CM-02-27-2025

CITY OF COSTA MESA
PLANNING

Planning approval is subject to building division regulations. No modification(s) of the approved plans including, but not limited to, changes that increase the building height, removal of building articulation, or a change of the finish material(s), shall be made during construction without prior Planning Division written approval. Failure to obtain prior Planning Division approval of any modification could result in discretionary review process, revision of approved plans and/or modification of construction.

By: VIELA_G
Date: 02/25/2025

CITY OF COSTA MESA
ENGINEERING DIVISION

- [x] APPROVED
- [ ] APPROVED AS CORRECTED
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED
- [ ] FOR INFORMATION ONLY

BY HPOL_C DATE 2/26/2025

City of Costa Mesa
Transportation Services Department

Accepted ☑

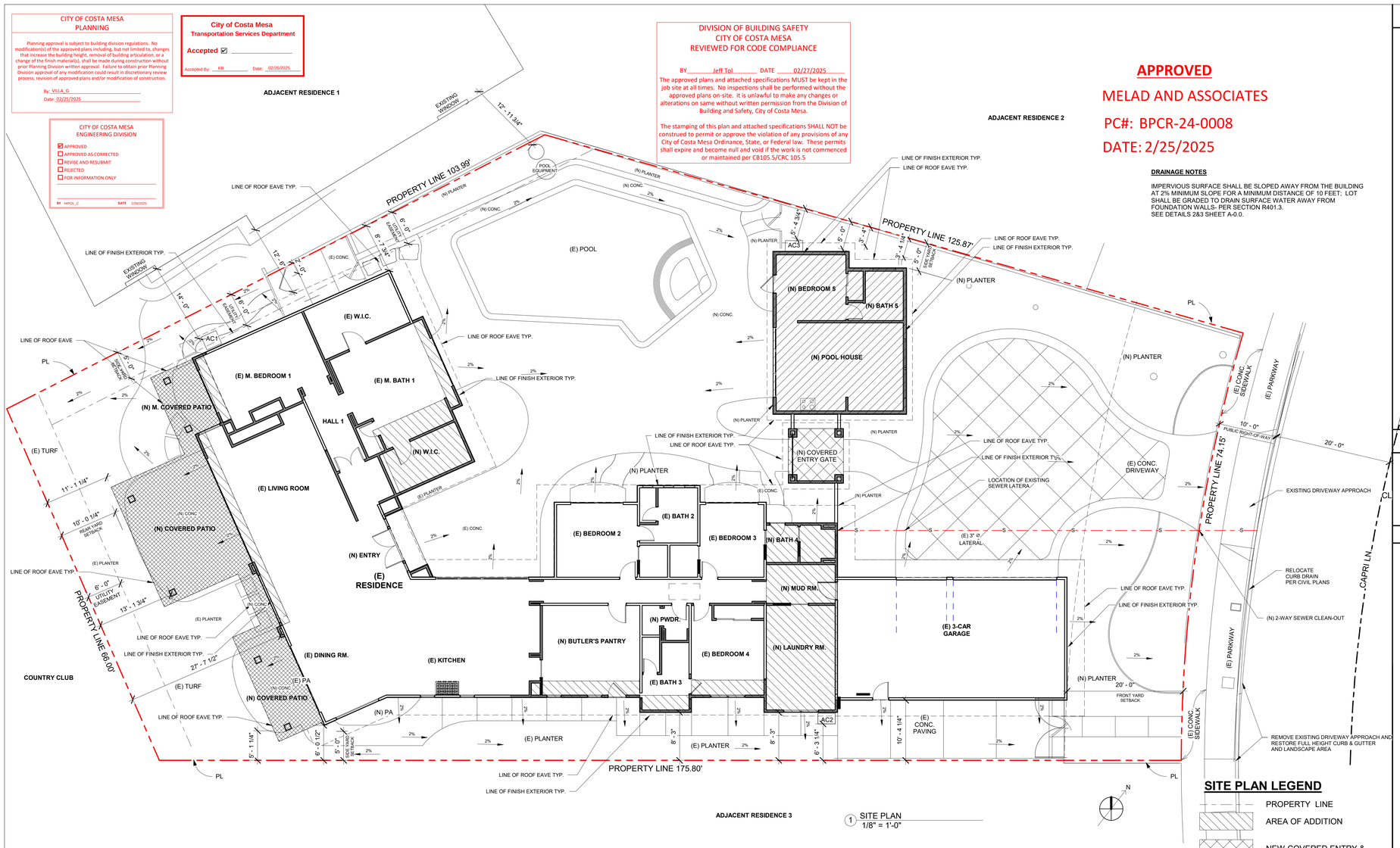
Accepted By: KB Date: 02/26/2025

DIVISION OF BUILDING SAFETY
CITY OF COSTA MESA
REVIEWED FOR CODE COMPLIANCE

BY Jeff Tol DATE 02/27/2025

The approved plans and attached specifications MUST be kept in the job site at all times. No inspections shall be performed without the approved plans on-site. it is unlawful to make any changes or alterations on same without written permission from the Division of Building and Safety, City of Costa Mesa.

The stamping of this plan and attached specifications SHALL NOT be construed to permit or approve the violation of any provisions of any City of Costa Mesa Ordinance, State, or Federal law. These permits shall expire and become null and void if the work is not commenced or maintained per CB105.5/CRC 105.5



1 SITE PLAN
1/8" = 1'-0"

SITE PLAN LEGEND

- PROPERTY LINE
- AREA OF ADDITION
- NEW COVERED ENTRY & PATIOS

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

DRAINAGE NOTES

IMPERVIOUS SURFACE SHALL BE SLOPED AWAY FROM THE BUILDING AT 2% MINIMUM SLOPE FOR A MINIMUM DISTANCE OF 10 FEET; LOT SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS- PER SECTION R401.3.
SEE DETAILS 2&3 SHEET A-0.0.

GENERAL NOTES

1. THIS BUILDING IS OCCUPANCY R1, TYPE VB, NON-SPRINKLERED
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH PROCEDURES SET FORTH BY CORPORATE STANDARDS SPECIFICATIONS AS APPROVED BY OWNER. WHEN SEPARATELY BOUND SPECIFICATIONS ACCOMPANY THESE DRAWINGS, THEY SHALL BE CONSIDERED PART OF THESE CONSTRUCTION DOCUMENTS.
3. INSTALL ALL MANUFACTURED ITEMS, MATERIALS, AND EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
4. CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND CONFIRMING THAT WORK IS BUILD ABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF COORDINATION QUESTIONS OCCUR, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE DESIGNER AND/OR TENANT CONSTRUCTION COORDINATOR BEFORE PROCEEDING WITH WORK IN QUESTION OR BELATED WORK.
5. CONTRACTOR FOR THE PROJECT SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED BUILDING PERMITS.
6. "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS THE SAME OR REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.
7. DETAILS ARE USUALLY KEYED AND NOTED "TYPICAL" ONLY ONCE, WHEN THEY FIRST OCCUR, AND ARE REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.
8. COLUMN CENTER LINES (ALSO REFERRED TO AS GRID LINES) ARE SHOWN FOR DIMENSIONING PURPOSES. (RE: BASE BUILDING DRAWINGS EXACT LOCATION).
9. DO NOT SCALE DRAWINGS. DIMENSION LINES GOVERN. LARGE SCALE DETAILS GOVERN OVER SMALL SCALE DETAILS.
10. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE EXISTING BUILDING CONDITIONS. (SEE NOTE NO. 9 FOR ALTERNATIVES.)
11. CONTRACTOR SHALL PATCH ANY EXISTING WALLS AND/OR CEILINGS AS NEEDED TO REFURBISH THE SPACE AND REPAIR ALL DAMAGES.
12. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A CLEAN AND ORDERLY CONDITION. FREE OF DEBRIS AND LITTER. EACH SUBCONTRACTOR IMMEDIATELY UPON COMPLETION OF EACH PHASE OF WORK AND SHALL REMOVE ALL TRASH AND DEBRIS CREATED AS A RESULT OF THEIR OPERATION.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR THE GENERAL CLEANING UP OF A JOB AFTER ITS COMPLETION. CLEANING SHALL INCLUDE INTERIOR OF THE BUILDING AND PATH OF TRAVEL TO THE JOB SITE AND SHALL INCLUDE THE DRIVEWAY, STAIRS AND PROPERTY GROUNDS.
14. **ALL DRAINAGE IS EXISTING AND TO REMAIN U.O.N.**
15. PROVIDE CHEMICAL TOILET FOR PROJECT DURATION.
16. PROVIDE PLASTIC OVER FLOORING.
17. PROJECT TO BE SWEPT DAILY.
18. SUBCONTRACTORS NAME & REFERENCES TO BE PROVIDED W/ BID
19. SUBCONTRACTORS TO REMOVE & DISPOSE OF ALL DEBRIS.
20. PROVIDE HOUSE STREET # VISIBLE & LEGIBLE FROM STREET
21. THE DISCHARGE OF POLLUTANTS TO ANY STORM DRAINAGE SYSTEM IS PROHIBITED. NO SOLID WSTE, PETROLEUM BYPRODUCTS, SOIL PARTICULATE CONSTRUCTION WASTE MATERIALS, OR WASTEWATER GENERATED ON CONSTRUCTION SITES OR BY CONSTRUCTION ACTIVITIES SHALL BE PLACED CONVEYED, OR DISCHARGED INTO THE STREET, GUTTER, OR STORM DRAIN SYSTEM.
22. ALL SETBACKS MEASURED FROM PROPERTY LINE TO FACE OF BUILDING FINISH ONLY STEM WALL FOOTING ALLOWED INTO SETBACK SEE STRUCTURAL DETAIL.
23. ISSUANCE OF BUILDING PERMIT BY THE CITY OF COSTA MESA DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS, AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.

CODES

2022 CALIFORNIA RESIDENTIAL CODE (CRC)
2022 CALIFORNIA BUILDING CODE (CBC)
2022 CALIFORNIA PLUMBING CODE (CPC)
2022 CALIFORNIA MECHANICAL CODE (CMC)
2022 CALIFORNIA ELECTRICAL CODE (CEC)
2022 BUILDING ENERGY EFFICIENCY STANDARDS (BEES)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL GREEN)

SHEET INDEX

A-0.0	COVER SHEET/SITE PLAN
A-0.1	CAL GREEN MANDATORY MEASURES
A-0.2	CAL GREEN MANDATORY MEASURES
A-0.3	EXISTING FLOOR PLAN
A-0.4	DEMOLITION PLAN (UNDER SEPERATE PERMIT BBDM-23-0029)
A-0.5	DOOR AND WINDOW SCHEDULE
A-1.0	CONSTRUCTION PLAN
A-2.0	ELECTRICAL PLAN
A-3.0	ROOF PLAN
A-4.0	EXTERIOR ELEVATIONS
A-5.0	BUILDING SECTIONS
A-5.1	BUILDING SECTIONS
A-6.0	TYPICAL DETAILS
T-24 SHEET 1	CR-1R MF-1R TITLE 24 MANDATORY REQ. MAIN HOUSE
T-24 SHEET 2	CR-1R MF-1R TITLE 24 MANDATORY REQ. MAIN HOUSE
T-24 SHEET 3	CR-1R MF-1R TITLE 24 MANDATORY REQ. MAIN HOUSE
T-24 SHEET 1	CR-1R MF-1R TITLE 24 MANDATORY REQ. POOL HOUSE
T-24 SHEET 2	CR-1R MF-1R TITLE 24 MANDATORY REQ. POOL HOUSE
T-24 SHEET 3	CR-1R MF-1R TITLE 24 MANDATORY REQ. POOL HOUSE
SN1	STRUCTURAL NOTES
SN2	STRUCTURAL STEEL NOTES
S-1	FOUNDATION PLAN
S-2	FRAMING PLAN
S-3	ROOF FRAMING PLAN
S-4	RAFTER INTERMEDIATE SUPPORT PLAN
SD1	STRUCTURAL DETAILS
SD2	STRUCTURAL DETAILS
SD3	STRUCTURAL DETAILS
WSWH1	STRONG WALL ANCHORAGE DETAILS
WSWH7	STRONG WALL FRAMING DETAILS
TM	TOPOGRAPHIC MAP
C1	PRECISE GRADING PLAN "TITLE SHEET"
C2	PRECISE GRADING PLAN "PRECISE GRADING PLAN"
C3	PRECISE GRADING PLAN "DRAINAGE PLAN"
C4	PRECISE GRADING PLAN "EROSION CONTROL PLAN"
C5	PRECISE GRADING PLAN "WATER QUALITY MANAGEMENT PLAN"
C6	PRECISE GRADING PLAN "SECTIONS AND DETAILS"
C7	GEOTECHNICAL NOTES
C8	GEOTECHNICAL NOTES CONT.

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

OHA CONSTRUCTION
31234 W. NINE DR.
LAGUNA NIGUEL, CA 92677
PH: 951-990-4834
EMAIL: Oz.almendarez@gmail.com
Oscar Almendarez

CLIENT:
LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:
COVER SHEET/ SITE PLAN

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-0.0

Scale As indicated

2/25/2025 9:10:55 AM

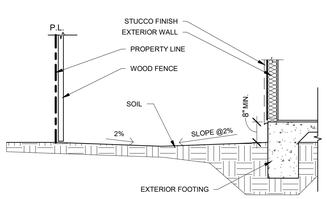
3.0 PUBLIC RIGHTS-OF WAY AND PARKWAYS-GENERAL CRITERIA

The conservation of parkway trees, in the public rights-of-way, is a joint effort between the City and the adjacent property owner/tenant. Property owners/tenants are requested to properly irrigate their parkway, including trees, and report any damaged or suspected diseased trees to the Public Services Department. The public Services Department is responsible for the tree planting, insect and disease control, periodic tree pruning, and removal, if warranted.

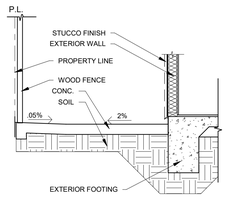
In residential areas, a parkway suitable for landscaping typically exists between the street curb and sidewalk. This area is normally part of the public rights-of-way, and requires a permit from the City to install any improvements other than ground cover, turf, or low shrubs. In order to soften the appearance of the public rights-of-way, which consists mostly of pavement and concrete, the City requires that this area be landscaped and continuously maintained and irrigated by the adjacent homeowner.

The preferred landscape materials for the parkway area include turf, ground cover, and shrubbery with a maximum mature height of 18 inches. Notwithstanding the foregoing, landscape shrubberies may exceed 18" in height within the medians and parkways where there is no line or sight vehicle safety issue. If contacted by the adjacent property owner, the City will plant a tree in the parkway at no cost to the property owner. As noted in the previous paragraph, parkway trees are to be properly irrigated by the property owner.

Unacceptable materials in the parkway areas include asphalt, concrete (other than a four foot wide walkway from the curb to the sidewalk), brick, pavers, raised planters, fencing, structures (other than mailboxes), hazardous plant materials (such as cactus, roses, and other thorn-bearing or highly poisonous plants), and threes other than as designated in these Standards.



2 SITE SECTION A TYP.
1/2" = 1'-0"



3 SITE SECTION B TYP.
1/2" = 1'-0"

PUBLIC SERVICES GENERAL NOTES

1. PUBLIC SERVICES INSPECTION IS REQUIRED PRIOR TO ISSUANCE OF BUILDING FINAL. AT THE TIME OF INSPECTION, IF ANY OF EXISTING PUBLIC IMPROVEMENTS SURROUNDING THE SITE IS DAMAGED, NEW CURB & GUTTER AND STREET PAVEMENT WILL BE REQUIRED.

2. AN APPROVED ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY FROM PUBLIC WORKS.

SITE PLAN KEY NOTES

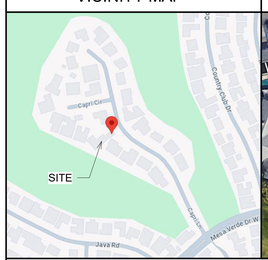
1. LOCATION OF NEW ELECTRICAL PANEL
2. LOCATION OF NEW TANKLESS WATER HEATER
3. LOCATION OF NEW A/C UNITS
4. NEW 6' WROUGHT IRON CAR GATE TO ROLL AGAINST GARAGE FACE
5. NEW 6' ENTRY GATE WITH 12" PILASTERS
6. NEW 6' WROUGHT IRON PRIVACY GATE
7. EXISTING 5' CMU BLOCK WALL
8. EXISTING 5' CMU BLOCK WALL WITH WROUGHT IRON FENCING
9. EXISTING 5' WROUGHT IRON GATE SELF-LOCKING & SELF-LATCHING
10. EXISTING 5' WOOD GATE SELF-LOCKING & SELF-LATCHING
11. EXISTING 5' WOOD GATE

2022 BUILDING ENERGY EFFICIENCY STANDARDS

a. Certificates of installation (CF2R-ENV, CF2R-LTG and CF2R-MECH) shall be completed by the applicable contractors installing energy features. When compliance requires HERS field verification and/or testing, all CF2R forms shall be submitted electronically to an approved HERS provider data registry. The CF2R forms shall be posted at the job site in conspicuous location.

b. Certificate of verification (CF3R) shall be completed, registered, and signed/ certified by the HERS rater. The registered CF3R form shall be made available to the Building department and builder.

