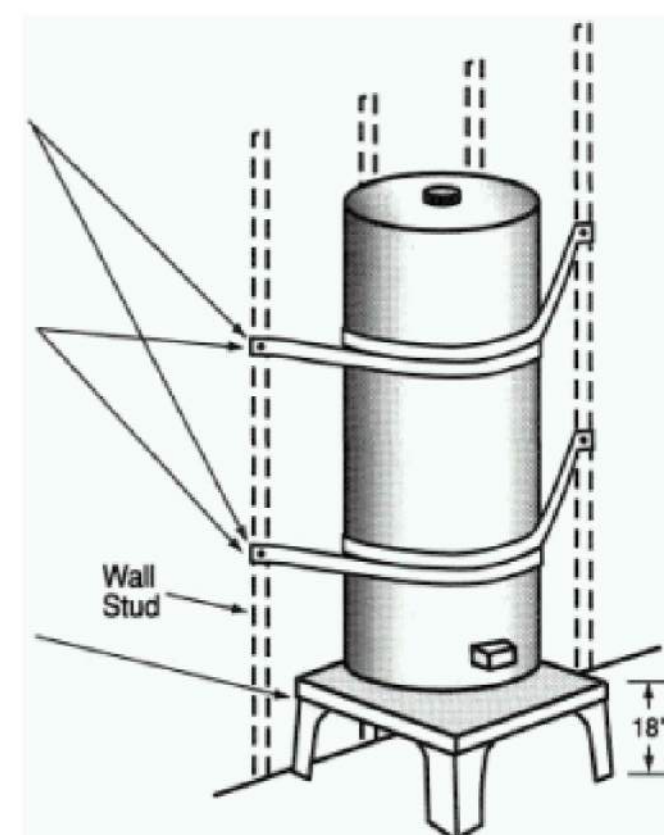
- PROVIDE NO LESS THAN 30% UPPER VENTS.
- BE INSTALLED ON VERTICAL ATTIC SURFACES AND GABLE ENDS.
- WHEN INSTALLED IN ENCLOSED RAFTER SPACES A MINIMUM AIR SPACE OF 1" MUST BE PROVIDED AND VENTILATION BE PROVIDED AT UPPER AND LOWER END OF EVERY RAFTER BARRIER.

TWO METAL STRAPS, NOT LESS THAN 22 GAUGE, NOR LESS THAN 5/8-INCH WIDE SHALL BE USED. ONE STRAP SHALL BE PLACED WITHIN THE UPPER 1/3 OF THE WATER HEATER'S VERTICAL DIMENSION AND THE OTHER SHALL BE PLACED WITHIN THE BOTTOM 1/3 OF THE WATER HEATER'S VERTICAL DIMENSION. AT THE LOWER POINT, A MINIMUM DISTANCE OF 4 INCHES SHALL BE MAINTAINED ABOVE THE CONTROLS WITH THE STRAPPING. THE MEANS OF CONNECTION TO THE STRUCTURE SHALL BE MADE BY THE USE OF SCREWS NOT LESS THAN 1/4 INCH IN SIZE WITH A MINIMUM PENETRATION OF 1-1/2 INCH INTO A FRAMING MEMBER OF THE WALL. A CUT WASHER SHALL BE USED BETWEEN THE HEAD OF THE SCREW AND THE STRAP TO INSURE A POSITIVE SUPPORT.

Drill pilots on centerline of stud; insert screws through punched holes in strap.

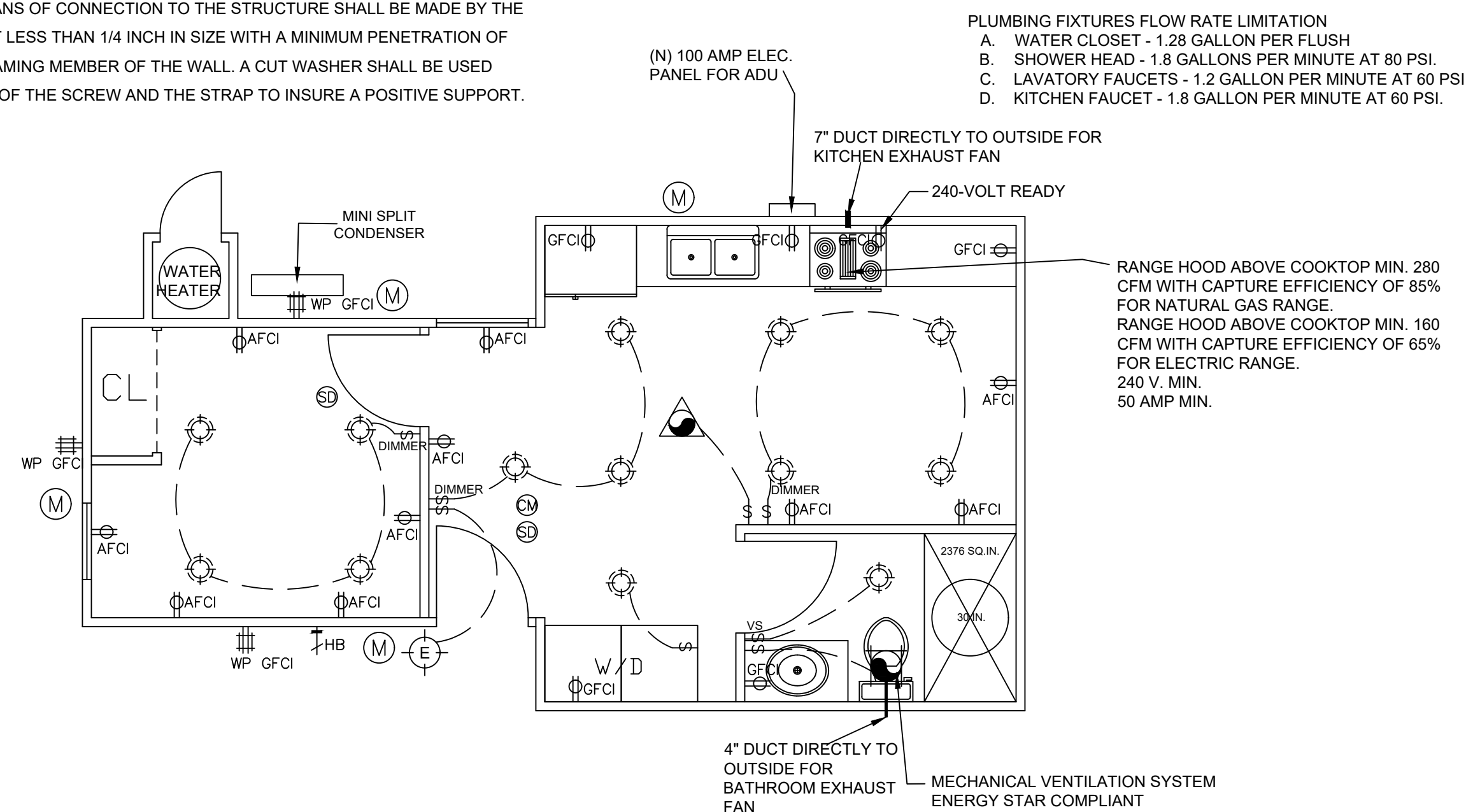
Minimum 22 Gauge metal strap material installed within the top 1/3 of the heater and the bottom 1/3 of the heater. The lower strap is installed minimum 4 inches above the control unit. Minimum 1/4-inch screws with minimum 1-1/2-inch penetration are allowed.

This 18-inch stand is required for heaters installed in a garage location.



UTILITY LEGEND

	RECESSED LIGHT		EXHAUST FAN
	EXTERIOR LIGHT		WHOLE HOUSE FAN (2,200 CFM PER T24)
	LIGHT SWITCHES / FIXTURES		HOSE BIBB (HB)
	OUTLETS		CEILING FAN
	WEATHER PROTECTED GROUND-Fault CIRCUIT INTERRUPTER		VANITY LIGHT
	CARBON MONOXIDE DETECTOR		MOTION ACTIVATED LIGHT
	SMOKE DETECTOR		
	INDOOR AIR QUALITY EXHAUST FAN (MIN. 60 CFM, 1 SONE MAX) MUST OPERATE CONTINUOUSLY		



PROPOSED ADU ELECTRICAL PLAN

SCALE: 1/4" = 1'

ELECTRICAL NOTES:

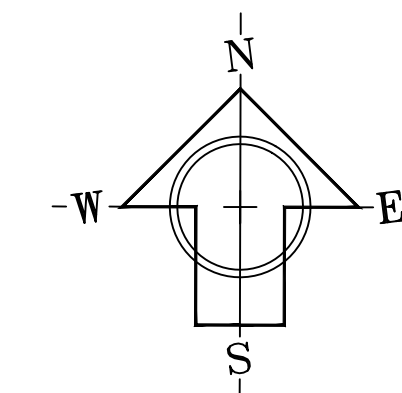
- OUTDOOR RECEPTACLES SHALL BE LISTED AS WEATHER RESISTANT, PER SECTION 406.9(B)(1)
- A MINIMUM OF (1) 20 AMP CIRCUIT FOR THE BATHROOM(S) OUTLET. SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. THIS CIRCUIT MAY SERVE MORE THAN ONE BATHROOM. PER CEC 210-23(a).
- PROVIDE A MINIMUM OF 2-20 AMP SMALL APPLIANCE CIRCUITS FOR THE KITCHEN COUNTERTOPS. SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS. LOADS SHALL BE BALANCED. PER CEC 210-52(B) (2).
- PROVIDE A MINIMUM OF 1-20 AMP LAUNDRY BRANCH CIRCUIT. SUCH CIRCUIT SHALL HAVE NO OTHER OUTLETS CEC 210-23(a).
- ALL RECEPTACLES LISTED IN SECTION 210-52 SHALL BE LISTED AS TAMPER-RESISTANT FOR ALL 15 AND 20 AMPERE RECEPTACLES IN DWELLING UNIT FAMILY, DINING, LIVING, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS AND AREAS PER CEC sec 406-12
- ALL 120 VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS IN KITCHEN, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE. (CEC 210.12). KITCHEN COUNTER-TOPS & LAUNDRY AREAS SHALL BE AFCI/GFCI PROTECTED.
- IN BATH ROOM AT LEAST ONE LUMINARIES IN EACH OF THESE SPACES SHALL BE CONTROLLED BY A VACANCY SENSOR [150.0(K)2J]
- ALL RECESSED DOWNLIGHT LUMINARIES IN CEILING MUST BE IC RATED, AIRTIGHT WITH AIR LEAKAGE LESS THAN 2.0CFM AT 75 PASCALS, ARE SEALED. [150.0(K)1C]
- WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN THE DWELLING UNIT OR WITHIN A SLEEPING UNIT, THE ALARM SHALL BE INTERCONNECTED IN A MANNER THAT ACTIVATION OF ONE ALARM SHALL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT.
- 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.
- NO PENDANT LIGHT FIXTURES IN ZONE 3 FT AWAY AND 8 FT ABOVE THE BATHTUB OR SHOWER.
- LUMINARIES LOCATED WITHIN THE ACTUAL OUTSIDE DIMENSIONS OF THE TUB OR SHOWER, 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 SOLID LENS AND BE GFCI PROTECTED.
- BATHROOM LIGHTING SHALL BE HIGH EFFICACY LUMINARIES (40 LUMENS PER WATT) OR CONTROLLED BY A VACANCY (OCCUPANCY) SENSOR CERTIFIED TO COMPLY WITH SEC 119(D) CEES. THIS IS A MANUAL ON, AUTO-OFF DEVICE. AUTOMATIC ON OR DEVICES WITH AN OVERRIDE SWITCH POSITION ARE NOT APPROVED. HIGH EFFICACY, INCANDESCENT LIGHTING OR FANS ARE REQUIRED TO BE SWITCHED SEPARATELY.
- OVER RANGE EXHAUST SHALL COMPLY WITH ASHRAE 62.2(c) AND CRC 504.
- ALL LIGHTS ARE HIGH EFFICACY WITH NO EXCEPTIONS. IN HABITABLE ROOMS, ALL LIGHTING SHALL BE CONTROLLED BY EITHER DIMMERS OR VACANCY SENSORS.
- ALL RECEPTACLES REQUIRED GFCI SHALL BE COMBINATION OF AFCI, GFCI (CEC 210.52(E)(1)).
- OUTDOOR LIGHTING. ALL LUMINAIRES MOUNTED TO THE BUILDING OR TO OTHER BUILDINGS ON THE SAME LOT SHALL BE HIGH EFFICACY LUMINAIRES AND SHALL BE CONTROLLED BY A PHOTOCONTROL/MOTION SENSOR COMBINATION (WITH OVERRIDE). SEE 150(K)3 FOR REQUIREMENTS.
- PROVIDE UFER OR OTHER APPROVED GROUND PER CEC 250.
- ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES SHALL BE GFCI PROTECTED.
- ALL SERVICES SUPPLYING DWELLING UNITS SHALL BE PROVIDED WITH A SURGE-PROTECTION DEVICE (SPD) AS AN INTEGRAL PART OF THE SERVICE EQUIPMENT, OR IMMEDIATELY ADJACENT THERETO. SPECIFICALLY INCLUDES SERVICE EQUIPMENT REPLACEMENTS AND UPGRADES. CEC 230.67
- HOOD OVER ELECTRIC RANGE SHALL BE 130 CFM OR 55% CE FOR ELECTRIC RANGE OR 280 CFM OR 85% CE FOR NATURAL GAS RANGE.
- BATTERY-OPERATED SMOKE DETECTOR PERMITTED IN EXISTING AREAS WHERE NO CONSTRUCTION OR REMOVAL OF FINISH MATERIAL OCCURS OR WHERE NO ATTIC OR CRAWL SPACE WOULD ALLOW 120V.
- SMOKE DETECTOR SHALL BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL ALARMS.
- SMOKE DETECTORS AND CARBON MONOXIDE DETECTORS SHALL BE "HARD WIRED" AND SHALL BE EQUIPPED WITH BATTERY BACKUP.

ELECTRIC-READY REQUIREMENTS

- HEAT PUMP SPACE HEATER READY. SYSTEMS USING GAS OR PROPANE FURNACE TO SERVE INDIVIDUAL DWELLING UNITS SHALL INCLUDE THE FOLLOWING:
 - A DEDICATED 240 VOLT BRANCH CIRCUIT WIRING SHALL BE INSTALLED WITHIN 3 FT. FROM THE FURNACE AND ACCESSIBLE TO THE FURNACE WITH NO OBSTRUCTIONS. THE BRANCH CIRCUIT CONDUCTORS SHALL BE RATED AT 30 AMPS MINIMUM. THE BLANK COVER SHALL BE IDENTIFIED AS "240V READY".
 - THE MAIN ELECTRICAL SERVICE PANEL SHALL HAVE A RESERVED SPACE TO ALLOW FOR THE INSTALLATION OF A DOUBLE POLE CIRCUIT BREAKER FOR A FUTURE HEAT PUMP SPACE HEATER INSTALLATION. THE RESERVED SPACE SHALL BE PERMANENTLY MARKED AS "FOR FUTURE 240V USE."
- ELECTRIC COOKTOP READY. SYSTEMS USING GAS OR PROPANE COOKTOP TO SERVE INDIVIDUAL DWELLING UNITS SHALL INCLUDE THE FOLLOWING:
 - A DEDICATED 240 VOLT BRANCH CIRCUIT WIRING SHALL BE INSTALLED WITHIN 3 FT. FROM THE COOKTOP AND ACCESSIBLE TO THE COOKTOP WITH NO OBSTRUCTIONS. THE BRANCH CIRCUIT CONDUCTORS SHALL BE RATED AT 50 AMPS MINIMUM. THE BLANK COVER SHALL BE IDENTIFIED AS "240V READY".
 - THE MAIN ELECTRICAL SERVICE PANEL SHALL HAVE A RESERVED SPACE TO ALLOW FOR THE INSTALLATION OF A DOUBLE POLE CIRCUIT BREAKER FOR A FUTURE ELECTRIC COOKTOP INSTALLATION. THE RESERVED SPACE SHALL BE PERMANENTLY MARKED AS "FOR FUTURE 240V USE."
- ELECTRIC CLOTHES DRYER READY. CLOTHES DRYER LOCATIONS WITH GAS OR PROPANE PLUMBING TO SERVE INDIVIDUAL DWELLING UNITS SHALL INCLUDE THE FOLLOWING:
 - A DEDICATED 240 VOLT BRANCH CIRCUIT WIRING SHALL BE INSTALLED WITHIN 3 FT. FROM THE CLOTHES DRYER LOCATION AND ACCESSIBLE TO THE CLOTHES DRYER LOCATION WITH NO OBSTRUCTIONS. THE BRANCH CIRCUIT CONDUCTORS SHALL BE RATED AT 30 AMPS MINIMUM. THE BLANK COVER SHALL BE IDENTIFIED AS "240V READY."
 - THE MAIN ELECTRICAL SERVICE PANEL SHALL HAVE A RESERVED SPACE TO ALLOW FOR THE INSTALLATION OF A DOUBLE POLE CIRCUIT BREAKER FOR A FUTURE ELECTRIC CLOTHES DRYER INSTALLATION. THE RESERVED SPACE SHALL BE PERMANENTLY MARKED AS "FOR FUTURE 240V USE."

ENERGY STORAGE SYSTEM (ESS) READY. AT LEAST ONE OF THE FOLLOWING SHALL BE PROVIDED:
 A. ESS READY INTERCONNECTION EQUIPMENT WITH A MINIMUM BACKED-UP CAPACITY OF 60 AMPS AND A MINIMUM OF FOUR ESS-SUPPLIED BRANCH CIRCUITS, OR
 B. A DEDICATED RACEWAY FROM THE MAIN SERVICE PANEL TO A PANELBOARD (SUBPANEL) THAT SUPPLIES THE FOLLOWING BRANCH CIRCUITS: REFRIGERATOR, LIGHTING CIRCUIT NEAR PRIMARY EGRESS DOOR, SLEEPING ROOM RECEPTACLE AND ONE ADDITIONAL.
 THE MAIN PANELBOARD SHALL HAVE A MINIMUM BUSBAR RATING OF 225 AMPS. SPACE SHALL BE RESERVED TO ALLOW FUTURE INSTALLATION OF A SYSTEM ISOLATION EQUIPMENT/TRANSFER SWITCH WITHIN 3 FEET OF THE MAIN PANELBOARD. RACEWAYS SHALL BE INSTALLED BETWEEN THE PANELBOARD AND THE SYSTEM ISOLATION EQUIPMENT TO ALLOW THE CONNECTION OF BACKUP POWER SOURCE.

[Signature]
 1-9-2026



DESIGNER INFORMATION

PETER MAC

PMCONSTRUCTION247@GMAIL.COM

714-312-8184

OWNER INFORMATION

DANIEL POON

CONVERT GARAGE INTO ADU & NEW ADDITION

403 S GARNSEY ST UNIT#2, SANTA ANA, CA 92701

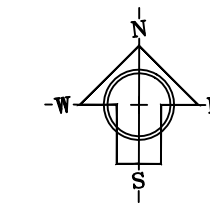
ORIGIN DATE: 5/2025

DRAWN BY: PM

**SHEET TITLE
 EXISTING FLOOR PLAN
 & PROPOSED
 ADU ELECTRICAL**

SHEET NUMBER

A3



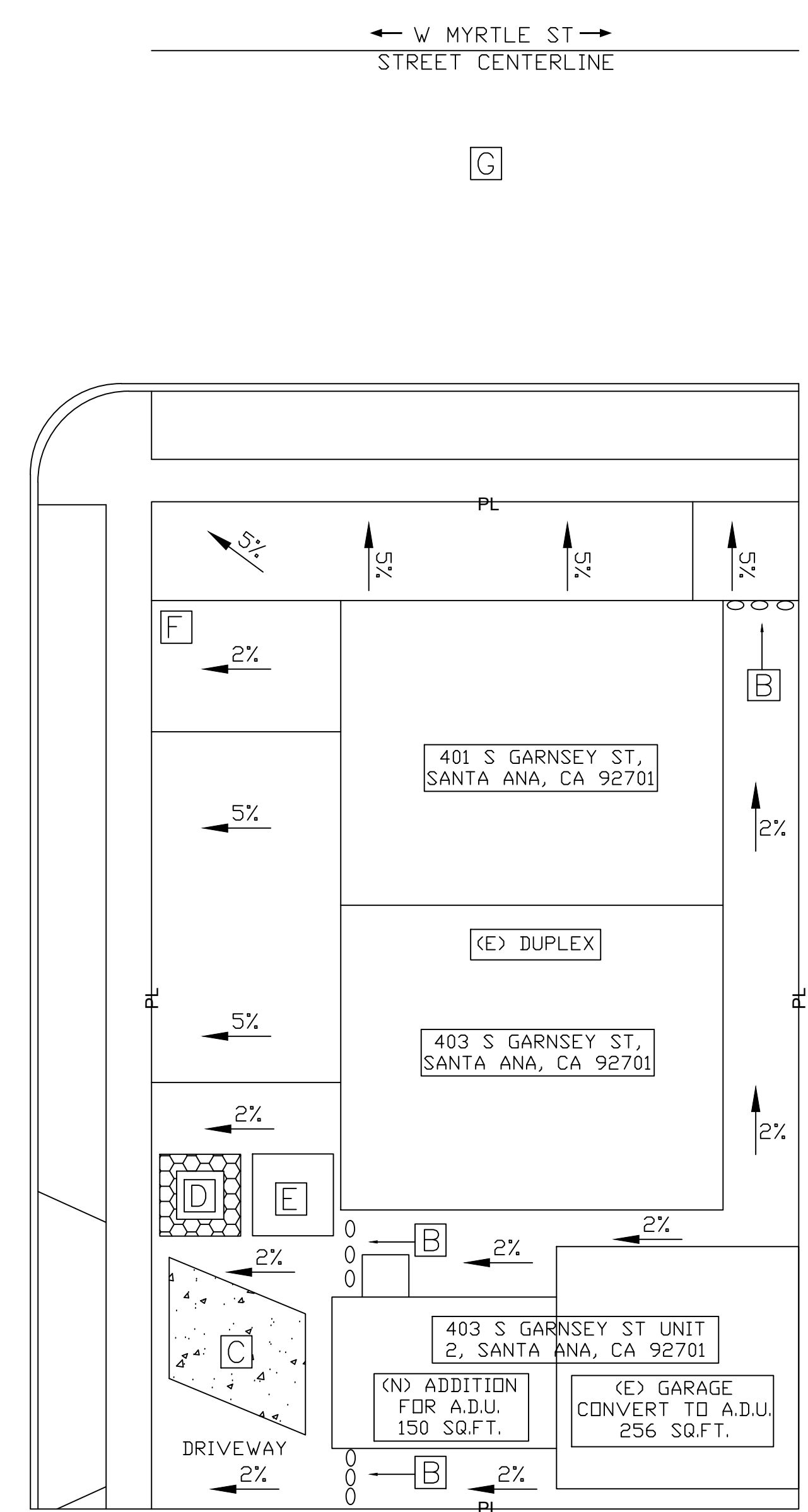
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CONVERT GARAGE INTO A.D.U. & NEW ADDITION
403 S GARNSEY ST UNIT#2, SANTA ANA, CA 92701

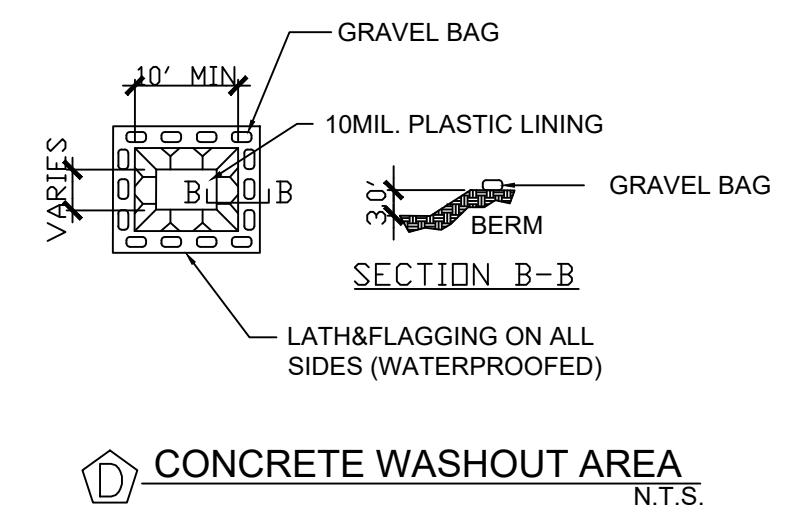
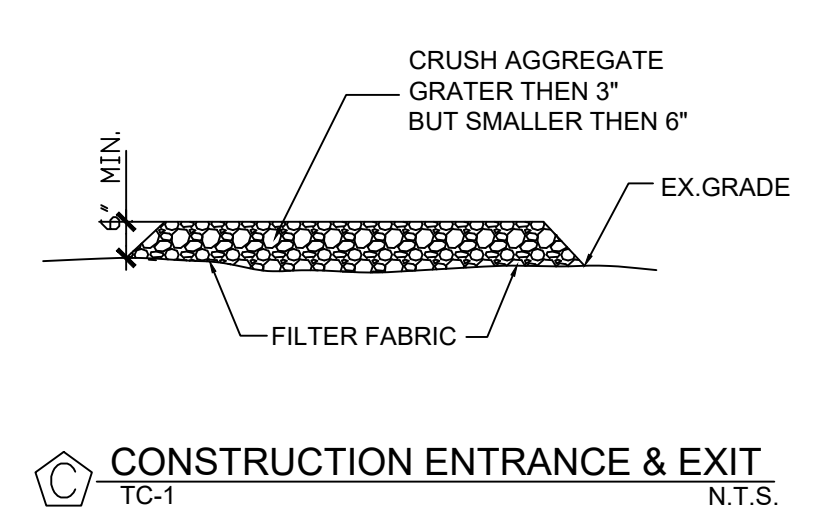
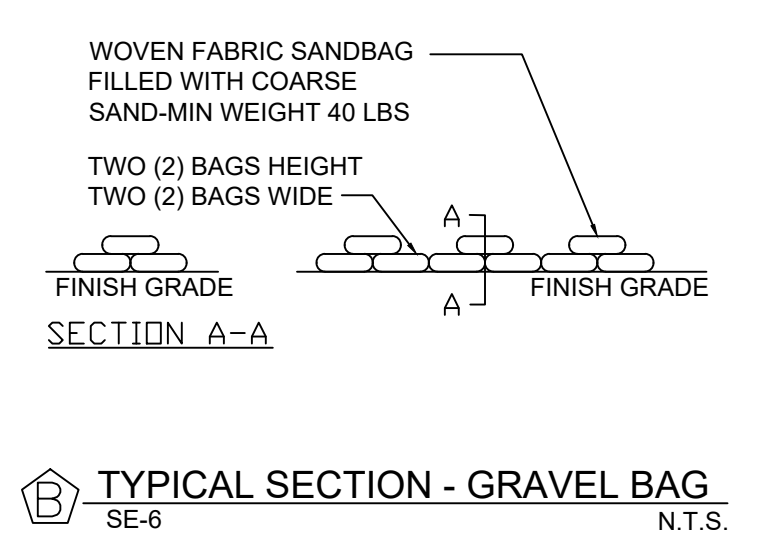
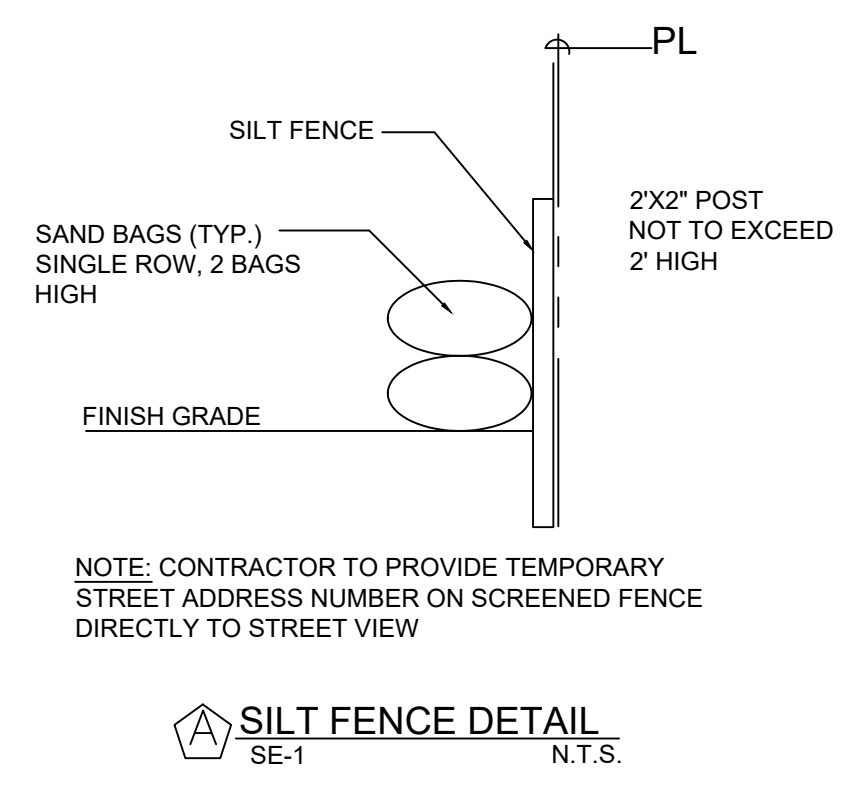


SITE DRAINAGE PLAN
SCALE 1/8" = 1'

EROSION CONSTRUCTION NOTES	
NO	DESCRIPTION
A	PLACE 6' HIGH SILT FENCE WITH GREEN SCREEN
B	PLACE GRAVEL BAGS (DET A)
C	CONSTRUCT STABILIZED CONSTRUCTIONS ENTRANCE & EXIT (DET.C)
D	CONCRETE WASHOUT
E	MATERIAL DELIVERY & STORAGE
F	PORTABLE TOILET
G	STREET SWEEPING
BEST MANAGEMENT PRACTICES	
NO	DESCRIPTION
1	SE-6 GRAVEL BAG BERM
2	WM-1 MATERIAL DELIVERY & STORAGE
3	WM-3 STOCKPILE MANAGEMENT
4	WM-4 SPILL PREVENTION & CONTROL
5	WM-5 SOLID WASTE MANAGEMENT
6	WM-6 HAZARDOUS WASTE MANAGEMENT
7	WM-8 CONCRETE WASHOUT MANAGEMENT
8	WM-9 SANITRY/SEPTIC WASTE MANAGEMENT
9	WM-10 LIQUID WASTE MANAGEMENT
10	TC-1 CONSTRUCTION ENTRANCE & EXIT

EROSION CONTROL GENERAL NOTES

- EROSION CONTROL IS REQUIRED FOR GRADING OPERATIONS DURING THE RAINY SEASON FROM OCTOBER 15TH TO APRIL 15TH. APPROVED PLANS ARE REQUIRED FOR ALL ROUGH GRADING.
- IN CASE OF EMERGENCY, CALL ORCHID L & HAN NGUYEN AT (714) 417 3202
- THE DESIGN CIVIL ENGINEER WILL SUPERVISE EROSION CONTROL WORK AND ENSURE THAT WORK IS IN ACCORDANCE WITH THE APPROVED PLANS (IF REQUIRED).
- 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.
- DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE CITY ENGINEER.
- ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5.DAYS RAIN PROBABILITY FORECAST EXCEEDS 40%.
- AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK
- GRADED AREAS AROUND THE TRACK PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPE AT CONCLUSION OF EACH WORKING DAY.
- THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
- DESILTING BASINS ARE TO BE CONSTRUCTED AS GRADING OF INDIVIDUAL GRADING AREAS ARE COMPLETE PER ROUGH GRADING PLANS.
- THE CITY ENGINEER RESERVES THE RIGHT TO MAKE CHANGES OR MODIFICATIONS TO THIS PLAN AS DEEMED NECESSARY.
- INFORMATION IN THIS PLAN IS FOR EROSION CONTROL ONLY. ALL OTHER INFORMATION IS SUBJECT TO CHANGE.
- TEMPORARY EROSION PROTECTION IS REQUIRED FOR MANUFACTURED SLOPES PRIOR TO PERMANENT PLANTING.
- AREAS SHALL BE MAINTAINED IN SUCH A STATE THAT FIRE ACCESS SHALL SEE MAINTAINED AT ALL TIMES (INCLUDING ACCESS TO NEIGHBORING PROPERTIES).
- NO OBSTRUCTION OR DISTURBANCE OF NATURAL DRAINAGE COURSES OR EXISTING STORM DRAIN INLETS SHALL OCCUR DURING THE RAINY SEASONS, UNLESS ADEQUATE TEMPORARY/PERMANENT DRAINAGE FACILITIES HAVE BEEN APPROVED AND INSTALLED TO CARRY SURFACE WATER TO THE NEAREST PRACTICAL STREET, STORM DRAIN OR NATURAL WATER COURSE.
- THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER THAT STORM RUNOFF WILL BE CONTAINED WITHIN THE PROJECT OR CHANNELS INTO THE STORM DRAIN SYSTEM WHICH SERVES THE RUNOFF AREA. STORM RUNOFF FROM ONE AREA SHALL NOT BE ALLOWED TO DIVERT TO ANOTHER RUNOFF AREA.
- CONFORMANCE WITH THE REQUIREMENT OF THESE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITIES TO THIS SITE AND ADJACENT PROPERTIES. TEMPORARY EROSION CONTROL SHALL CONSIST OF, BUT NO TO BE LIMITED TO, CONSTRUCTING SUCH FACILITIES AND TAKING SUCH MEASURES AS ARE NECESSARY TO PREVENT, CONTROL AND ABATE WATER, MUD AND EROSION DAMAGE TO PUBLIC AND PRIVATE PROPERTY AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT.
- SLOPES CONSTRUCTED PRIOR TO OCTOBER 1 SHALL BE TREATED FOR EROSION CONTROL PRIOR TO OCTOBER 15. SLOPES CONSTRUCTED AFTER OCTOBER 1 SHALL BE TREATED FOR EROSION CONTROL AS THE CONSTRUCTION OF SLOPE PROGRESS IN INCREMENT OF 25 FEET OR LESS MEASURES VERTICALLY.
- FILL AREAS WHILE BROUGHT UP TO GRADE AND DURING PERIODS OF COMPLETION PRIOR TO FINAL GRADE, SHALL BE PROTECTED BY VARIOUS MEASURES TO ELIMINATE EROSION AND THE SILTATION OF DOWNSTREAM FACILITIES AND ADJACENT AREAS. THESE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO: TEMPORARY DOWNDRAINS, EITHER IN THE FORM OF PIPES OR PAVED DITCHES WITH PROTECTED OUTFALL AREAS; GRADED BERMS AROUND AREAS TO ELIMINATE EROSION OF FILL SLOPES BY SURFACE RUNOFF; CONFINED PONDING AREAS TO DESILT RUNOFF; TEMPORARY CHECK DAMS IN TOE OF SLOPE DITCHES TO DESILT RUNOFF; PROTECTION SUCH AS SAND BAGS AROUND INLETS WHICH HAVE NOT BEEN BROUGHT UP TO GRADE, AND EARTH BERMS AND APPROPRIATE GRADING TO DIRECT DRAINAGE AWAY FROM THE EDGE OF THE SLOPES SHALL BE CONSTRUCTED AND MAINTAINED ON THOSE FILL AREAS WHERE EARTH-WORK OPERATIONS ARE NOT IN PROGRESS.
- TOP OF CUT BROW DITCHES, WHERE REQUIRED ON THE PLANS, SHALL BE CONSTRUCTED PRIOR TO EXCEEDING 12 FEET OF CUT MEASURED VERTICALLY.
- CLEARING AND GRUBBING SHOULD BE LIMITED TO AREAS THAT WILL RECEIVE IMMEDIATE GRADING. EROSION CONTROL MEASURES WILL BE REQUIRED TO PROTECT AREAS THAT HAVE BEEN CLEARED AND GRUBBED PRIOR TO GRADING OPERATION, AND THAT ARE SUBJECT TO RUNOFF DURING THE PERIOD FROM THE BEGINNING OF THE RAINY SEASON. THESE MEASURES MAY INCLUDE BUT SHALL NOT BE LIMITED TO: GRADED DITCHES, BRUSH BARRIERS AND SILT FENCES. CARE SHALL BE EXERCISED TO PRESERVE VEGETATION BEYOND THE LIMITS OF GRADING.
- CITY APPROVAL OF PLANS DOES NOT RELIEVE THE DEVELOPER FROM RESPONSIBILITY FOR THE CORRECTION OF ERRORS AND OMISSIONS DISCOVERED DURING CONSTRUCTION. UPON REQUEST, THE REQUIRED PLAN REVISIONS SHALL BE PROMPTLY TO THE CITY ENGINEER FOR APPROVAL.