VICINITY MAP



AERIAL MAP



ABBREVIATIONS

F.S.	FINISH SLAB	P.L.	PROPERTY LINE	F.L.	FLOW LINE
F.F.	FINISH FLOOR	PA	PLANTER	T.D.	TOP OF DECK
G.F.F.	GARGE FINISH FLOOR	SIM.	SIMILAR	N.G.	NATURAL GRADE
T.W.	TOP OF WALL	TYP.	TYPICAL	FLR.	FLOOR
T.G.W	TOP OF GLASS WALL	U.O.N.	UNLESS OTHERWISE NOTED	EVT	ELECTRICAL VAULT
E.G.	EXISTING GRADE	CONC.	CONCRETE	FIN.	FINISH
T.S.	TOP OF STEP	T.R.	TOP OF ROOF	WM	WATER METER
(N)	NEW	EXT.	EXTERIOR	( )	ELEVATION
(E)	EXISTING	INT.	INTERIOR	REQ.	REQUIRED
C.L.	CENTER LINE	ELEV.	ELEVATION	MIN.	MINIMUM
T.P.	TOP PLATE			MAX.	MAXIMUM

DEFERRED SUBMITTAL

1. **FIRE SPRINKLERS**
   OBTAIN FIRE SPRINKLER PERMIT PRIOR TO CALLING FOR ROOF SHEATHING INSPECTION.
2. **POOL AND SPA**
3. **DEMOLITION PLAN UNDER SEPARATE PERMIT (BBDM-23-0029)**

"DEFERRED SUBMITTALS TO BE REVIEWED BY PROJECT ARCHITECT OR ENGINEER OF RECORD AND CERTIFIED PRIOR TO SUBMITTAL FOR PLAN CHECK OR APPROVAL BY THE CITY."

CONTACT INFO

OWNER:
Law Residence
Cheryl and Mark Law
3039 Capri Lane
Costa Mesa, Ca 92626
714-403-9588
cllgrits@gmail.com

SURVEY, WQP, & CIVIL ENGINEERING:
Civilscapes Engineering Inc.
Will Rolph
28052 Camino Capistrano, STE 213
Laguna Niguel ,CA 92677
PH. 949-464-8115
EMAIL: Will@civilscapes.com
LICENSE: C 76698

STRUCTURAL CALCULATIONS:
Jose Ventocilla, PE
24636 Cresta Court
Laguna Hills ,Ca 92653
PH. 949-910-0942
EMAIL: felichoventocilla@gmail.com
LICENSE: C47942 EXP. 12-31-25

PLANS PREPARED BY:
OHA Construction
31234 W. Nine Dr.
Laguna Niguel ,CA 92677
PH: 951-990-4834
CONTACT: Oz Almendarez
EMAIL: Oz.almendarez@gmail.com
LICENSE: B980490

CONTRACTOR:
T.B.D.

SOILS ENGINEER:
SA Geotechnical, INC.
1000 N. Coast Hwy Suite 10
Laguna Beach, Ca 92651
PH. 949-371-3690
EMAIL: panderson@SAgeotechnical.com
Anthony Zepeda (Project Geologist)
LICENSE: CEG 2681
Reza Saberi (Principal Engineer)
LICENSE: GE 3071

TITLE 24 ENERGY CALCS:
Perfect Design & Development, Inc.
Design & Consulting
2416 W. VALLEY BLVD.
ALHAMBRA, CA 91803
EMAIL: PERFECTAAA@AOL.COM
PH. 626-289-8808
LICENSE: M-27635

PROJECT SCOPE

-NEW LIVING SPACE ADDITION AT EXISTING HOUSE 799 SQ.FT.
-NEW COVERED PATIO'S AT REAR OF HOUSE 669 SQ.FT.
-NEW POOL HOUSE LIVING SPACE DETACHED 618 SQ.FT.
-NEW COVERED ENTRY GATE 89 SQ.FT.
-REMODEL OF EXISTING HOUSE 3,584 SQ.FT.
-NEW CLASS "A" COMPOSITION SHINGLE ROOF
-NEW DOORS AND WINDOWS THROUGH OUT
-2 NEW FAU AND AC CONDENSER UNITS
-1 NEW TANKLESS WATER HEATER

LOT INFO/ CALCULATIONS

LEGAL DESCRIPTION

APN: 139-461-05 LOT 05
ZONING DISTRICT: R1
TYPE OF CONSTRUCTION: TYPE - VB,
PROVIDED PARKING SPACES: 3
OF STORIES: 1

FIRE SPRINKLERS: NO

LOT AREA COVERAGE

LOT AREA:	17,461 sq.ft.
LOT COVERAGE	4,383+836+89+669+618+1,519=8,114 / 17,461 sq.ft.= 0.465= 47%
OPEN SPACE (MINIMUM 40%)	53% PROVIDED> 40% MIN. REQ.
POOL HOUSE MAX HEIGHT 15'-0"	

SQUARE FOOTAGE CALCULATIONS

	EXISTING	NEW	TOTAL
LIVING SPACE :	3,584 SQ.FT.	799 SQ.FT.	**4,383 SQ.FT.**
GARAGE:	836 SQ.FT.	0 SQ.FT.	**836 SQ.FT.**
COVERED ENTRY GATE:	0 SQ.FT.	89 SQ.FT.	**89 SQ.FT.**
COVERED PATIOS:	0 SQ.FT.	669 SQ.FT.	**669 SQ.FT**
NEW POOL HOUSE:	0 SQ.FT.	618 SQ.FT.	**618 SQ.FT.**
AREA OF REMODEL	**3,584 SQ.FT.**		
DRIVEWAY	**1,519 SQ.FT.**		

FRONT YARD SETBACK: 20' LEFT/RIGHT SETBACK: 5' REAR SETBACK: 10'

CM-02-27-2025

AIA California

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

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

Y	N/A	RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

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

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

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

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

Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final 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:
1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
2. [HCD] For purposes of *CALGreen*, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.

DIVISION 4.1 PLANNING AND DESIGN

ABBREVIATION DEFINITIONS:

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

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

SECTION 4.102 DEFINITIONS

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

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

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

4.106 SITE DEVELOPMENT

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

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

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

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

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

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

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

Exception: Additions and alterations not altering the drainage path.

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

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

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

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

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

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

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

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

The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.

Exceptions:

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

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

Notes:

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

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

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

Exception: Areas of parking facilities served by parking lifts.

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

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

The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.

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

Notes:

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

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

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

Exception: Areas of parking facilities served by parking lifts.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.106.4.2.4 Identification.
The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.

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

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

Notes:

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

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

DIVISION 4.2 ENERGY EFFICIENCY

4.201 GENERAL

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

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

4.303 INDOOR WATER USE

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

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

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

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

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

4.303.1.3 Showerheads.

4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

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

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

4.303.1.4 Faucets.

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

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

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

4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

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

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

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

TABLE H-2

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

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

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

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

4.303.3 Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

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

4.304 OUTDOOR WATER USE

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

NOTES:

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

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

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

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

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

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

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

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

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

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

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

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

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

Notes:

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

4.410 BUILDING MAINTENANCE AND OPERATION

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

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

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

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

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL

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

SECTION 4.502 DEFINITIONS

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

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

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite 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-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.

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

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

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

OHA CONSTRUCTION
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LAGUNA NIGUEL, CA 92677
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EMAIL: Oz.almendarez@gmail.com

Oscar Almendarez

CLIENT:

LAW RESIDENCE
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SHEET NAME:

CAL GREEN MANDATORY MEASURES

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-0.1

Scale

2/25/2025 9:10:59 AM

CM-02-27-2025

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: 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 ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

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

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

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

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

4.503 FIREPLACES
4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

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

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

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

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

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

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

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]

(Less Water and Less Exempt Compounds in Grams per Liter)

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

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.
2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

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[2,3]

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

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

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS
2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.
3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

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

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

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350)

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

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

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350)

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

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

4.504.3.2 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.

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

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

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

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

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

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

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

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

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

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

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

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

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

Notes:

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

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

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

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

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS
702 QUALIFICATIONS
702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

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

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

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

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

[BSC] 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.

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:
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CLIENT:
LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:
CAL GREEN MANDATORY MEASURES

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-0.2

Scale

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

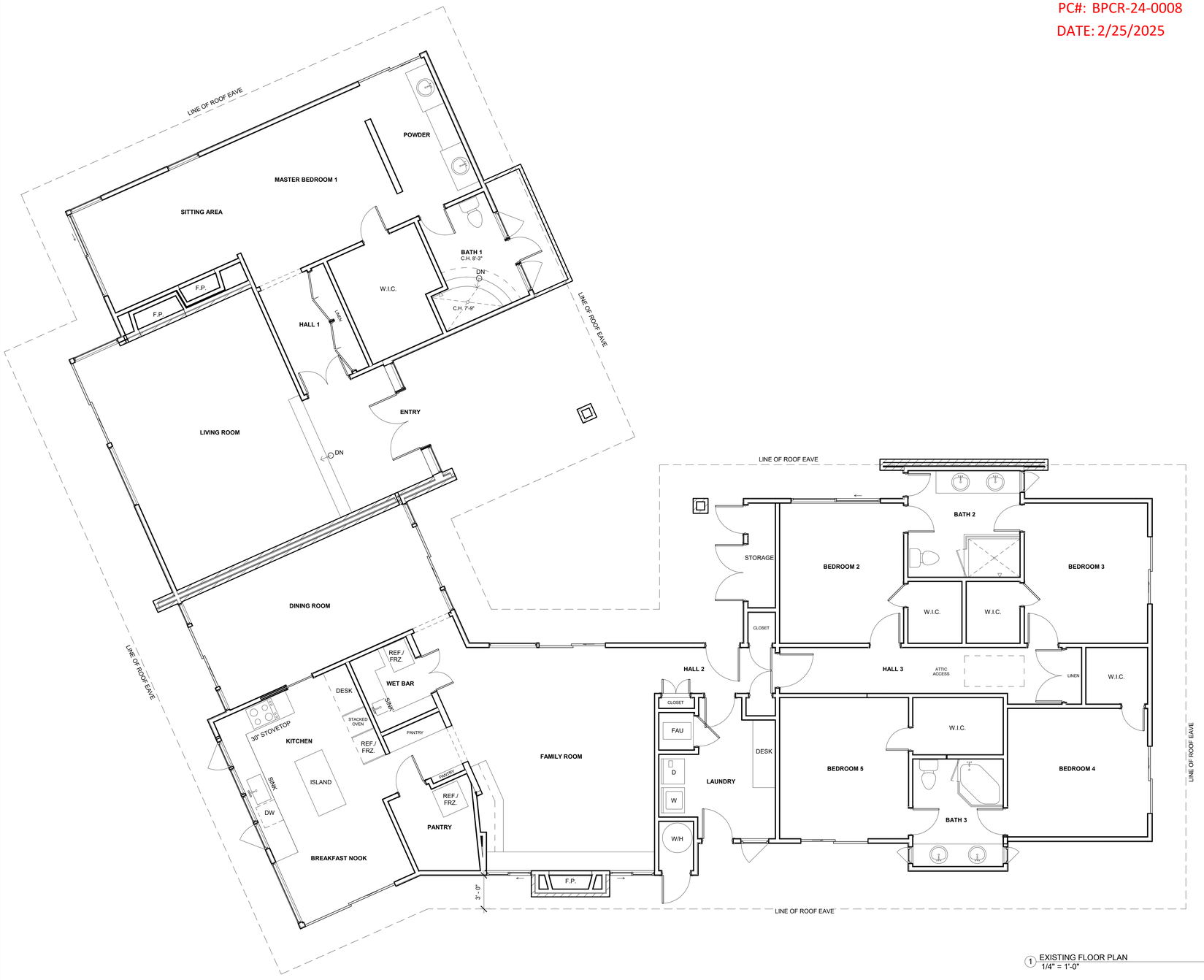
CM-02-27-2025

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025



1 EXISTING FLOOR PLAN
1/4" = 1'-0"

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

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SHEET NAME:
EXISTING FLOOR PLAN

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-0.3

Scale 1/4" = 1'-0"

EXISTING 2X4 STUD WALL

PLAN LEGEND

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CM-02-27-2025

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

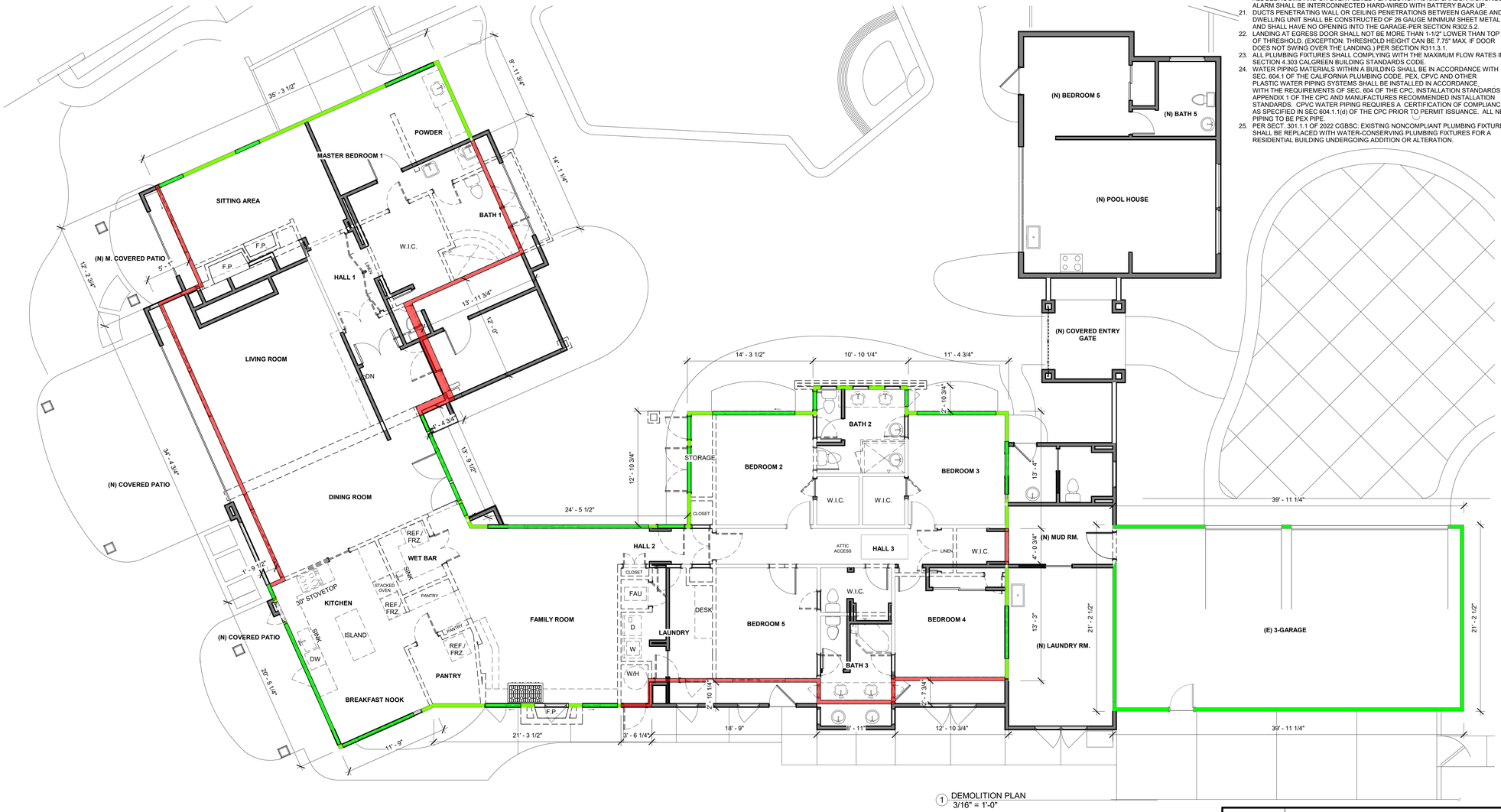
EXTERIOR WALL CALCULATIONS

Exterior Walls to Remain			Exterior Walls Demo		
Feet	Inches		Feet	Inches	
35	3		14	1	
10	0		14	0	
13	9		12	0	
24	5		4	5	
12	11		4	0	
14	3		12	11	
2	11		2	8	
10	10		8	11	
2	11		2	8	
11	5		8	11	
13	4		2	8	
13	3		18	9	
21	3		2	10	
11	9		3	6	
20	5		1	9	
39	11		34	5	
21	2		5	1	
39	11		12	3	
21	2		157	106	
331	118			8.83	
	9.83				
Total to Remain	340.83	LF	Total Demo	165.83	LF