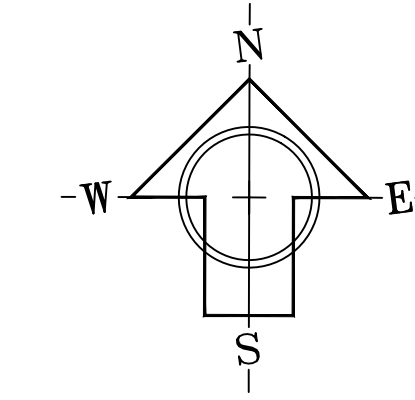


Peter
1-9-2026

ORIGIN DATE: 5/2025
DRAWN BY: PM

SHEET TITLE
DRAINAGE PLAN

SHEET NUMBER
A4



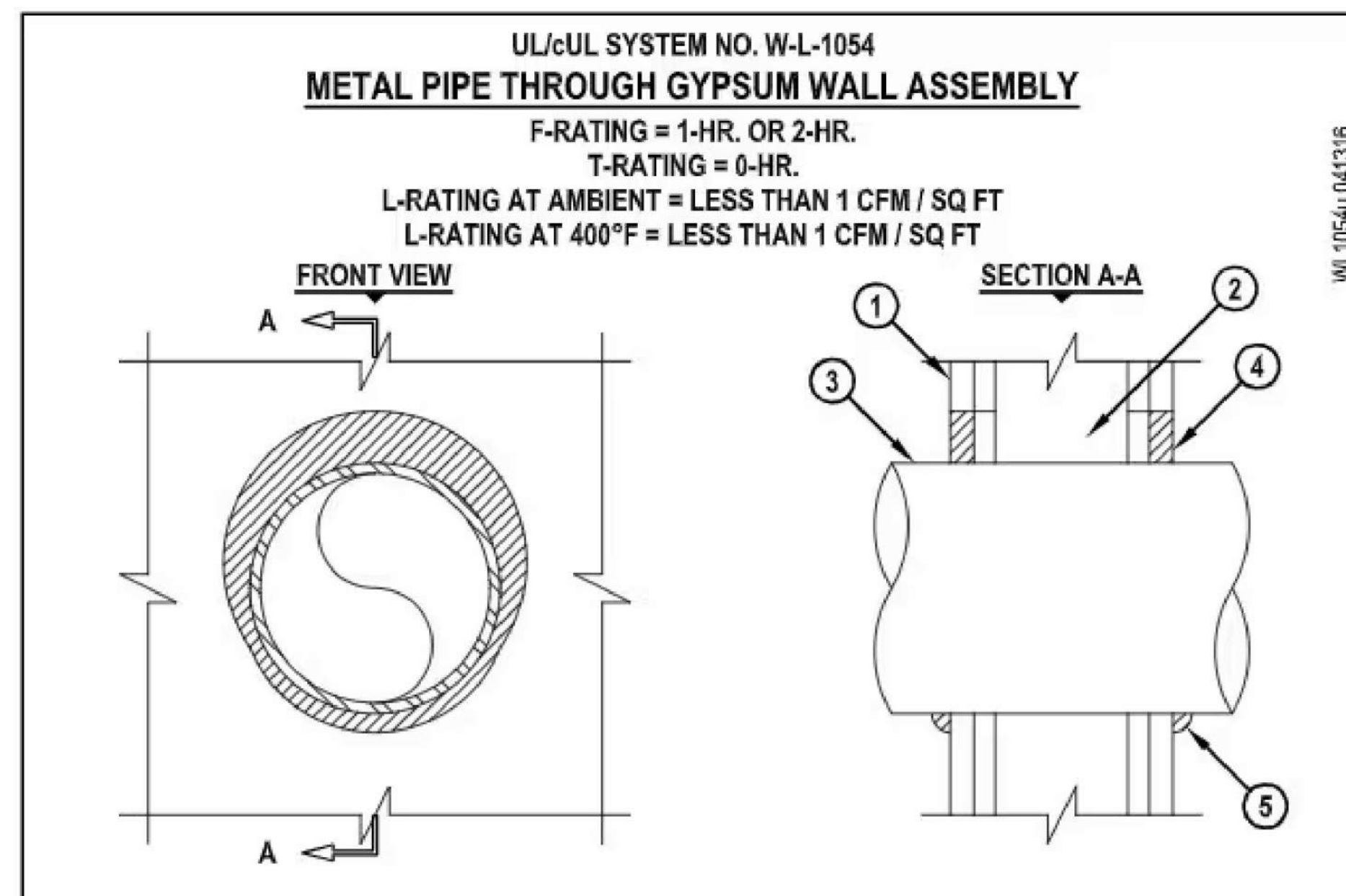
DESIGNER INFORMATION

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 714-312-8184

OWNER INFORMATION

DANIEL POON
 CONVERT GARAGE INTO
 ADU & NEW ADDITION
 403 S GARNSEY ST UNIT#2,
 SANTA ANA, CA 92701

THROUGH PENETRATIONS AND/OR MEMBRANE PENETRATIONS OF
 FIRE-RESISTANCE-RATED WALL ASSEMBLIES SHALL COMPLY WITH
 SECTION R302.4.1 OR R302.4.2. (R302.4).



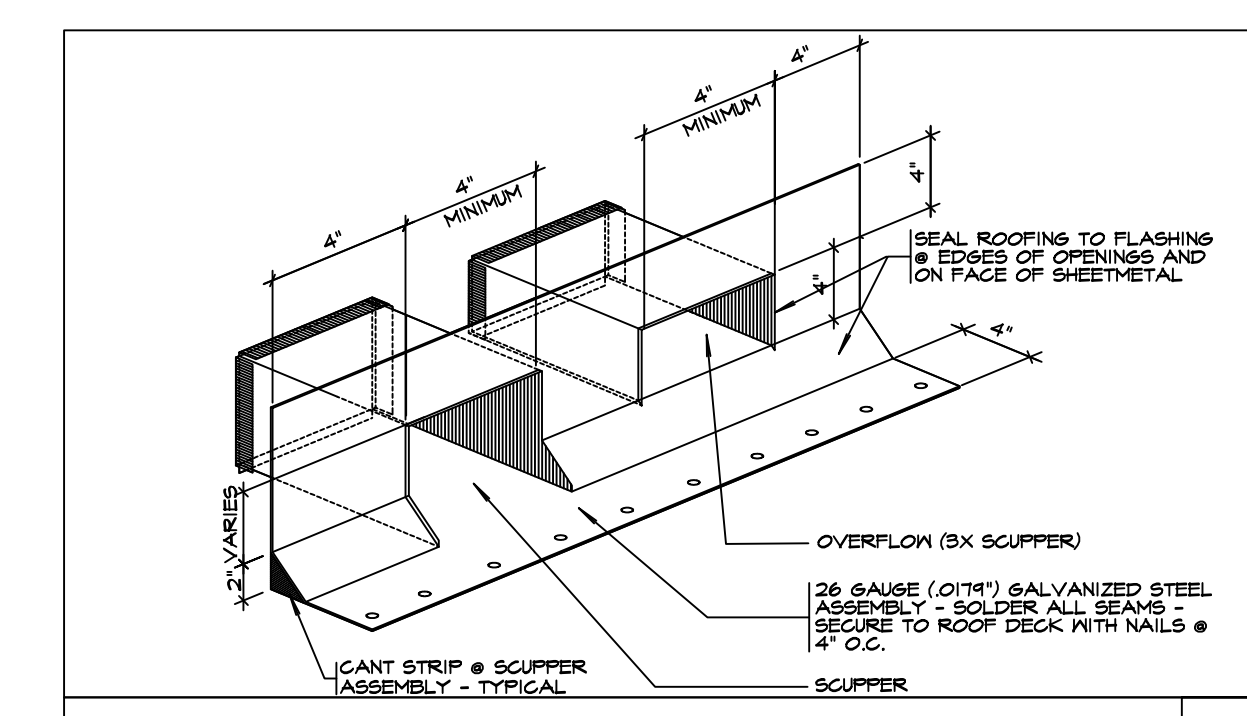
UL/cUL SYSTEM NO. W-L-1054
METAL PIPE THROUGH GYPSUM WALL ASSEMBLY
 F-RATING = 1-HR. OR 2-HR.
 T-RATING = 0-HR.
 L-RATING AT AMBIENT = LESS THAN 1 CFM / SQ FT
 L-RATING AT 400°F = LESS THAN 1 CFM / SQ FT

WL1054u.041316

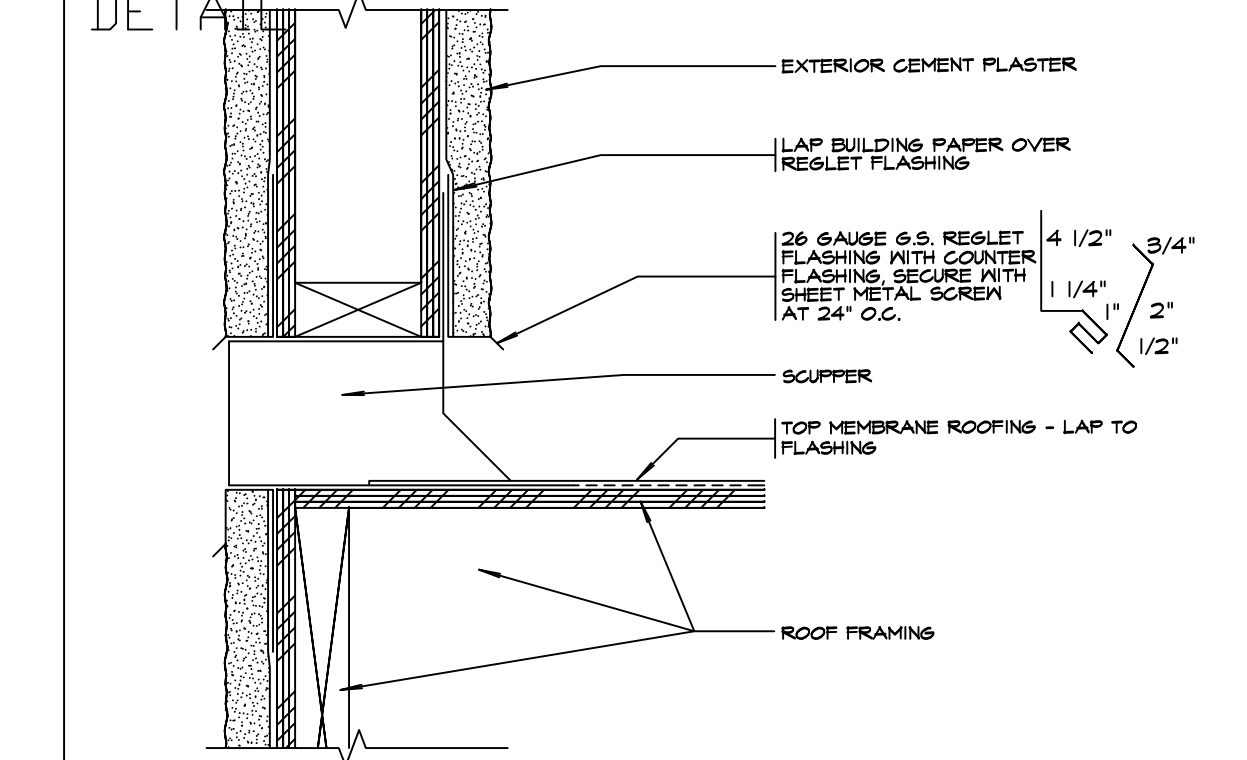
1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300 OR U400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 2-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
 - A. MAXIMUM 30" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 30" DIAMETER CAST IRON PIPE.
 - C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.
 - D. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
 - E. MAXIMUM 4" NOMINAL DIAMETER EMT.
4. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.
5. MINIMUM 1/2" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING :
 A. 32-1/4" FOR STEEL STUD WALLS.
 B. 14-1/2" FOR WOOD STUD WALLS.
 2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2-1/4".
 3. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT OF CONTACT.

<p>Hilti Firestop Systems</p> <p>Saving Lives through Innovation and Education</p>	HILTI, Inc. Plano, Texas USA (800) 879-8000	Sheet 1 of 1	Drawing No.
		Scale 7/32" = 1"	WL 1054u
		Date Apr. 13, 2016	



SCUPPER/OVERFLOW DETAIL 7 N.T.S.



SCUPPER (OVERFLOW SIMILAR) DETAIL 6 N.T.S.

Peter Mac
 1-9-2026

ORIGIN DATE: 5/2025
 DRAWN BY: PM

SHEET TITLE
 WALL ASSEMBLY AND
 ROOF DRAIN DETAILS

SHEET NUMBER
A5



2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

DESIGNER INFORMATION

PETER MAC

PMCONSTRUCTION247@GMAIL.COM

714-312-8184

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (i.e. 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 as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.1.1 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 purposes 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 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.

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:

- [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
- [HCD] For purposes of CALGreen, live/work units, complying with Section 416 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 downslope. Wattles are also used for perimeter and inlet control.

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 or adjacent property, prevent erosion and retain soil runoff on the site:

- Retention basins of sufficient size shall be utilized to retain storm water on the site.
- 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.
- 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.htm)

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:

- Swales
- Water collection and disposal systems
- French drains
- Water retention gardens
- 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:

- 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:
 - Where there is no local utility power supply or the local utility is unable to supply adequate power.
 - 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.
- 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 installed, 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.

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 proposed location of an EV charger at the time of original construction in accordance with the California Electrical Code.

4.106.4.1.1 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.

4.106.4.2.1 Multifamily 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:

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

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

- Construction documents shall show locations of future EV spaces.
- 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:

- 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.
- 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:

- The minimum length of each EV space shall be 18 feet (5486 mm).
- The minimum width of each EV space shall be 9 feet (2743 mm).
- 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 space 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.

- Single in-space raceway. 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 of 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 of 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 methods(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.

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 Vehicles 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:

- Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
- 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 4.303.1.4.

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 (g)(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 1605.3 (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 ounces 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 pre-rinse spray valves 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 (g)]

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 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE	
FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GPM @ 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:

- 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:

- Excavated soil and land-clearing debris.
- 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.
- 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.

- 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.
- Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
- Identify diversion facilities where the construction and demolition waste material collected will be taken.
- Identify construction methods employed to reduce the amount of construction and demolition waste generated.
- 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:

- 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.
- 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 shall be placed in the building:

- Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
- Operation and maintenance instructions for the following:
 - 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.
 - Roof and yard drainage, including gutters and downspouts.
 - Space conditioning systems, including condensers and air filters.
 - Landscape irrigation systems.
 - Water reuse systems.
- Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
- Public transportation and/or carpool options available in the area.
- 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.
- Information about water-conserving landscape and irrigation design and controllers which conserve water.
- Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
- Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
- Information about state solar energy and incentive programs available.
- A copy of all special inspections verifications required by the enforcing agency or this code.
- Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.
- 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 42649.62 (a)(2)(A) at seq. are not 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 wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-joint 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 JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET HIS/HER OWN NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

Peter Mac

ORIGIN DATE: 5/2025

DRAWN BY: PM

SHEET TITLE
GREEN BUILDING
STANDARDS PG1

SHEET NUMBER

G1

1-9-2026



2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

DESIGNER INFORMATION

PETER MAC

PMCONSTRUCTION247@GMAIL.COM

714-312-8184

Y = YES
N/A = NOT APPLICABLE
N = NOT APPLICABLE
RESP. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR, ETC.)

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).

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 in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

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 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:

- 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 1188 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1188 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.
- 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 VOC 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:

- Manufacturer's product specification.
- 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.

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}
(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	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	150
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.

TABLE 4.504.5 - FORMALDEHYDE LIMITS:
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD FLYWOOD 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/CCDCPP/DEDC/ELH/BAQ/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 Health's website for certification programs and testing labs.
<https://www.cdph.ca.gov/Programs/CCDCPP/DEDC/ELH/BAQ/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/CCDCPP/DEDC/ELH/BAQ/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:

- Product certifications and specifications.
- Chain of custody certifications.
- Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
- Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European EN 13986 standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0225 standards.
- Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL
4.505.1 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:

- 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 curing, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
- Other equivalent methods approved by the enforcing agency.
- 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:

- 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.
- 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.
- 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:

- Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
- Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
 - Humidity controls shall be capable of adjusting a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment.
 - A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in).

Notes:

- For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
- 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:

- 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.
- Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
- 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.

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:

- State certified apprenticeship programs.
- Public utility training programs.
- Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
- Programs sponsored by manufacturing organizations.
- 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:

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

Notes:

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

OWNER INFORMATION

DANIEL POON

CONVERT GARAGE INTO ADU & NEW ADDITION

403 S GARNSEY ST UNIT#2 SANTA ANA, CA 92701

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ORIGIN DATE: 5/2025

DRAWN BY: PM

SHEET TITLE GREEN BUILDING STANDARDS PG2

SHEET NUMBER

G2

GENERAL REQUIREMENTS

- 1. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL GRADES, DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE JOB SITE PRIOR TO BIDDING AND COMMENCING CONSTRUCTION. CROSS CHECK ALL DETAILS AND DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS WITH RELATED REQUIREMENTS ON THE ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND CIVIL DRAWINGS AND NOTIFY THE ENGINEER AND THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO STARTING WORK.
2. EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE NOTED OR SHOWN IN THE PLANS OR SPECIFICATIONS, ALL PHASES OF WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE BUILDING CODE, LATEST EDITION, AS WELL AS ALL APPLICABLE STATE AND LOCAL ORDINANCES AS ADOPTED BY THE CONTROLLING JURISDICTION.
3. THE CONTRACT DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION, THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. GENERAL CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT ARE NOT LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, AND SHORING FOR THE STRUCTURE.
4. TIN NO CASE SHALL DIMENSIONS BE SCALED FROM DRAWINGS AND/OR DETAILS. ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR CLARIFICATION PRIOR TO PROCEEDING. ANY WORK INSTALLED PRIOR TO AND/OR IN CONFLICT WITH SUCH CLARIFICATION SHALL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE AND AT NO ADDITIONAL COST TO THE OWNER.
5. THE PRECISE DIMENSIONS AND LOCATIONS OF ALL DOOR AND WINDOW OPENINGS, INTERIOR AND EXTERIOR WALLS SHALL BE DETERMINED FROM THE ARCHITECTURAL DRAWINGS. OTHER FLOOR, WALL AND ROOF OPENINGS AS REQUIRED FOR MECHANICAL, ELECTRICAL AND/OR SIMILAR REQUIREMENTS SHALL BE VERIFIED FROM SHOP DRAWINGS, EQUIPMENT DATA, ETC. AS REQUIRED.
6. FLOOR AND WALL OPENINGS, SLEEVES, VARIATIONS IN STRUCTURAL SLAB ELEVATIONS, DEPRESSED AREAS, AND ALL OTHER ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND/OR CIVIL REQUIREMENTS MUST BE COORDINATED BEFORE THE CONTRACTOR PROCEEDS WITH CONSTRUCTION.
7. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION AND COORDINATION WITH ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE SPRINKLER DRAWINGS AND ALL OTHER RELATED DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR THE AND ALL OTHER RELATED DRAWINGS.
8. IN ALL CASES WHERE A CONFLICT MAY OCCUR SUCH AS BETWEEN ITEMS INCLUDED IN THE SPECIFICATIONS AND NOTES ON THE DRAWINGS, OR BETWEEN GENERAL NOTES AND SPECIFIC DETAILS, THE ENGINEER SHALL BE NOTIFIED AND HE WILL INTERPRET THE INTENT OF THE CONTRACT DOCUMENTS.
9. ALL MATERIALS SHALL BE FURNISHED AS SHOWN HEREIN UNLESS ALTERNATES ARE APPROVED IN WRITING BY THE ARCHITECT, OWNER AND STRUCTURAL ENGINEER OF RECORD.
10. ANY REFERENCE TO THE WORDS APPROVED OR APPROVAL IN THESE DOCUMENTS SHALL BE DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUBCONTRACTORS OF ANY LIABILITY FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFICATION.
11. WHERE A DETAIL, SECTION OR NOTE IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS UNLESS NOTED OTHERWISE. DETAILS MARKED "TYPICAL" SHALL APPLY IN ALL CASES UNLESS SPECIFICALLY INDICATED OTHERWISE. WHERE NO SPECIFIC DETAIL IS SHOWN, THE FRAMING OR CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO LIKE CASES OF CONSTRUCTION.
12. CONNECTIONS OF ALL ITEMS SUPPORTED BY THE STRUCTURE ARE THE RESPONSIBILITY OF THE DISCIPLINES WHO MAKE THESE ATTACHMENTS. REVIEW AND COORDINATE ALL THE REQUIREMENTS IN THE ARCHITECTS PROJECT SPECIFICATION AS APPLICABLE.
13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, WHETHER INDICATED ON THE CONTRACT DRAWING OR NOT, AND TO PROTECT THEM FROM DAMAGE. REPAIR AND REPLACEMENT OF SAID WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
14. VIBRATIONAL EFFECTS OF MECHANICAL AND/OR ANY OTHER EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.
15. UNLESS NOTED OTHERWISE, ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE TO THE TOP OF BEAMS AND FOUNDATIONS. BEAMS DENOTED AS "DROP" HAVE THE TOP OF BEAM AT THE HEIGHT OF THE TOP PLATE. BEAMS DENOTED AS "FLUSH" HAVE THE BOTTOM OF BEAM AT THE HEIGHT OF THE TOP PLATE, U.N.O.

- 1. ALL STRUCTURAL LUMBER SHALL BE DOUGLAS FIR LARCH CONFORMING TO WEST COAST LUMBER INSPECTION BUREAU GRADING RULES #17. MOISTURE CONTENT NOT TO EXCEED 19% AT TIME OF CONSTRUCTION.
2. WOOD-BASED STRUCTURAL USE PANELS SHALL MEET THE REQUIREMENTS OF DOC PS 2-10. STRUCTURAL SHEATHING MAY BE EITHER OSB OR PLYWOOD.
3. STRUCTURAL COMPOSITE LUMBER (SCL) SHALL CONFORM TO THE MANUFACTURER'S SCL REPORT IN COMPLIANCE WITH THE GOVERNING BUILDING CODE FOR THE PROJECT LISTED.
4. ENGINEERED GLU-LAM BEAMS SHALL BE INSPECTED AND AN A.I.T.C. CERTIFICATE OF COMPLIANCE SHALL BE PROVIDED TO THE INSPECTOR PRIOR TO INSTALLATION. ALL GLU-LAM BEAMS SHALL BE FABRICATED WITH WATERPROOF GLUE WITH STANDARD CAMBER U.N.O.
5. GLU-LAM BEAMS MAY NOT BE SUBSTITUTED FOR STRUCTURAL COMPOSITE LUMBER (SCL) BEAMS UNLESS WRITTEN AUTHORIZATION IS PROVIDED BY THE ENGINEER OF RECORD.
6. ALL WOOD FRAMING MEMBERS DIRECTLY AGAINST CONCRETE OR MASONRY INSTALLED IN A DRY OR ENCLOSED ENVIRONMENT SHALL BE PRESSURE TREATED DOUG-FIR TREATED WITH SODIUM BORATE (SBX/DOT), CORROSION RESISTANT CONNECTORS ARE NOT REQUIRED WITH SODIUM BORATE TREATED LUMBER. IF OTHER TREATMENTS ARE USED, GALVANIZED FASTENERS PER "FASTENER REQUIREMENTS" NOTE 3 ARE REQUIRED.
7. LUMBER GRADE STAMPS ARE TO REMAIN IN PLACE AFTER INSTALLATION WHERE POSSIBLE.
8. LUMBER GRADES ARE TO BE AS FOLLOWS:
STUDS UP TO 10'-0".....STUD GRADE
STUDS OVER 10'-0".....DF #2
BLOCKING.....STANDARD OR BETTER
PLATES & SILL.....STANDARD OR BETTER
TOP PLATES.....DF #2
4X4 BEAMS/POSTS.....STANDARD OR BETTER
4X6 THROUGH 4X12BEAMS/POSTS.....DF #2
4X14BEAMS/POSTS.....DF #1
6X & LARGER BEAMS/POSTS.....DF #1
2X RAFTER/JOIST.....DF #2
9. UTILITY GRADE LUMBER IS UNACCEPTABLE FOR ANY PURPOSE.
10. THE FOLLOWING BEAMS/HEADERS/RIMS CAN BE FROM ANY MANUFACTURER WITH CURRENT APPROVED ICC ES - EVALUATION REPORT WITH THE FOLLOWING MECHANICAL PROPERTIES:
FOR "LVL" & "PSL" BEAMS:
Fb = 2900 psi (MIN), Fv = 290 psi (MIN), E = 2.0 x 10^6 psi (MIN).
FOR "LSL" BEAMS/HEADERS:
Fb = 2325 psi (MIN), Fv = 400 psi (MIN), E = 1.5 x 10^6 psi (MIN).

- FOR MANUFACTURED RIM BOARD WITH MIN 1 1/4" THICK, CONTINUOUSLY SUPPORTED BY WALL , AND MATCHES JOIST DEPTH:
Fc // (PERPENDICULAR)..... = 680 psi (MIN)
Fc // (PARALLEL)..... = 1400 psi (MIN)
Ft = 1075 psi (MIN), E = 1.3 x 10^6 psi (MIN)
GLU-LAM BEAM SHALL BE 24F-V4, DF/DF
Fb = 2400 psi @ BOTTOM, Fv = 1850 psi @ TOP
Fv = 265 psi (MIN), E = 1.8 x 10^6 psi (MIN).

- 11. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING EXP 1 WITH A SPAN RATING OF 240 WITH 8D NAILS AT 6" O/C AT EDGES AND BOUNDARIES AND 12" O/C FIELD NAILING.
12. FLOOR SHEATHING SHALL BE 23/32" APA RATED SHEATHING EXP 1 WITH A MINIMUM SPAN RATING OF 48/24 WITH 10D NAILS AT 6" O/C AT EDGES AND BOUNDARIES AND 10" O/C FIELD NAILING.

- NOTE: ALL STRUCTURAL RATED PANELS MUST BE STAMPED BY ONE OF THE FOLLOWING APPROVED AGENCIES, APA, PFS/TECO OR PITTSBURG.

STRUCTURAL WOOD

Table with 6 columns: TYPE, ALLOWABLE SHEAR (PLF), PANEL, SILL PLATE NAILING (16D SINKER), FRAMING CLIP (A35's, L50's OR LTP's), 5/8" O.A.B. SPC'G. Rows include 260 PLF, 380 PLF, 490 PLF, 640 PLF, 800 PLF with various panel and nail specifications.

- 1. FRAMING AT ADJOINING PANEL EDGES SHALL BE 3 INCHES NOMINAL OR WIDER, AND NAILS SHALL BE STAGGERED WHERE NAILS ARE SPACED 2 INCHES ON CENTER.
2. WHERE SHEAR DESIGN VALUES EXCEED 350 PLF., ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ADJOINING PANELS SHALL NOT BE LESS THAN A SINGLE 3-INCH NOMINAL MEMBER, OR TWO 2-INCH NOMINAL MEMBERS FASTENED TOGETHER IN ACCORDANCE WITH SECTION 2306.1 TO TRANSFER THE DESIGN SHEAR VALUE BETWEEN FRAMING MEMBERS. WOOD STRUCTURAL PANEL JOINT AND SILL PLATE NAILING SHALL BE STAGGERED IN ALL CASES. SEE SECTION 2305.3.11 FOR SILL PLATE SIZE AND ANCHORAGE REQUIREMENTS. NAILS SHALL BE PLACED NOT LESS THAN 1/2" EDGE DISTANCE FROM THE PANEL EDGES AND 3/8" FROM THE EDGE OF THE CONNECTING MEMBERS.
3. ANCHOR BOLTS FOR SHEAR WALLS SHALL INCLUDE STEEL PLATE WASHERS, A MINIMUM OF 0.224 INCHES BY 3 INCHES BY 3 INCHES IN SIZE, BETWEEN THE SILL PLATE AND NUT. SPECIAL INSPECTION SHALL BE PROVIDED FOR PLYWOOD OR OSB SHEAR WALL OR DIAPHRAGM NAILING AT 4 INCHES ON CENTER OR LESS, PER IBC SECTION 1705.11.

WOOD

- 1. ALL STRUCTURAL LUMBER SHALL BE DOUGLAS FIR LARCH CONFORMING TO WEST COAST LUMBER INSPECTION BUREAU GRADING RULES #17. MOISTURE CONTENT NOT TO EXCEED 19% AT TIME OF CONSTRUCTION.
2. WOOD-BASED STRUCTURAL USE PANELS SHALL MEET THE REQUIREMENTS OF DOC PS 2-10. STRUCTURAL SHEATHING MAY BE EITHER OSB OR PLYWOOD.
3. STRUCTURAL COMPOSITE LUMBER (SCL) SHALL CONFORM TO THE MANUFACTURER'S SCL REPORT IN COMPLIANCE WITH THE GOVERNING BUILDING CODE FOR THE PROJECT LISTED.
4. ENGINEERED GLU-LAM BEAMS SHALL BE INSPECTED AND AN A.I.T.C. CERTIFICATE OF COMPLIANCE SHALL BE PROVIDED TO THE INSPECTOR PRIOR TO INSTALLATION. ALL GLU-LAM BEAMS SHALL BE FABRICATED WITH WATERPROOF GLUE WITH STANDARD CAMBER U.N.O.
5. GLU-LAM BEAMS MAY NOT BE SUBSTITUTED FOR STRUCTURAL COMPOSITE LUMBER (SCL) BEAMS UNLESS WRITTEN AUTHORIZATION IS PROVIDED BY THE ENGINEER OF RECORD.
6. ALL WOOD FRAMING MEMBERS DIRECTLY AGAINST CONCRETE OR MASONRY INSTALLED IN A DRY OR ENCLOSED ENVIRONMENT SHALL BE PRESSURE TREATED DOUG-FIR TREATED WITH SODIUM BORATE (SBX/DOT), CORROSION RESISTANT CONNECTORS ARE NOT REQUIRED WITH SODIUM BORATE TREATED LUMBER. IF OTHER TREATMENTS ARE USED, GALVANIZED FASTENERS PER "FASTENER REQUIREMENTS" NOTE 3 ARE REQUIRED.
7. LUMBER GRADE STAMPS ARE TO REMAIN IN PLACE AFTER INSTALLATION WHERE POSSIBLE.
8. LUMBER GRADES ARE TO BE AS FOLLOWS:
STUDS UP TO 10'-0".....STUD GRADE
STUDS OVER 10'-0".....DF #2
BLOCKING.....STANDARD OR BETTER
PLATES & SILL.....STANDARD OR BETTER
TOP PLATES.....DF #2
4X4 BEAMS/POSTS.....STANDARD OR BETTER
4X6 THROUGH 4X12BEAMS/POSTS.....DF #2
4X14BEAMS/POSTS.....DF #1
6X & LARGER BEAMS/POSTS.....DF #1
2X RAFTER/JOIST.....DF #2
9. UTILITY GRADE LUMBER IS UNACCEPTABLE FOR ANY PURPOSE.
10. THE FOLLOWING BEAMS/HEADERS/RIMS CAN BE FROM ANY MANUFACTURER WITH CURRENT APPROVED ICC ES - EVALUATION REPORT WITH THE FOLLOWING MECHANICAL PROPERTIES:
FOR "LVL" & "PSL" BEAMS:
Fb = 2900 psi (MIN), Fv = 290 psi (MIN), E = 2.0 x 10^6 psi (MIN).
FOR "LSL" BEAMS/HEADERS:
Fb = 2325 psi (MIN), Fv = 400 psi (MIN), E = 1.5 x 10^6 psi (MIN).