Total Walls	506.67	Linear Feet
% of Wall to Remain		
	0.6727	
	%67 > %25	

TYPICAL CONSTRUCTION NOTES:

1. ALL EXISTING TO REMAIN UNLESS OTHERWISE NOTED
2. CONTRACTOR TO VERIFY ALL DIMENSIONS. DIMENSIONS TAKEN FROM FRAMING EXTERIOR TO CENTERLINE OF WALLS.
3. MINIMUM 1" AIRSPACE REQUIRED BETWEEN INSULATION AND ROOF SHEATHING. PROVIDE R-30 ROOF INSULATION IN ATTIC SPACE.
4. ROOF TO BE CLASS "A" MATERIAL, COMPOSITION SHINGLE ROOF SEE SHEET A-3.0
5. EXTERIOR WOODEN DOORS SHALL BE OF SOLID CORE CONSTRUCTION OR SHALL BE COVERED ON THE INSIDE FACE WITH 16- GAUGE SHEET METAL ATTACHED WITH SCREWS AT 6" ON CENTERS AROUND THE PERIMETER.
6. ALL SWINGING DOORS SHALL BE EQUIPPED WITH A DEAD BOLT WITH A MINIMUM THROW OF 1 INCH AND AN EMBEDMENT OF NOT LESS THAN 5/8" INCH.
7. ANY GLASS THAT IS LOCATED WITHIN 40 INCHES OF THE LOCKING DEVICE ON A DOOR SHALL BE FULLY TEMPERED.
8. ALL EXTERIOR WALLS MODIFIED TO HAVE R-15 BATT INSULATION
9. ALL ROOF RAFTERS(VAULTED) CEILING JOIST (NOT VAULTED TO HAVE R-30 BATT INSULATION. FLOOR JOIST R-19 BATTS
10. ENGINEERED WOOD FLOORING THROUGHOUT. TILE FLOORING IN BATHROOM
11. AT BEDROOMS AND BASEMENT, PROVIDE ONE OPERABLE ESCAPE WINDOW OR DOOR MEETING ALL OF THE FOLLOWING: AN OPERABLE AREA OF NOT LESS THAN 5.7 SQ.FT. (5 SQ.FT AT GRADE LEVEL), A MINIMUM CLEAR 24 INCH HEIGHT AND 20 INCH WIDTH, AND A SILL HEIGHT NOT OVER 44 INCHES ABOVE THE FLOOR. (CRC 310.1)
12. A DOOR MAY SWING OVER LANDING THAT IS NOT MORE THAN .5 INCH BELOW THRESHOLD AND .75 INCH FOR SLIDING DOORS. CBC1008.1.7
13. "PER SECTION 301.1.1 CAL GREEN AND CIVIL CODE 1101.3(c), ALL NON-COMPLIANT PLUMBING FIXTURES WITHIN THIS RESIDENCE SHALL BE REPLACED WITH WATER-CONSERVING PLUMBING FIXTURES." BUILDINGS FINAL ON OR AFTER 01/01/94 ARE EXCEPT FROM THIS REQUIREMENT.
14. REPLACE EXISTING SMOKE ALARMS AFTER 10 YEARS FROM DATE OF MANUFACTURE MARKED ON THE UNIT, OR IF DATE OF MANUFACTURE CANNOT BE DETERMINED-PER SECTION R314.3.2
15. ALL INTERIOR WALLS TO BE 5/8" DRYWALL
16. ALL CEILING DRYWALL TO BE 5/8" DRYWALL
17. LANDINGS OF FLOORS AT THE REQUIRED EGRESS DOOR SHALL NOT BE MORE THAN 1-1/2 INCHES LOWER THAN THE TOP OF THE THRESHOLD. THE EXTERIOR LANDING OR FLOOR SHALL NOT BE MORE THAN 7-3/4 INCHES BELOW THE TOP OF THE THRESHOLD PROVIDED THE DOOR DOES NOT SWING OVER THE LOWER LANDING OR FLOOR. R311.3.1
18. ONE HOUR WALL ASSEMBLIES SHALL EXTEND FROM THE FOUNDATION TO THE UNDERSIDE OF ROOF. R302.3
19. SMOKE ALARMS SHALL BE INSTALLED INSIDE ALL BEDROOMS, ON THE CEILING OR WALL OUTSIDE OF EACH BEDROOM AND IN EVERY STORY-PER SECTION R314.3. SMOKE DETECTORS TO BE INTERCONNECTED HARD-WIRED "SMOKE ALARM" WITH BATTERY BACKUP (R314&R314.6) AND INSTALLED PER NFPA 72.
20. CARBON MONOXIDE ALARMS SHALL BE INSTALLED IMMEDIATELY OUTSIDE OF ALL BEDROOMS AND ON EVERY LEVEL-PER SECTION R315.3. CARBON MONOXIDE ALARM SHALL BE INTERCONNECTED HARD-WIRED WITH BATTERY BACK UP.
21. DUCTS PENETRATING WALL OR CEILING PENETRATIONS BETWEEN GARAGE AND DWELLING UNIT SHALL BE CONSTRUCTED OF 26 GAUGE MINIMUM SHEET METAL AND SHALL HAVE NO OPENING INTO THE GARAGE-PER SECTION R302.5.2.
22. LANDING AT EGRESS DOOR SHALL NOT BE MORE THAN 1-1/2" LOWER THAN TOP OF THRESHOLD. (EXCEPTION: THRESHOLD HEIGHT CAN BE 7.75" MAX. IF DOOR DOES NOT SWING OVER THE LANDING.) PER SECTION R311.3.1.
23. ALL PLUMBING FIXTURES SHALL COMPLYING WITH THE MAXIMUM FLOW RATES IN SECTION 4.303 CALGREEN BUILDING STANDARDS CODE.
24. WATER PIPING MATERIALS WITHIN A BUILDING SHALL BE IN ACCORDANCE WITH SEC. 604.1 OF THE CALIFORNIA PLUMBING CODE. PEX, CPVC AND OTHER PLASTIC WATER PIPING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. 604 OF THE CPC. INSTALLATION STANDARDS OF APPENDIX 1 OF THE CPC AND MANUFACTURES RECOMMENDED INSTALLATION STANDARDS. CPVC WATER PIPING REQUIRES A CERTIFICATION OF COMPLIANCE AS SPECIFIED IN SEC 604.1.1(d) OF THE CPC PRIOR TO PERMIT ISSUANCE. ALL NEW PIPING TO BE PEX PIPE.
25. PER SECT. 301.1.1 OF 2022 CGBSC: EXISTING NONCOMPLIANT PLUMBING FIXTURES SHALL BE REPLACED WITH WATER-CONSERVING PLUMBING FIXTURES FOR A RESIDENTIAL BUILDING UNDERGOING ADDITION OR ALTERATION.



1 DEMOLITION PLAN
3/16" = 1'-0"

	EXISTING EXTERIOR 2X4 STUD WALL TO REMAIN
	EXISTING EXTERIOR 2X4 STUD WALL TO BE DEMO
	EXISTING 2X4 STUD WALL
	DEMOLITION
	PLAN LEGEND

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

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SHEET NAME:
DEMOLITION PLAN

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

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Scale: As indicated

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CM-02-27-2025

Top Vent - Vertical Termination

No Elbow

V_t = 50 ft. Max. (15.2 m)
V_t = 2 ft. Min. (610 mm)

Note: Flue restrictor is permitted ONLY on 30 ft. minimum vertical runs with no elbows.

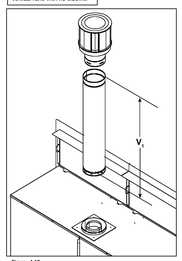


Figure 4.12

Exhaust Restrictor Instructions

Exhaust restrictors are recommended for these vertically terminated products which have excessive draft. Exhaust restrictors will compensate for high draft, and restore visual flame height. If the vent configuration has a total vertical of 31-50 feet, an exhaust restrictor may be needed. The exhaust restrictor can be located in the appliance manual bag.

1. Remove the top piece of refractory, if already installed.
2. Break the exhaust restrictor into two pieces. Do this by bending the part back and forth until it breaks. See Figure 4.14.
3. Orientate and align the two pieces of the exhaust restrictor as shown in Figure 4.14.

NOTE: Exhaust Restrictor ships in manual bag assembly

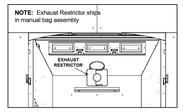


Figure 4.13 Exhaust Restrictor Installation

4. Match the amount of vertical you have in the system with the chart to find the appropriate position to set the exhaust restrictor. See Table 4.1.
5. Center the two exhaust restrictor pieces on the vent at the setting selected in step 3 and secure in place by using two self-tapping screws. See Figure 4.13.
6. Reinstall the top refractory.

Vertical Pipe	MARQ36IN-B	MARQ42IN-B
Up to 30 ft.	No Restrictor	No Restrictor
31-50 ft.	2-2	2-2

Table 4.1.

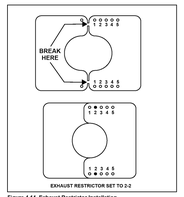


Figure 4.14 Exhaust Restrictor Installation

4 Termination Location and Vent Information

A. Approved Pipe

WARNING! Risk of Fire, Delayed Ignition or Asphyxiation. *This appliance requires a separate vent.* ***DO NOT*** *vent to a pipe serving any other appliance.*

This appliance is only approved for use with Hearth & Home Technologies DVP or SLP venting systems. Refer to Section 12.A for vent component information and dimensions. Only use listed decorative termination caps/shrouds with Hearth & Home Technologies approved venting systems.

DO NOT mix pipe, fittings or joining methods from different manufacturers.

The pipe is tested to be run inside an enclosed wall. There is no requirement for inspection openings at each joint within the wall.

B. Vent Termination Minimum Clearances

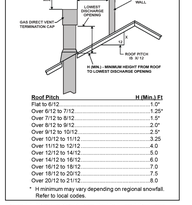
⚠ WARNING

Fire Risk.

Maintain vent clearance to combustibles as specified.

- **DO NOT** pack air space with insulation or other materials.

Failure to keep insulation or other materials away from vent pipe could cause overheating and fire.

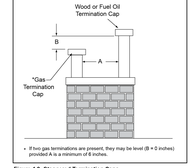


Roof Pitch	H (Min.) Ft
Flat to 6/12	1.0*
Over 6/12 to 7/12	1.25*
Over 7/12 to 8/12	1.5*
Over 8/12 to 9/12	2.0*
Over 9/12 to 10/12	2.5*
Over 10/12 to 11/12	3.25
Over 11/12 to 12/12	4.0
Over 12/12 to 14/12	5.0
Over 14/12 to 16/12	6.0
Over 16/12 to 18/12	7.0
Over 18/12 to 20/12	7.5
Over 20/12 to 21/12	8.0

* H minimum may vary depending on regional snowfall. Refer to local codes.

Figure 4.1 Minimum Height From Roof to Lowest Discharge Opening

A	B
6 in. (minimum) up to 20 in. 152 mm/508 mm	18 in. minimum 457 mm
20 in. and over	0 in. minimum



* If two gas terminations are present, they may be level (B = 0 inches) provided A is a minimum of 6 inches.

Figure 4.2 Staggered Termination Caps

CAUTION! Risk of Burns! *Termination caps are HOT, consider proximity to doors, traffic areas or where people may pass or gather (sidewalk, deck, patio, etc.). Listed cap shields available. Contact your dealer.*

- Local codes or regulations may require different clearances.
- Hearth & Home Technologies assumes no responsibility for the improper performance of the appliance when the venting system does not meet these requirements.
- Vinyl protection kits are suggested for use with vinyl siding.
- Measure horizontal and vertical termination cap clearances as noted in Figure 4.3.

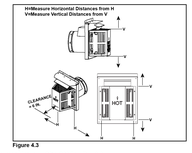


Figure 4.3

E. Floor Protection

Vinyl Flooring

Vinyl flooring is sensitive to heat. To avoid damage to the vinyl flooring, a 12 inch minimum x 12 inch minimum hearth is recommended when using vinyl flooring up to the wall. See Figure 3.11. If no hearth is used, it is recommended to provide a minimum of 36 inches of clearance in front of the appliance to the vinyl flooring OR the bottom of the appliance should be raised a minimum of 24 inches off of the floor to allow the vinyl flooring to be installed up to the wall.

➔ ***NOTICE:*** *Clearances that do not meet the minimum guidelines could result in damage or buckling to the vinyl flooring and is done at the installer's or homeowner's risk.*

Hearth and Home Technologies does not recommend adhesive based vinyl flooring products due to thermal expansion during operation. Floating style flooring can be used, but it will reach temperatures up to 110 °F (based on ambient temperature of 70 °F). Consult the manufacturer's flooring specifications to ensure compatibility.

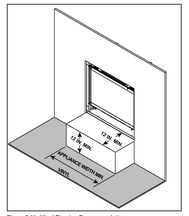


Figure 3.11 Vinyl Flooring Recommendations

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

DOOR SCHEDULE

DOOR REF	DOOR SIZE WxH	TYPE	MANUFACTURE	MODEL	MATERIAL	FINISH	TEMPERED	EGRESS	SHGC	U-FACTOR	QTY.
A	6'-0" x 8'-3" 1'-6" x 8'-0"	DBL DOOR W/SIDELIGHT	T.B.D.	SOLID	WHITE OAK	T.B.D.	N/A	NO	N/A	N/A	1
B	16'-0"x 8'-3"	OXXO SLIDING DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	1
C	9'-0" x 8'-3"	SLIDER	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	NO	NO	N/A	N/A	2
D	2'-6" x 8'-3"	SINGLE DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	2
E	3'-0" x 8'-3"	SINGLE DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	YES	.23	.30	2
F	12'-6" x 8'-3"	OXXO SLIDING DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	1
G	19'-6"x 8'-3"	OXXO SLIDING DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	1
H	8'-0" x 8'-3"	SLIDER	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	T.B.D.	NO	NO	N/A	N/A	1
I	9'-0" x 8'-3"	SINGLE DOOR	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	1
J	12'-0" x 8'-3"	3 PANEL SLIDER XXO	WESTERN	CLASSIC LINE	CLAD EXT. AND INT.	BLACK	YES	NO	.23	.30	1

FENESTRATIONS MUST HAVE TEMPORARY AND PERMANENT LABELS

WINDOW SCHEDULE

WINDOW REF	WINDOW SIZE WxH	TYPE	MANUFACTURE	MODEL	MATERIAL	FINISH	TEMPERED	EGRESS	SHGC	U-FACTOR	QTY.
1	1'-10" x 1'-10"	AWNING	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	5
2	3'-0" x 1'-10"	CASEMENT	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	1
3	6'-0" x 5'-0"	CASEMENT	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	2
4	2'-6" x 5'-4"	CASEMENT RIGHT	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	2
5	2'-6" x 5'-4"	CASEMENT LEFT	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	2
6	8'-0" x 5'-3"	FIXED	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	1
7	9'-0" x 9'-0"	FIXED ARC	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	1
8	4'-0" x 8'-3"	FIXED	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	NO	NO	.23	.30	1
9	5'-0" x 5'-6"	CASEMENT	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	2
10	4'-0" x 2'-0"	FIXED	Jeld-Wen	SITELINE	CLAD EXT. WOOD INT.	BLACK	YES	NO	.23	.30	1

FENESTRATIONS MUST HAVE TEMPORARY AND PERMANENT LABELS

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

OHA CONSTRUCTION
31234 W. NINE DR.
LAGUNA NIGUEL, CA 92677
PH: 951-900-4834
EMAIL: Oz.almendarez@gmail.com
Oscar Almendarez

CLIENT:

LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:

CITY NOTES W/ DOOR AND WNDOW SCHEDULE

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-0.5

Scale As indicated

2/25/2025 9:11:09 AM

D. Hearth Extension

WARNING! Risk of Fire! *Non-combustible hearth extension may be required when appliance is installed on combustible surface.*

- Hearth extension must be non-combustible and serves to protect combustible floors in front of appliance. See Figure 3.8 and Figure 3.9.
- The base of the fireplace may sit on a combustible surface. See Figure 3.9. The area in front of the appliance must be protected by a non-combustible hearth extension, unless the appliance is raised a minimum of three inches above the combustible floor or hearth. See Figure 3.9 and Figure 3.10.
- If a hearth greater than one inch in thickness is desired, the appliance must be raised by the equivalent height to ensure that the hearth extension does not interfere with the installation of the glass assembly required for fireplace operation. See Figure 3.9.

MODEL	A		B	
	in.	mm	in.	mm
MARQ36IN-B	12	305	57-1/4	1454
MARQ42IN-B	12	305	63-5/16	1608

Figure 3.8 Non-Combustible Hearth Extension Dimensions

NOTICE: ***DO NOT*** *install a hearth that is greater than one inch thick. Hearth will interfere with installation of glass assembly. Total hearth height must not exceed one inch from bottom of appliance when appliance is installed directly on floor (including mortar, backer material, etc.).*

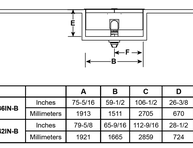


Figure 3.9 Appliance Installed on Combustible Surface Non-Combustible Hearth Extension REQUIRED.