- FOR MANUFACTURED RIM BOARD WITH MIN 1 1/4" THICK, CONTINUOUSLY SUPPORTED BY WALL , AND MATCHES JOIST DEPTH:
Fc // (PERPENDICULAR)..... = 680 psi (MIN)
Fc // (PARALLEL)..... = 1400 psi (MIN)
Ft = 1075 psi (MIN), E = 1.3 x 10^6 psi (MIN)
GLU-LAM BEAM SHALL BE 24F-V4, DF/DF
Fb = 2400 psi @ BOTTOM, Fv = 1850 psi @ TOP
Fv = 265 psi (MIN), E = 1.8 x 10^6 psi (MIN).

- 11. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING EXP 1 WITH A SPAN RATING OF 240 WITH 8D NAILS AT 6" O/C AT EDGES AND BOUNDARIES AND 12" O/C FIELD NAILING.
12. FLOOR SHEATHING SHALL BE 23/32" APA RATED SHEATHING EXP 1 WITH A MINIMUM SPAN RATING OF 48/24 WITH 10D NAILS AT 6" O/C AT EDGES AND BOUNDARIES AND 10" O/C FIELD NAILING.

- NOTE: ALL STRUCTURAL RATED PANELS MUST BE STAMPED BY ONE OF THE FOLLOWING APPROVED AGENCIES, APA, PFS/TECO OR PITTSBURG.

STRUCTURAL STEEL

- 1. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH ACI 315 AND ACI 318, AND CRS'S MANUAL OF STANDARD PRACTICE.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615OR ASTM 716(WELDEABLE STEEL) AND SHALL BE GRADE 60 DEFORMED BARS, TYP., U.N.O. REINFORCING IN SLAB ON GRADE MAYBE GRADE 40 STEEL FOR BARS #4 AND SMALLER U.N.O ON THE PLANS.
3. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. LAPS IN WWF SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRE OF EACH FABRICH SEET IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES.
4. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING BARS/STEEL ARE TO THE CENTER OF STEEL U.N.O. ON THE PLANS OR DETAILS.
CONDITION COVER
A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
B. EXPOSED TO EARTH OR WEATHER (INCLUDING SLABS ON GRADE) #5 AND LARGER 2" #4 AND SMALLER 1 1/2"
C. NOT EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:
1. STRUCTURAL SLABS, WALLS w/ #11 BARS AND SMALLER 3/4" #14 BARS AND LARGER 1 1/2"
2. BEAMS, COLUMNS 2"
5. LAP SPLICES OF BARS SHALL CONFORM TO THE TYPICAL THE LAP SCHEDULE ON THE PLANS, U.N.O. NO TACK WELDING OF BARS ALLOWED
6. MECHANICAL SPLICE COUPLERS MAY BE USED AND SHALL HAVE CURRENT ICC APPROVAL AND BE CAPABLE OF DEVELOPING 125% OF THE BARS YIELD STRENGTH.
7. ALL REINFORCING BARS SHALL BE BENT COLD. DO NOT FIELD BEND OR UNBEND ANY BARS IN PLACE FOR THE FOUNDATION INSPECTION.
8. REINFORCING SPACING SHOWN ON THE PLANS ARE THE MAXIMUM SPACING "ON CENTER SPACING". DO NOT EXCEED THIS. ANY DISCREPANCIES DURING CONSTRUCTION SHALL BE FORWARDED TO THE ENGINEER FOR REVIEW AND APPROVAL.
9. TYPICAL REINFORCING FOR CONCRETE SLAB ON METAL DECK SHALL BE 6x6-W4X1W4 WELDED WIRE FABRIC, U.N.O. PLACED WWF MIN-DEPTH OF THE SLAB OVER THE TOP OF THE FLUTE OF THE METAL DECK.
10. ALL DOWELS TO BE SET IN CONCRETE SHALL BE TIED IN PLACE PRIOR TO PLACEMENT OF CONCRETE. NO WET SETTING, STABBING, RODDING OR OTHER MOVEMENT OF EMBEDDED ITEMS SHALL BE PERFORMED DURING THE PLACEMENT OF CONCRETE.
11. DOWELS BETWEEN FOOTING AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING AS THE MAIN REINFORCING. UNO
12. CHAIRS OR SPACERS FOR REINFORCING SHALL BE NON-FERROUS OR PLASTIC COATED WHEN RESTING ON EXPOSED SURFACES.
CONCRETE MASONRY
GENERAL
1. ALL CONCRETE MASONRY MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH BUILDING CODE, CHAPTER 21.
MATERIALS
2. ALL MATERIALS MAKING UP FINISHED CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO STANDARDS REQUIRED BY BUILDING CODE SEC. 2103.
3. MORTAR SHALL BE TYPE M OR S AS APPLICABLE AND CONFORMING WITH ASTM C270 AND SHALL BE PROPORTIONED PER ARTICLE 2.1 & 2.6A OF SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-16).
4. GROUT SHALL COMPLY WITH ARTICLE 2.2 OF TMS 602-16 AND SHALL ATTAIN A MINIMUM COMPRESSION STRENGTH AT 28 DAYS OF 1500 PSI OR THE REQUIRED COMPRESSION, F.M, WHICHEVER IS GREATER. THE COMPRESSIVE STRENGTH OF GROUT SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C-1019.
5. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 FOR LOAD BEARING CONCRETE MASONRY UNITS. CONCRETE BRICK SHALL CONFORM TO ASTM C55, SPECIFICATIONS FOR CONCRETE BUILDING BRICK.
6. GRADE N CONCRETE BRICKS ARE FOR USE AS ARCHITECTURAL VENEER AND FACING, LIMITED TO IN EXTERIOR WALLS.
7. GRADE S CONCRETE BRICKS ARE FOR GENERAL USE WHERE MODERATE STRENGTH AND RESISTANCE TO FROST ACTION AND MOISTURE PENETRATION IS REQUIRED.
STRENGTH
8. THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, F.M, SHALL BE 2000 PSI, UNLESS NOTED OTHERWISE. IF HIGHER F.M IS NOTED, IT SHALL BE VERIFIED BY PRISM TESTS AS REQUIRED IN ARTICLE 1.4 SPECIFICATION OF MASONRY STRUCTURES (TMS 602-16).
9. REINFORCING STEEL SHALL CONFORM TO ASTM A615. GRADE 40 FOR SIZES #3 AND GRADE 60 FOR SIZES #4 AND LARGER.
SPECIAL INSPECTION
10. SPECIAL INSPECTION FOR CONCRETE MASONRY CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE SECTION 1704 AND REQUIREMENTS IN SPECIAL INSPECTION TABLES ON SHEET SN-1. MASONRY COMPRESSIVE STRENGTH, F.M SHALL BE VERIFIED BY UNIT STRENGTH METHOD OR PRISM TEST METHOD PRIOR TO ANY CURING CONSTRUCTION AS DESCRIBED IN ARTICLE 1.4 SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-16).

REINFORCED CONCRETE

- 1. CONCRETE SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 AND ACI 301 EXCEPT AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.
2. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II, U.N.O
3. AGGREGATE FOR STONE CONCRETE SHALL CONFORM TO ASTM C-33. FOR LOWSHRINKAGE AGGREGATE, USE LIMESTONE OR GRANITE. AGGREGATE FORTLIGHTWEIGHTCONCRETE SHALL CONFORM TO ASTM C-330
4. DO NOT USE ANY CONCRETE OR GROUT CONTAINING CHLORIDES. WATER USED IN MIXING CONCRETE SHALL CONFORM WITH ASTM C1602.
5. CONCRETE MIX DESIGNS CONTAINING FLY ASH MAY BE USED WHERE CONCRETE IS NOT VISUALLY EXPOSED. FLY ASH SHALL CONFORM WITH ASTM C618 AND MAY REPLACE UP TO 20% PORTLAND CEMENT BY VOLUME.
6. CONCRETE STRENGTH TEST REPORTS SHALL BE IN COMPLIANCE WITH ACI 318 AND SHALL BE SUBMITTED TO E.O.R. FOR REVIEW.
7. ALL REINFORCING BARS, ANCHOR BOLTS AND ALL OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
8. THE CONCRETE COMPRESSIVE STRENGTH (28 DAYS), Fc, a. ALL LOCATIONS, U.N.O. MIN 2500 PSI, (W/C = 0.45) SPECIAL INSPECTION IS REQUIRED WHEN Fc > 2500 PSI.
b. CONCRETE IN CONTACT WITH SOIL CONTAINING SULFATE So4 > 0.1% BY WEIGHT: 4000 PSI, SPECIAL INSPECTION IS NOT REQUIRED.
c. CONCRETE IN CONTACT WITH SOIL CONTAINING SULFATE So4 > 0.2% BY WEIGHT: 4500 PSI, SPECIAL INSPECTION IS NOT REQUIRED.
9. TIME BETWEEN CONCRETE BATCHING AND PLACEMENT SHALL BE IN ACCORDANCE WITH ASTM C94.
10. CONCRETE PLACEMENT/CURING/REDUCTION IN STRENGTH SHALL CONFORM TO ACI 305R AND 306SR REQUIREMENTS FOR HOT AND COLD WEATHER CONCRETING.
11. CONCRETE SHALL BE CURED PER ACI 308R, UNLESS ALTERNATE METHODS OF CURING HAVE BEEN APPROVED BY THE ARCHITECT OR ENGINEER. FOR SLAB CURING, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING COMPATIBILITY OF CURING COMPOUNDS WITH PROPOSED FINISHES PRIOR TO COMMENCING ANY CURING.
12. MAX. SLUMP SHALL BE 6 INCHES EXCEPT WHERE ADMIXTURES/PLACITIZERS HAVE BEEN ADDED IN THE MIX DESIGN TO IMPROVE FLOW ABILITY/WORKABILITY. THE SLUMP LIMIT SHALL BE BASED ON ADMIXTURE MANUFACTURER'S RECOMMENDATIONS.

FOUNDATION

- 1. THE FOUNDATION DESIGN IS BASED UPON CHAPTER 4 C.R.C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIREMENTS THEREIN AND MAINTAIN A COPY ON THE JOB SITE AT ALL TIMES.
2. THE ENGINEER OF RECORD MUST BE INFORMED OF ANY CHANGES IN DESIGN CRITERIA MADE BY ANY SOILS GEOLOGIST IN THE COURSE OF CONSTRUCTION. ALL FOOTINGS AND SLABS SHALL BE FOUNDED ON FIRM UNDISTURBED NATURAL SOILS OR APPROVED COMPACTED FILL. CONTRACTOR TO PROVIDE BUILDING INSPECTOR WITH COMPACTION REPORTS AND/OR WRITTEN APPROVAL OF COMPACTED FILL FROM A SOIL GEOLOGIST FOR ANY REQUIRED FILL.
3. ALL COMPACTED FILL SHALL BE PLACED IN AN APPROVED MANNER WITH A MINIMUM DENSITY OF 90% OF THE MAXIMUM OBTAINABLE IN ACCORDANCE WITH ASTM D 1557.
4. ALL FOUNDATION EXCAVATIONS, FILLING, BACK FILLING, AND BUILDING PADS SHALL BE INSPECTED AND APPROVED BY THE CITY BUILDING INSPECTOR BOTH PRIOR TO, AND AFTER PLACEMENT OF REINFORCEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING NECESSARY TO SUPPORT CUT AND/OR FILL SECTIONS DURING EXCAVATION AND FOR FORMING AND PLACEMENT OF CONCRETE. THE CONTRACTOR SHALL INFORM THE ARCHITECT AND ENGINEER OF THE LOCATION OF EXISTING UTILITIES AND COMMENCE WORK ONLY AFTER WRITTEN APPROVAL FROM THE ARCHITECT.
5. ALL RETAINING WALLS HAVE BEEN DESIGNED AS A FREE DRAINING CONDITION. DESIGN FOR THE DRAINAGE SYSTEM SHALL BE BY OTHERS AND SHALL MEET THE REQUIREMENTS OF THE SOILS REPORT BACK FILL AGAINST WALLS SHALL BE PLACED EVENLY AGAINST BOTH SIDES OF WALLS UNTIL THE LOWER GRADE IS REACHED.
6. FOOTING WITH MINIMUM REINFORCEMENT OF: 2#4 @ TOP & 2#4 @ BOTTOM, OR U.N.O EXISTING FOOTING - USE EPOXY FOR A.B. WITH SAME LENGTH AS REGULAR BOLTS WITH SPECIAL INSPECTION.
ANCHOR BOLTS:
1. MINIMUM 5/8"Ø STEEL BOLTS EMBEDDED 7" @ 48" O.C. INTO THE FOUNDATION WITH MINIMUM 3" S.Q X 0.25" PLATE WASHER FOR THE ANCHOR BOLTS. MINIMUM EDGE DISTANCE 1-7/8" AND WITHIN 12" OF EACH END OF EACH PLATE.
2. ALL SHEAR HARDWARE AND ANCHOR BOLTS W/ NON-STANDARD SPACING ARE TO BE FIXED IN PLACE FOR THE FOUNDATION INSPECTION.
3. FASTENERS FOR PRESERVATIVE-TREATED SHALL BE NOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.
4. A PROPERLY SIZED NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT TO THE PLATE.
5. HOLD-DOWN CONNECTORS BOLTS HOLES SHALL NOT BE MORE THAN 1/16" OVERSIZED AT THE CONNECTOR OF THE HOLD DOWN TO THE POST.
6. HOLD DOWN CONNECTORS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
7. ALL FOUNDATIONS SHALL BEAR UPON LIKE MATERIAL.
8. FINAL SOILS / AS-GRADED REPORT WILL BE REQUIRED AT FOUNDATION / SLAB INSPECTION.

SHEET INDEX

Table with 3 columns: No., SHEET NO., SHEET NAME. Rows include S0.0 - GENERAL STRUCTURAL NOTES, S0.1 - TYPICAL DETAILS, S0.2 - SPECIAL INSPECTIONS, S1.0 - FOUNDATION PLAN & FRAMING PLAN, SD1 - STRUCTURAL DETAILS, SD2 - STRUCTURAL DETAILS.

NAILING SCHEDULE: (TABLE R602.3(1) W/ FOOT NOTES 2022 CRC)

Table with 4 columns: ITEM, DESCRIPTION OF BUILDING ELEMENTS, NUMBER AND TYPE OF FASTENER a, b, c, SPACING AND LOCATION. Rows include blocking between ceiling joists or rafters to top plate, ceiling joists to top plate, ceiling joist not attached to parallel rafter, ceiling joist attached to parallel rafter, collar tie to rafter, rafter or roof truss to plate, roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam.

WALL

Table with 3 columns: ITEM, DESCRIPTION OF BUILDING ELEMENTS, NUMBER AND TYPE OF FASTENER a, b, c, SPACING OF FASTENERS. Rows include stud to stud (not at braced wall panels), stud to stud and abutting studs at intersecting wall corners, built-up header, continuous header to stud, double top plate splice for SDcs, double top plate splice SDcs D0, D1 or D2, bottom plate to joist, rim joist, band joist or blocking, bottom plate to joist, rim joist, band joist or blocking, 1" x 6" sheathing to each bearing, 1" x 8" and wider sheathing to each bearing.

FLOOR

Table with 3 columns: ITEM, DESCRIPTION OF BUILDING ELEMENTS, NUMBER AND TYPE OF FASTENER a, b, c, SPACING OF FASTENERS. Rows include joist to sill, top plate or girder, rim joist, band joist or blocking to sill or top plate, 1" x 6" subfloor or less to each joist, 2" subfloor to joist or girder, 2" planks (plank & beam-floor & roof), band or rim joist to joist, built-up girders and beams, ledger strip supporting joists or rafters, bridging to joist.

ITEM DESCRIPTION OF BUILDING ELEMENTS NUMBER AND TYPE OF FASTENER a, b, c SPACING OF FASTENERS

Table with 3 columns: ITEM, DESCRIPTION OF BUILDING ELEMENTS, NUMBER AND TYPE OF FASTENER a, b, c, SPACING OF FASTENERS. Rows include wood structural panels, subfloor, roof and interior wall sheathing to framing, 3/8" - 1/2", 19/32" - 1", 1 1/8" - 1 1/4", 1/2" structural cellulose fiberboard sheathing, 25/32" structural cellulose fiberboard sheathing, 1/2" gypsum sheathing, 5/8" gypsum sheathing, 3/4" and less, 7/8" - 1", 1 1/8" - 1 1/4".

PROFESSIONAL BUILDING DESIGNS, INC. ONE STOP SOLUTION. ARCHITECTURAL, ELECTRICAL, PLUMBING, MECHANICAL, COMMERCIAL - INDUSTRIAL, CIVIL/ENR - CIVIL/ENR - PROFESSIONAL WORK.

11122 BKLER CIR. GARDEN GROVE, CA92640. BUS: 714-928-2006. FAX: 714-928-8628. EMAIL: TUNGVOI@1201@GMAIL.COM

REVISION table with columns DATE and BY. Rows include 1/12/04/2025 BLDG CMVNT, 2/01/07/2026 BLDG CMVNT, 3, 4, 5.

GENERAL STRUCTURAL NOTES

THIS DRAWING AND DESIGN CONCEPTS ARE PROPRIETARY TO TUNG VO, M.S., P.E. THE DRAWING OR DESIGN CONCEPTS SHALL NOT BE USED OR REPRODUCED IN THE PART OR IN WHOLE WITHOUT THE WRITTEN PERMISSION BY TUNG VO, M.S., P.E.

RESIDENTIAL PROJECT FOR NEW DETACHED ADU. Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701. ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

PLOTE DATE: 01/07/2026. DRAW BY: DUYN NGUYEN

JOB NO.: 25634. SHEET NO.:

Professional Engineer Seal for Duyn Nguyen, State of California, License No. C 95546, Exp 06/30/26.

S0.0

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REVISION	
DATE	BY
12/04/2025	BLDG CMNT
01/07/2026	BLDG CMNT
3	
4	
5	

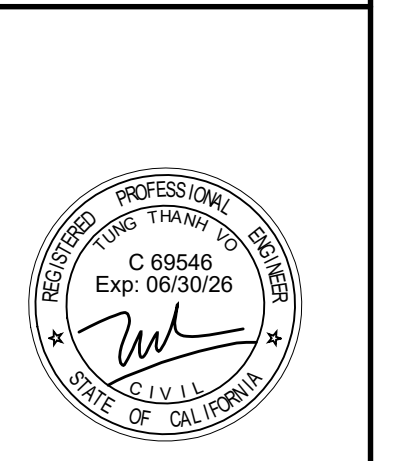
TYPICAL DETAILS

RESIDENTIAL PROJECT FOR NEW DETACHED ADU

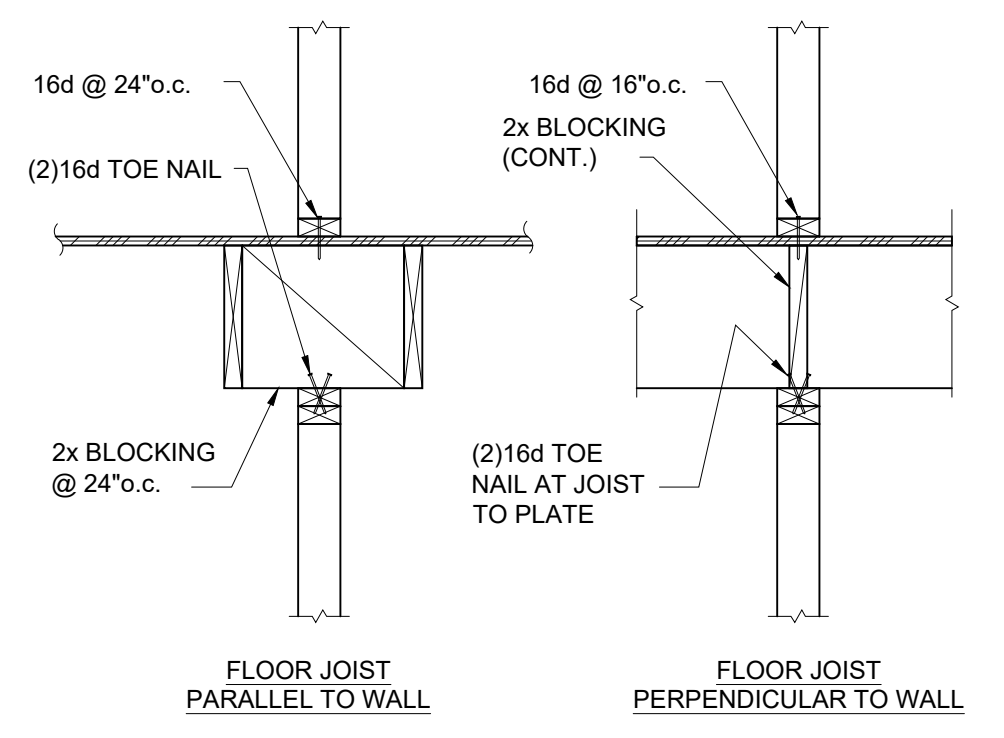
Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
 ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

PLOTE DATE: 01/07/2026

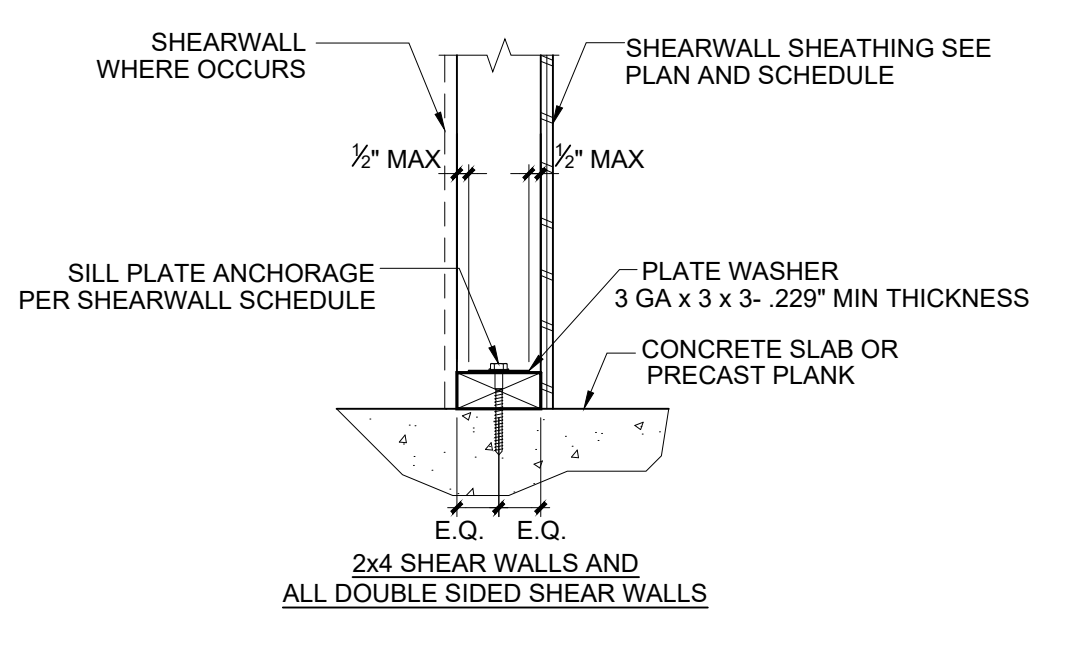
DRAW BY: DUYN NGUYEN



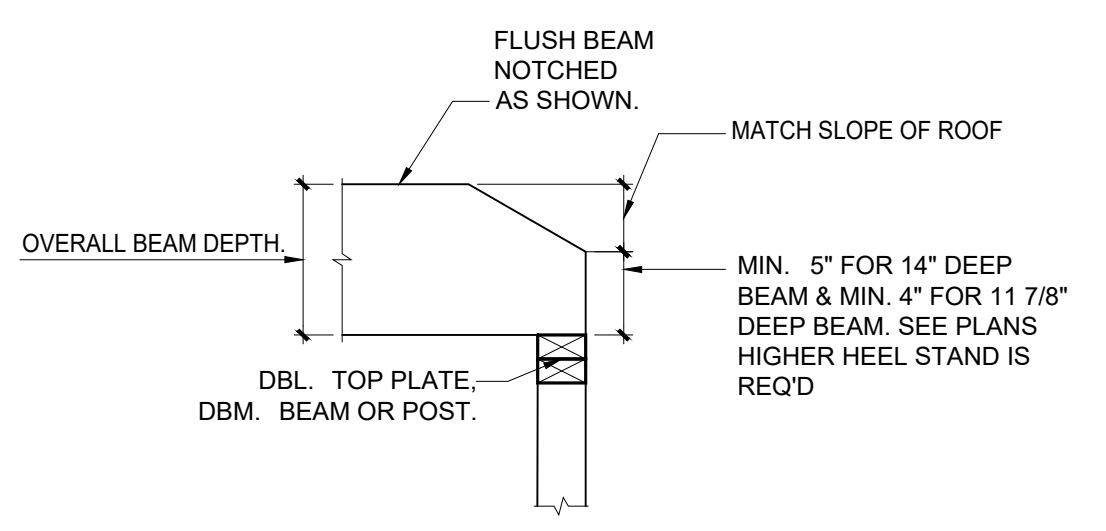
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 SHEET NO.:



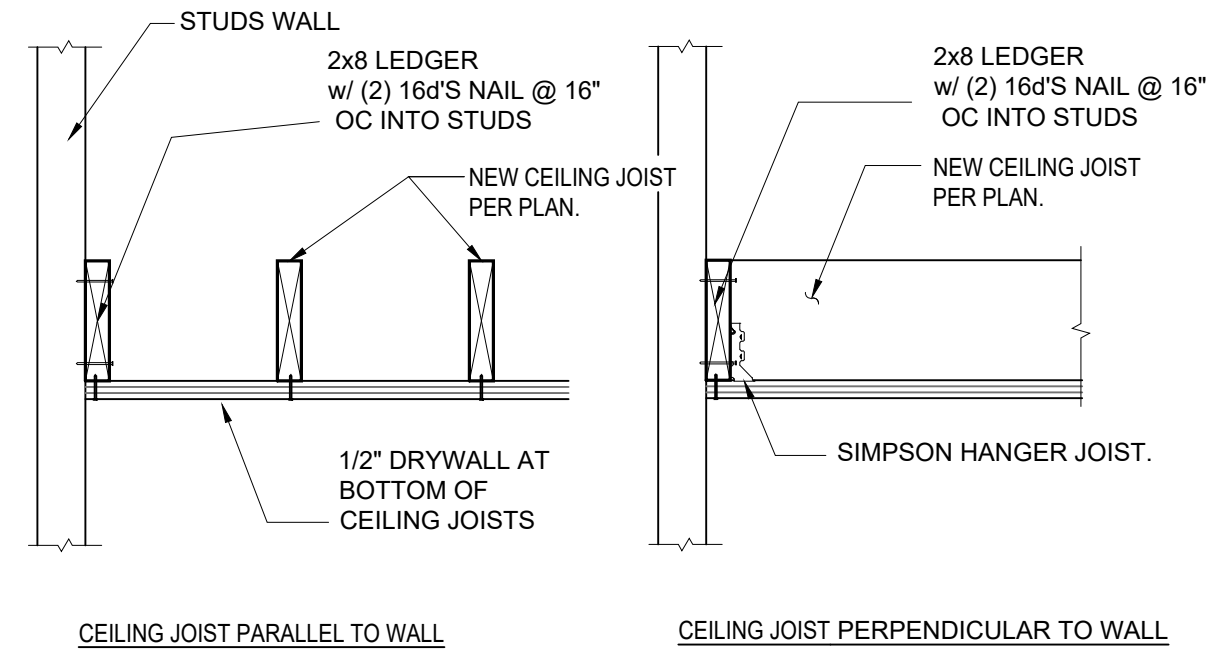
TYPICAL NON-BEARING PARTITION WALL AT SAW LUMBER FRAMING DETAIL 12



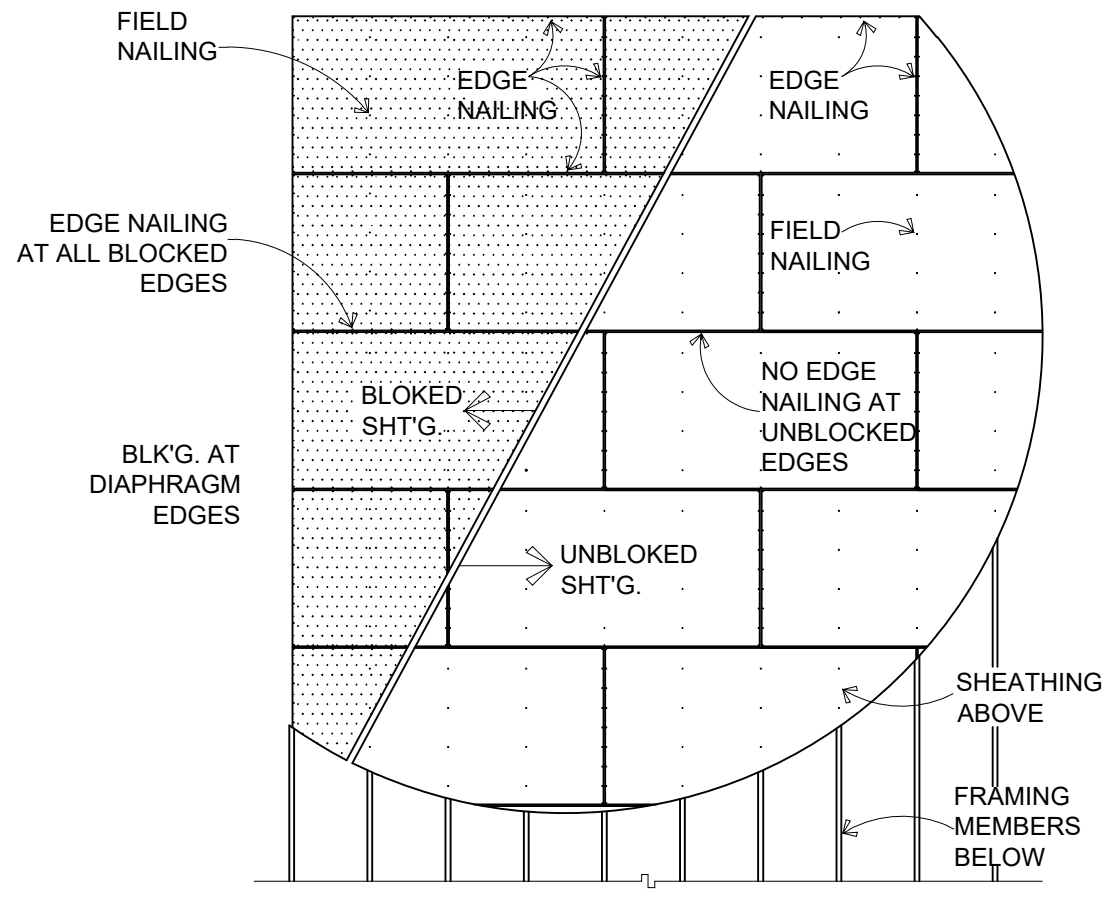
WOOD SHEARWALL SILL PLATE ANCHORAGE 8



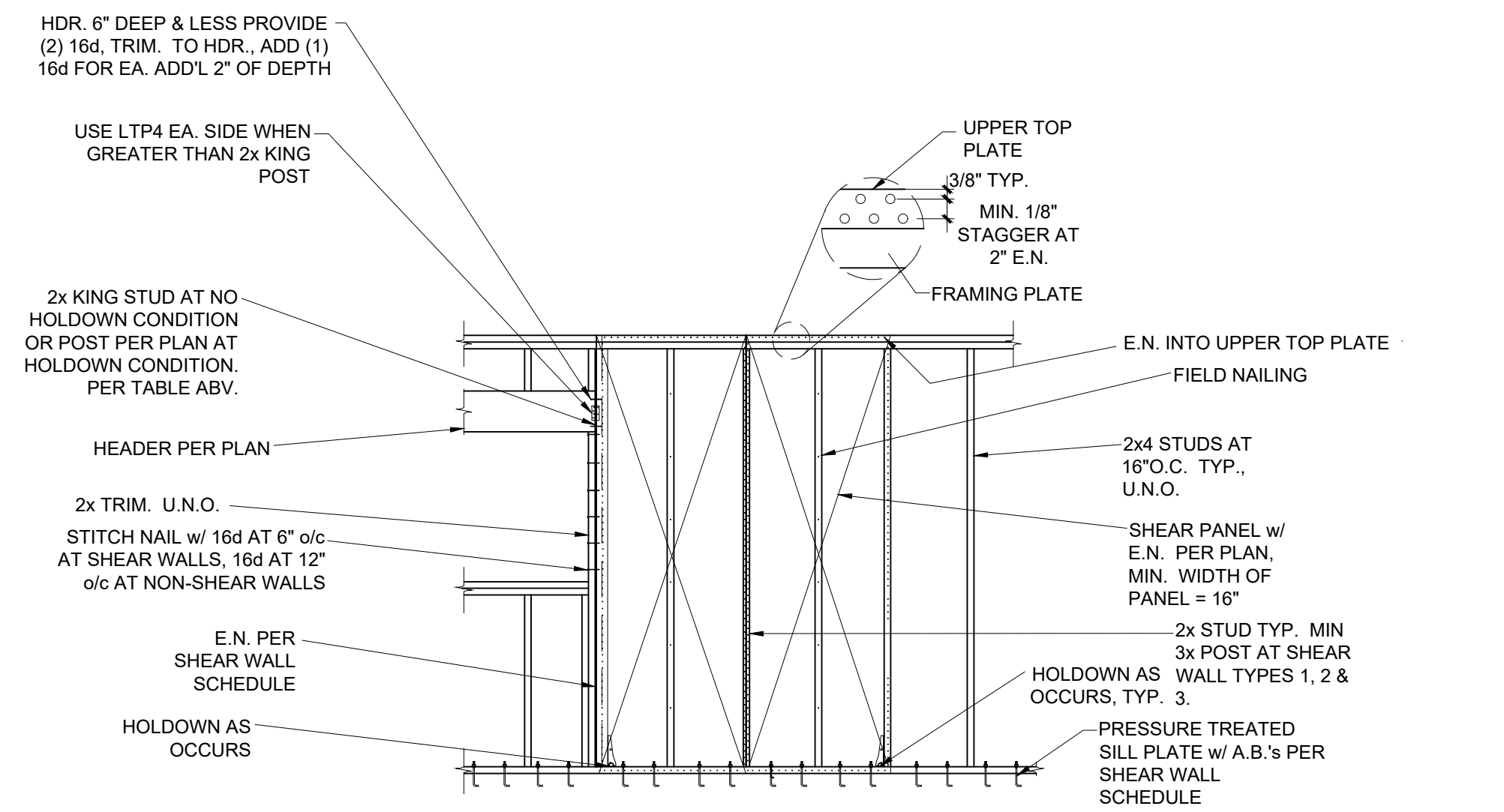
TYPICAL NOTCHED BEAMS 13



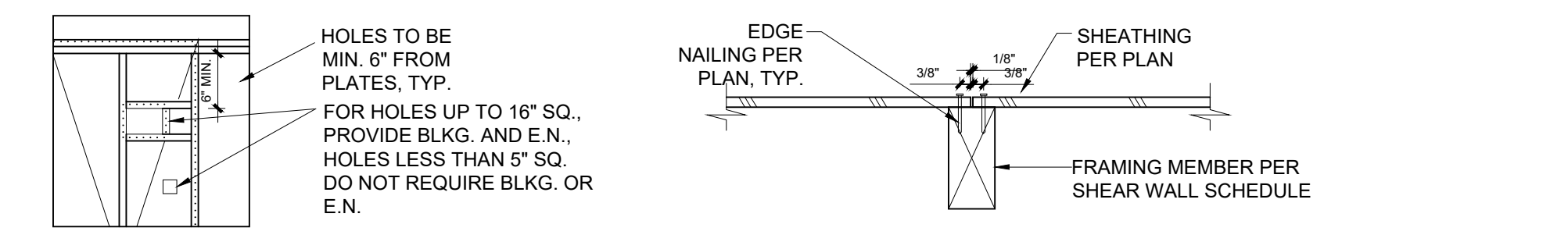
CEILING JOIST TO WALL DETAIL 9



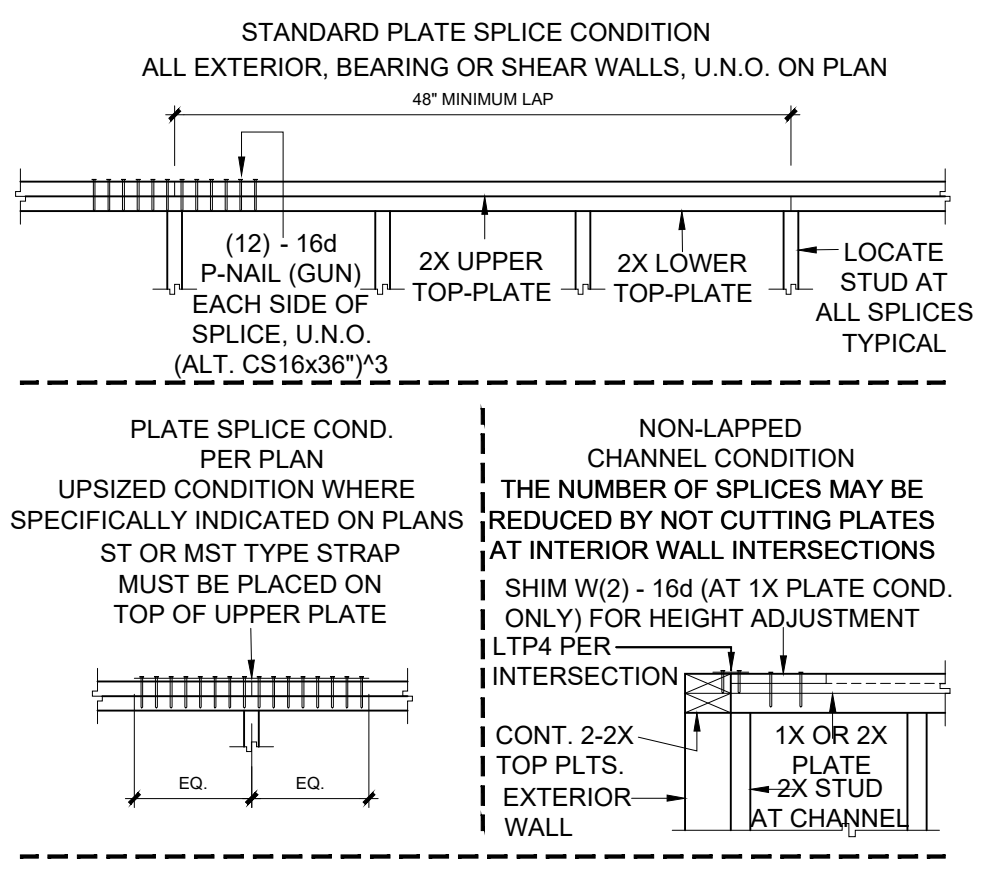
ROOF/FLOOR DIAPHRAGM LAYOUT 5



1. SHEAR WALL EDGE NAILING TO HAVE MIN. EDGE DISTANCE OF 3/8".
2. WHEN SHEATHING IS NAILED TO TRIMMER, TRIMMER AND KING STUD TO BE STITCH NAILED TOGETHER WITH 16D'S, SPACING TO MATCH EDGE NAILING OF SHEAR WALL.
3. SHEAR WALL PENETRATIONS ARE TO BE IN CONFORMANCE WITH THE DETAIL BELOW. LIMIT ONE PENETRATION GREATER THAN 5" SQUARE PER STUD BAY. CUTS TO BE MINIMUM 16" FROM EDGE OF SHEAR WALL, ALL DIRECTIONS.
4. CONTACT ENGINEER OF RECORD FOR HOLES LARGER THAN 16" SQUARE.
5. TOTAL LENGTH OF OPENINGS SHALL NOT EXCEED 20% OF THE TOTAL WALL LENGTH.



SHEAR WALL PENETRATIONS SHEAR WALL NAILING TYPICAL WALL FRAMING 1



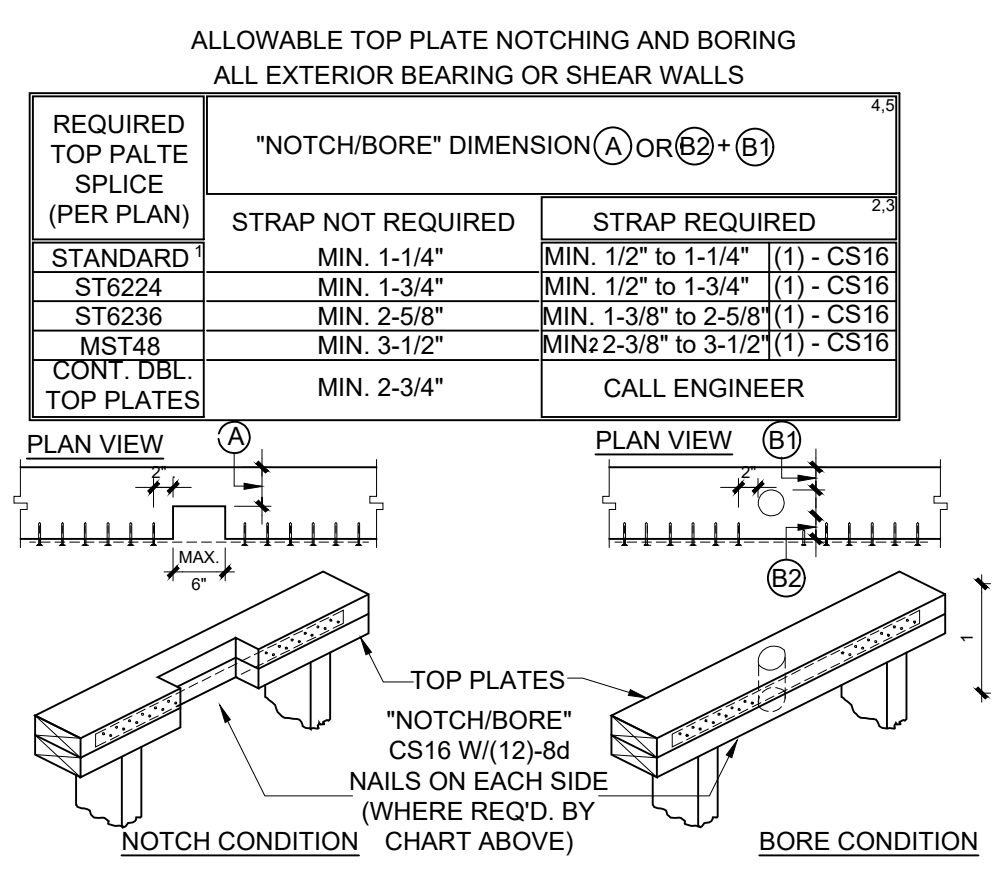
TYPICAL NON-BEARING PARTITION WALL AT ROOF FRAMING DETAIL 10

DRILLING HOLES AND NOTCHING OF THE JOIST 6

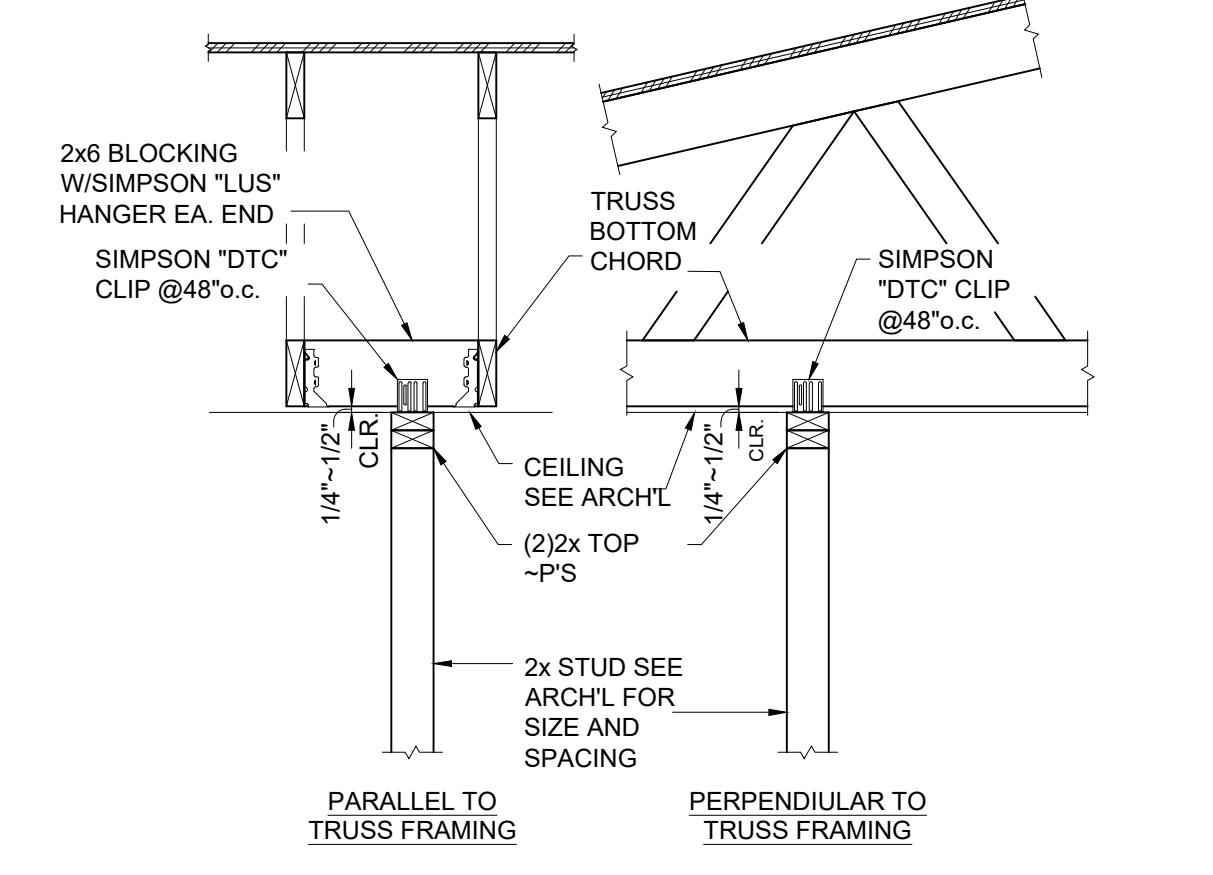
JOIST SIZE	MAX NOTCH DEPTH D/4	MAX NOTCH DEPTH D/8	MAX. SIZE HOLE D/3
2x6	1-3/8"	7/8"	1-1/2"
2x8	1-3/4"	1-1/8"	2-3/8"
2x10	2-1/4"	1-1/2"	3"
2x12	2-3/4"	1-7/8"	3-3/4"
2x14	3-1/4"	2-1/8"	4-3/8"

- NOTE:
1. DO NOT NOTCH BOTH TOP AND BOTTOM SURFACES WITHIN THE SAME 1/3 SPAN.
 2. MAX. ALLOWED IS A COMBINATION OF TWO NOTCHES AND/OR HOLES PER 1/3 SPAN.
 3. THIS DETAIL DOES NOT APPLY TO NOTCHES AND HOLES IN STRUCTURAL BEAMS, THEY MUST BE SPECIFICALLY DETAILED.
 4. NOTCHES AND HOLES ARE NOT ALLOWED IN CANTILEVERED SEGMENTS OF JOISTS.
 5. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR NOTCHES AND HOLES WHERE 1-JOIST TRUSSES ARE USED.
 6. ANY OVER CUTS ARE TO BE INCLUDED IN THE MAXIMUM NOTCH DEPTH DIMENSION.

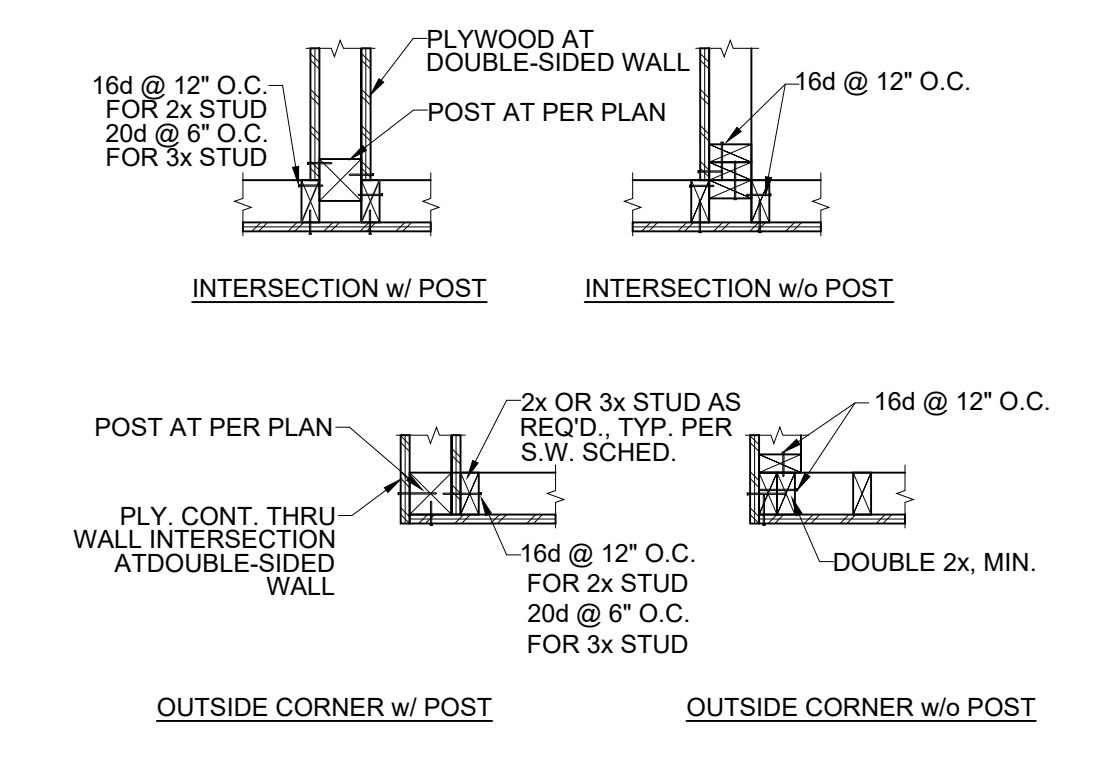
DRILLING HOLES AND NOTCHING OF THE JOIST 6



TOP PLATE SPLICING, NOTCHING & BORING 14

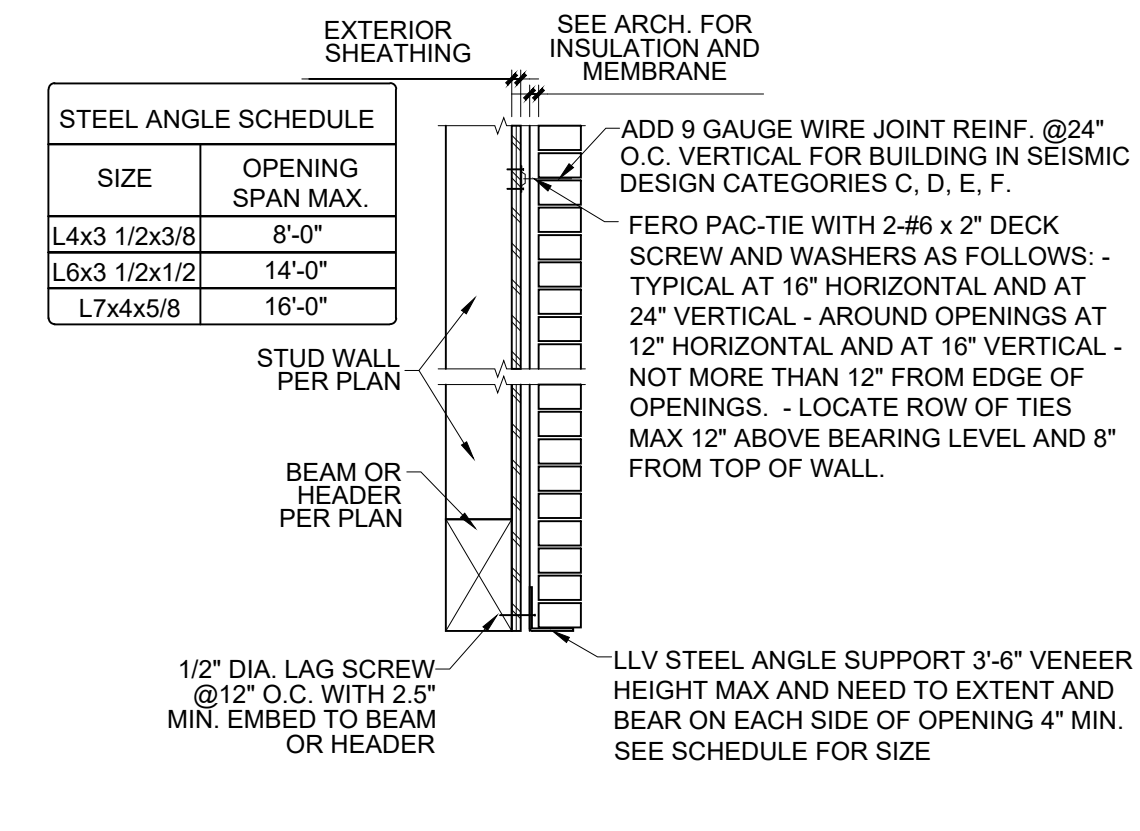


TYPICAL NON-BEARING PARTITION WALL AT ROOF FRAMING DETAIL 11

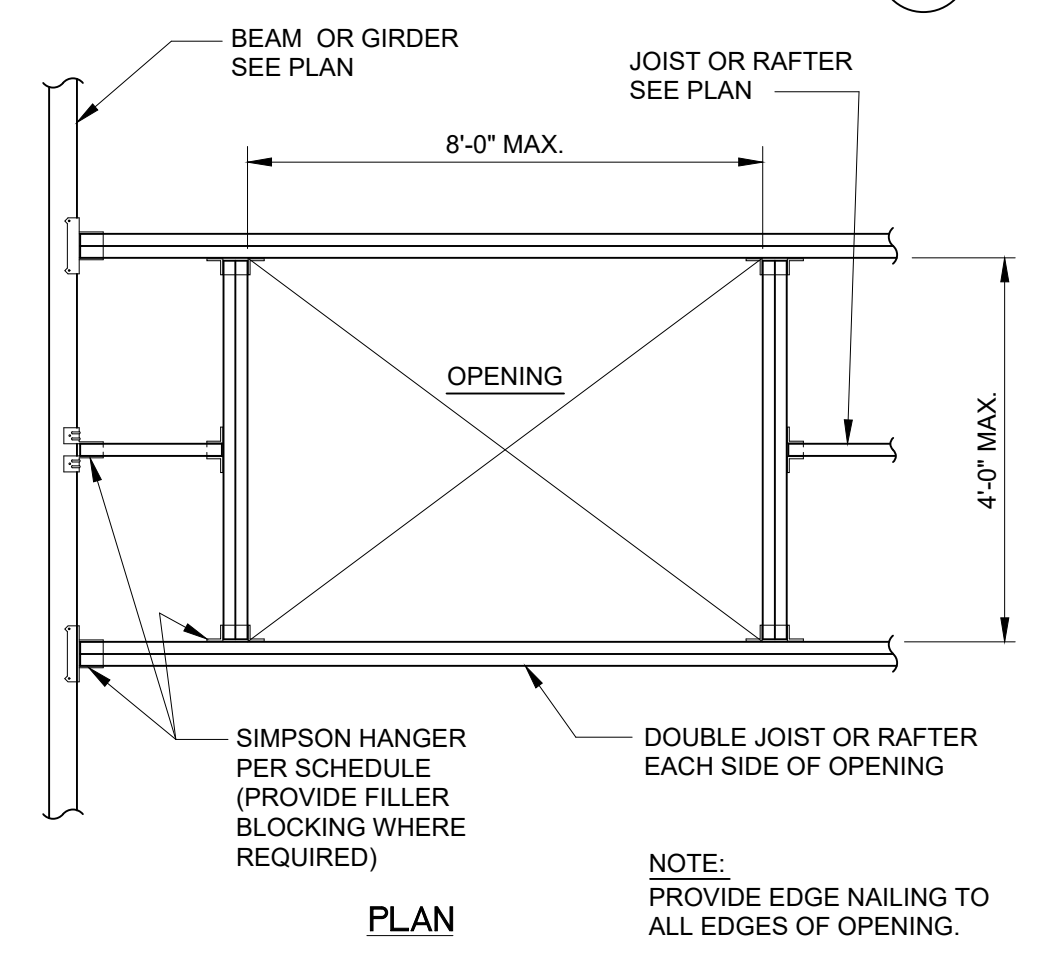


- NOTE:
- SEE FRAMING PLAN FOR SHEAR WALL LOCATIONS, ORIENTATIONS AND SCHEDULE REFERENCES

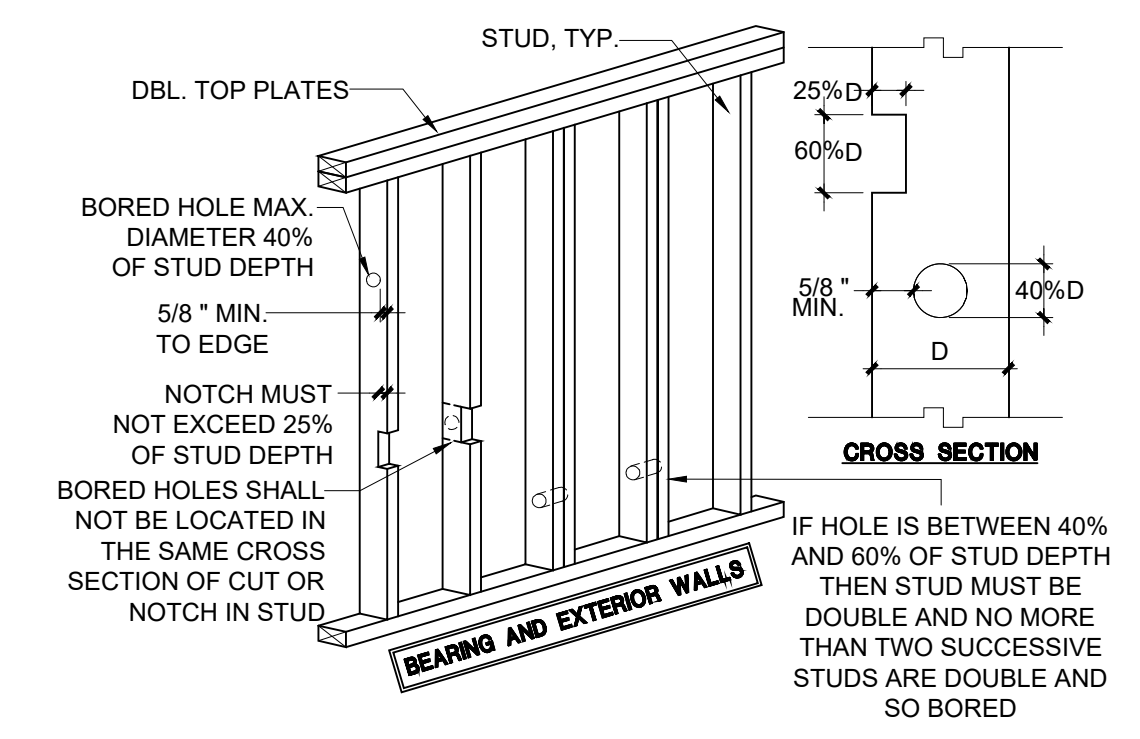
SHEAR WALL INTERSECTION 7



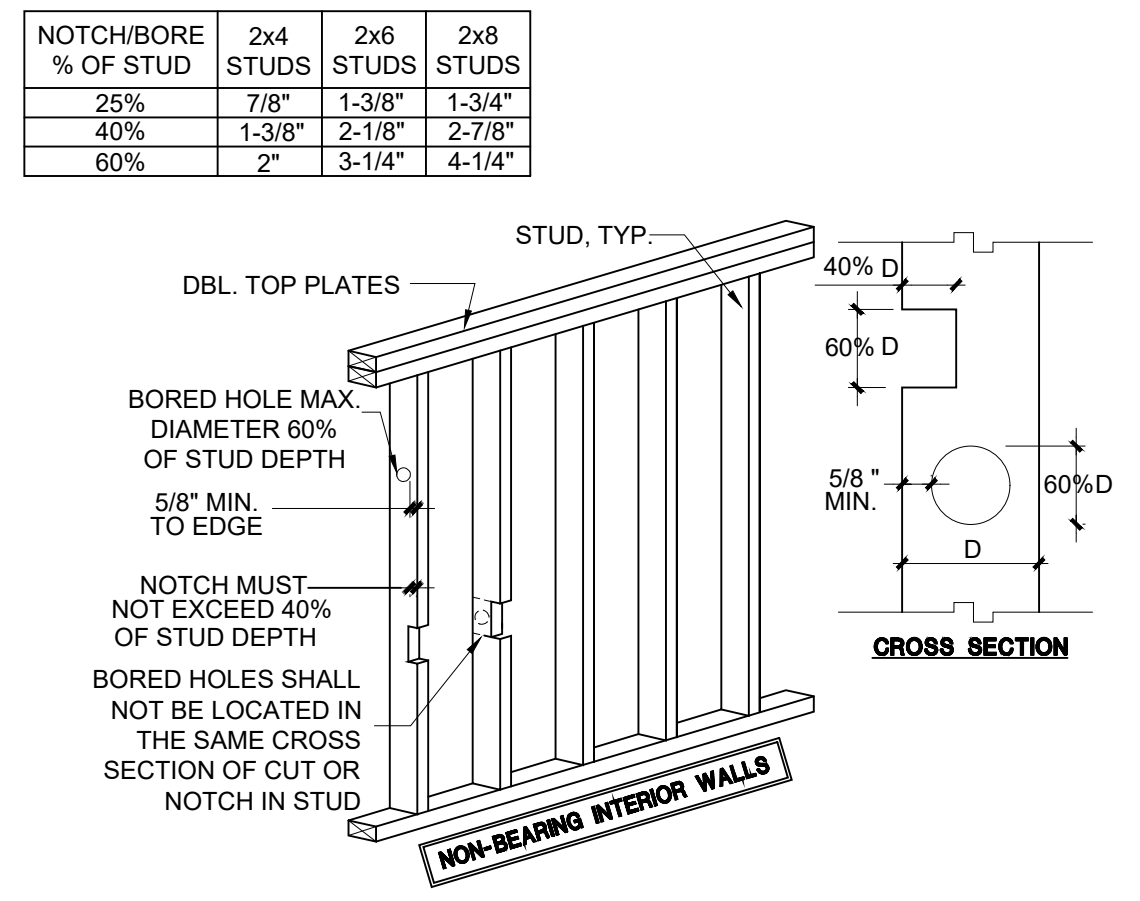
VENEER TO WOOD WALL 3



TYPICAL FLOOR/ROOF OPENING DETAIL 4



STUD NOTCHING AND BORING 2



NON-BEARING INTERIOR WALLS

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS AND VERIFICATIONS BY A SPECIAL INSPECTOR ARE REQUIRED FOR CONCRETE CONSTRUCTION AND SPECIFIED IN THE FOLLOWING TABLE

EXCEPTION: CONCRETE FOOTINGS SUPPORTING WALLS OF LIGHT-FRAME WOOD BUILDING OF 3-STORIES OR LESS AND THE STRUCTURAL DESIGN OF FOOTINGS IS BASED ON A SPECIFIED COMPRESSIVE STRENGTH f_c NO GREATER THAN 2500 psi.

SPECIAL INSPECTION TABLE FOR CONCRETE CONSTRUCTION

VERIFICATION & INSPECTION TASK	Not Applicable	Continuous during task listed	Periodically during task listed	Reference Standard	IBC Reference
1. Inspection of reinforcing steel and placement.				ACI 318: 3.5, 7.1-7.7	1913.4
a. Placing of reinforcing steel			✓		
b. Sampling and testing of steel (mill reports & identification of steel)			✓		
c. Inspection of installation of rebar couplers		✓			
d. Reinforcing steel sizes, spacing, splices, clearance and concrete cover per construction documents			✓		
2. Inspection of reinforcing steel welding in the following items:				AWS D1.4 ACI 318: 3.5.2	
a. Verification of weldability of reinforcing steel other than ASTM A706			✓		
b. Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shearwalls and shear reinforcement		✓			
c. Shear reinforcement		✓			
d. Other reinforcing steel			✓		
3. Inspect bolts to be installed in concrete per structural drawing during placement of concrete where allowable loads have been increased or where strength design is used.		✓		ACI 318: 8.1.3, 21.1.8	1911.5
4. Inspection of anchors installed in hardened concrete.			✓	ACI 318: 3.8.6, 8.1.3, 21.1.8	1912.1
5. Verifying use of required design mix				ACI 318: Ch. 4, 5.2-5.4	1904.2.2
a. Method of proportioning			✓		
b. W/C ratio			✓		
c. Cement type			✓		
d. Strength			✓		
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests. Determine the temperature of the concrete for shotcrete construction		✓		ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	
7. Inspection of concrete for proper application techniques. (conveying & depositing)		✓		ACI 318: 5.9, 5.10	
8. Inspection for maintenance of specified curing temperature (cold weather & hot weather) and techniques			✓	ACI 318: 5.11-5.13	
9. Inspection of P.T. tendons				ACI 318: 18.20 ACI 318: 18.18.4	
a. Placing of P.T. tendons			✓		
b. During stressing of P.T. tendons		✓			
c. Grouting of P.T. tendons in the seismic-force-resisting system. (including concrete slab)	✓				
d. Field measured elongation and jacking force records			✓		
e. P.T. tendon protective wrapping			✓		
f. Calibration of P.T. RAM (report)			✓		
10. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs			✓	ACI 318: 6.2	
11. Inspect formwork for shape, location and dimensions of the concrete member being formed			✓	ACI 318: 6.1.1	
12. Inspection of shotcrete shall include item 1, 4, 5, 6, 7 indicated in this table					
Item 1			✓		1913.4
Item 4			✓		1913.2 1913.3
Item 5			✓		1913.10
Item 6		✓			1913.6 1913.7
Item 7			✓		1913.8 1913.9

SPECIAL INSPECTION BY A SPECIAL INSPECTOR FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT & LOAD BEARING REQUIREMENTS SHALL BE PERFORMED PER THE FOLLOWING TABLE.