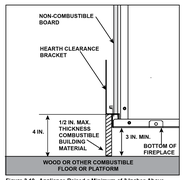
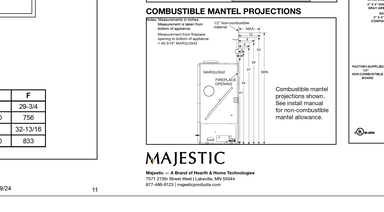


Figure 3.10 Appliance Raised a Minimum of 3 Inches Above Combustible Surface. Non-Combustible Hearth Extension NOT REQUIRED.

2 X 6 OR GREATER NOT ALLOWED IN SHADED AREA



NOTE: 2 X 4 Header positioned vertically. See also Figure 3.5.

		* MINIMUM FRAMING DIMENSIONS USING 2 X 6 CONSTRUCTION					
		A Rough Opening (Vent Pipe)	B Rough Opening (Height)	B' **Rough Opening Height	C Rough Opening (Depth)	D Rough Opening (Width)	E Clearance to Ceiling
MARQ36IN-B	Inches	10	56	80-3/8	24	59-1/2	52
	Millimeters	254	1422	2042	610	1511	1321
MARQ42IN-B	Inches	10	61	85-3/8	24	65-9/16	52
	Millimeters	254	1549	2169	610	1665	1321

		* MINIMUM FRAMING DIMENSIONS USING 2 X 6 CONSTRUCTION				
		F Combustible Floor	G*** Combustible Flooring	H Behind Appliance	I Sides of Appliance	J Front of Appliance
MARQ36IN-B	Inches	0	See Section 3.D.	1	1	36
	Millimeters	0		25	25	914
MARQ42IN-B	Inches	0		1	1	36
	Millimeters	0		25	25	914

* Adjust framing dimensions for interior sheathing (such as sheetrock).
** 2 x 4 material must be framed down from 2 x 6 rough opening height B' to rough opening height B.
*** For installations with vinyl flooring, see Section 3.E.

Figure 3.7 Clearances to Combustibles (2 x 6 Construction)

C. Constructing the Appliance Chase

A chase is a vertical box-like structure built to enclose the gas appliance and/or its vent system. In cooler climates the vent should be enclosed inside the chase.

NOTICE: *Treatment of ceiling firestops and wall shield firestops and construction of the chase may vary with the type of building. These instructions are not substitutes for the requirements of local building codes. Therefore, you MUST check local building codes to determine the requirements to these steps.*

NOTICE: *When installing a sprinkler head in a fireplace chase, it is recommended to use a sprinkler head with a sprinkler activation temperature classified as Extra High. Keep sprinkler head away from vent and chimney.*

Chases should be constructed in the manner of all outside walls of the home to prevent cold air drafting problems. The chase should not break the outside building envelope in any manner.

Walls, ceiling, base plate and cantilever floor of the chase should be insulated. Vapor and air infiltration barriers should be installed in the chase as per regional codes for the rest of the home. Additionally, in regions where cold air infiltration may be an issue, the inside surfaces may be sheetrocked and taped for maximum air tightness.

NOTE: 2 X 4 Header positioned vertically. See also Figure 3.5.

		* MINIMUM FRAMING DIMENSIONS USING 2 X 4 CONSTRUCTION									
		A Rough Opening (Vent Pipe)	B Rough Opening (Height)	C Rough Opening (Depth)	D Rough Opening (Width)	E Clearance to Ceiling	F Combustible Floor	G** Combustible Flooring	H Behind Appliance	I Sides of Appliance	J Front of Appliance
MARQ36IN-B	Inches	10	56	24	59-1/2	52	0	See Section 3.D.	1	1	36
	Millimeters	254	1422	610	1511	1321	0		25	25	914
MARQ42IN-B	Inches	10	61	24	65-9/16	52	0		1	1	36
	Millimeters	254	1549	610	1665	1321	0		25	25	914

* Adjust framing dimensions for interior sheathing (such as sheetrock)
** For installations with vinyl flooring, see Section 3.E.

Figure 3.6 Clearances to Combustibles (2 X 4 Construction)

To further prevent drafts, the wall shield and ceiling firestops should be caulked with caulk with a minimum of 300 °F continuous exposure rating to seal gaps. Gas line holes and other openings should be caulked with caulk with a minimum of 300 °F continuous exposure rating or stuffed with unfaced insulation. If the appliance is being installed on a cement surface, a layer of plywood may be placed underneath to prevent conducting cold up into the room.

NOTICE: *Install appliance on hard metal or wood surfaces extending full width and depth.* ***DO NOT*** *install directly on carpeting, vinyl, tile or any combustible material other than wood.*

WARNING! Risk of Fire! *Maintain specified air space clearances to appliance and vent pipe:*

- Insulation and other materials must be secured to prevent accidental contact.
- The chase must be properly blocked to prevent blown insulation or other combustibles from entering and making contact with fireplace or chimney.
- Failure to maintain airspace may cause overheating and a fire.

NOTE: 2 X 4 Header positioned vertically. See also Figure 3.5.

		* MINIMUM FRAMING DIMENSIONS USING 2 X 4 CONSTRUCTION									
		A Rough Opening (Vent Pipe)	B Rough Opening (Height)	C Rough Opening (Depth)	D Rough Opening (Width)	E Clearance to Ceiling	F Combustible Floor	G** Combustible Flooring	H Behind Appliance	I Sides of Appliance	J Front of Appliance
MARQ36IN-B	Inches	10	56	24	59-1/2	52	0	See Section 3.D.	1	1	36
	Millimeters	254	1422	610	1511	1321	0		25	25	914
MARQ42IN-B	Inches	10	61	24	65-9/16	52	0		1	1	36
	Millimeters	254	1549	610	1665	1321	0		25	25	914

* Adjust framing dimensions for interior sheathing (such as sheetrock)
** For installations with vinyl flooring, see Section 3.E.

Figure 3.6 Clearances to Combustibles (2 X 4 Construction)

Non-Combustible Zone

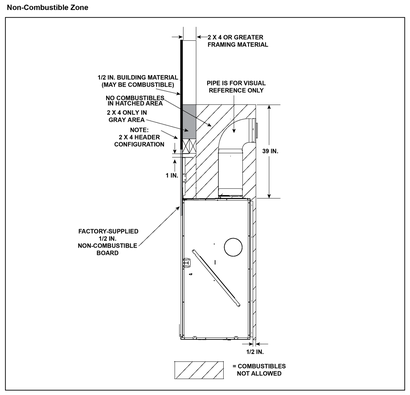


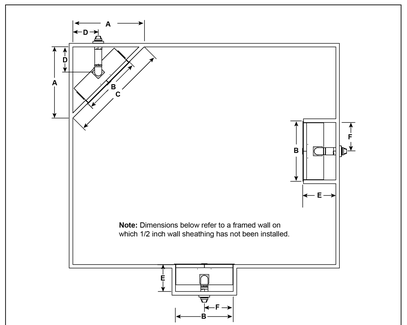
Figure 3.5 Non-Combustible Zone

B. Clearances to Combustibles

When selecting a location for the appliance it is important to consider the required clearances to walls and allow sufficient clearance for heat management systems venting. See Figure 3.3 and Figure 3.4.

WARNING! Risk of Fire or Burns! *Provide adequate clearance around air openings and for service access. Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.*

NOTICE: *Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY. Illustrations/diagrams are not drawn to scale. Actual installation may vary due to individual design preference.*

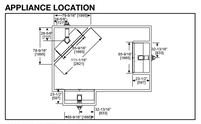


		A	B	C	D	E	F
MARQ36IN-B	Inches	75-5/16	59-1/2	106-1/2	26-3/8	24	29-3/4
	Millimeters	1913	1511	2705	670	610	756
MARQ42IN-B	Inches	79-5/8	65-9/16	112-9/16	26-1/2	24	32-13/16
	Millimeters	1921	1665	2859	724	610	833

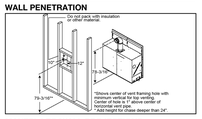
Figure 3.4 Appliance Locations

Specifications MARQ42

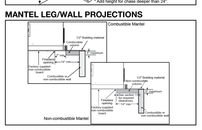
APPLIANCE LOCATION



WALL PENETRATION

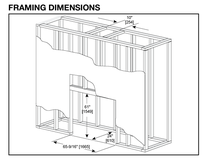


MANTEL LEG/WALL PROJECTIONS

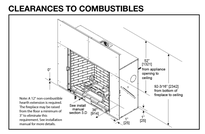


COMBUSTIBLE MANTEL PROJECTIONS

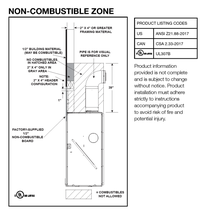
FRAMING DIMENSIONS



CLEARANCES TO COMBUSTIBLES



NON-COMBUSTIBLE ZONE



PRODUCT LISTING CODES	
US	RMI Z21.88-2017
CAN	CSA 2.33-2017
cULus Mark	4126778

Product information provided is not complete and is subject to change without notice. Product installation must adhere strictly to instructions accompanying product to avoid risk of fire and potential injury.

MAJESTIC

Majestic – A Brand of Hearth & Home Technologies
7571 215th Street West | Lakeville, MN 55044
877-486-8123 | majesticproducts.com

MAJMARQUIS_IBR_MARQUIS_2119

Specifications MARQ42

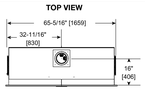
MAJESTIC

Please consult the manufacturer's installation manual for all details and requirements before making a final design layout decision.

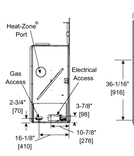
MARQUIS II 42
Direct Vent Gas Fireplace

MODEL	HEIGHT		FRONT WIDTH		BACK WIDTH		DEPTH		GLASS SIZE
MARQ42	ACTUAL	FRAMING	ACTUAL	FRAMING	ACTUAL	FRAMING	ACTUAL	FRAMING	
54,500 BTU (NG) 47,500 BTU (LP)	62-5/8" [1591]	61" [1549]	67" [1702]	65-9/16" [1665]	65-5/16" [1659]	65-9/16" [1665]	24" [610]	24" [610]	41-7/8" x 36-1/16" [1064 X 916]

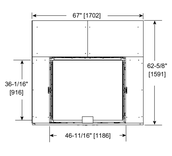
TOP VIEW



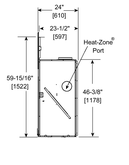
LEFT SIDE



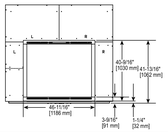
FRONT VIEW



RIGHT SIDE



DECORATIVE FRONT



	EXISTING 2X4 STUD WALL
2x6	NEW WALL - 2 x 6 STUDS @ 16" O.C.
	NEW WALL - 2 x 4 STUDS @ 16" O.C.
	DEMO WALLS
	WINDOW - REFERENCE SCHEDULE
	DOOR - REFERENCE SCHEDULE
	CABINET - BUILT IN CASEWORK
	COLUMN -REF. STRUCTURAL DWGS.
# / A-##	DETAIL # SHEET # BUILDING SECTION
# / A-##	DETAIL # SHEET # EXTERIOR ELEVATION
	FURNITURE - FOR PRESENTATION PURPOSES ONLY
	FIREPLACE - PREFAB GAS-ONLY APPLIANCE
	PLUMBING FIXTURE - SINK (AS SELECTED)
	PLUMBING FIXTURE - TOILET (AS SELECTED)
	LIGHTING FIXTURE - REFERENCE ELECTRICAL PLANS
101	DOOR TAG - REFERENCE SHEET A-0.5
1|	WINDOW TAG - REFERENCE SHEET A-0.5
?	KEYNOTE TAG - REFERENCE KEYNOTE LEGEND THIS SHT.
S.D.	SMOKE DETECTOR SEE SHEET A-2.0
C.M.	CARBON MONOXIDE SENSOR SEE SHEET A-2.0

PLAN LEGEND

CM-02-27-2025

CONSTRUCTION KEY NOTES:

1. NEW GRANITE OR EQUIV. COUNTERTOP
2. NEW UPPER AND LOWER CABINETS
3. NEW TALL CABINETS
4. NEW DEEP ISLAND CABINETS WITH COUNTERTOP OVERHANG
5. NEW KITCHEN SINK WITH FAUCET & TRASH DISPOSAL
6. NEW GAS RANGE WITH CEILING HOOD ABOVE. PER CMC 504.4.1 AND ASHRAE 62.2
   a. Minimum rate 180 cfm.
   b. Maximum sound rating of 3 sones@ 100 cfm; and
   c. Venting directly to the outside with a backdraft damper.
7. NEW 24" DISHWASHER
8. NEW TRASH PULLOUT
9. NEW REFRIGERATOR/FREEZER
10. NEW DOUBLE OVEN.
11. NEW PANTRY CABINET
12. NEW VANITY SINK WITH PEDESTAL SINK
13. NEW TOILET MIN 30" WIDTH CLEARANCE AND 24" CLEAR AHEAD PER CRC
14. NEW WALL COVERING SHALL BE CEMENT PLASTER, TILE OR APPROVED EQUAL TO 72 INCHES ABOVE DRAIN AT SHOWERS OR TUB WITH SHOWERS. MATERIALS OTHER THAN STRUCTURAL ELEMENTS ARE TO BE MOISTURE RESISTANT. (CRC R307.2)
15. NEW SHOWER/BATH VALVE & TRIM.
16. NEW FRAMELESS GLASS SHOWER DOOR
17. NEW SHOWER THRESHOLD
18. NEW CLOSET BUILT-IN
19. NEW 30"X60" ATTIC ACCESS WITH DROP DOWN STAIRS. ATTIC ACCESS DOORS SHALL HAVE PERMANENTLY ATTACHED INSULATION AND SHALL BE GASKETED TO PREVENT AIR LEAKAGE-PER SECTION 150.0(a)2.
20. NEW FAU UNIT IN ATTIC PER TITLE 24. COMPLY WITH DETAIL #15/A-6.0
21. UPDATE/RELOCATE ELECTRICAL PANEL WITH NEW 200 AMP ELECTRICAL PANE.
22. NEW TANKLESS WATER HEATER
    WATER HEATER LOCATION SHALL HAVE :BEES 150.0(n)1A-D
    a. A 120V electrical receptacle that is 3 feet from the water heater.
    b. A Category III or IV vent, or a type B vent with straight pipe.
    c. Condensate drain that is no more than 2 inches higher than the finish surface below.
    d. A gas supply line with available capacity for not less than a 200,000 BTU/hr system.
23. NEW CONCRETE LANDING MIN. 36" IN THE DIRECTION OF TRAVEL R311.3
24. LOCATION OF NEW SLIMLINE AC CONDENSER ON CONCRETE PADS EXTENDING 3" MIN. ABOVE GROUND (PER CMC) REPLACE UNIT PER TITLE 24 ENERGY CALCULATIONS. SOUND DB PLANS SEPARATE PERMIT
25. NEW DIRECT VENT GAS ONLY FIREPLACE (MARQ42IN-LB) MAJESTIC "MARQUIS II" SEE SHEET A-0.5 FOR DETAIL SPECS. INSTALL PER MANUFACTURER GUIDELINES.
26. NEW 20 MIN. FIRE RATED DOOR. SELF CLOSING & SELF LATCHING PER SECTION R302.5.1.
27. GARAGE SHALL BE SEPARATED FROM THE DWELLING UNIT AND ITS ATTIC AREA BY MEANS OF 5/8" THICK, TYPE X GYPSUM BOARD APPLIED TO GARAGE SIDE-PER TABLE R302.6.
28. EXTERIOR DOOR TO BE EQUIPPED WITH AN ALARM THAT PRODUCES AN AUDIBLE WARNING WHEN THE DOOR IS OPENED. POOL TO HAVE A POWER SAFETY COVER- PER SECTION AV100.2.
29. LOCATION OF SHOWER BENCH MIN. 2% SLOPE
30. LOCATION OF NEW LINEAR DRAIN 2% SLOPE MIN.