Exception: Special inspection for existing site soil conditions per table below is not required if allowable soil bearing pressure used for design is \leq 1500 psf, soils report is not required by building official, and there is no controlled fill placement on existing building site

SPECIAL INSPECTION TABLE FOR EXISTING SITE SOIL CONDITIONS

VERIFICATION & INSPECTION TASK	Not Applicable	Continuous during task	Periodically during task
1. Verify materials below footings are adequate to achieve the design bearing capacity per soils report.			✓
2. Verify excavations are extended to proper depth & have reached proper material per soils report.			✓
3. Perform classification & testing of controlled fill materials per soils report.			✓
4. Verify use of proper materials, densities & lift thicknesses during placement & compaction of controlled fill per soils report. <u>Exception:</u> Special inspection is not required during placement of controlled fill having a total depth of 12 inches or less.		✓	
5. Prior to placement of controlled fill, observe subgrade & verify that site has been prepared properly per soils report.			✓

SPECIAL INSPECTION BY A SPECIAL INSPECTOR FOR THE CONSTRUCTION OF HORIZONTAL WOOD DIAPHRAGMS, WOOD SHEAR WALLS & MANUFACTURED SHEAR WALLS ARE REQUIRED & SPECIFIED IN THE FOLLOWING TABLE:

SPECIAL INSPECTION TABLE FOR WOOD * DIAPHRAGM & SHEAR WALLS

INSPECTION TASK	NOT APPLICABLE	FREQUENCY OF INSPECTION		REFERENCE FOR CRITERIA CBC/IBC SECTION
		Continuous	Periodically	
Horizontal wood diaphragms with edge nail spacing equal to or closer than 4" o.c.			✓	Sec. 1707.3
Wood shear walls with edge nail spacing equal to or closer than 4" o.c.			✓	Sec. 1707.3
Sill nail types, size and spacing.			✓	
Anchor bolt sizes & spacing.			✓	
Holddown types & their connections to shear walls & foundation/framing			✓	
Wall end post sizes.			✓	
Shear transfer connector types & spacing. Drag strut connections to shear walls.			✓	
Manufactured shear walls, Hardy panels, Simpson steel & Wood Strong walls.			✓	Sec. 1704 Sec. 1707.3 Sec. 1707.4
Panel types, nailing, bolting, Anchoring, wall top plate screw types, sizes & spacing, holddown & drag strut connections to walls/panels.			✓	

CS16	LABC/ICC-ESR 2105	HDU2	LABC/ICC-ESR 2330
CS14	LABC/ICC-ESR 2105	HDU4	LABC/ICC-ESR 2330
CMST14	LABC/ICC-ESR 2105	HDU5	LABC/ICC-ESR 2330
CMST12	LABC/ICC-ESR 2105	HDU8	LABC/ICC-ESR 2330
ST6224	LABC/ICC-ESR 2105	HDU11	LABC/ICC-ESR 2330
ST6236	LABC/ICC-ESR 2105	HDQ14	LABC/ICC-ESR 2330
MST48	LABC/ICC-ESR 2105	HDQ8	LABC/ICC-ESR 2330
MST60	LABC/ICC-ESR 2105	ET-3G	LABC/ICC-ESR 5334
ST22	LABC/ICC-ESR 2105	SET-3G	LABC/ICC-ESR 4057
PLS LSL	LABC/ICC-ESR 1387	TITEN HD	LABC/ICC-ESR 2713
SIMPSON PDP/PAWL-MG	LABC/ICC-ESR 2138	SSW	LABC/ICC-ESR 1619
MPBZ	LABC/ICC-ESR 3050	LTP/A35/LS/H2.5	LABC/ICC-ESR 3096

STATEMENT OF SPECIAL INSPECTION:

- CONTINUOUS AND PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE WORK AS DESCRIBED IN IBC/CBC CHAPTER 17. SEE INSPECTION SCHEDULE BELOW. ONLY CHECKED ITEMS ARE REQUIRED.
- APPROVAL BY THE INSPECTOR DOES NOT MEAN APPROVAL OF FAILURE TO COMPLY WITH THE PLANS OR SPECIFICATIONS. ANY DETAIL THAT FAILS TO BE CLEAR OR IS AMBIGUOUS MUST BE REFERRED TO THE STRUCTURAL ENGINEER FOR INTERPRETATION OR CLARIFICATION.
- CONTINUOUS SPECIAL INSPECTION PER AWS D1.1 IS REQUIRED FOR ALL STRUCTURAL STEEL WELDING, EXCEPT FOR SINGLE PASS FILLET WELDS NOT EXCEEDING 5/16" IN SIZE.
- STRUCTURAL WOOD, PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WOOD SHEARWALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS OF THE SEISMIC FORCE RESISTING SYSTEM, INCLUDING WOOD SHEARWALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS, AND HOLD-DOWNS. EXCEPTION: SPECIAL INSPECTION IS NOT REQUIRED FOR WOOD SHEARWALLS, 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 MORE THAN 4 INCHES ON CENTER. INSPECTIONS SHALL BE PERFORMED BEFORE COVERING.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THIS STATEMENT OF SPECIAL INSPECTION SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH A SYSTEM OR COMPONENT PER SEC 1704.4.
- WHERE FABRICATION OF MEMBERS AND ASSEMBLIES IS PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL BE REQUIRED BY THIS SECTION, UNLESS THE FABRICATOR IS REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL BE RESPONSIBLE OF VERIFYING APPROVAL OF FABRICATOR.
- THE SPECIAL INSPECTOR SHALL BE A QUALIFIED INDIVIDUAL WHO WILL DEMONSTRATE COMPETENCE, AND KNOWLEDGE TO THE BUILDING OFFICIAL, FOR THE SPECIFIC TYPE OF SPECIAL INSPECTION REQUIREMENT REQUIRED PER SCHEDULE BELOW.
- PROJECT SPECIFIC REQUIRED SPECIAL INSPECTIONS BASED ON THE PROVISIONS OF CBC CHAPTER 17 [CBC 1704.2.3]
- SPECIAL INSPECTIONS FOR WIND AND SEISMIC RESISTANCE SHALL BE PER SECTION 1705.11 AND 1705.12 RESPECTIVELY.
- SPECIAL INSPECTION SHALL BE PROVIDED FOR PLYWOOD OR OSB SHEAR WALL OR DIAPHRAGM NAILING AT 4 INCHES ON CENTER OR LESS, PER IBC SECTION 1705.11.

STATEMENT OF SPECIAL INSPECTIONS (ONLY INDICATED ITEMS ARE REQUIRED)

REQ'D(?)	INSPECTION ITEMS	SPECIAL INSPECTORS (NAME, PHONE#, REGISTRATION#)
	STRUCTURAL STEEL (1705.2.1)	
	STEEL FRAME JOINT DETAILS	
	COLD-FORMED STEEL DECK (1705.2.2)	
	OPEN-WEB STEEL JOISTS AND JOISTS GIRDERS (1705.2.3)	
	REINFORCING STEEL AND PRE-STRESSING STEEL TENDONS	
	SHOTCRETE (CURING TEMPERATURE, DESIGN MIX, PLACEMENT, STRENGTH ETC. PER TABLE 1705.3)	
	COLD-FORMED STEEL TRUSSES SPANNING \geq 60 FT	
Yes	CONCRETE CONSTRUCTION (DESIGN MIX, FORMWORK, PLACEMENT, ETC. PER TABLE 1705.3) (SEE 1705.3 EXCEPTIONS)	
	STRUCTURAL WELDING/REBAR WELDING	
	ALL MASONRY CONSTRUCTION (1705.4)	
	WOOD FOR HIGH LOAD DIAPHRAGMS (1705.5.1)	
	METAL-PLATE-CONNECTED WOOD TRUSSES SPANNING \geq 60 FT	
	SOILS (EXCAVATION, FILL, ETC. PER 1705.6) (SEE 1705.6 EXCEPTIONS)	
	DRIVEN PILES PER 1705.7	
	CAST IN PLACE PILES PER 1705.8	
	HELICAL PILE FOUNDATIONS PER 1705.9	
	ERECTION OF PRE-CAST CONCRETE MEMBERS	
Yes	BOLTS INSTALLED IN CONCRETE	
	HIGH STRENGTH BOLTING/MATERIAL VERIFICATION	
Yes	WOOD DIAPHRAGM AND SHEAR WALLS*	
Yes	EPOXY CONNECTION	

PROFESSIONAL BUILDING DESIGNS, INC. ONE STOP SOLUTION PBD ARCHITECTURAL - STRUCTURAL MECHANICAL - ELECTRICAL - PLUMBING RESIDENTIAL - COMMERCIAL - INDUSTRIAL ON TIME - ON BUDGET - PROFESSIONAL WORK
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REVISION	
DATE	BY
12/04/2025	BLDG CMINT
01/07/2026	BLDG CMINT
3	
4	
5	

SPECIAL INSPECTIONS

RESIDENTIAL PROJECT FOR NEW DETACHED ADU
Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

PLOTE DATE: 01/07/2026

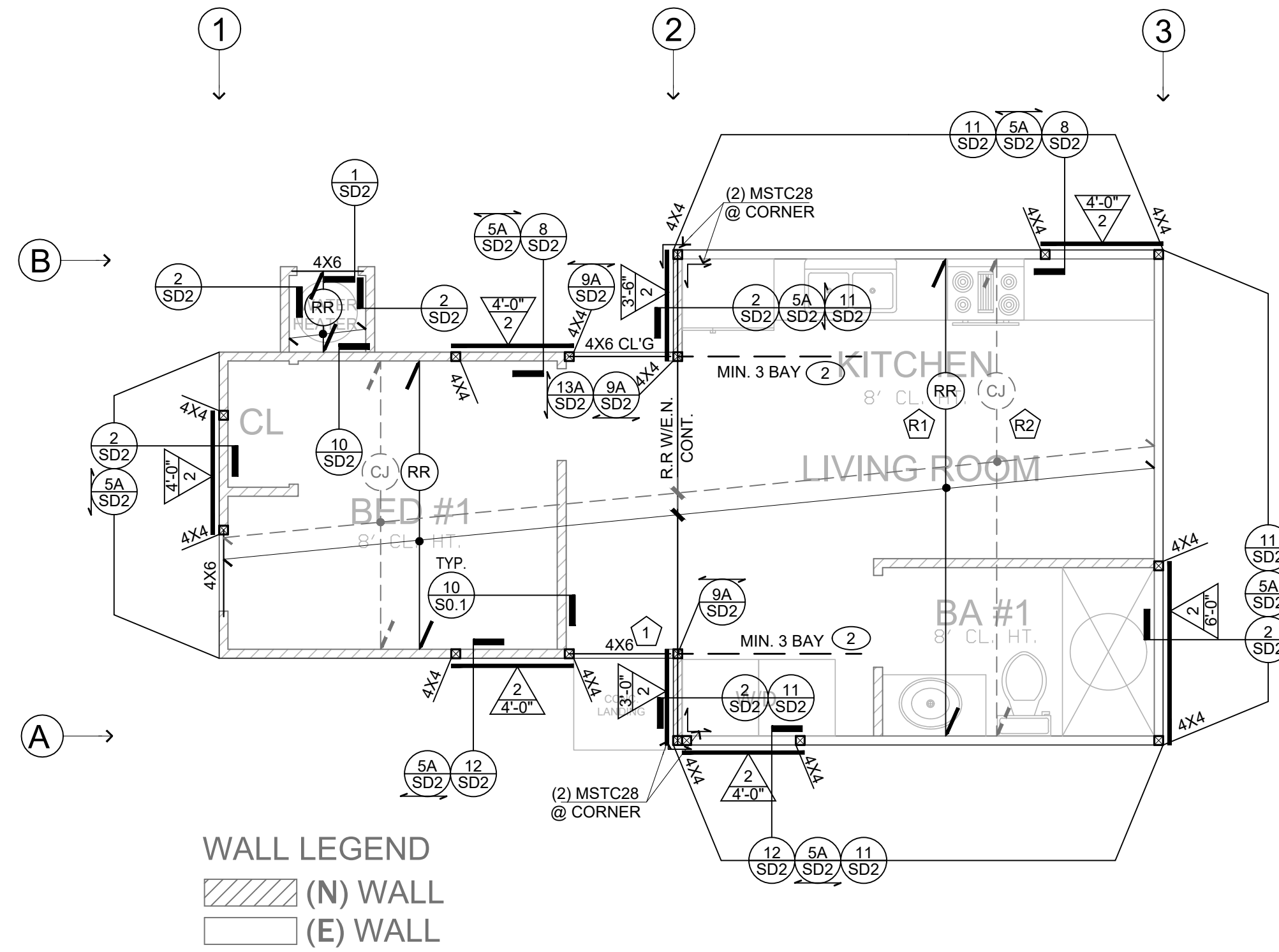
DRAW BY: DUYN NGUYEN



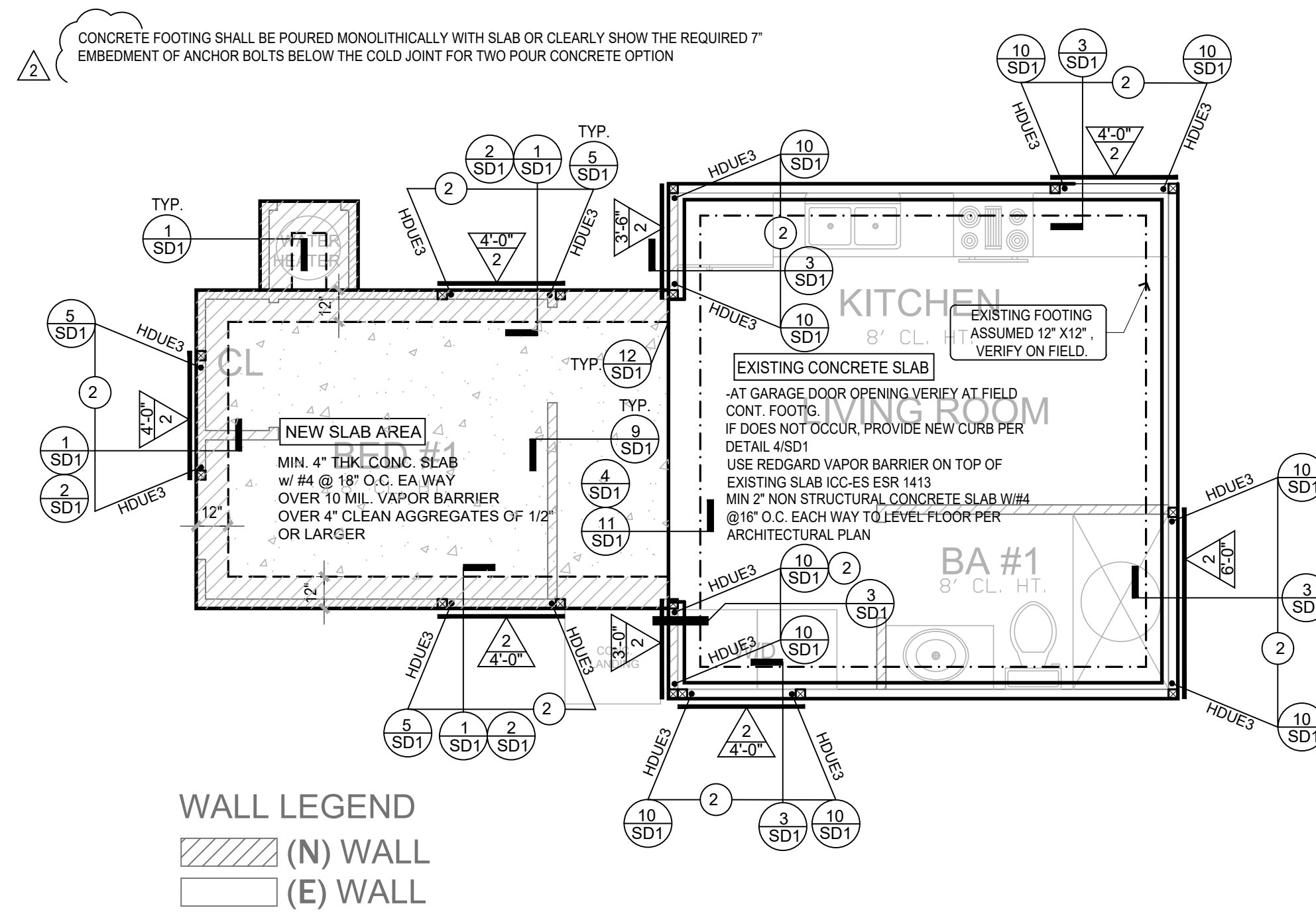
JOB NO.: 25634

SHEET NO.:

S0.2



ROOF FRAMING PLAN
SCALE : 1/4" = 1'-0"



FOUNDATION PLAN
SCALE : 1/4" = 1'-0"

CONSTRUCTION NOTES

- REFER TO STRUCTURAL GENERAL NOTES AND DETAIL SHEETS (S0.0 & S0.1) FOR MORE INFORMATION.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING PREFABRICATED SHEAR WALLS AND MATCH TOP PLATE HEIGHT AND WALL WIDTH AND NOTIFY ENGINEER OF RECORD IF DIFFERENT THAN PLANS.
- AS AN ALTERNATE TO USING SIMPSON PRODUCTS OTHER CONNECTORS CAN BE USED, AS LONG AS THEIR CAPACITIES ARE EQUAL TO OR BETTER THAN SIMPSON'S.
- USE SIMPSON "LUS" HANGERS FOR CONNECTION OF I-JOISTS TO OTHER FRAMING MEMBERS (U.N.O.) AND "LUS" HANGERS FOR CONNECTION OF SOLID JOISTS.
- USE ST6224 STRAP FOR THE TOP PLATES SPLICE AT ROOF FRAMING LEVELS (SBS02.0) UNO ON PLANS.
- USE ST22 STRAP FOR LEDGER SPLICES, UNO.
- USE (1)CS16 X 3'-0" STRAP AT RIM JOISTS SPLICE, U.N.O ON PLANS. 1/2" MIN. LVL RIM JOISTS SHOULD BE USED AT ALL FLOOR FRAMING EDGES.
- PLYWOOD IS APPLIED ON EITHER SIDE OF SHEAR WALLS
- INTERIOR NON-BEARING WALLS MAY BE FRAMED WITH 2X STUDS AT 24" O.C., MAX.
- HEADER AT OPENING AT EXTERIOR & INTERIOR BEARING WALL SHOULD BE MIN. 4X6, U.N.O.
- HEADER AT NON-BEARING WALLS, USE 2X4 FOR OPENINGS UP TO 3'-0" MAX., (2)2X4 FOR OPENINGS UP TO 6'-0" MAX., 4X6 FOR OPENINGS UP TO 12'-0" MAX., UNO.
- 2X6 WALL SHOULD BE AT PLUMBING WALL.
- TOTAL MINIMUM NUMBER OF ANCHOR BOLTS, REQUIREMENTS, FOR NON-SHEAR WALLS, MAS/MASAP MUDDSILL ANCHORS CAN BE USED IN LIEU OF ANCHOR BOLTS WITH END DISTANCE OF 4" MIN. PER ESR #2555.
- FOUNDATION ANCHOR BOLTS IN CONTACT WITH PRESSURE TREATED SILL PLATE SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.
- SIMPSON SET-3G EPOXY ESR-4057 SPECIAL INSPECTION REQUIRED

FRAMING SCHEDULE

SYMBOL	SIZE	MAX. SPACING U.N.O
RR	2X10 RR	16" O.C.
CJ	2X10 CJ	16" O.C.

KEY NOTES

- LINE OF 2X FLAT BLOCKING W/ EDGE NAIL, & CONTINUOUS CS16 STRAP OVER U.N.O. SEE PLAN FOR NUMBER OF BAYS.
- CONTINUOUS FULL HT. BLKG. W/EN. SEE PLANS FOR NUMBER OF BAYS (U.N.O.)
- BLOCKED ROOF DIAPHRAGM W/ 8d's @ 4" O.C. B.N., 4" O.C. E.N. & 12" O.C. FIELD.
- BLOCKED FLOOR DIAPHRAGM W/ 10d's @ 4" O.C. B.N., 4" O.C. E.N. & 12" O.C. FIELD.
- TRUSS HANGER BY TRUSS SUPPLIER
- PROVIDE SOLID BLOCKING

PAD SCHEDULE

SYM.	PAD
F2.0	2'-0" SQ. X 24" DEEP PAD W/ (3) #4 E.W.
F2.5	2'-6" SQ. X 24" DEEP PAD W/ (4) #4 E.W.
F3.0	3'-0" SQ. X 24" DEEP PAD W/ (4) #4 E.W.
F3.5	3'-6" SQ. X 24" DEEP PAD W/ (5) #4 E.W.
F4.0	4'-0" SQ. X 24" DEEP PAD W/ (6) #4 E.W.
F4.5	4'-6" SQ. X 24" DEEP PAD W/ (7) #4 E.W.

LEGEND

SYM.	DESCRIPTION
	NEW FOOTING
	NEW SLAB
	EXISTING SLAB & FOOTING
	SHEAR PANEL LENGTH AND NUMBER, STRAP & POST EACH THE END SHEARWALL PER SCHEDULE & PLAN, REFER TO S0.0 FOR PANEL TYPE, MIN. 2-2x4 @ EA. END.
	POST OR TRIMMER AS NOTED
	PAD NUMBER
	DETAIL NUMBER
	DETAIL SHEET NUMBER
	GREATE BEAM @ FOUNDATION SEE PLAN FOR SIZE
	DROP IN SLAB (VERIFY PRIOR TO CONSTRUCTION)
	INDICATES ROOF TRUSSES BY TRUSS SUPPLIER
	INDICATES FLOOR JOISTS BY JOIST SUPPLIER, OR U.N.O PER SCHEDULE & PLAN
	INDICATES DECK JOIST OR ROOF RAFTER PER SCHEDULE & PLAN
	INDICATES CEILING JOIST PER SCHEDULE & PLAN
	BEAM NUMBER, REFER TO REPORT CALCULATIONS
	KEY NOTE NUMBER
	BEARING WALL
	CALIFORNIA FRAMING
	NUMBER OF ANCHOR BOLTS

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REVISION

DATE	BY
12/04/2025	BLDG CMINT
01/07/2026	BLDG CMINT

FOUNDATION PLAN & FRAMING PLAN

RESIDENTIAL PROJECT FOR NEW DETACHED ADU

Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
ADU : 403 S Garnsey St, Unit 2, Santa Ana, CA 92701