31. NEW 6' IRON GATE SELF CLOSING AND SELF LATCHING

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MEAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/5/2025

(N) ENTRY GATE T.B.D. MIN. 6' ABOVE FINISH FLOOR

(N) COVERED PATIO
(N) M. COVERED PATIO
(E) LIVING ROOM
F.F. 100.00'
(E) M. BEDROOM 1
CAL-KING
(E) M. BATH 1
(E) W.I.C.
F.F. 100.00'
(N) W.I.C.
(E) W.I.C.
F.F. 100.00'
(E) BEDROOM 2
F.F. 100.00'
(E) BATH 2
(E) BEDROOM 3
F.F. 100.00'
(N) BATH 4
(N) BEDROOM 5
(N) POOL HOUSE
(N) COVERED ENTRY GATE
(N) ENTRY
F.F. 100.00'
(E) HALL 2
F.F. 100.00'
(E) KITCHEN
(E) DINING RM.
(N) BUTLER'S PANTRY
(N) PWDR.
(E) BATH 3
(E) BEDROOM 4
F.F. 100.00'
(N) CLOSET
(N) MUD RM.
(N) LAUNDRY RM.
(E) 3-GARAGE
F.S. 99.50'
(E) ATTIC ACCESS
FAU 1 IN ATTIC
FAU 2 IN ATTIC
ADD 5/8" TYPE "X" GYPBOARD AT GARAGE SIDE, FLOOR TO ROOF.
TANKLESS W/H
BUFFET
OXXO SLIDING DOOR
LINE OF (E) ROOF EAVE
LINE OF (N) ROOF EAVE
LINE OF (N) ROOF EAVE OVER
VAULT
ARCH

1 CONSTRUCTION PLAN
1/4" = 1'-0"

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:
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Oscar Almendarez

CLIENT:
LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:
CONSTRUCION PLAN

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-1.0

Scale 1/4" = 1'-0"

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CM-02-27-2025

TYPICAL ELECTRICAL NOTES:

1. ALL EXTERIOR LIGHTS TO BE TITLE 24 COMPLIANT HIGH EFFICACY LUMINARIES.
2. ALL LIVING SPACE OUTLETS TO BE AFCI PROTECTED
3. ALL EXTERIOR OUTLETS WITH WATERPROOF COVER
4. HIGH EFFICACY LUMINARIES MUST BE PIN BASED
5. ALL BRANCH CIRCUITS THAT SUPPLY 125 VOLT, SINGLE PHASE, 15 AND 8 AMPRE OUTLETS INSTALLED IN DWELLING UNITS SHALL BE PROTECTED BY AN ARC-FAULT CIRCUIT INTERRUPTER(S). (CEC 210.12) NOTE THIS REQUIREMENT IS FOR ENTIRE CIRCUIT, NO JUST THE OUTLETS.
6. SMOKE ALARMS SHALL BE INSTALLED INSIDE ALL BEDROOMS, ON THE CEILING OR WALL OUTSIDE OF EACH BEDROOM AND IN EVERY STORY-PER SECTION R314.3
7. CARBON MONOXIDE ALARMS SHALL BE INSTALLED IMMEDIATELY OUTSIDE OF ALL BEDROOMS AND ON EVERY LEVEL-PER SECTION R315.3.
8. BATHROOMS SHALL HAVE AN EXHAUST FAN-PER SECTION R303.3. MINIMUM MECHANICAL VENTILATION RATES SHALL BE 50 CFM FOR INTERMITTENT VENTILATION AND 25 CFM FOR CONTINUOUS VENTILATION.
9. ALL RECEPTACLE OUTLETS SHALL BE LISTED TAMPER-RESISTANT RECEPTACLE PER CEC SECTION 406.11
10. BATHROOM RECEPTACLES SHALL BE SERVED BY A DEDICATED 20 AMP CIRCUIT- PER CEC SECT. 210.11 (c) 3
11. ALL LUMINARIES SHALL BE HIGH EFFICACY- PER SECTION 150.0(k)1A. TYPES OF HIGH EFFICACY LIGHTING-e.g. pin based, fluorescent or compact fluorescent, LED, metal halide lamps, hi pressure sodium lamps.
12. IN BATHROOMS AND LAUNDRY ROOM: AT LEAST ONE LUMINAIRE SHALL BE CONTROLLED BY VACANCY SENSORS-PER SECTION 150.0(k)2.1.
13. OUTDOOR LIGHTING ATTACHED TO THE BUILDING SHALL BE CONTROLLED BY A MANUAL ON AND OFF SWITCH AND BY A MOTION SENSOR WITH INTEGRAL PHOTO CONTROL-PER SECTION 150.0(k)
14. RECEPTACLE OUTLETS IN HABITABLE ROOMS SHALL BE SPACED AT 12' OC. MAXIMUM AND SHALL BE LOCATED WITHIN 6' OF WALL ENDS, DOOR OPENINGS, AND AT EVERY 2' OR WIDER WALL-PER CEC Sect. 210.52(A).
15. UNDER CABINET LED LIGHT STRIPS ON DIMMER SWITCH TYPICAL. SEE INTERIOR ELEVATIONS FOR LOCATIONS
16. SMOKE ALARMS & CARBON MONOXIDE ALARMS SHALL RECIEVE THEIR PRIMARY POWER FROM THE BUILDING WIRING, SHALL BE EQUIPPED WITH A BATTERY BACKUP AND INTERCONNECTED-PER SECTION R314.6 AND R315.5

ELECTRICAL LEGEND

	4" DIAMETER LED DOWNLIGHT RECESSED ACIC
	LED PENDANT LIGHT OR CEILING FIXTURE
	DUPLEX OUTLET
	DUPLEX DEDICATED OUTLET
	EXTERIOR WALL SCONCE LED
	EXHAUST FAN 50 CFM MIN.
	DATA OUTLET
S	WALL SWITCH
D	DIMMER SWITCH
V.S.	VACANCY SENSOR
G	GAS LINE CONNECTION APPLIANCE
H	HOSE BIB
C.M.	CARBON MONOXCIDE SENSOR
S.D.	SMOKE DETECTOR
P.S.	PHOTOCELL SENSOR
W.P.	WATER PROOF
G.F.C.I	GROUND FAULT CIRCUIT INTERUPTER
G.F./A.F.	GROUND FAULT CIRCUIT INTERUPTER ARC FAULT CIRCUIT INTERUPTER
	CURB MOUNT VELUX FIXED SKYLIGHT

WHOLE-BUILDING MECHANICAL VENTICALTION SYSTEM CALC.

FAN VENTILATION RATE METHOD (ASHRAE Section 4.1.1)

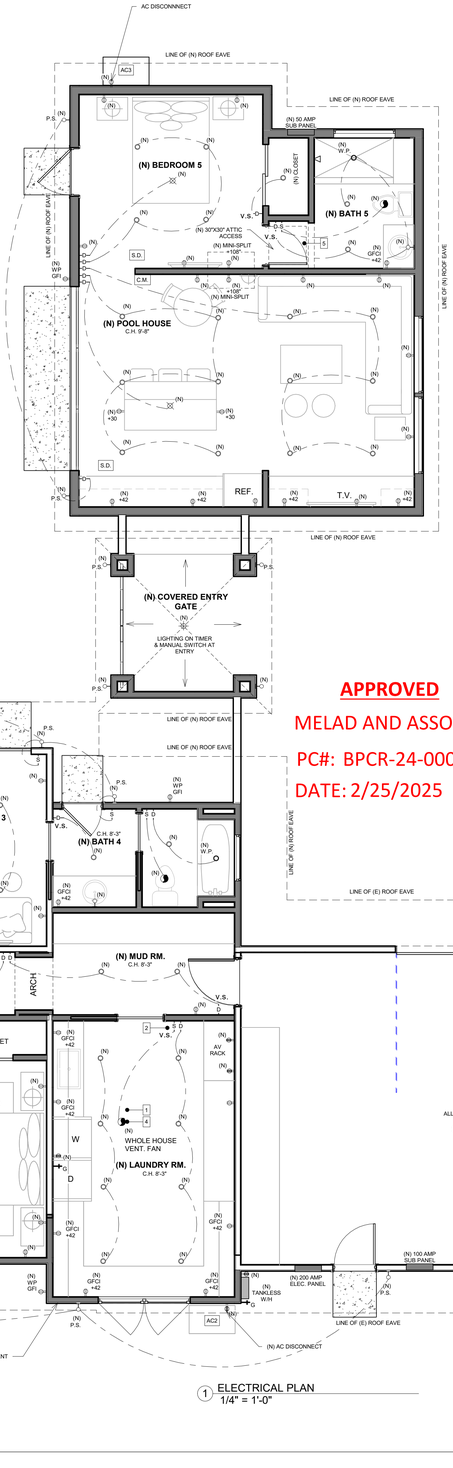
i. 1 cfm per 100 sf +7.5 cfm per occupant
Living space total square footage 4,383 sf
Total occupants (4) bedrooms

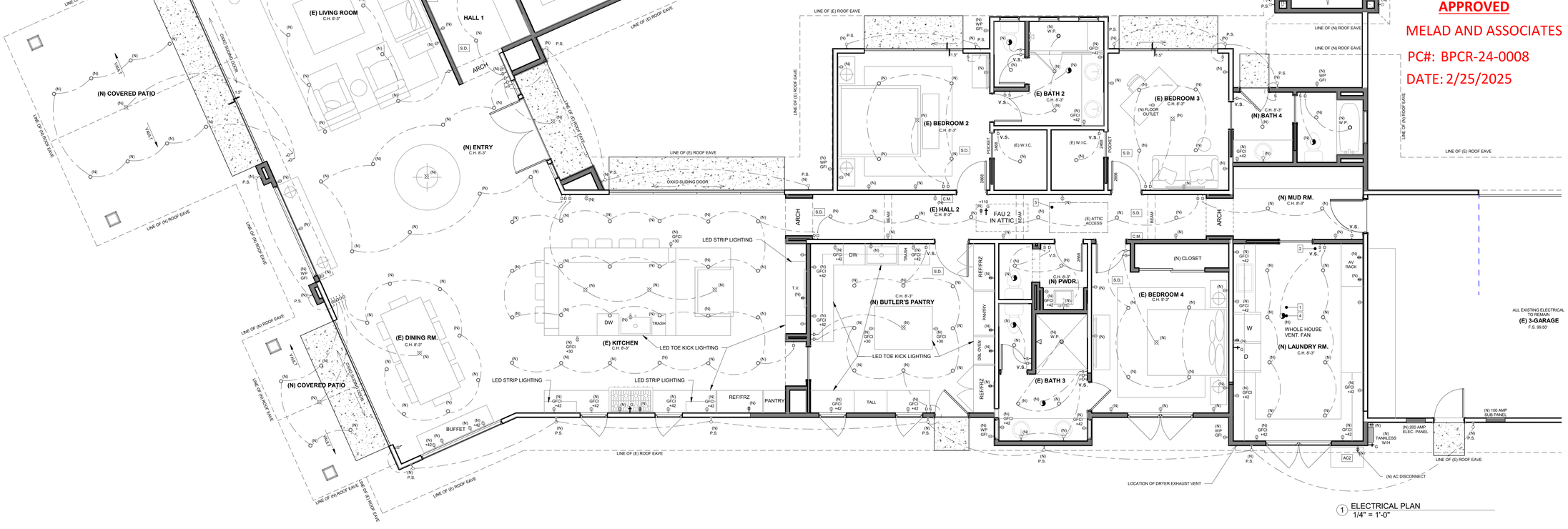
(4,383sf/100sf)+(7.5 *4)= 73.83 cfm

ELECTRICAL KEY NOTES:

1. LOCATION OF WHOLE-BUILDING VENTILATION SYSTEM PER CALCULATION. BROAN QTX SERIES QUITE CEILING EXHAUST FAN 150 CFM & 1.4 SONE RATING.
2. FAN SWITCH CONTROLS THE INDOOR AIR QUALITY VENTILATION FOR THE HOME. LEAVE SWITCH IN THE "ON" POSITION AT ALL TIMES UNLESS THE OUTDOOR AIR QUALITY IS VERY POOR" PER SECTION 150.0(o)J.
3. KITCHEN APPLIANCES SHALL BE SERVED BY TWO 20 AMP. CIRCUITS PER CEC SECTION 210.11(C)(1).
4. LOCATION OF EXHAUST FAN TO BE USED FOR WHOLE HOUSE VENTILATION PER CALCULATION BELOW.
5. ATTIC ACCESS DOORS SHALL HAVE PERMANETNLY ATTACHED INSULATION AND SHALL BE GASKETED TO PREVENT AIR LEAKAGE-PER SECTION 150.0(a)2







1 ELECTRICAL PLAN
1/4" = 1'-0"

APPROVED
MELAD AND ASSOCIATES
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SHEET NAME:
ELECTRICAL PLAN

Project number	2023-309
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A-2.0	
Scale	As indicated

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MAIN RESIDENDCE [VENT CALCULATIONS]

REQUIRED NFVA 4,582 sq.ft./ 300= 15.27 sq.ft.

CONVERT TO INCHES 15.27 sq.ft x 144= 2,199 sq.in.

HIGH AND LOW VENT 2,199 sq.in. x 50%= 1,096 sq.in.

O'Hagen roof vent 97.5 sq.in. NFVA
High Profile Model S
O'Hagine Vent Calculator Below

TOTAL # OF HIGH VENTS 1,096 sq.in/97.5sq.in= 11.2 = **12 VENT**
TOTAL # OF LOW VENTS 1,096 sq.in/97.5sq.in= 11.2 = **12 VENT**

PROVIDED 12 HIGH VENTS & 12 LOWER VENTS

POOL HOUSE [VENT CALCULATIONS]

REQUIRED NFVA 732 sq.ft./ 300= 2.44 sq.ft.

CONVERT TO INCHES 2.44 sq.ft x 144= 351 sq.in.

HIGH AND LOW VENT 351 sq.in. x 50%= 175 sq.in.

O'Hagen roof vent 97.5 sq.in. NFVA
High Profile Model S
O'Hagine Vent Calculator Below

TOTAL # OF HIGH VENTS 175 sq.in/97.5sq.in= 1.79 = **2 VENT**
TOTAL # OF LOW VENTS 175 sq.in/97.5sq.in= 1.79 = **2 VENT**

PROVIDED 2 HIGH VENTS & 2 LOWER VENTS

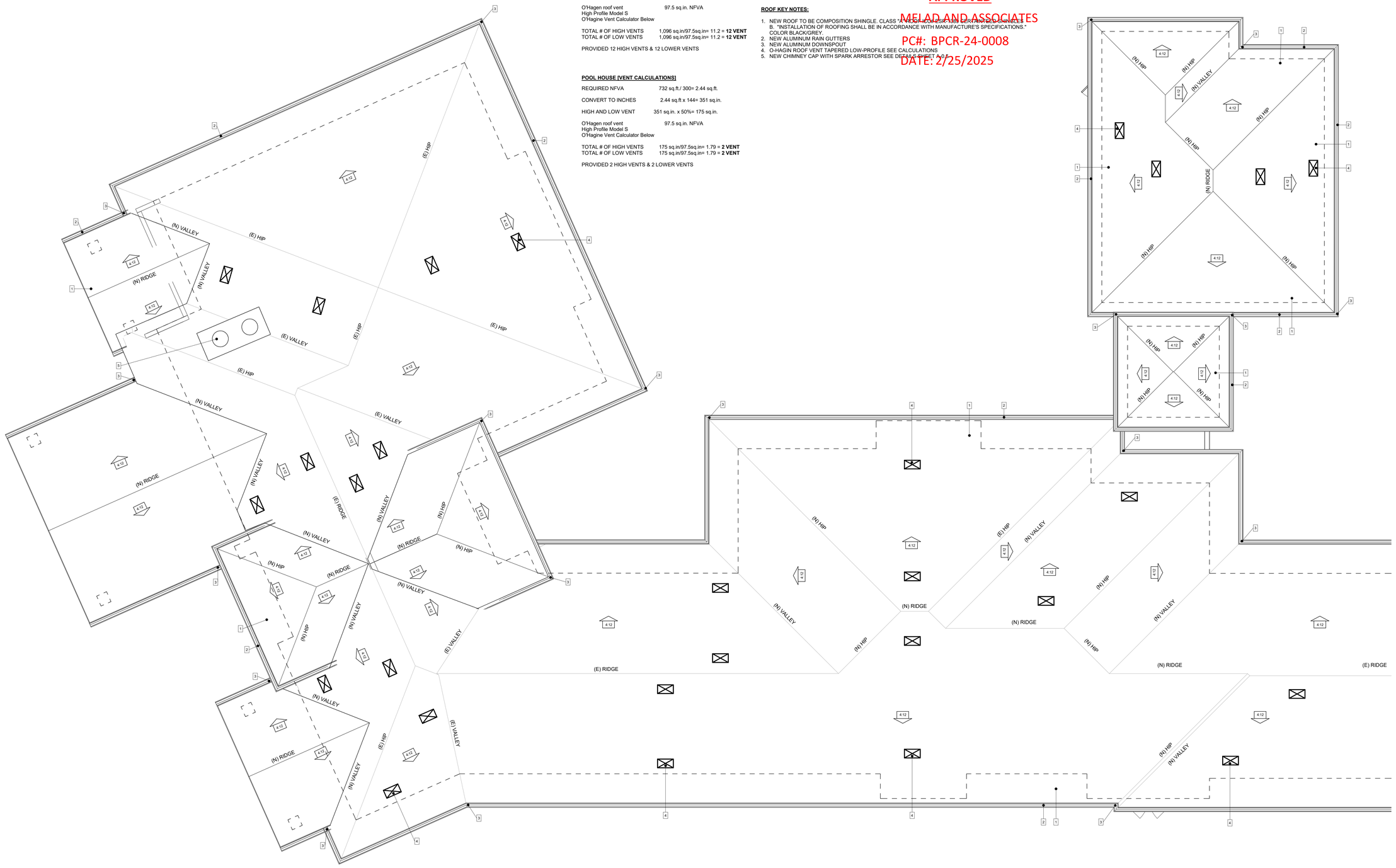
TYPICAL ROOF NOTES:

1. ALL ROOF SHEATHING PER STRUC.
2. NEW FLASHING FINISH TO MATCH RAIN GUTTERS TYPICAL
3. FOR ROOF SLOPES FROM 2:12 UP TO 4:12 FOR ASPHALT SHINGS: UNDERLAYMENT SHALL BE 2 LAYERS OF 15# FELT LAID WITH 19" OVERLAP- PER SECTION R905.2.7

ROOF KEY NOTES:

1. NEW ROOF TO BE COMPOSITION SHINGLE. CLASS "A" ROOF ASSEMBLY OR CERTAINTEED SHINGLES B. "INSTALLATION OF ROOFING SHALL BE IN ACCORDANCE WITH MANUFACTURE'S SPECIFICATIONS." COLOR BLACK/GREY.
2. NEW ALUMINUM RAIN GUTTERS
3. NEW ALUMINUM DOWNSPOUT
4. O-HAGIN ROOF VENT TAPERED LOW-PROFILE SEE CALCULATIONS
5. NEW CHIMNEY CAP WITH SPARK ARRESTOR SEE DETAILS SHEET A-0.5

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PC#: BPCR-24-0008
DATE: 2/25/2025



1 PROPOSED ROOF PLAN
1/4" = 1'-0"

	LINE OF ROOF
	LINE OF EXTERIOR WALL

ROOF PLAN LEGEND

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SHEET NAME:
ROOF PLAN

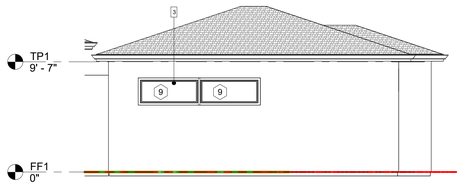
Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

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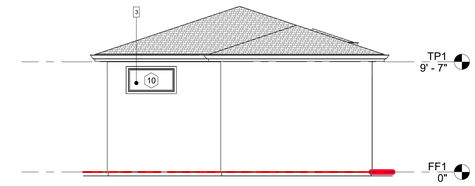
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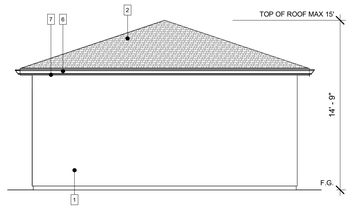
CM-02-27-2025



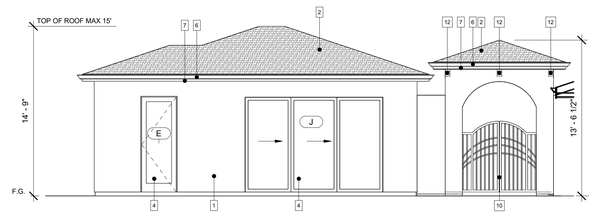
11 POOL HOUSE EXTERIOR ELEVATION D
3/16" = 1'-0"



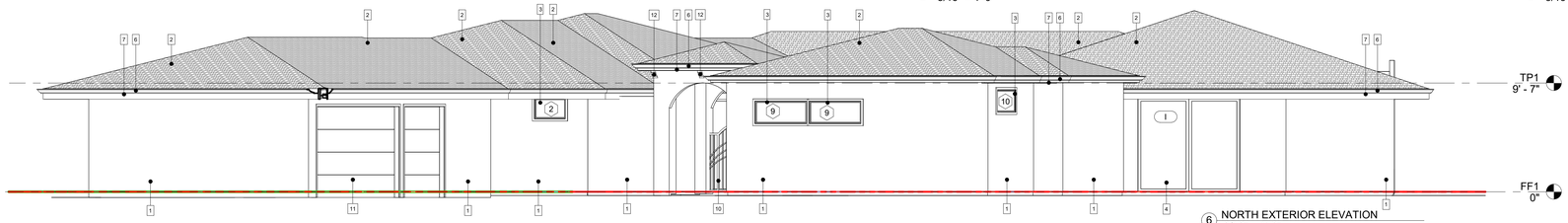
10 POOL HOUSE EXTERIOR ELEVATION C
3/16" = 1'-0"



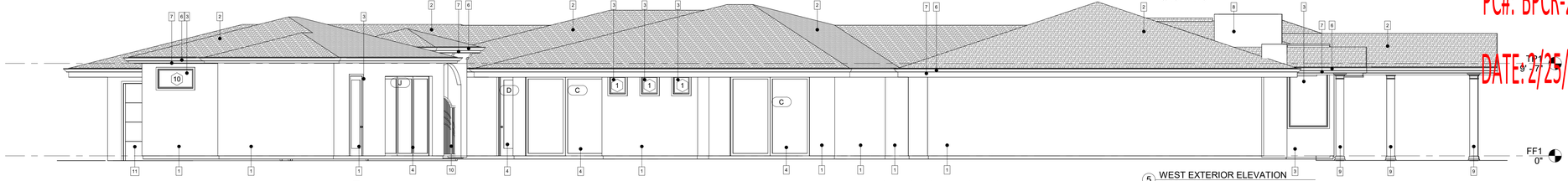
8 POOL HOUSE EXTERIOR ELEVATION a
3/16" = 1'-0"



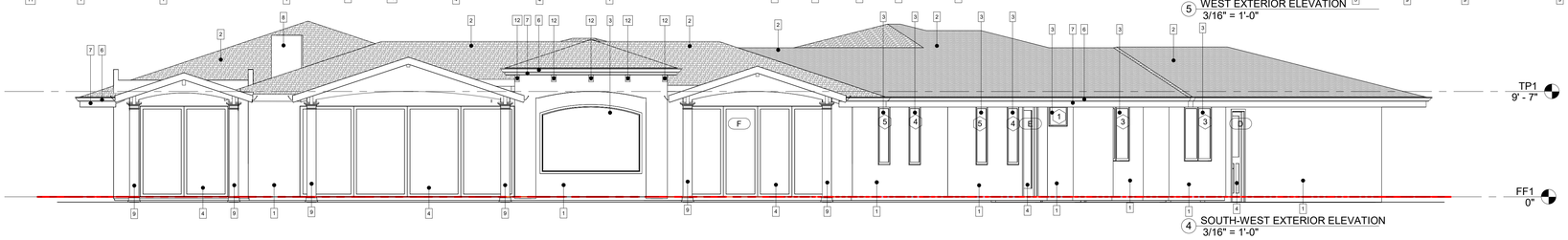
7 POOL HOUSE EXTERIOR ELEVATION
3/16" = 1'-0"



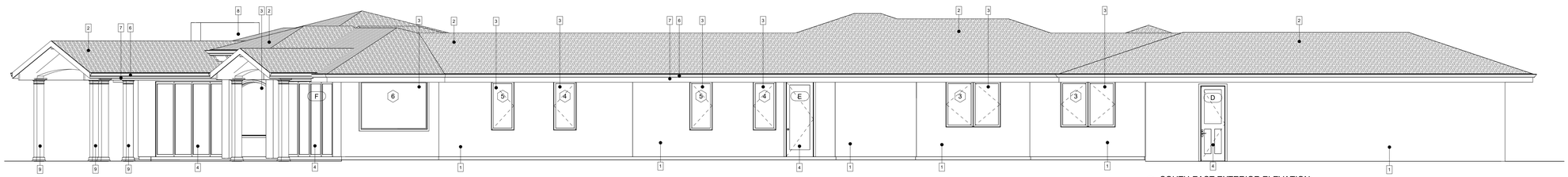
6 NORTH EXTERIOR ELEVATION
3/16" = 1'-0"



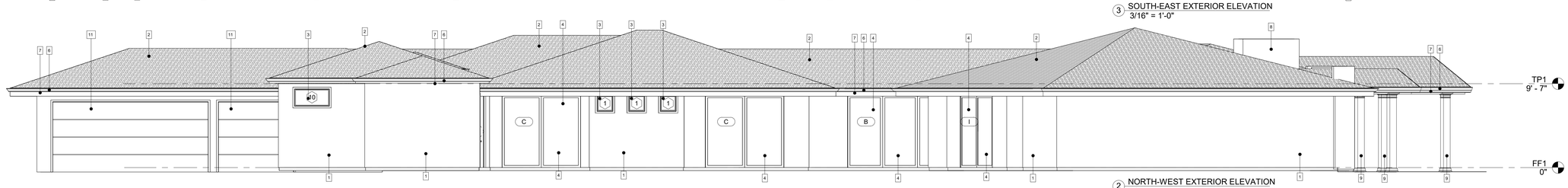
5 WEST EXTERIOR ELEVATION
3/16" = 1'-0"



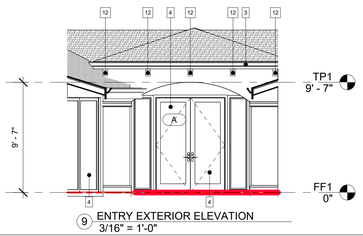
4 SOUTH-WEST EXTERIOR ELEVATION
3/16" = 1'-0"



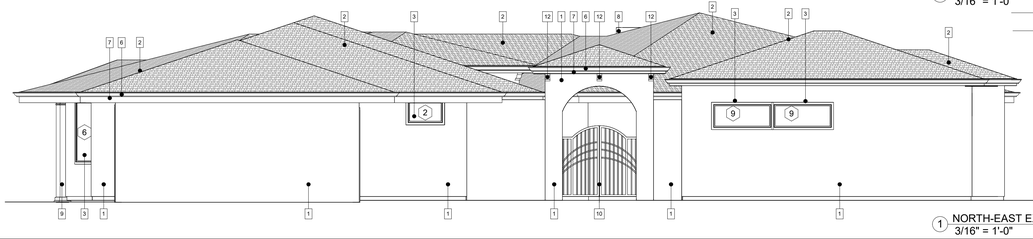
3 SOUTH-EAST EXTERIOR ELEVATION
3/16" = 1'-0"



2 NORTH-WEST EXTERIOR ELEVATION
3/16" = 1'-0"



9 ENTRY EXTERIOR ELEVATION
3/16" = 1'-0"



1 NORTH-EAST EXTERIOR ELEVATION
3/16" = 1'-0"

ELEVATION KEY NOTES:

1. NEW SMOOTH COAT STUCCO EXTERIOR FINISH
2. NEW CLASS "A" COMPOSITION SHINGLE ROOF
3. NEW WINDOW PER SCHEDULE SHEET A-0.5
4. NEW DOOR PER SCHEDULE SHEET A-0.5
6. NEW ALUMINUM RAIN GUTTERS
7. NEW FASCIA WITH RAIN GUTTER
8. NEW FIRE PLACE AND FLUE
9. NEW PRECAST CONCRETE COMULN
10. NEW WROUGHT IRON FENCE
11. EXISTING GARAGE DOOR
12. NEW DECORATIVE WOOD BEAM

REV.	DESCRIPTION/DATE
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PLANS PREPARED BY:

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APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

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CLIENT:

LAW RESIDENCE / RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:

EXTERIOR ELEVATIONS

Project number	2023-309
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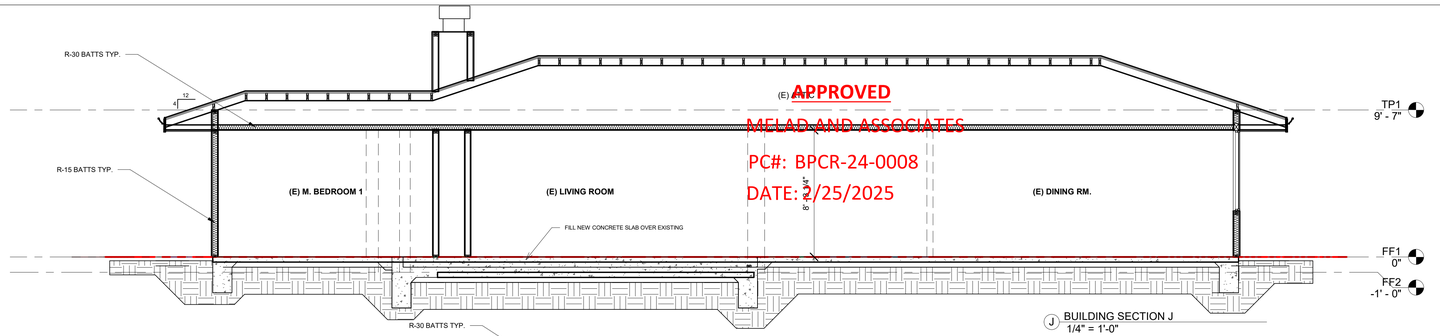
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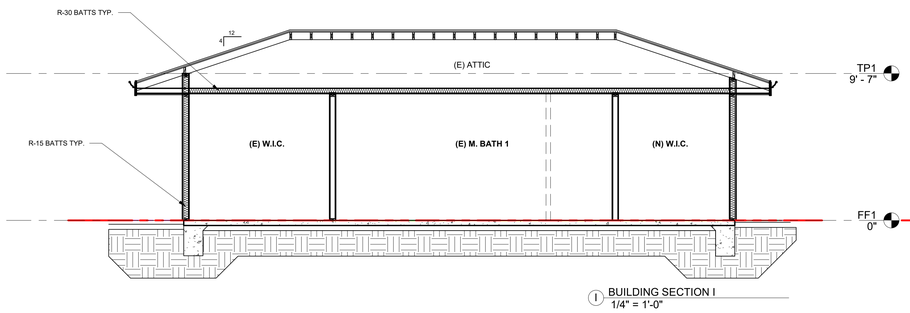
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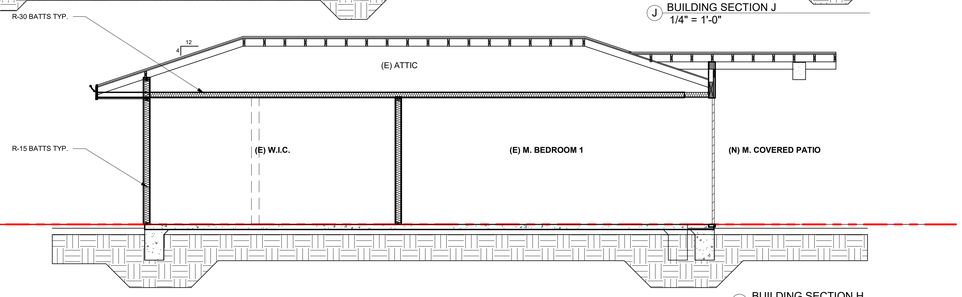
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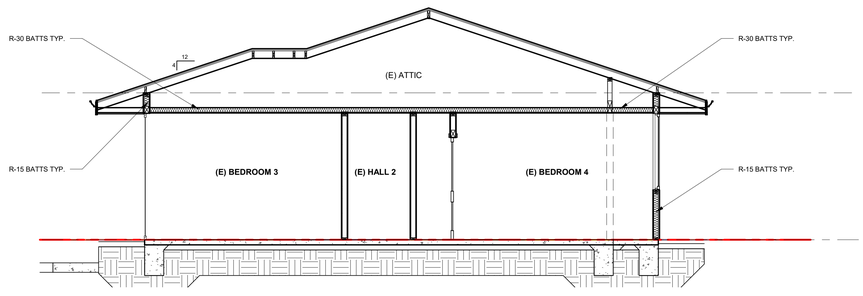
J BUILDING SECTION J
1/4" = 1'-0"