PLOTE DATE: 01/07/2026

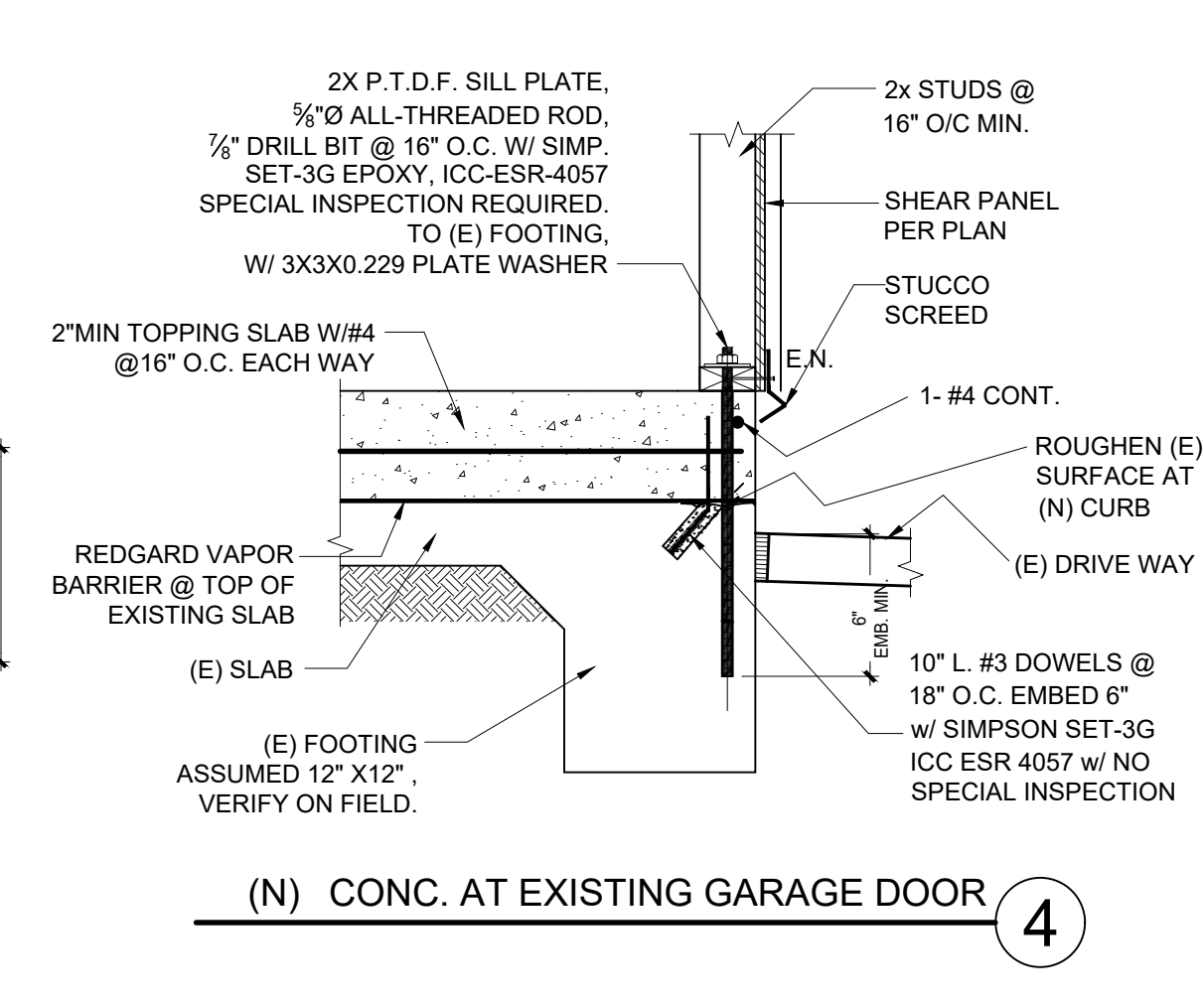
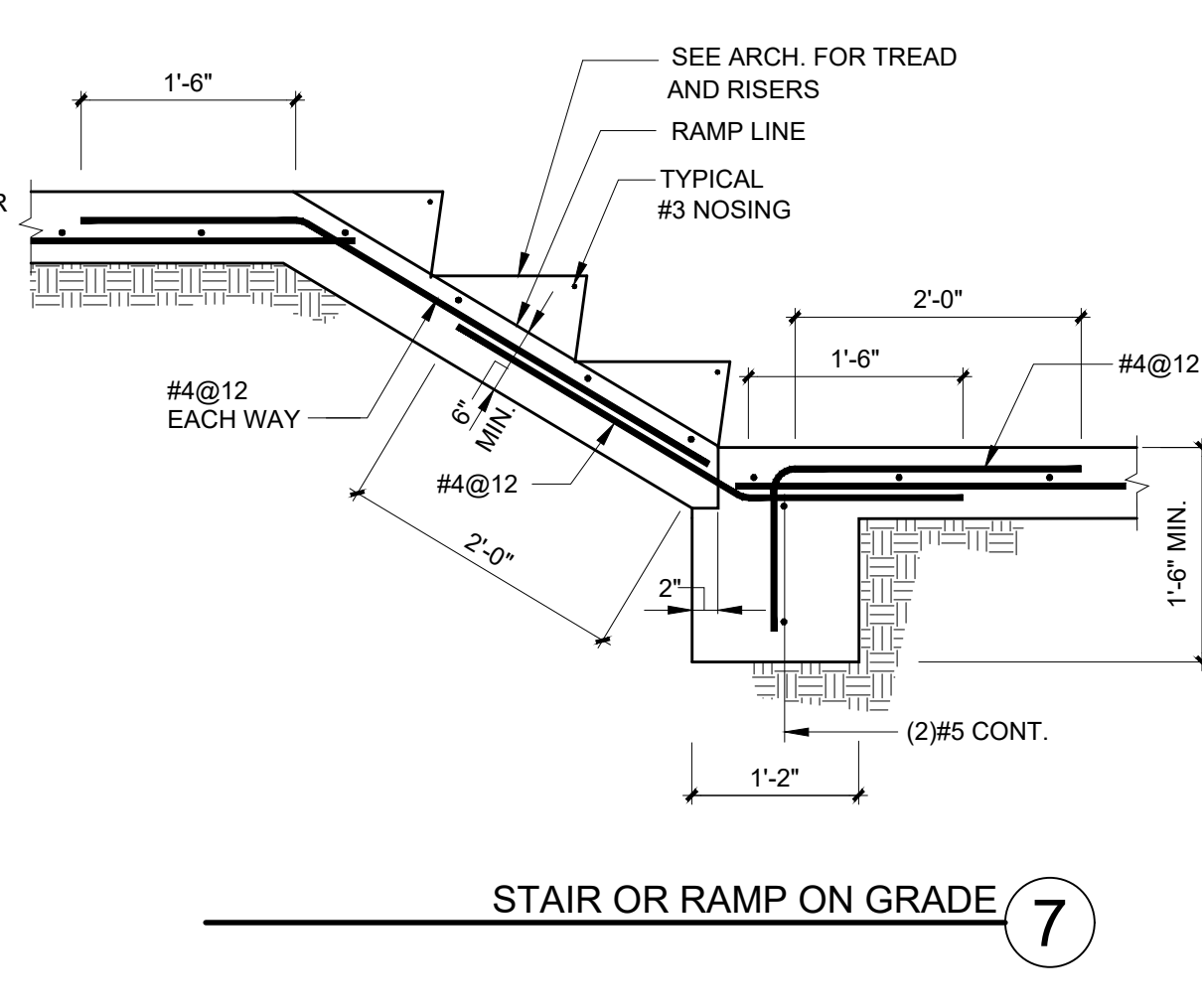
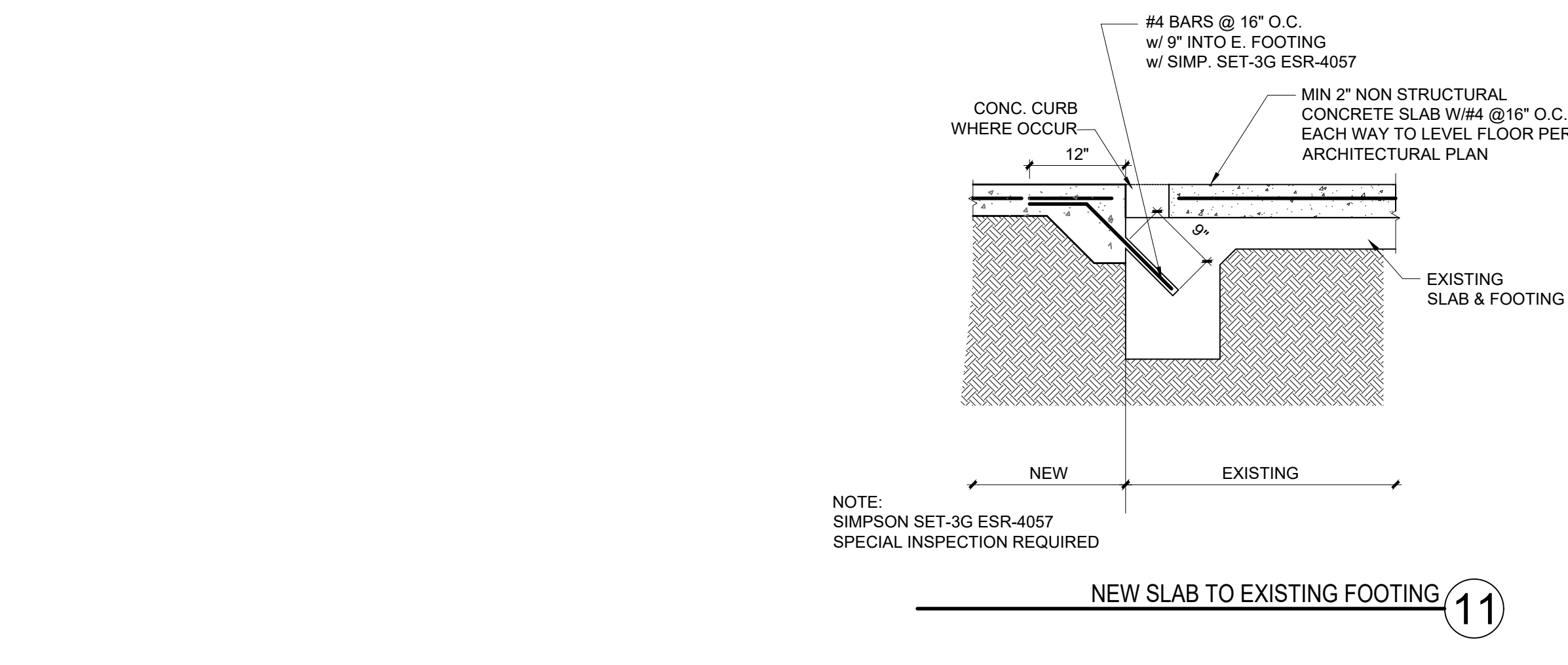
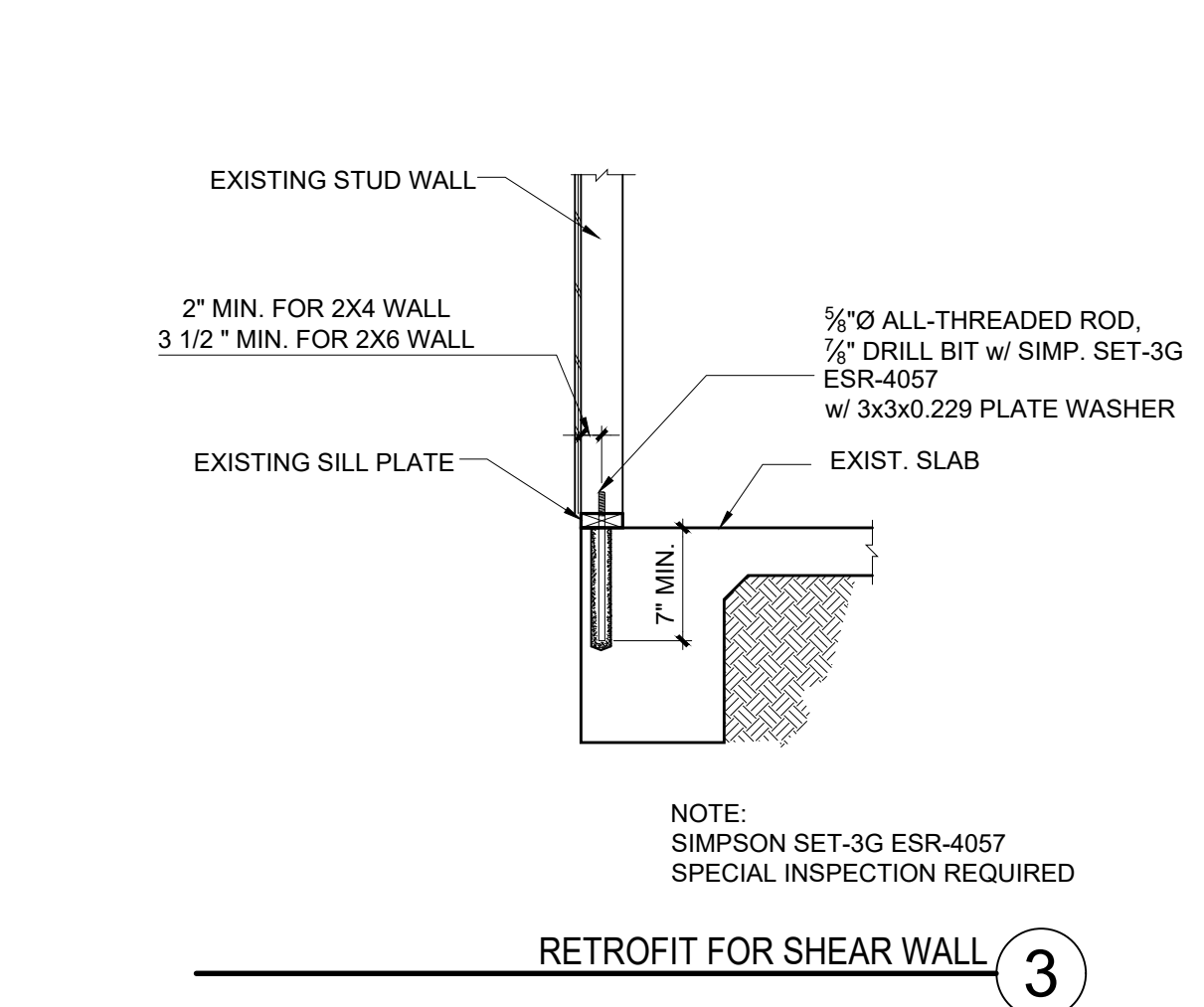
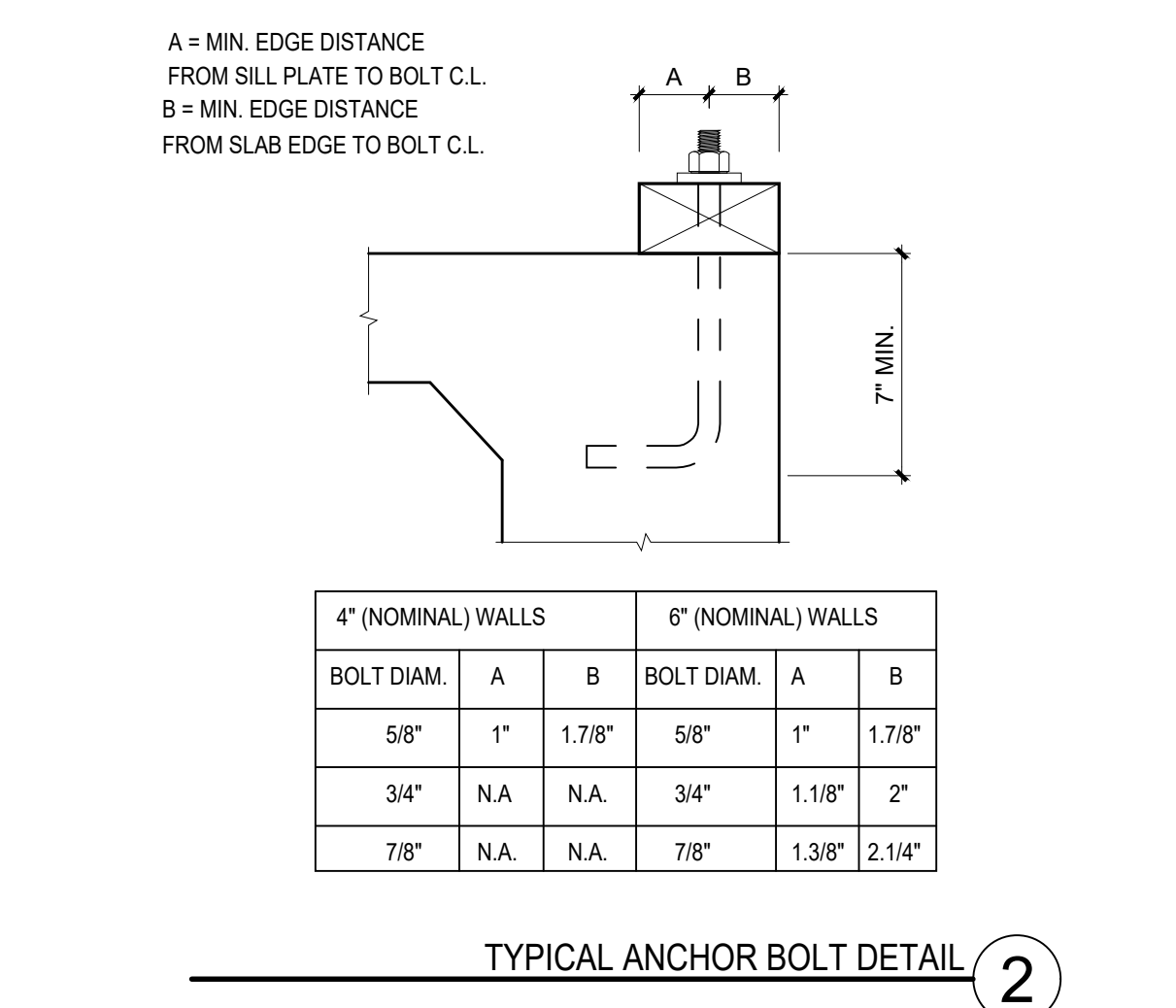
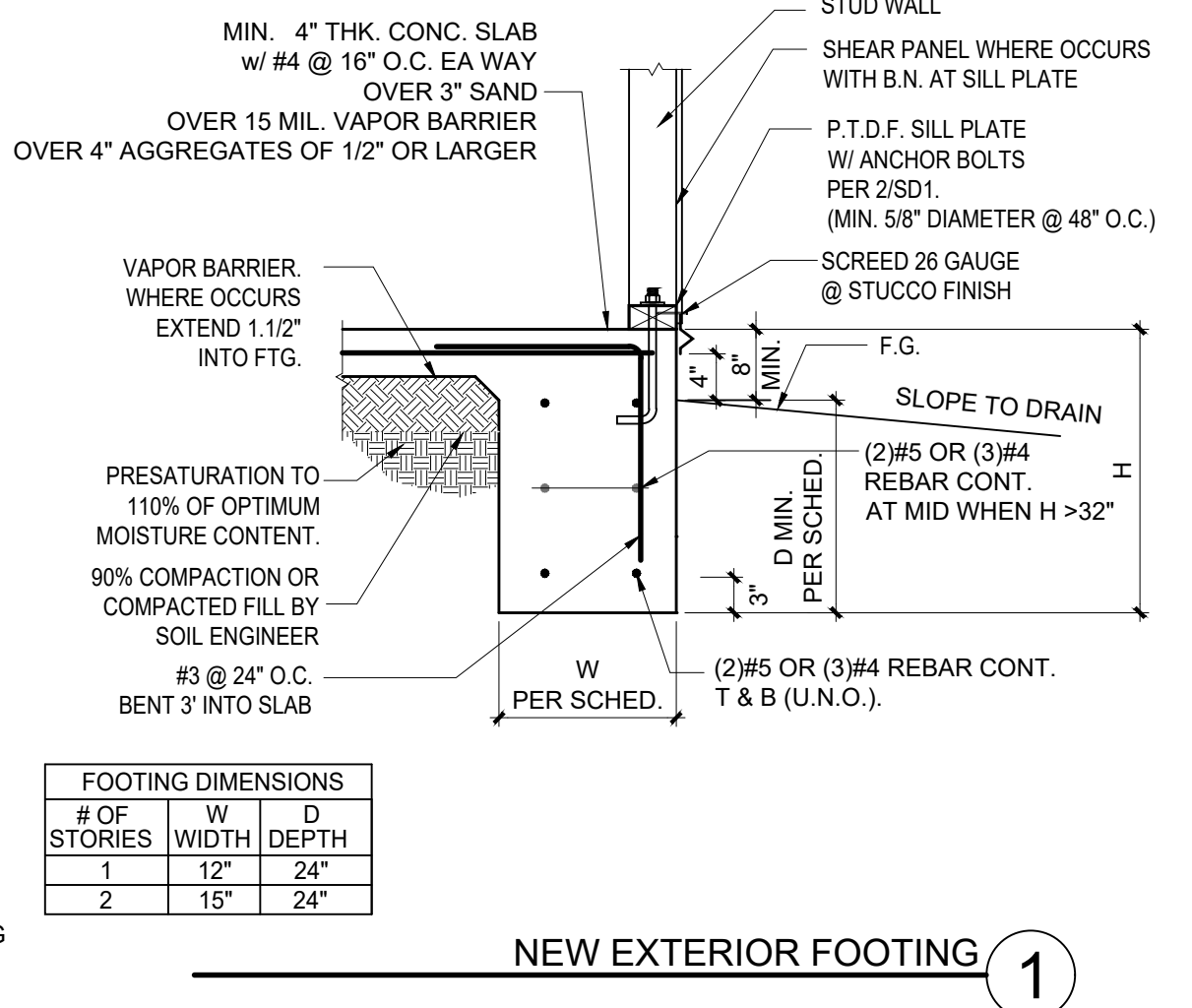
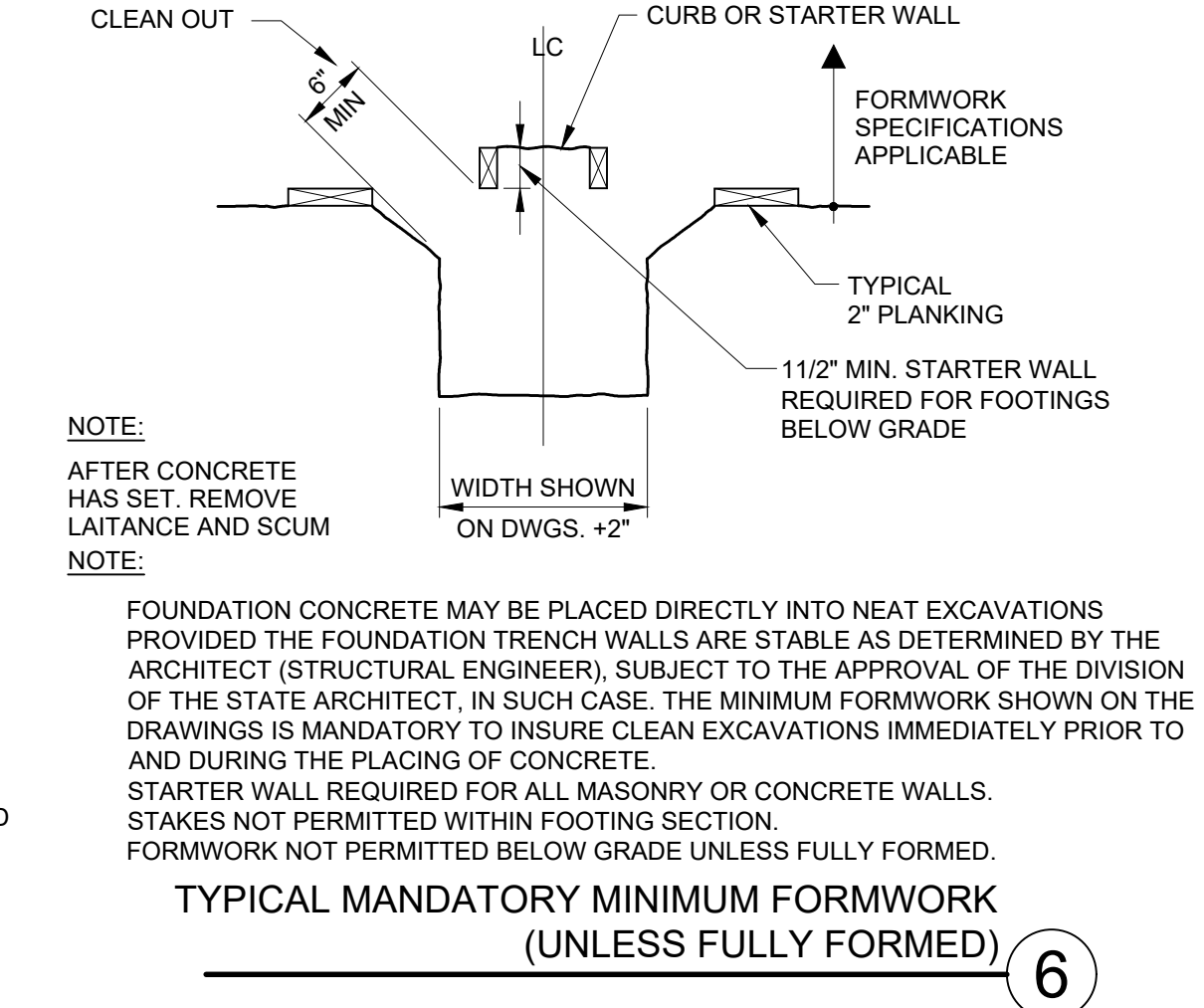
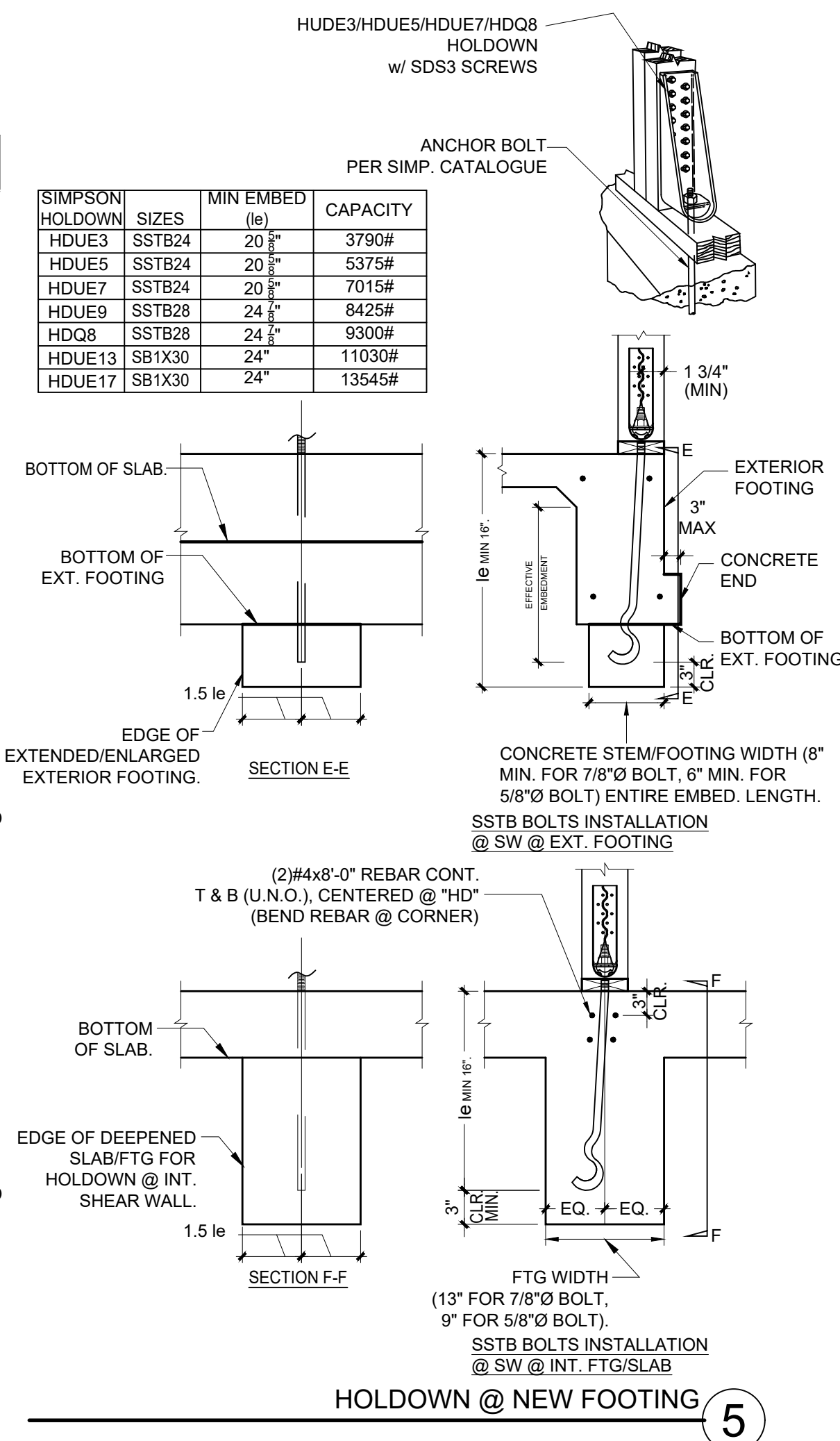
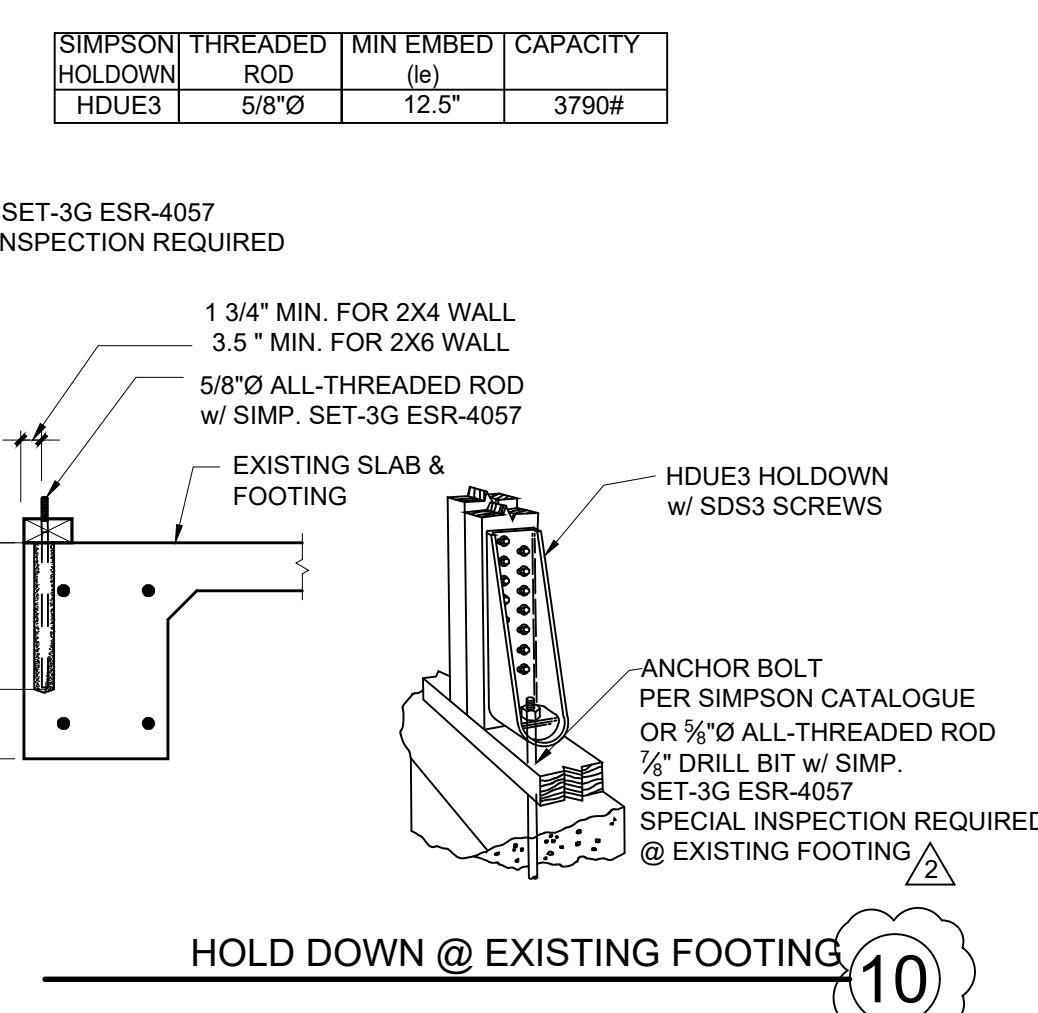
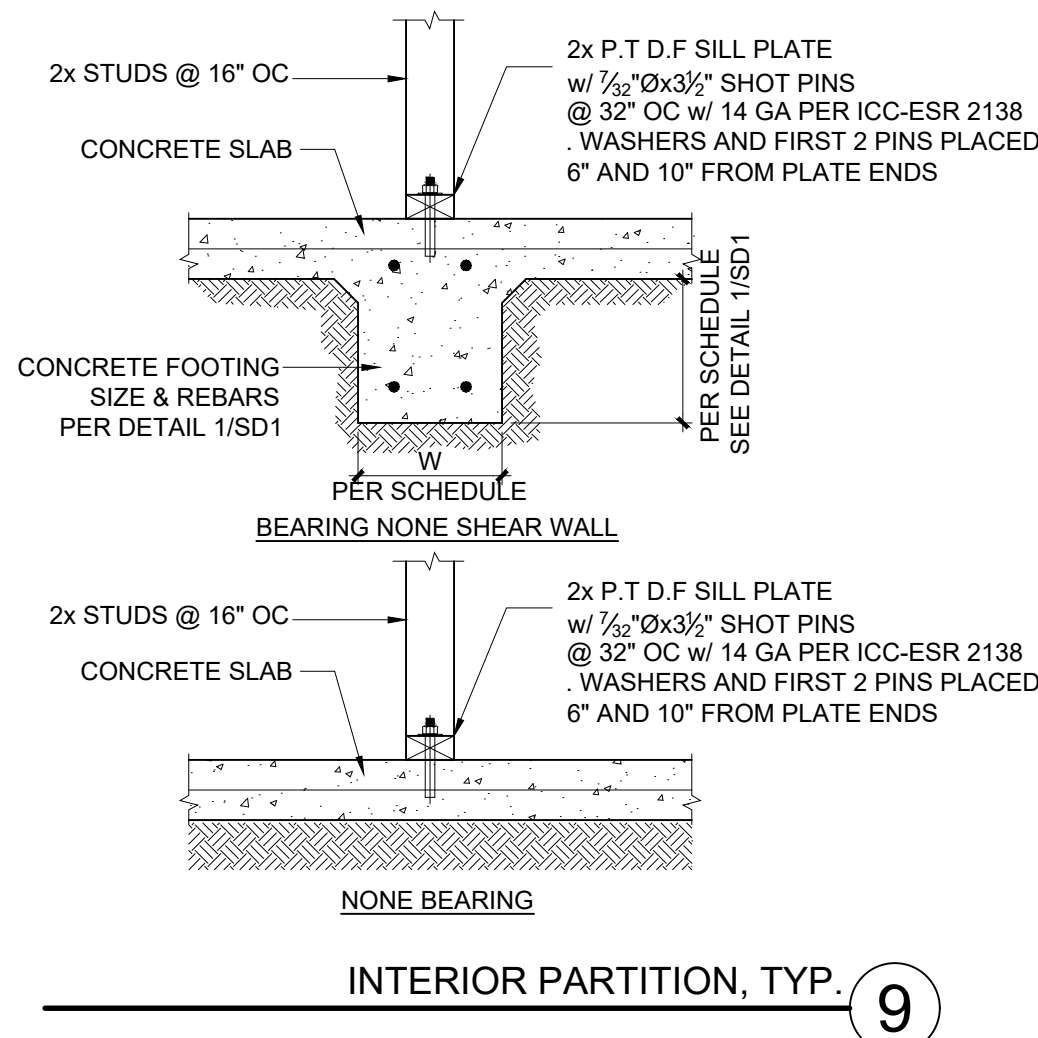
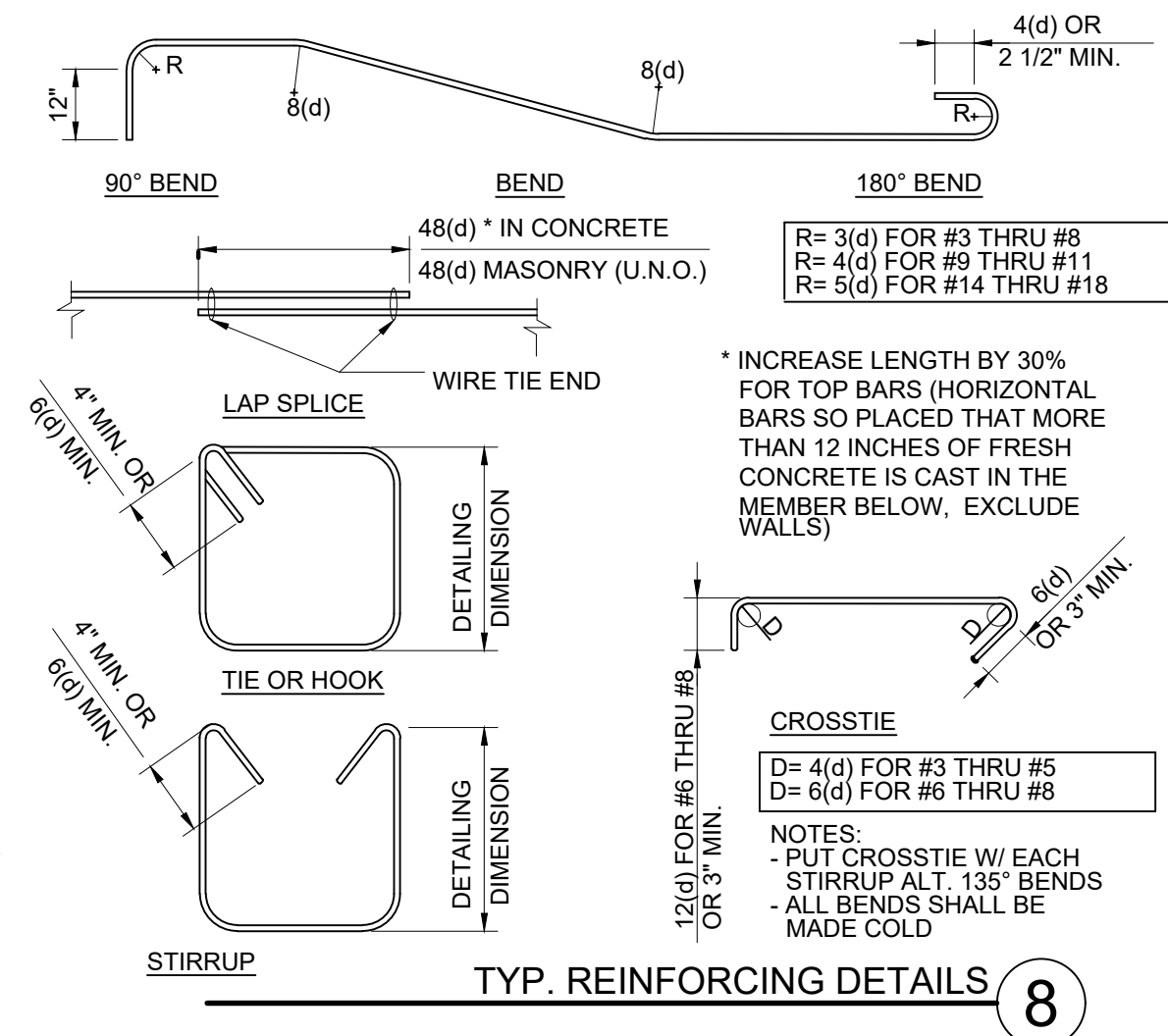
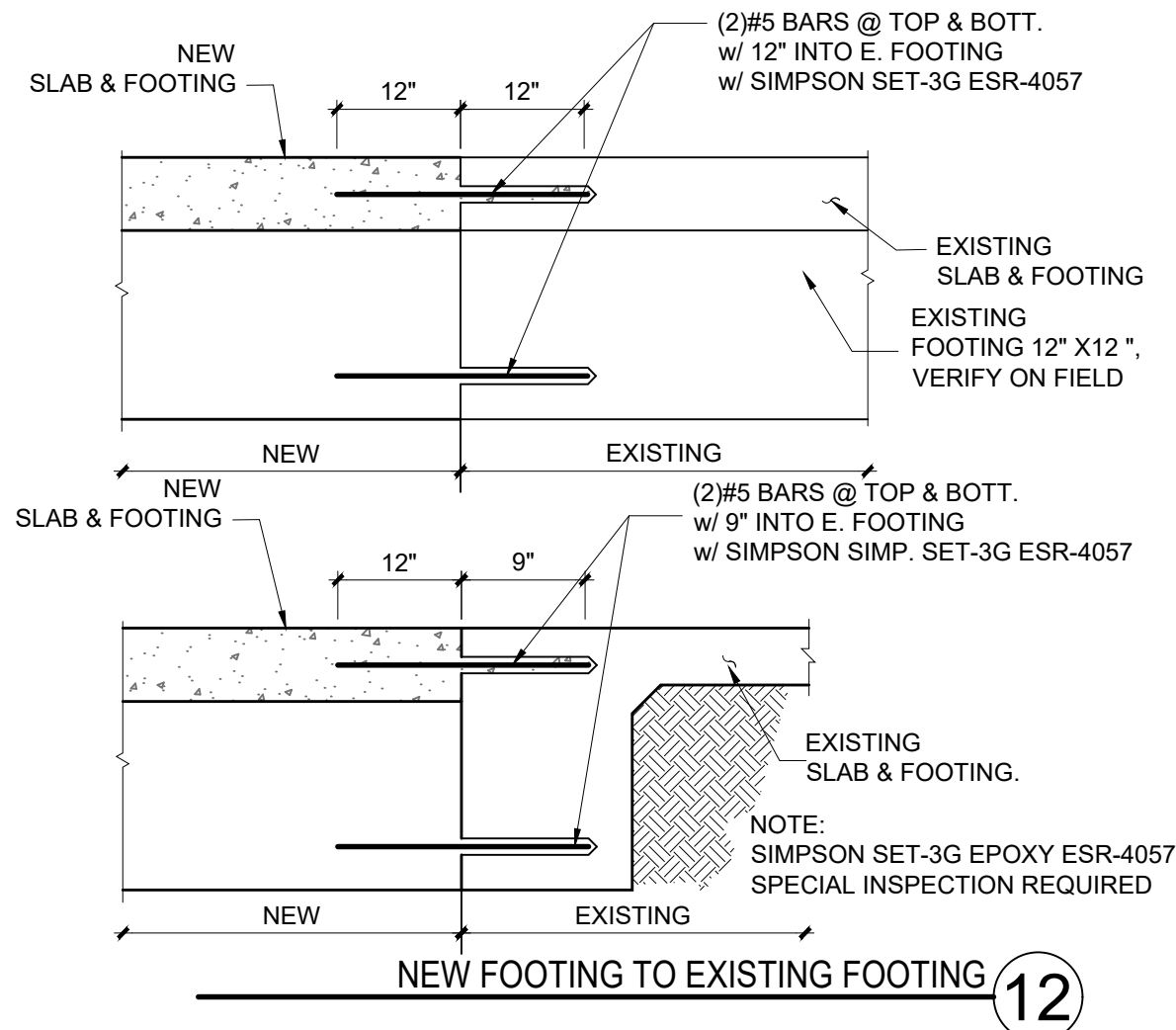
DRAW BY: DUY NGUYEN

JOB NO.: 25634

SHEET NO.:

S1.0





PROFESSIONAL BUILDING DESIGNS, INC. ONE STOP SOLUTION

ARCHITECTURAL - STRUCTURAL MECHANICAL - ELECTRICAL - PLUMBING RESIDENTIAL - COMMERCIAL - INDUSTRIAL ON TIME - ON BUDGET - PROFESSIONAL WORK

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REVISION		
DATE	BY	
12/04/2025	BLDG CMINT	
01/07/2026	BLDG CMINT	

STRUCTURAL DETAILS

RESIDENTIAL PROJECT FOR NEW DETACHED ADU

Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
 ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

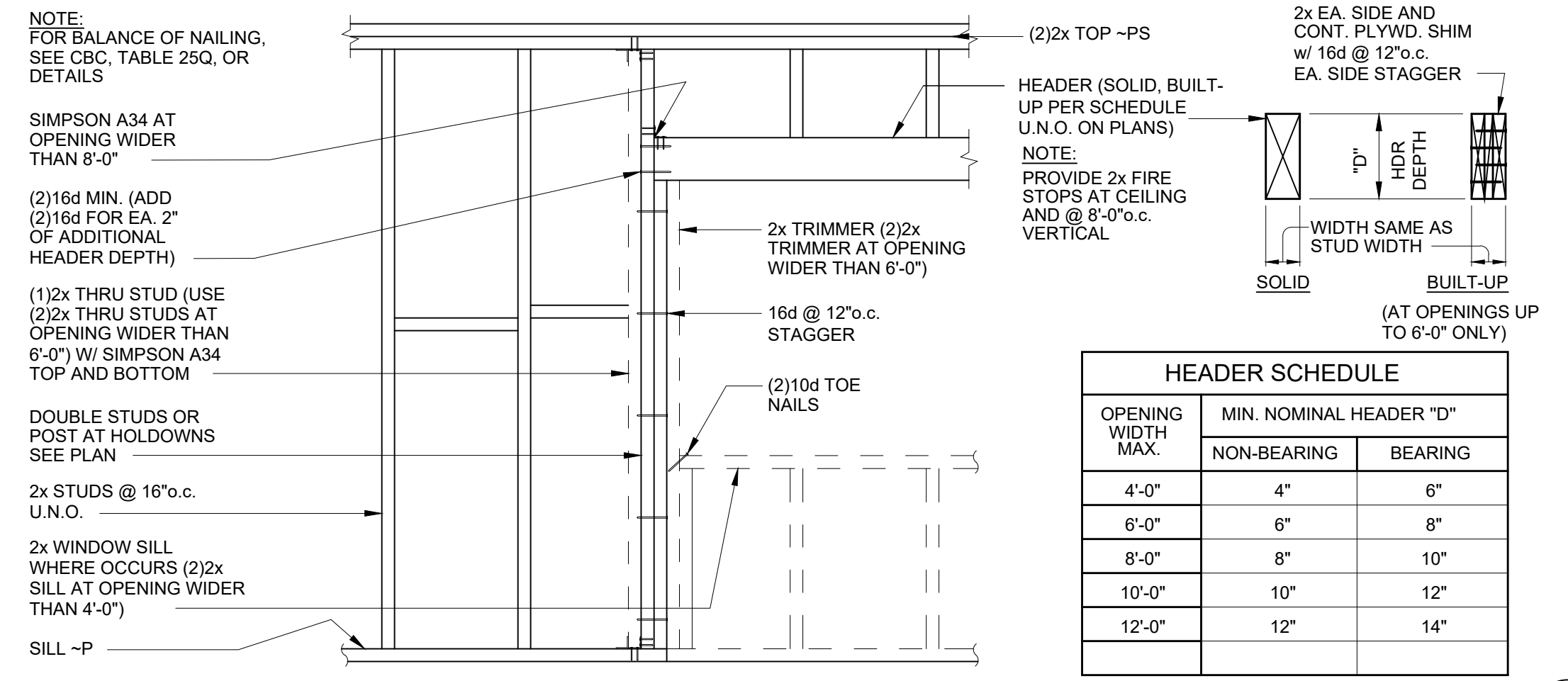
PLATE DATE: 01/08/2026

DRAW BY: DUY NGUYEN

REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 STATE OF CALIFORNIA
 C 95546
 Exp 06/30/26

JOB NO.: 25634
 SHEET NO.:

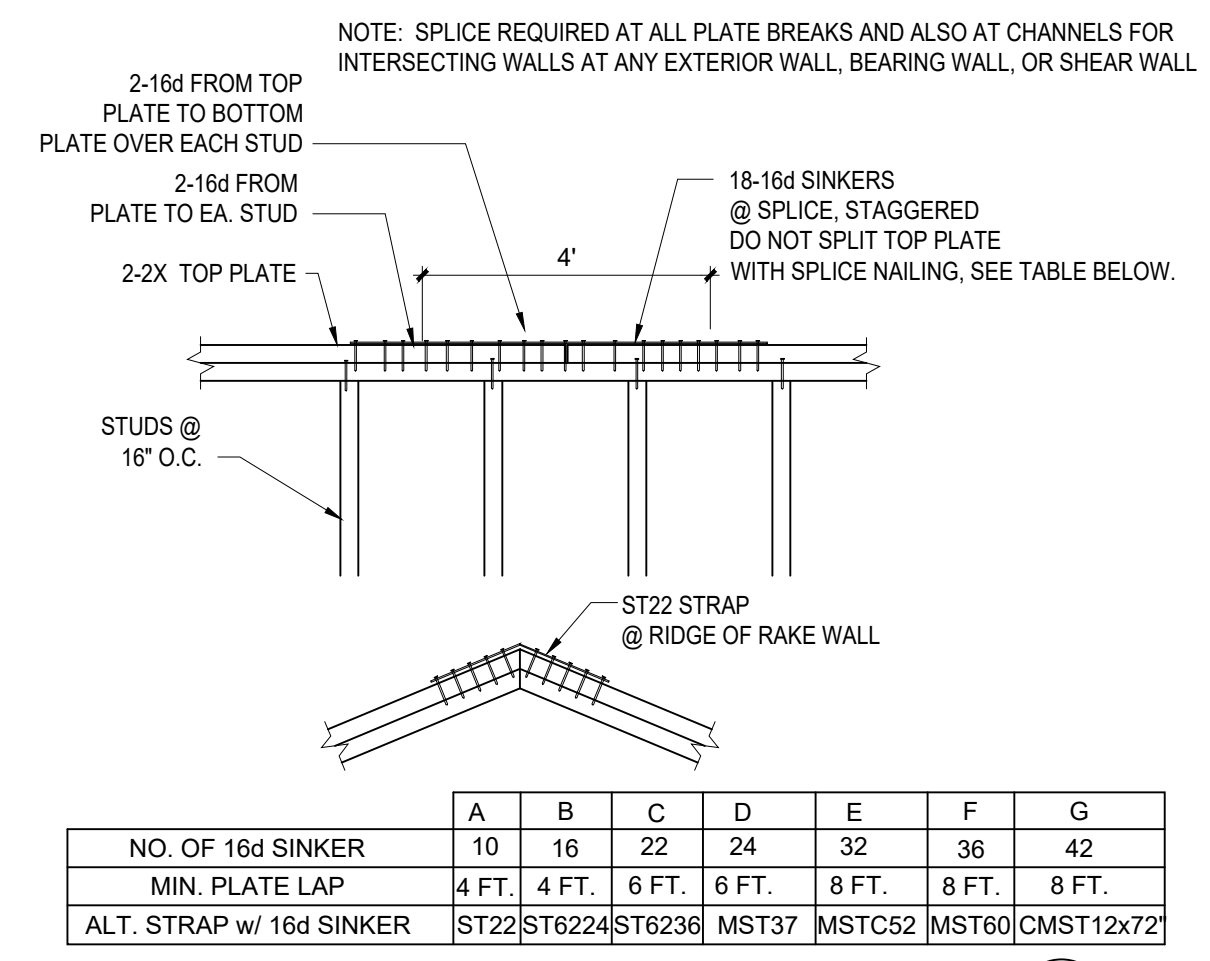
SD1



HEADER SCHEDULE

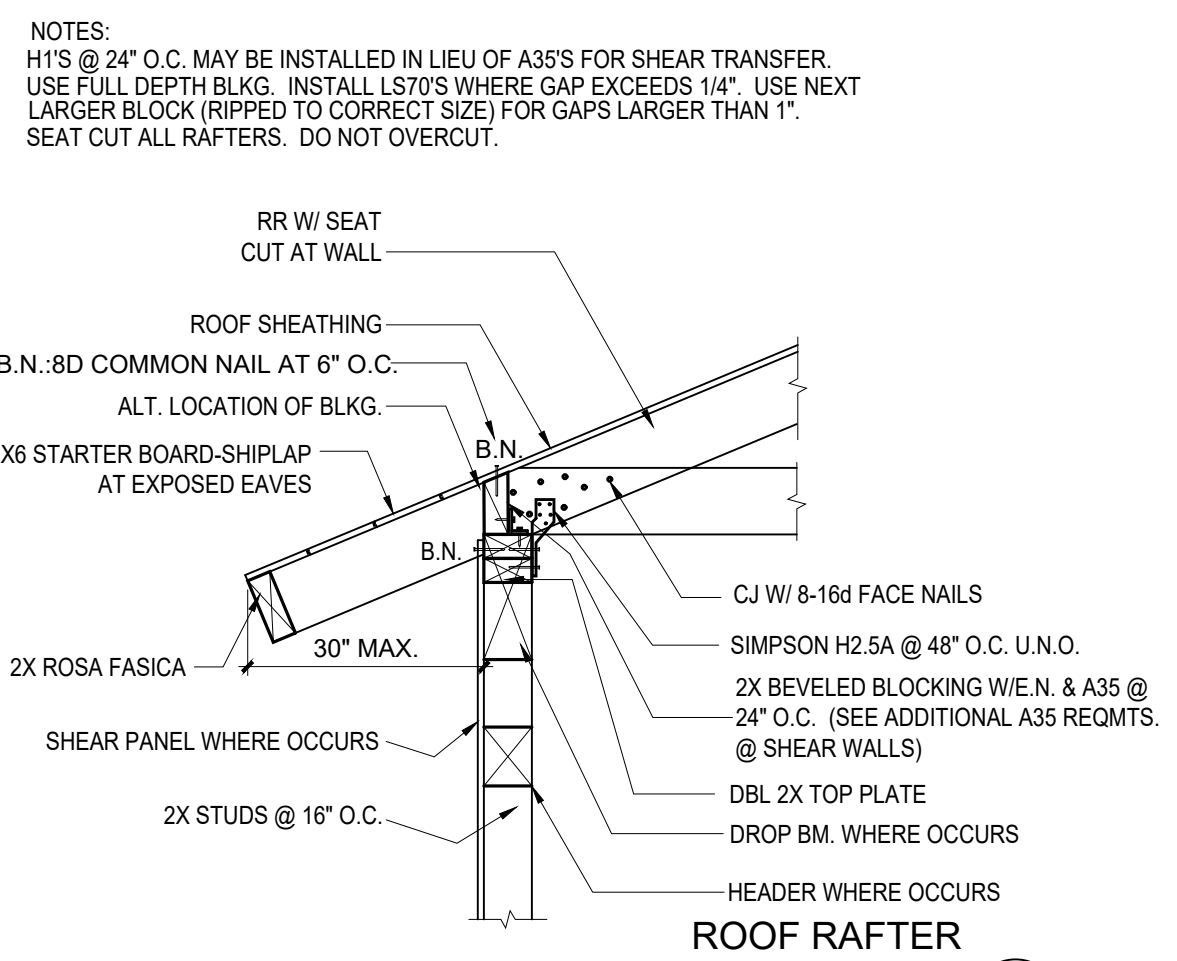
OPENING WIDTH MAX.	MIN. NOMINAL HEADER "D"	
	NON-BEARING	BEARING
4'-0"	4"	6"
6'-0"	6"	8"
8'-0"	8"	10"
10'-0"	10"	12"
12'-0"	12"	14"

TYPICAL STUD WALL FRAMING AT OPENING DETAIL 9

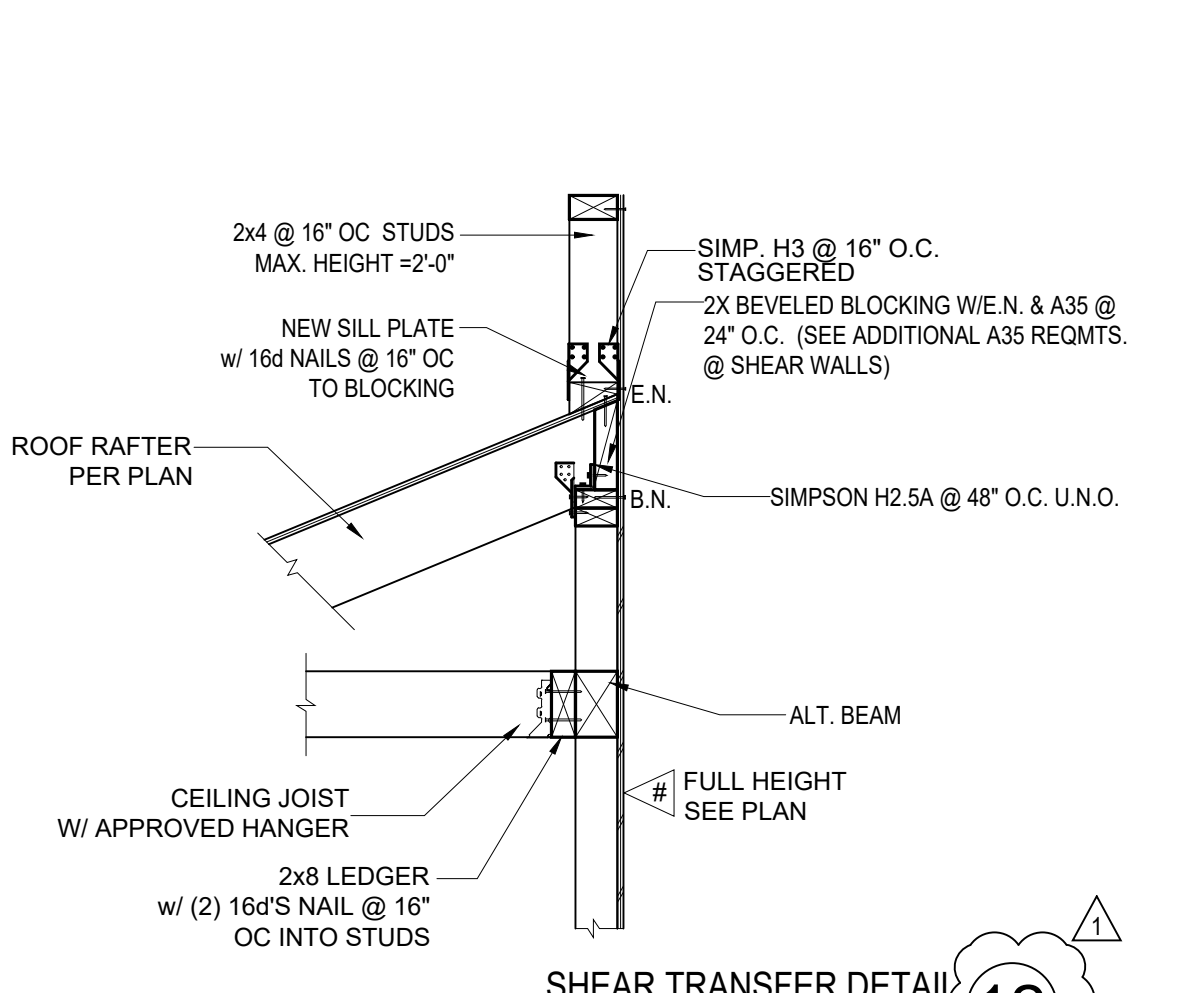


	A	B	C	D	E	F	G
NO. OF 16d SINKER	10	16	22	24	32	36	42
MIN. PLATE LAP	4 FT.	4 FT.	6 FT.	6 FT.	8 FT.	8 FT.	8 FT.
ALT. STRAP w/ 16d SINKER	ST22	ST6224	ST6236	MST37	MSTC52	MST60	CMST12x72

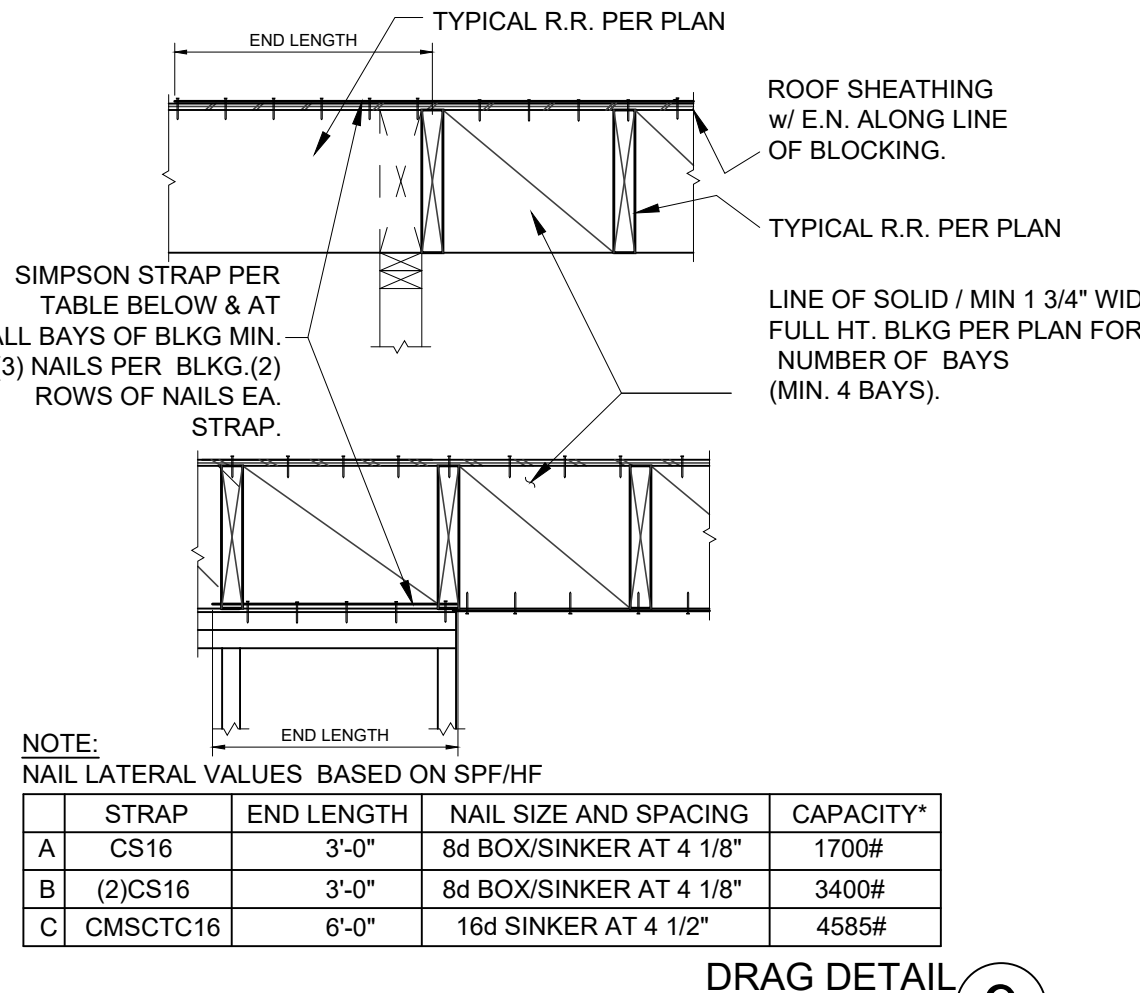
TYPICAL TOP PLATE SPLICE 5



PERPENDICULAR TO EXT. WALL 1



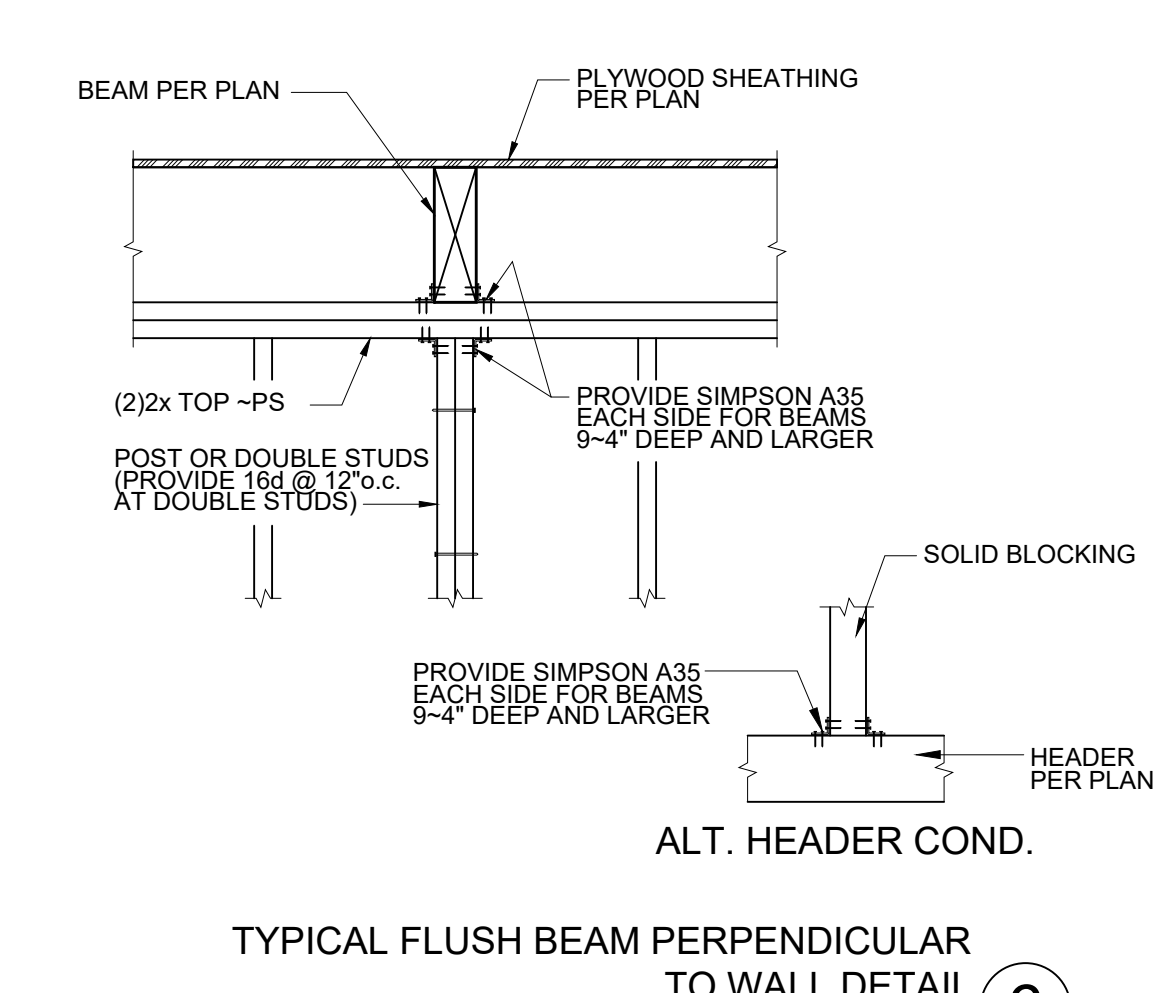
SHEAR TRANSFER DETAIL 12



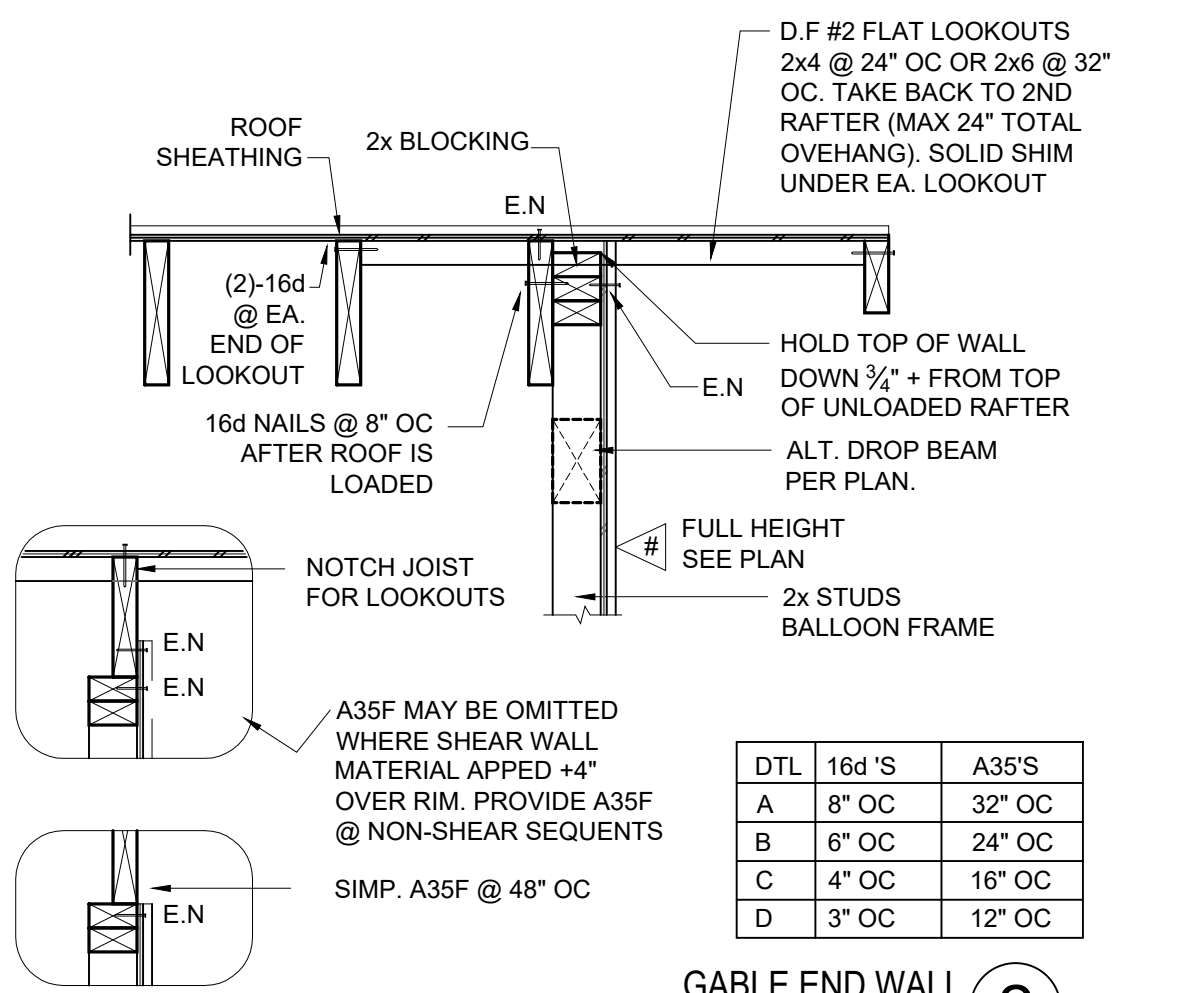
NOTE:
NAIL LATERAL VALUES BASED ON SPFH/F

STRAP	END LENGTH	NAIL SIZE AND SPACING	CAPACITY*
A CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	1700#
B (2)CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	3400#
C CMSCTC16	6'-0"	16d SINKER AT 4 1/2"	4585#

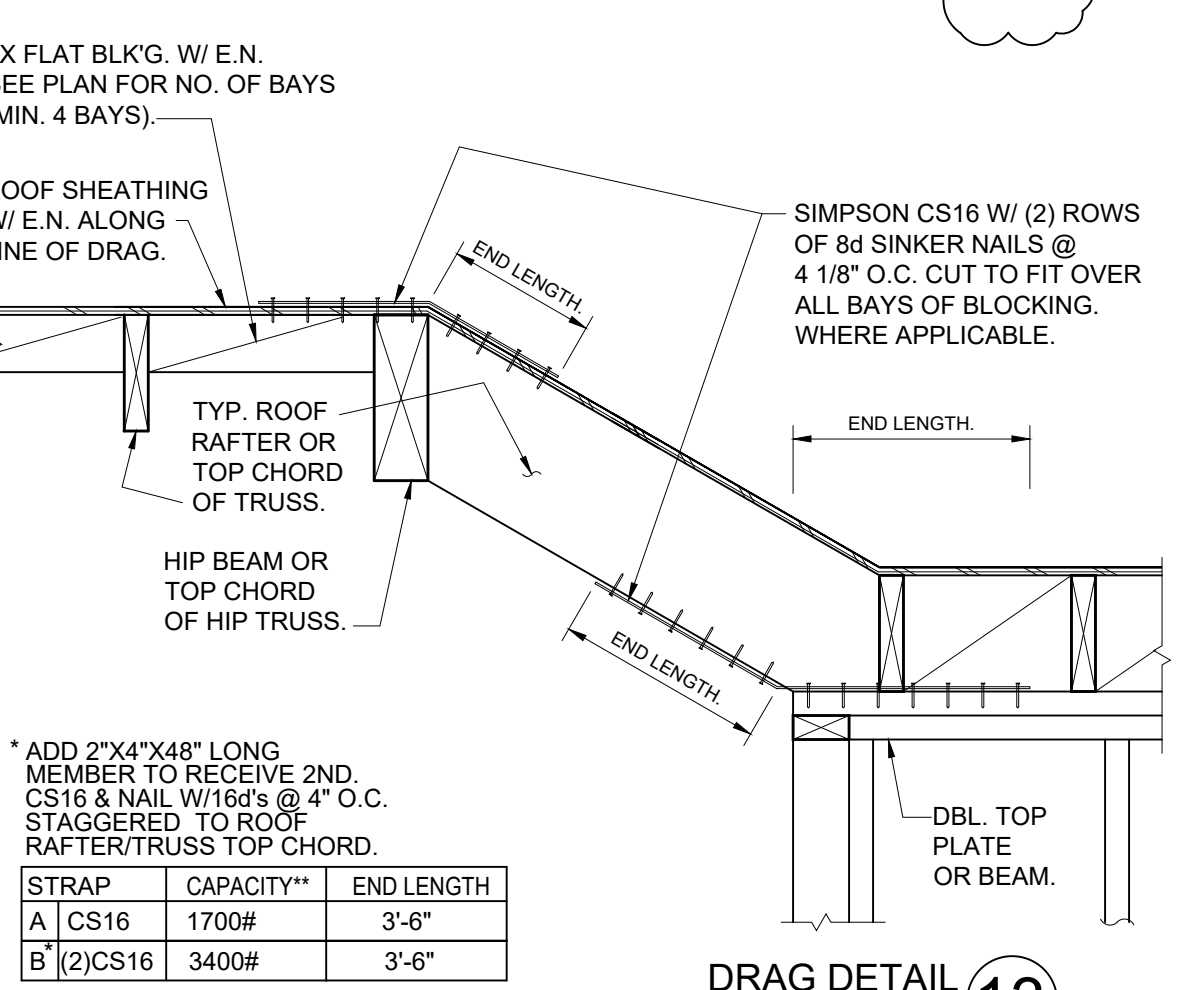
DRAG DETAIL 9



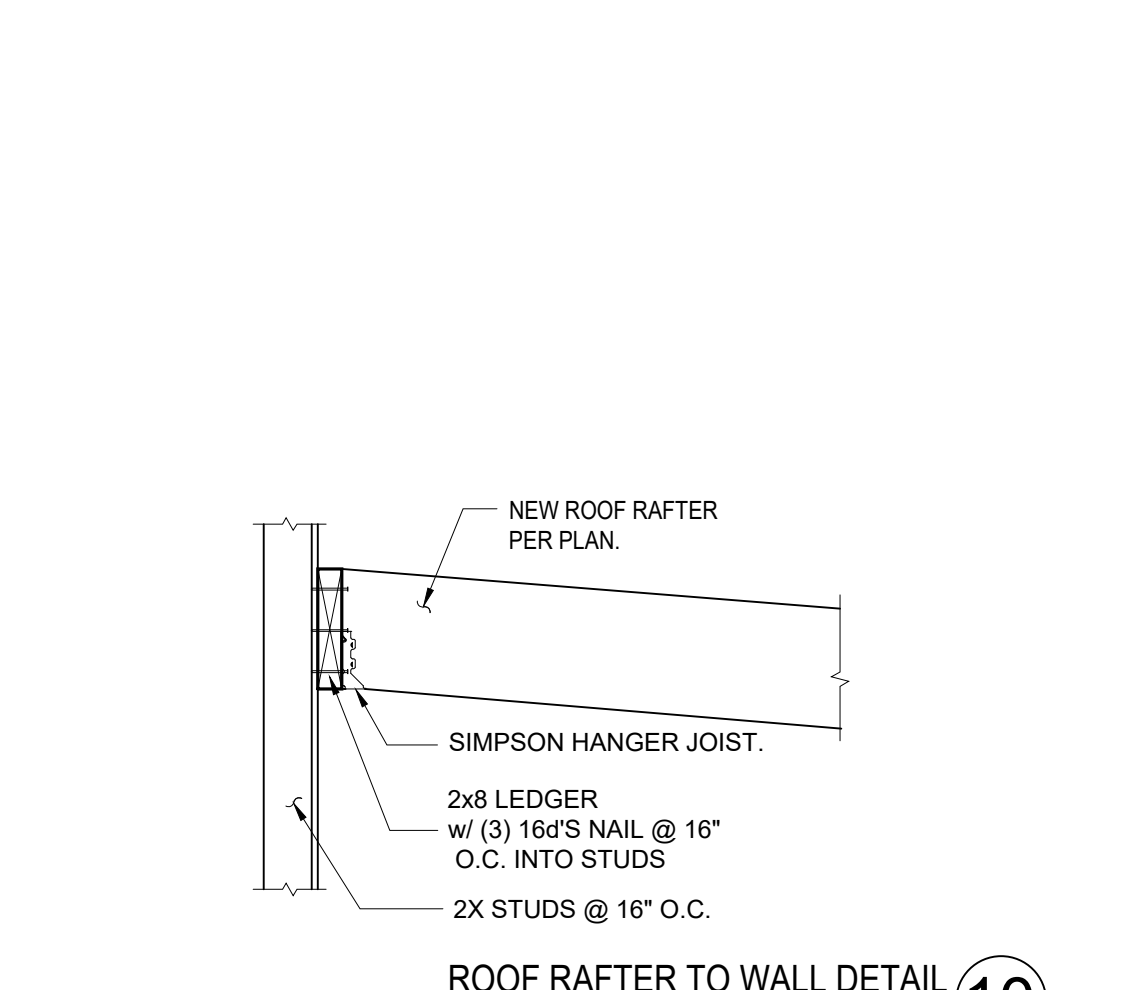
TYPICAL FLUSH BEAM PERPENDICULAR TO WALL DETAIL 6