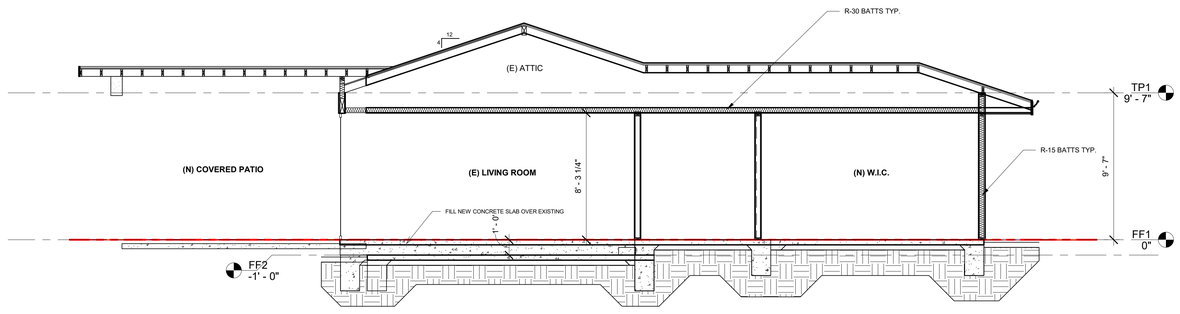
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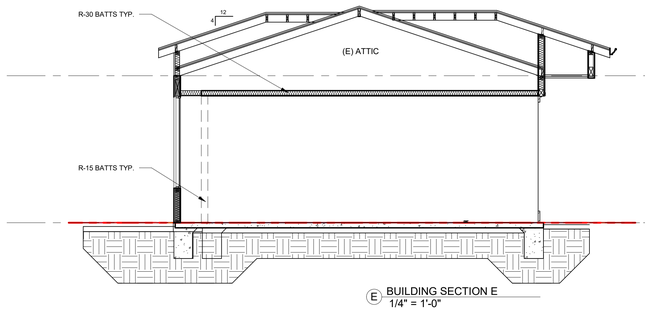
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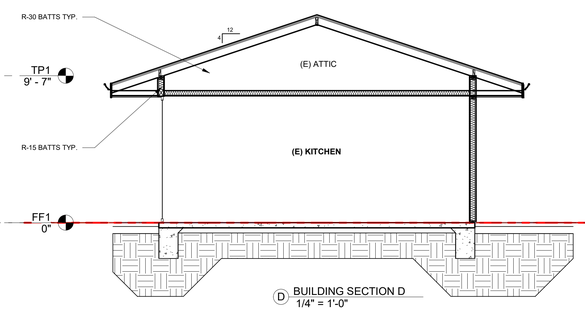
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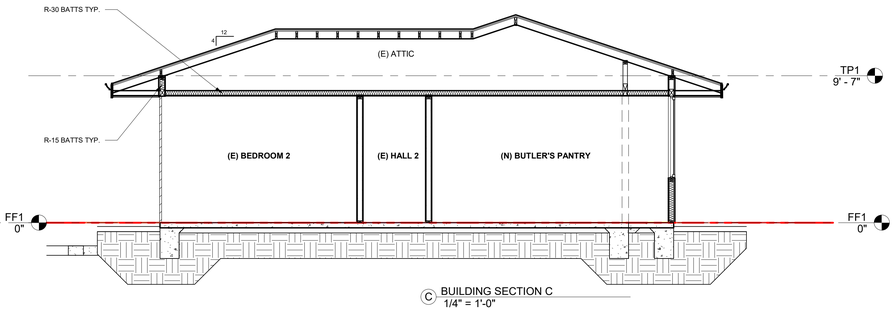
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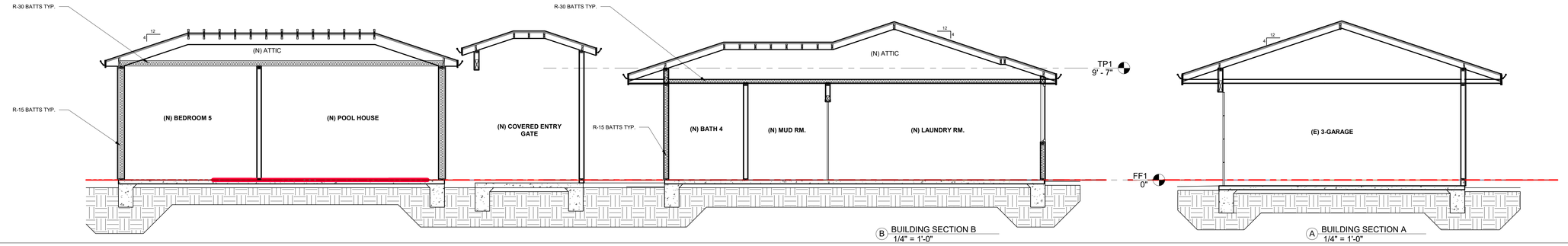
E BUILDING SECTION E
1/4" = 1'-0"



D BUILDING SECTION D
1/4" = 1'-0"



C BUILDING SECTION C
1/4" = 1'-0"



B BUILDING SECTION B
1/4" = 1'-0"

A BUILDING SECTION A
1/4" = 1'-0"

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PLANS PREPARED BY:

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SHEET NAME:

BUILDING SECTIONS

Project number	2023-309
Date	2-25-25
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Scale 1/4" = 1'-0"

2/25/2025 9:11:33 AM

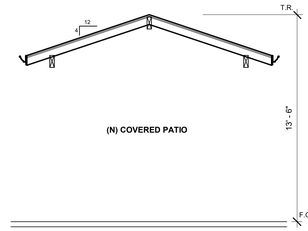
CM-02-27-2025

APPROVED

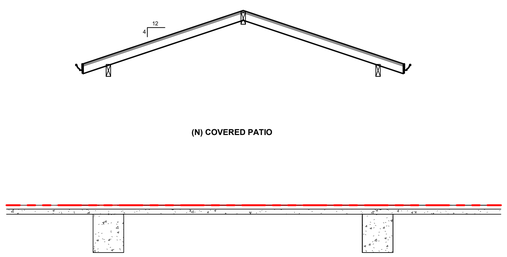
MELAD AND ASSOCIATES

PC#: BPCR-24-0008

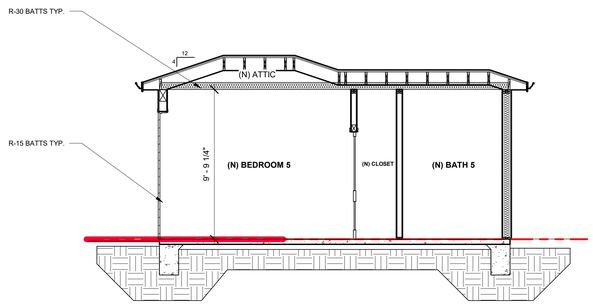
DATE: 2/25/2025



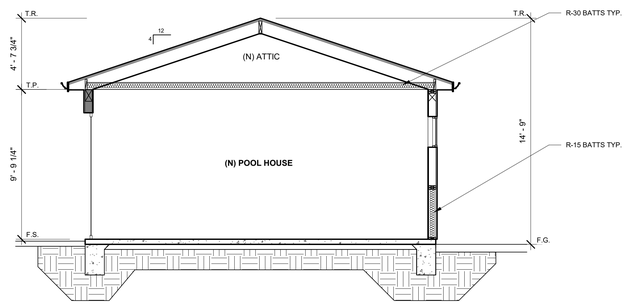
P BUILDING SECTION P
1/4" = 1'-0"



O BUILDING SECTION 0
1/4" = 1'-0"

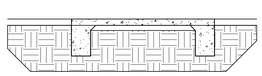


N BUILDING SECTION N
1/4" = 1'-0"

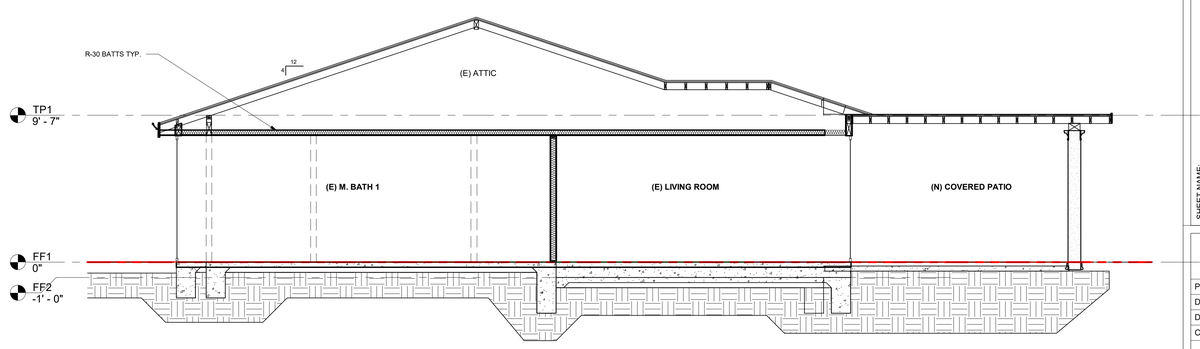


M BUILDING SECTION M
1/4" = 1'-0"





L BUILDING SECTION L
1/4" = 1'-0"



K BUILDING SECTION K
1/4" = 1'-0"

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

OHA CONSTRUCTION
31234 W. NINE DR.
LAGUNA NIGUEL, CA 92677
PH: 951-990-4634
EMAIL: Oz.almendarez@gmail.com

Oscar Almendarez

CLIENT:

LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:

BUILDING SECTIONS

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

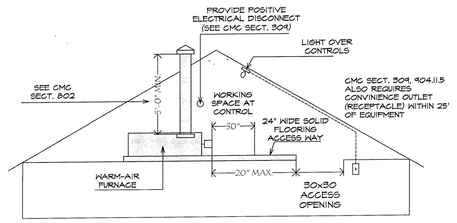
A-5.1

Scale 1/4" = 1'-0"

2/25/2025 9:11:35 AM

CM-02-27-2025

WARM AIR FURNACE - ATTIC



RELATED CODE SECTION: CMC SECT. 931

CENTRAL WARM-AIR FURNACES INSTALLED IN AN ATTIC MUST BE ACCESSIBLE FOR ROUTINE INSPECTIONS AND MAINTENANCE BY THE OWNER/OCCUPANT AND FOR SERVICE AND REPAIR AS NEEDED. CHANGING FILTERS, LUBRICATING MOTOR AND FAN BEARING, CHECKING BELT TENSION, AND RELIGHTING THE PILOT FOLLOWING A SERVICE INTERRUPTION ARE NORMAL OWNER FUNCTIONS. ADEQUATE LIGHT, AND ELECTRICAL OUTLET, SAFE ACCESS WAY AND SUFFICIENT WORKING SPACE ON THE CONTROL SIDE ALL ENCOURAGE AND FACILITATE MAINTENANCE AND ALSO ENABLE RAPID EGRESS IN AN EMERGENCY.

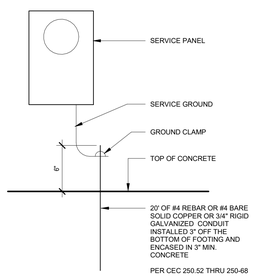
NOTES:

1.- PROVIDE DOUBLE JOISTS BELOW UNIT

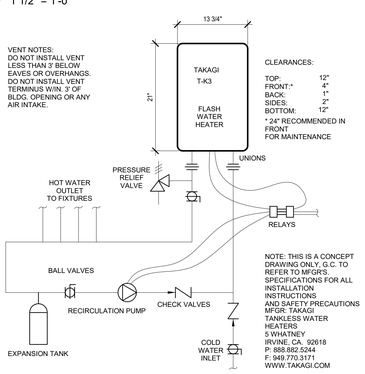
2.- PROVIDE SEISMIC BRACES OR ANCHOR UNIT TO PLATFORM

3.-CONDENSATE DRAIN SHALL TERMINATE AT AN APPROVED PLUMBING FIXTURE

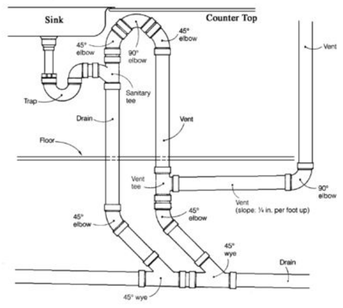
15 1-HR. SEPARATION WALLS/FLOORS
1 1/2" = 1'-0"



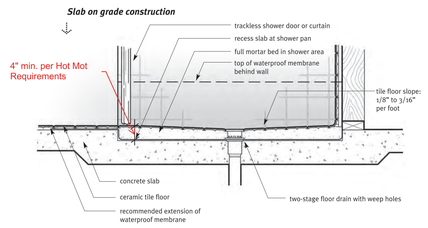
14 GROUNDING DETAIL
1 1/2" = 1'-0"



13 ON DEMAND WATER HEATER DETAIL1
1" = 1'-0"

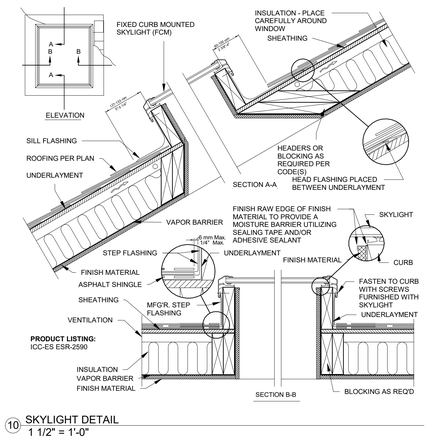


12 KITCHEN SINK DETAIL
1 : 36

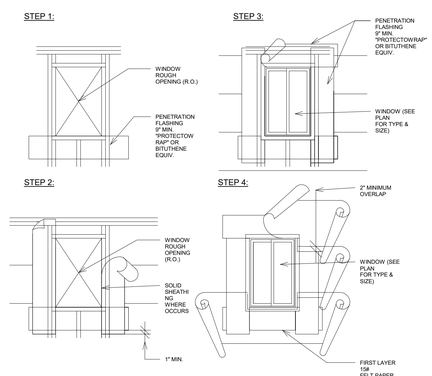


SHOWER FLOOR DETAILS AT CUSTOM-BUILT UNITS

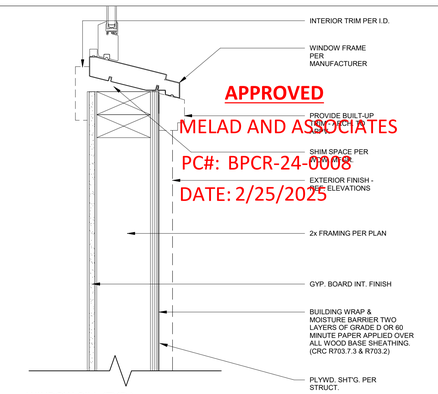
11 SHOWER DTL. (TYP.)
1/2" = 1'-0"



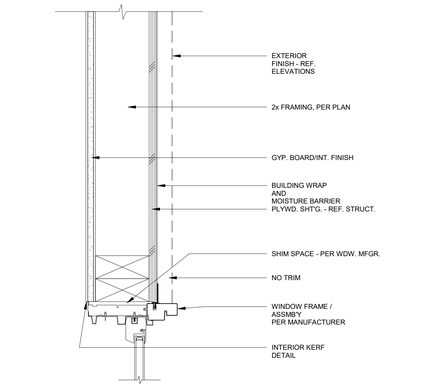
10 SKYLIGHT DETAIL
1 1/2" = 1'-0"



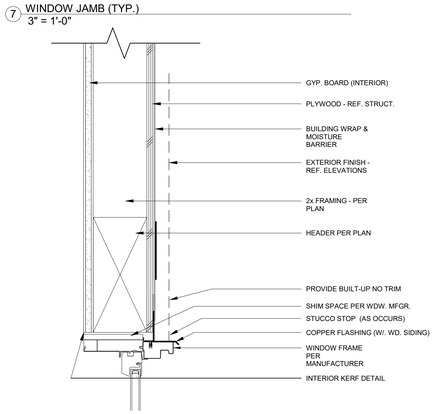
9 TYP. WINDOW PENETRATION DETAIL
1/2" = 1'-0"



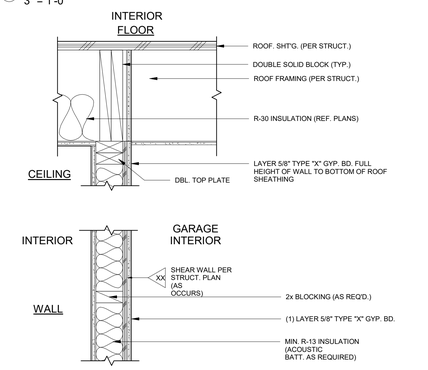
8 WINDOW SILL (TYP.)
3" = 1'-0"



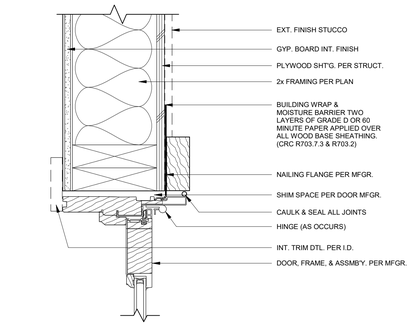
7 WINDOW JAMB (TYP.)
3" = 1'-0"



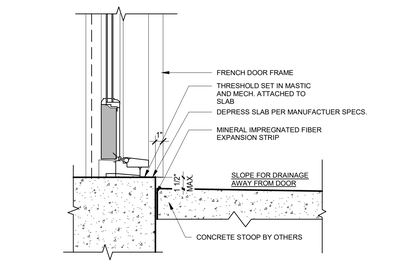
6 WINDOW HEAD (TYP.)
3" = 1'-0"



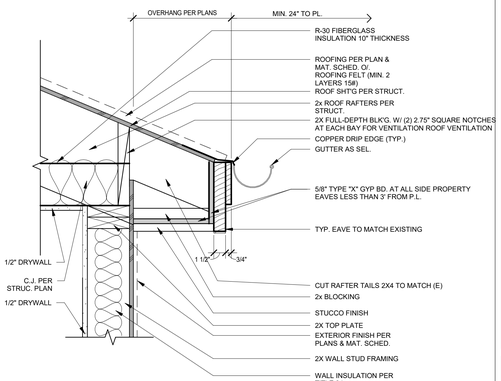
5 1-HR. SEPARATION WALLS/FLOORS
1 1/2" = 1'-0"