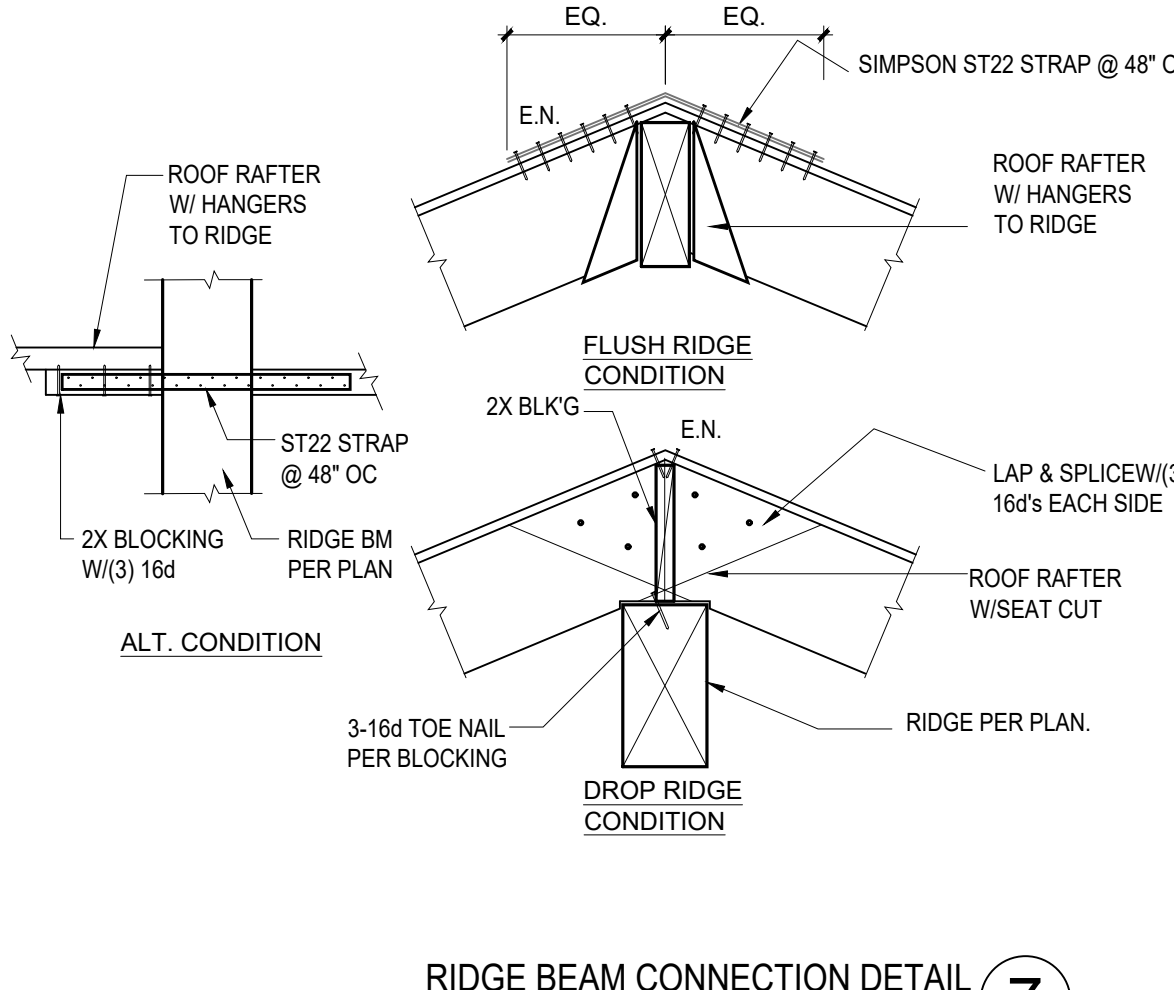
GABLE END WALL 2



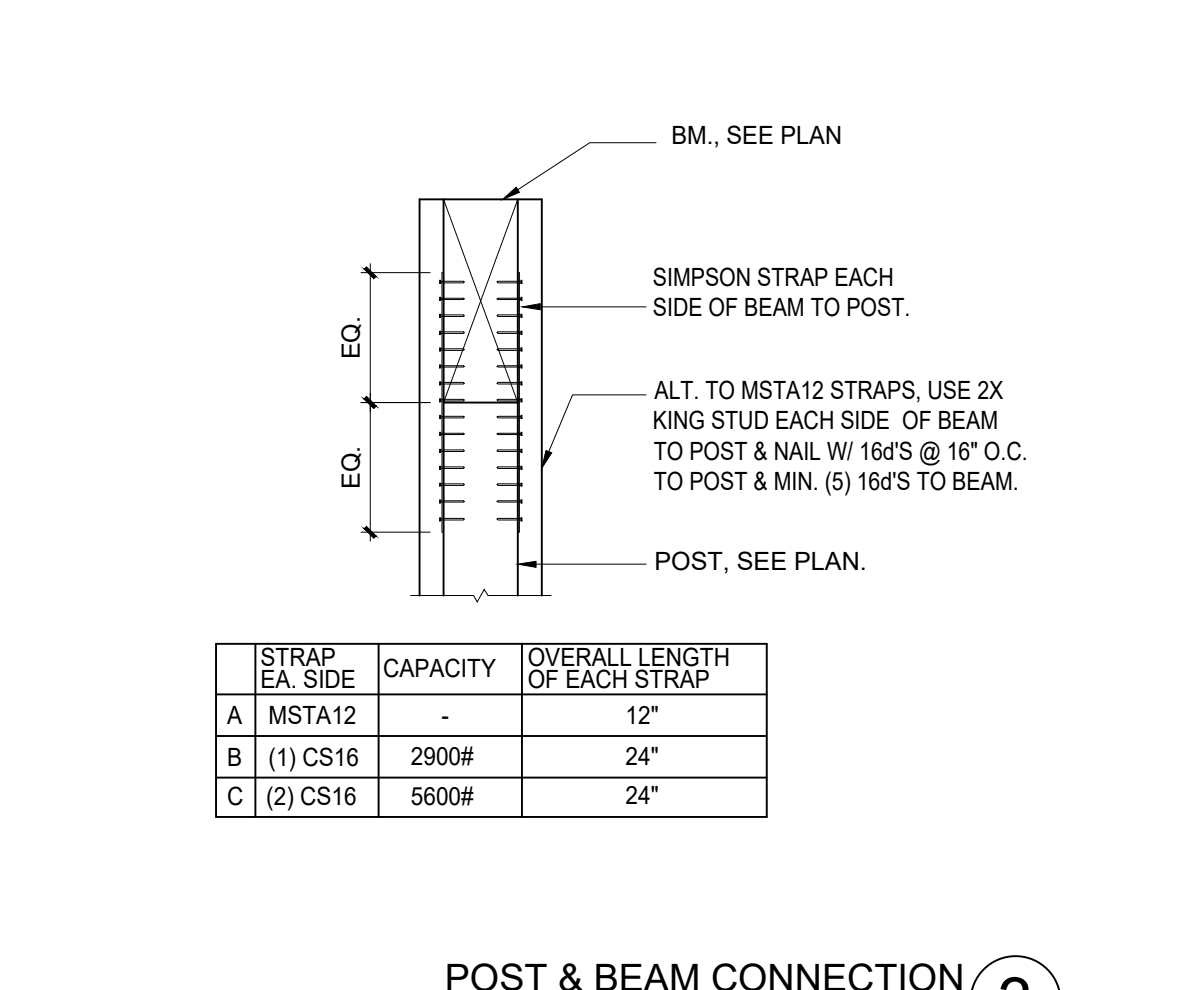
DRAG DETAIL 13



ROOF RAFTER TO WALL DETAIL 10



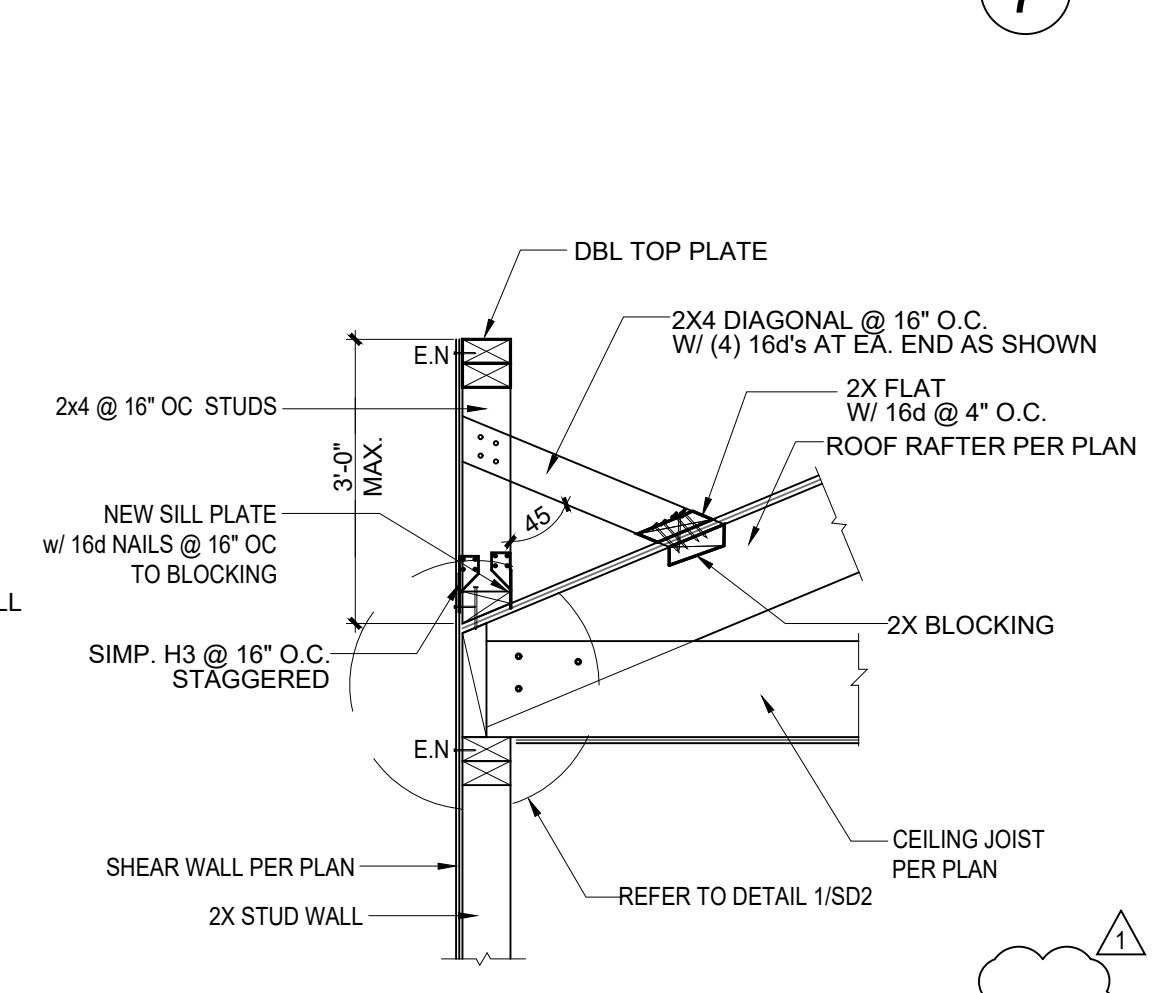
RIDGE BEAM CONNECTION DETAIL 7



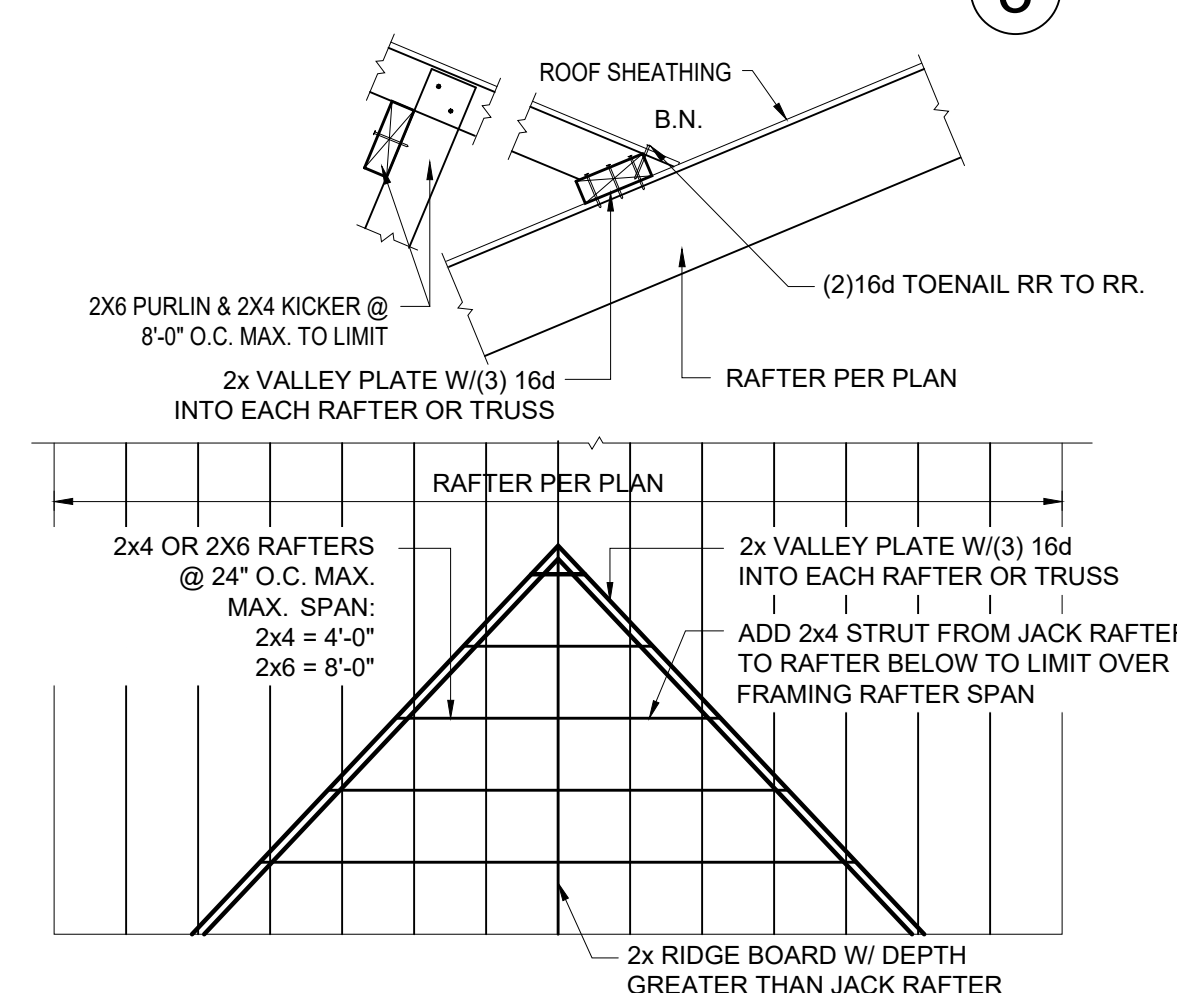
POST & BEAM CONNECTION 3



RAISING CEILING HEIGHT FLOOR, TYP. 11



CONNECTION 8



CALIF. FRAMING DETAIL 4

PROFESSIONAL BUILDING DESIGNS, INC. ONE STOP SOLUTION PBD ARCHITECTURAL - STRUCTURAL MECHANICAL - ELECTRICAL - PLUMBING RESIDENTIAL - COMMERCIAL - INDUSTRIAL ON TIME - ON BUDGET - PROFESSIONAL WORK

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REVISION

DATE	BY
12/04/2025	BLDG CMINT
01/07/2026	BLDG CMINT

STRUCTURAL DETAILS

RESIDENTIAL PROJECT FOR
NEW DETACHED ADU

Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
 ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

PLATE DATE: 01/07/2026

DRAW BY:
DUY NGUYEN



JOB NO.: 25634
 SHEET NO.:

SD2



2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. (04/2022)

Building Envelope:

- § 110.6(a): **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 1011.5.2/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 Fenestration Products.** Fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6.A-1, 110.6.B-1, or J.A.1.5 for exterior doors. They must be caulked and/or weather-dropped.
- § 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 CFR.
- § 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): **Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 6-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceilings, or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. 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 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 permeance no greater than 2.0 perm 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): **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(g).
- § 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(i): **Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.

Fireplaces, Decorative Gas Appliances, and Gas Log:

- § 110.5(a): **Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
- § 150.0(e): **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 light-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 Systems:

- § 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.N. *
- § 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(c)(3): **Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
- § 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.

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2022 Single-Family Residential Mandatory Requirements Summary

- § 150.0(k)1G: **Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
- § 150.0(k)1H: **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
- § 150.0(k)1I: **Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
- § 150.0(k)2A: **Interior Switches and Controls.** All forward phase out dimmers used with LED light sources must comply with NEMA SSL 7A.
- § 150.0(k)2B: **Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems. *
- § 150.0(k)2A: **Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
- § 150.0(k)2B: **Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
- § 150.0(k)2C: **Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
- § 150.0(k)2D: **Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
- § 150.0(k)2E: **Automatic Shut-off Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
- § 150.0(k)2F: **Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase out dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
- § 150.0(k)2K: **Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
- § 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 have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
- § 150.0(k)4: **Internally illuminated address signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
- § 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 §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

- § 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)-(e).
- § 110.10(a)1A: **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 180 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. *
- § 110.10(b)2: **Azimuth.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° 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 horizontal distance 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)-(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. *

Electric and Energy Storage Ready:

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2022 Single-Family Residential Mandatory Requirements Summary

- § 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 150 Btu per hour); and pool and spa heaters. *
- § 150.0(h)1: **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.
- § 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(i)1: **Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 909.11 of the California Plumbing Code.
- § 150.0(i)2: **Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 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 designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater.
- § 150.0(n)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:

- § 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 CMC §§ 601.0-605.0 and ANSISMACNA-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 R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. 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 UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than 1/2". If mastic or tape is used, Building cavities, air handler support platforms, 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 these spaces must not be compressed. *
- § 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 tapes are 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(m)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(m)9: **Protection of Insulation.** Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
- § 150.0(m)10: **Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
- § 150.0(m)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 Reference Residential Appendix RA3.1. *
- § 150.0(m)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. Clean-filter pressure drop and labeling must meet the requirements in § 150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *

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2022 Single-Family Residential Mandatory Requirements Summary

- § 150.0(s): **Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their source collected at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
- § 150.0(t): **Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use. *
- § 150.0(u): **Electric Cooktop Ready.** Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use. *
- § 150.0(v): **Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use. *

*Exceptions may apply.

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2022 Single-Family Residential Mandatory Requirements Summary

- § 150.0(m)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. *

Ventilation and Indoor Air Quality:

- § 150.0(o)1: **Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *
- § 150.0(o)1B: **Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per § 150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per § 150.0(o)1B(a)(v). CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with § 150.0(o)1C.
- § 150.0(o)1C: **Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and Townhouses.** Single-family detached dwelling units, and attached dwelling units not having ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1C-ii.
- § 150.0(o)1G: **Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of § 150.0(o)1G-ii, enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting § 150.0(o)1G-iv. Airflow must be measured by the installer per § 150.0(o)1G-v, and rated for sound per § 150.0(o)1G-vi. *
- § 150.0(o)1H(4): **Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminals/grilles per Reference Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 § 7.2 at no less than the minimum airflow rate required by § 150.0(o)1C.
- § 150.0(o)2: **Field Verification and Diagnostic Testing.** Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow rates and sound requirements per § 150.0(o)1G.

Pool and Spa Systems and Equipment:

- § 110.4(a): **Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDb5; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating. *
- § 110.4(b)1: **Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
- § 110.4(b)2: **Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
- § 110.4(b)3: **Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
- § 110.5: **Pilot Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
- § 150.0(p): **Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.

Lighting:

- § 110.9: **Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *
- § 150.0(k)1A: **Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
- § 150.0(k)1B: **Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
- § 150.0(k)1C: **Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
- § 150.0(k)1D: **Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
- § 150.0(k)1E: **Blank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
- § 150.0(k)1F: **Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).

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REVISION

DATE	BY
1 12/04/2025	BLDG CMVNT
2 01/07/2026	BLDG CMVNT
3	
4	
5	

TITLE 24 MANDATORY MEASURES SUMMARY

RESIDENTIAL PROJECT FOR NEW DETACHED ADU

Main House : 401 & 403 S Garnsey St, Santa Ana, CA 92701
ADU : 403 S Garnsey St Unit 2, Santa Ana, CA 92701

PLOTE DATE: 01/08/2026

DRAW BY: DUYN NGUYEN

JOB NO.: 25634

SHEET NO.:



T24-0

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
 Project Name: Detached ADU
 Calculation Date/Time: 2026-01-08T11:07:14-07:00
 Input File Name: 401 & 403 S Garnsey St, Santa Ana, CA 92701 T24 Detached ADU.rbd22x
 (Page 4 of 12)

ENERGY USE INTENSITY	Standard Design (kBtu/ft ² · yr)	Proposed Design (kBtu/ft ² · yr)	Margin (kBtu/ft ² · yr)	Margin Percentage
Gross EUI ¹	37.56	35.48	2.08	5.54
Net EUI ²	37.56	35.48	2.08	5.54

Notes:
 1. Gross EUI is Energy Use Total (including PV) / Total Building Area.
 2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED PV SYSTEMS	01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Admittance (SMA)	Tilt Input	Array Angle (Deg)	Tilt (in 12)	Inverter Eff. (%)	Annual Solar Access (%)	
0	No PV - required PV less than 1.8kWdc	Standard (14-17%)	Tiled	none	true	n/a	n/a	n/a	n/a	n/a	n/a	

REQUIRED SPECIAL FEATURES
 The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
 • PV exception 2: No PV required when minimum PV size (Section 150.3214) < 1.8 kWdc (0 W)
 • Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)
 • Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater, specific brand/model, or equivalent, must be installed
 • One or more heat pump water heaters have been modeled as demand response compatible

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
 Project Name: Detached ADU
 Calculation Date/Time: 2026-01-08T11:07:14-07:00
 Input File Name: 401 & 403 S Garnsey St, Santa Ana, CA 92701 T24 Detached ADU.rbd22x
 (Page 3 of 12)

ENERGY USE SUMMARY	Standard Design Source Energy (EDES) (kBtu/ft ² · yr)	Standard Design TDV Energy (EDT) (kBtu/ft ² · yr)	Proposed Design Source Energy (EDES) (kBtu/ft ² · yr)	Proposed Design TDV Energy (EDT) (kBtu/ft ² · yr)	Margin (EDR1)	Margin (EDR2)
Energy Use	0.04	0.27	0.36	6.77	-0.82	-6.5
Space Heating	2.28	43.95	3.56	37.68	0.72	6.27
IAQ Ventilation	0.52	3.44	0.52	5.44	0	0
Water Heating	3.73	40.03	2.57	29.59	1.06	10.44
Self Utilization/Usability Credit			0	0	0	0
Efficiency Compliance Total	6.57	89.69	5.61	79.48	0.96	10.21
Photovoltaics	0	0	0	0		
Battery			0	0		
Flexibility			0	0		
Indoor Lighting	1.31	12.3	1.31	12.3		
Appl. & Cooking	11.78	77.92	11.68	76.88		
Plug Loads	8.9	90.57	8.9	90.57		
Outdoor Lighting	0.24	2.08	0.24	2.08		
TOTAL COMPLIANCE	28.8	272.56	27.4	263.31		

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ENERGY DESIGN RATINGS	Source Energy (EDR1)	Efficiency EDR (EDR2/Efficiency)	Total EDR (EDR2total)	Source Energy (EDR1)	Efficiency EDR (EDR2/Efficiency)	Total EDR (EDR2total)
Standard Design	45.7	40.7	60.5			
Proposed Design	44.1	36.1	58	1.6	4.6	2.5

RESULTS: PASS

Efficiency EDR includes improvements that a better building envelope and more efficient equipment.
 Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load four limits are not exceeded.
 • Standard Design PV Capacity: 0.00 kWdc
 • PV System(s) removed due to Reduced PV Requirement of 0.00 kWdc

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GENERAL INFORMATION	01	02	03	04	05	06	07	08	09	10	11	12	
Project Name	Detached ADU	Run Title	Title 24 Analysis	Project Location	401 S Garnsey St Unit 2	City	Santa Ana	Standards Version	2022	Zip code	92701	Software Version	EnergyPro 9.4
Climate Zone	8	Building Type	Single Family	Number of Dwelling Units	1	Project Status	Not Yet Constructed	Number of Bedrooms	1	Existing Cond. Floor Area (ft ²)	n/a	Number of Stories	1
ADU Bedroom Count	n/a	Total Cond. Floor Area (ft ²)	406	Slabting Percentage (%)	0.9%	ADU Bedroom Count	n/a	ADU Conditioned Floor Area	n/a	Fuel Type	Natural gas	No Dwelling Unit	No

COMPLIANCE RESULTS

01	02	03
Building Complies with Computer Simulation		
This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CE-approved HERS provider.		
This building incorporates one or more Special Features shown below		

Registration Number: 426-P01004726A-000-000-000000-0000
 Registration Date/Time: 01/07/2026 20:14
 HERS Provider: CHEERS
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 CA Building Energy Efficiency Standards - 2022 Residential Compliance
 Report Version: 2022.0.000
 Report Generated: 2026-01-07 20:07:39
 Schema Version: rev 20220901

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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
Attic Roof/Bed	Attic Roofs	Wood Framed Ceiling	2x8 @ 24 in. O.C.	R-0	None / 0	0.64		Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Sheathing/Decking: Gypsum / Frame: no Insul. / 2x8
Attic Roof/Living	Attic Roofs	Wood Framed Ceiling	2x8 @ 24 in. O.C.	R-0	None / 0	0.64		Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Sheathing/Decking: Gypsum / Frame: no Insul. / 2x8
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-18.5 / 2x8 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION	01	02	03	04	05
Quality Insulation Installation (QI)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50		CFM50
Required	Not Required	N/A	n/a		n/a

WATER HEATING SYSTEMS	01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (ft)	
DHW Sys 1	Domestic Hot Water (DHW)	Standard	DHW Heater 1	1	n/a	None	n/a	DHW Heater 1 (1)	

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TRANSPARENT SURFACES	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Admittance	Width (ft)	Height (ft)	Area (ft ²)	U-factor	SHGC	SHGC Source	SHGC Source	SHGC Source	SHGC Source	Exterior Shading
Window 8 3000 DR	Window	Back Exterior Wall 2x4 2	Front	0	1	24	0.3	NFRC	0.22	NFRC				Bug Screen

OPAQUE DOORS	01	02	03	04
Name	Surface	Orientation	Area (ft ²)	U-factor
Door 1 3008 DR	Front Exterior Wall 2x4 2	Front	20	0.5

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
Slab-on-Grade	Bed	114	43	none	0	80%		No
Slab-on-Grade 2	Living	292	65	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-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R-15	None / None	0.095		Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Exterior Finish: 3 Coat Stucco
R-0 Interior Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R-0	None / None	0.277		Inside Finish: Gypsum Board Cavity / Frame: no Insul. / 2x4 Other Side Finish: Gypsum Board

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OPAQUE SURFACES	01	02	03	04	05	06	07	08
Name	Zone	Construction	Admittance	Orientation	Gross Area (ft ²)	Window and Door Area (ft ²)	Tilt (deg)	
Front Exterior Wall 2x4 2	Bed	R-15 Wall	180	Back	91	0	90	
Left Exterior Wall 2x4 2	Bed	R-15 Wall	270	Right	80	12.5	90	
Back Exterior Wall 2x4 2	Bed	R-15 Wall	0	Front	91	0	90	
Front Exterior Wall 2x4 2	Living	R-15 Wall	180	Back	130	20	90	
Left Exterior Wall 2x4 2	Living	R-15 Wall	270	Right	54	0	90	
Back Exterior Wall 2x4 2	Living	R-15 Wall	0	Front	130	24	90	
Right Exterior Wall 2x4 2	Living	R-15 Wall	90	Left	130	0	90	
Right Interior Wall 2x4 2	Bed+Living	R-0 Interior Wall	n/a	n/a	80	0	n/a	
Roof Attic	Bed	R-30 Roof Attic	n/a	n/a	114	n/a	n/a	
Roof Attic 2	Living	R-30 Roof Attic	n/a	n/a	292	n/a	n/a	

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 Bed	Attic Roof/Bed	Ventilated	1	0.1	0.85	No	No	
Attic Living	Attic Roof/Living	Ventilated	1	0.1	0.85	No	No	

PENETRATION / GLAZING	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Admittance	Width (ft)	Height (ft)	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Source	SHGC Source	SHGC Source	Exterior Shading
Window A 2600 SH	Window	Left Exterior Wall 2x4	Right	270	1	12.5	0.3	NFRC	0.22	NFRC				Bug Screen

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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 meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CE2Rs and CE3Rs are required to be completed in the HERS Registry

- Quality Insulation Installation (QI)
- Indoor air quality verification
- Kitchen range hood
- Verified EER/SEER2
- Verified SEER/SEER2
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.1.7)
- Verified HSPF2
- Verified heat pump rated heating capacity
- Wall-mounted thermostat in zones greater than 150 ft² (SC3.4.5)
- Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8)

BUILDING - FEATURES INFORMATION	01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems	
Detached ADU	406	1	1	2	0	1	

ZONE INFORMATION	01	02	03	04	05	06	07
Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Status	
Bed	Conditioned	Bed / FC-09 / 42MAHQB29A1	114	8	DHW Sys 1	New	
Living	Conditioned	Living / FC-09 / 42MAHQB202	292	8	DHW Sys 1	New	

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INDOOR AIR QUALITY (IAQ) FACTS	01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficiency (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SIE/SAE	Includes Fault Indicator Display?	HERS Verification	Status	
Slab IM2Vent/ht	27	0.35	Exhaust	No	n/a / n/a	No	Yes		

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HVAC - HEAT PUMPS	01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating Efficiency Type	HSPF/HPF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SEER2/ER2	SEER/SEER2/ER2	Zonally Controlled	Compressor Type	HERS Verification	
Heat Pump System 2	VCHP-ductless	1	HSPF2	11.5	12000	9500	EER2SEER2	28.1	16.2	Not Zonal	Single Speed	Heat Pump System 2-hers-htpump	

HVAC HEAT PUMPS - HERS VERIFICATION	01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/SEER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HPF2	Verified Heating Cap 47	Verified Heating Cap 17	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Required	Required	Yes	Yes	Yes	Yes	Yes
Heat Pump System 2-hers-htpump	Not Required	0	Required	Required	Yes	Yes	Yes	Yes	Yes

VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION	01	02	03	04	05	06	07	08	09	10
Name	Certified Low-Static VCHP System	Airflow to Habitable Rooms	Ductless Units in Conditioned Space	Wall Mount Thermostat	Air Filter/Static Ramp Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously	
Heat Pump System 1	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required	
Heat Pump System 2	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required	