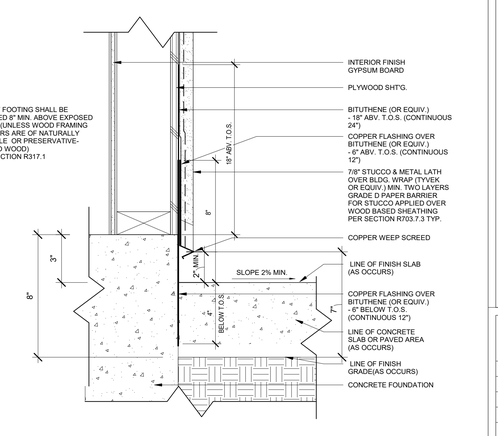
4 EXTERIOR DOOR JAMB (TYP.)
3" = 1'-0"



3 FRENCH DOOR THRESHOLD
1 1/2" = 1'-0"



2 EAVE DETAIL VENTED
1 1/2" = 1'-0"



1 WEEP SCREED DETAIL
3" = 1'-0"

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

REV.	DESCRIPTION/DATE
	ISSUE 01-30-25

PLANS PREPARED BY:

OHA CONSTRUCTION
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PH: 951-990-4834
EMAIL: Oz.almendarez@gmail.com

Oscar Almendarez

CLIENT:
LAW RESIDENCE
3039 CAPRI LN.
COSTA MESA, CA 92626

SHEET NAME:
TYPICAL DETAILS

Project number	2023-309
Date	2-25-25
Drawn by	Author
Checked by	Checker

A-6.0

Scale: As indicated

2/25/2025 9:11:37 AM

CM-02-27-2025

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 1 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

GENERAL INFORMATION

01	Project Name	SINGLE HOUSE ADDITION			
02	Run Title	Title 24 Analysis			
03	Project Location	3039 CAPRI LN.			
04	City	COSTA MESA	05	Standards Version	2022
06	Zip code	92626	07	Software Version	EnergyPro 9.3
08	Climate Zone	6	09	Front Orientation (deg/ Cardinal)	45
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Addition and/or Alteration	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft^2)	712	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	3584	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	4296	19	Glazing Percentage (%)	24.12%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	Building does not incorporate Special Features

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 2 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

ENERGY USE SUMMARY

Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	16.11	0	14.39	0	1.72
Space Cooling	0	4.82	0	5.85	0	-1.03
IAQ Ventilation	0	0	0	0	0	0
Water Heating	0	10.26	0	8.49	0	1.77
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**0**	**31.19**	**0**	**28.73**	**0**	**2.46**
Photovoltaics		0		0		
Battery				0		
Flexibility						
Indoor Lighting	0	6.06	0	6.06		
Appl. & Cooking	0	9.04	0	9.05		
Plug Loads	0	15.58	0	15.58		
Outdoor Lighting	0	1.61	0	1.61		
TOTAL COMPLIANCE	**0**	**63.48**	**0**	**61.03**		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 3 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

ENERGY USE INTENSITY

	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Compliance Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	11.44	10.62	0.91	7.89
Net EUI[2]	11.53	10.62	0.91	7.89

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

REQUIRED SPECIAL FEATURES

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

- NO SPECIAL FEATURES REQUIRED

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 CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Verified SEER/SEER2
- Verified Refrigerant Charge
- Duct leakage testing

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
SINGLE HOUSE ADDITION	4296	1	4	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
ADDITION AREA	Conditioned	WHOLE HOUSE1	712	9	DHW Sys 1	New

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 4 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
EXISTING AREA	Conditioned	WHOLE HOUSE1	3584	9	DHW Sys 1	Existing Unchanged

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
NORTHWEST WALL	ADDITION AREA	R-15 Wall	315	Right	109.8	20.5	90	none	New	n/a
SOUTHEAST WALL	ADDITION AREA	R-15 Wall	135	Left	504	111.1	90	none	New	n/a
SOUTHWEST WALL	ADDITION AREA	R-15 Wall	225	Back	45.9	3.6	90	none	New	n/a
NORTHEAST WALL	ADDITION AREA	R-15 Wall	45	Front	315.9	3.6	90	none	New	n/a
WEST WALL	ADDITION AREA	R-15 Wall	270	n/a	18	0	90	none	New	n/a
EAST WALL	ADDITION AREA	R-15 Wall	90	n/a	180	0	90	none	New	n/a
NORTH WALL	ADDITION AREA	R-15 Wall	0	n/a	238.5	73.8	90	none	New	n/a
NORTHWEST WALL 2	EXISTING AREA	Default Wall	315	Right	545.4	289.6	90	none	Existing	No
SOUTHEAST WALL 2	EXISTING AREA	Default Wall	135	Left	190.8	26.5	90	none	Existing	No
SOUTHWEST WALL 2	EXISTING AREA	Default Wall	225	Back	142.2	0	90	none	Existing	No
NORTHEAST WALL 2	EXISTING AREA	Default Wall	45	Front	57.6	0	90	none	Existing	No
WEST WALL 2	EXISTING AREA	Default Wall	270	n/a	378	32.8	90	none	Existing	No
EAST WALL 2	EXISTING AREA	Default Wall	90	n/a	105.3	41.6	90	none	Existing	No
NORTH WALL 2	EXISTING AREA	Default Wall	0	n/a	208.8	24	90	none	Existing	No
SOUTH WALL	EXISTING AREA	Default Wall	180	n/a	601.2	409	90	none	Existing	No

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 5 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Wall to Addition	ADDITION AREA>>EXISTING AREA	R-15 Wall1	n/a	n/a	1033	0	n/a		New	n/a
Wall to Addition 2	EXISTING AREA>>ADDITION AREA	R-15 Wall1	n/a	n/a	1485	0	n/a		New	n/a
New Roof	ADDITION AREA	R-30 Roof Attic	n/a	n/a	712	n/a	n/a		New	n/a
ROOF	EXISTING AREA	R-30 Roof Attic	n/a	n/a	3584	n/a	n/a		New	n/a

ATTIC

01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic ADDITION AREA	Attic RoofADDITION AREA	Ventilated	4	0.1	0.85	No	No	New	n/a
Attic EXISTING AREA	Attic RoofEXISTING AREA	Ventilated	4	0.1	0.85	No	No	New	n/a

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
WINDOWS	Window	NORTHWEST WALL	Right	315			1	20.5	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 2	Window	SOUTHEAST WALL	Left	135			1	111.1	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 3	Window	SOUTHWEST WALL	Back	225			1	3.6	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: SINGLE HOUSE ADDITION — **Calculation Date/Time:** 2024-09-05T17:11:04-07:00 — **(Page 6 of 11)**

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408RR.ribd22x

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
WINDOWS 4	Window	NORTHEAST WALL	Front	45			1	3.6	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 5	Window	NORTH WALL		0			1	73.8	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 6	Window	NORTHWEST WALL 2	Right	315			1	289.6	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 7	Window	SOUTHEAST WALL 2	Left	135			1	26.5	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 8	Window	WEST WALL 2		270			1	32.8	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 9	Window	EAST WALL 2		90			1	41.6	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 10	Window	NORTH WALL 2		0			1	24	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
WINDOWS 11	Window	SOUTH WALL		180			1	409	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA

SLAB FLOORS

01	02	03	04	05	06	07	08	09	10
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated	Status	Verified Existing Condition
Covered Slab	ADDITION AREA	712	156.9	none	0	80%	No	New	n/a
Covered Slab 2	EXISTING AREA	3584	205.5	none	0	80%	No	Existing	No

REGISTERED PROFESSIONAL ENGINEER
RAYMOND MENG ZHONG
No. M-27635
EXP.06-30-25
MECHANICAL
STATE OF CALIFORNIA

11 - 07 - 2022

REVISIONS | BY

PERFECT DESIGN & MANAGEMENT INC.
•Design & Consulting •Air-Conditioning, Plumbing, Fire Sprinkler System, Electrical, Title 24 Energy Calculation.
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SINGLE HOUSE ADDITION
3039 CAPRI LN.
COSTA MESA, CA 92626

Date 9/5/2024
Scale
Drawn
Job M23-3408RR
Sheet 1
RESIDENTIAL T24 SHEET
Of 3 Sheets

CM-02-27-2025

OPAQUE SURFACE CONSTRUCTIONS

01 Construction Name	02 Surface Type	03 Construction Type	04 Framing	05 Total Cavity R-value	06 Interior / Exterior Continuous R-value	07 U-factor	08 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-15 / 2x4 Exterior Finish: 3 Coat Stucco
Default Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.361	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: 3 Coat Stucco
R-15 Wall1	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.086	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Other Side Finish: Gypsum Board
Attic RoofADDITION AREA	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in. O. C.	R-0	None / 0	0.64	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x6
Attic RoofEXISTING AREA	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in. O. C.	R-0	None / 0	0.64	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x6
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x8 @ 16 in. O. C.	R-30	None / None	0.033	Over Ceiling Joists: R-11.2 insul. Cavity / Frame: R-18.9 / 2x8 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

01 Name	02 System Type	03 Distribution Type	04 Water Heater Name	05 Number of Units	06 Solar Heating System	07 Compact Distribution	08 HERS Verification	09 Water Heater Name (#)	10 Status	11 Verified Existing Condition	12 Existing Water Heating System
DHW Sys 1	Domestic Hot Water (DHW)	Standard	DHW Heater 1	1	n/a	None	n/a	DHW Heater 1 (1)	New	NA	

WATER HEATERS

01 Name	02 Heating Element Type	03 Tank Type	04 # of Units	05 Tank Vol. (gal)	06 Heating Efficiency Type	07 Efficiency	08 Rated Input Type	09 Input Rating or Pilot	10 Tank Insulation R-value (Int/Ext)	11 Standby Loss or Recovery Eff	12 1st Hr. Rating or Flow Rate	13 Tank Location	14 Status	15 Verified Existing Condition
DHW Heater 1	Gas	Consumer Instantaneous	1	0	UEF	0.97	Btu/Hr	200000	0	n/a	n/a		New	n/a

WATER HEATING - HERS VERIFICATION

01 Name	02 Pipe Insulation	03 Parallel Piping	04 Compact Distribution	05 Compact Distribution Type	06 Recirculation Control	07 Shower Drain Water Heat Recovery
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01 Name	02 System Type	03 Heating Unit Name	04 Heating Equipment Count	05 Cooling Unit Name	06 Cooling Equipment Count	07 Fan Name	08 Distribution Name	09 Required Thermostat Type	10 Status	11 Verified Existing Condition	12 Existing HVAC System
WHOLE HOUSE1	Heating and cooling system other	Heating Component 1	2	Cooling Component 1	2	HVAC Fan 1	Air Distribution System 1	Setback	New	No	

HVAC - HEATING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Heating Efficiency	05 Heating Unit Brand
Heating Component 1	Central gas furnace	2	AFUE - 94.7	n/a

HVAC - COOLING UNIT TYPES

01 Name	02 System Type	03 Number of Units	04 Efficiency EER	05 Efficiency CEER/EER2/EER	06 Efficiency SEER/SEER2	07 Zonally Controlled	08 Multi-speed Compressor	09 HERS Verification
Cooling Component 1	Central split AC	2	12	12	15.5	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01 Name	02 Verified Airflow	03 Airflow Target	04 Verified EER/EER2	05 Verified SEERSEER2	06 Verified Refrigerant Charge
Cooling Component 1-hers-cool	Not Required	0	Not Required	Required	Required

HVAC - DISTRIBUTION SYSTEMS

01 Name	02 Type	03 Design Type	04 Duct Ins. R-value Supply	05 Duct Ins. R-value Return	06 Duct Location Supply	07 Duct Location Return	08 Surface Area Supply	09 Surface Area Return	10 Bypass Duct	11 Duct Leakage	12 HERS Verification	13 Status	14 Verified Existing Condition	15 Existing Distribution system	16 New Ducts >= 25 ft
Air Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist	Existing + New	No		Yes

HVAC DISTRIBUTION - HERS VERIFICATION

01 Name	02 Duct Leakage Verification	03 Duct Leakage Target (%)	04 Verified Duct Location	05 Verified Duct Design	06 Buried Ducts	07 Deeply Buried Ducts	08 Low-leakage Air Handler	09 Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 1-hers-dist	Yes	10.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

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

HVAC FAN SYSTEMS - HERS VERIFICATION

01 Name	02 Verified Fan Watt Draw	03 Required Fan Efficacy (Watts/CFM)
HVAC Fan 1-hers-fan	Not Required	0

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Raymond Zhong	Documentation Author Signature: Raymond Zhong
Company: Perfect Design	Signature Date: 09/05/2024
Address: 2416 W. Valley Boulevard	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Alhambra, CA 91803	Phone: 626-289-8808

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: Oscar Almendarez	Responsible Designer Signature: Oscar Almendarez
Company: O H A Construction	Date Signed: 09/05/2024
Address: 24361 Conejo St. #3	License: 980490
City/State/Zip: Laguna Hills, CA 92656	Phone: (951) 990-4834

Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name: SINGLE HOUSE ADDITION	Building Type: ☑ Single Family ☐ Multi Family ☐ Addition Alone ☑ Existing+ Addition/Alteration		Date: 9/5/2024
Project Address: 3039 CAPRI LN COSTA MESA	California Energy Climate Zone: CA Climate Zone 06	Total Cond. Floor Area: 4,296 / Addition: 712	# of Units: 1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Roof Wood Framed Attic	R 30	4,296		New
Wall Wood Framed	R 15	3,718		New
Slab Unheated Slab-on-Grade	- no insulation	712	Perim = 157'	New
Wall Wood Framed	- no insulation	256		Existing
Wall Wood Framed	- no insulation	164		Existing
Wall Wood Framed	- no insulation	142		Existing
Wall Wood Framed	- no insulation	58		Existing
Wall Wood Framed	- no insulation	345		Existing

FENESTRATION — Total Area: 1,036 — Glazing Percentage: 24.1% — New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Right (NW)	310.1	0.300	0.23	none	none	N/A	New
Left (SE)	137.6	0.300	0.23	none	none	N/A	New
Rear (SW)	3.6	0.300	0.23	none	none	N/A	New
Front (NE)	3.6	0.300	0.23	none	none	N/A	New
Right (N)	97.8	0.300	0.23	none	none	N/A	New
Rear (W)	32.8	0.300	0.23	none	none	N/A	New
Front (E)	41.6	0.300	0.23	none	none	N/A	New
Left (S)	409.0	0.300	0.23	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
2	Gas Central Furnace	95% AFUE	Split Air Conditioner	15.5 SEER	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
WHOLE HOUSE	Ducted	Ducted	Attic	6.0	New

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Small Instantaneous Gas	1	0.97	Standard	New

APPROVED
MELAD AND ASSOCIATES
PC#: BPR-24-0098
DATE: 2/25/2025

REGISTERED PROFESSIONAL ENGINEER — RAYMOND MENG ZHANG — No. M 27835 — EXP. 06-30-25 — MECHANICAL — STATE OF CALIFORNIA

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	RESIDENTIAL T24 SHEET
Of	3 Sheets

CM-02-27-2025

RESIDENTIAL MEASURES SUMMARY

RMS-1

Project Name	Building Type		Date
SINGLE HOUSE ADDITION	☑ Single Family ☐ Addition Alone ☐ Multi Family ☑ Existing+ Addition/Alteration		9/5/2024
Project Address	**California Energy Climate Zone**	**Total Cond. Floor Area**	**Addition**	**# of Units**
3039 CAPRI LN. COSTA MESA	CA Climate Zone 06	4,296	712	1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Wall — Wood Framed	- no insulation	64		Existing
Wall — Wood Framed	- no insulation	185		Existing
Wall — Wood Framed	- no insulation	192		Existing
Slab — Unheated Slab-on-Grade	- no insulation	3,584	Perim = 206'	Existing

FENESTRATION

Total Area: 1,036 | Glazing Percentage: 24.1% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status

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)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. *
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; 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 vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45. *

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *

Space Conditioning, Water Heating, and Plumbing System:

§ 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.

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(j)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 § 609.11 of the California Plumbing Code.
§ 150.0(j)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 ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to 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 ¼". 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 tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(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 tosunlight, 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. *

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 andcontrolled per §150.0(o)1Biii&iv. 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 sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1Ci-iii.
§ 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)1Giii,enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii-iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	**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 MAEDbS; 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). *

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 cut 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 Shutoff 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 cut 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(b)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 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 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:

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 collocated 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.

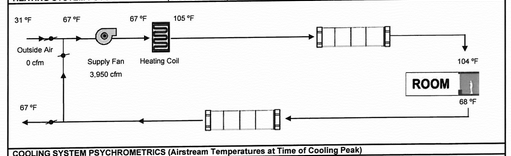
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	Date
SINGLE HOUSE ADDITION	9/5/2024
System Name	**Floor Area**
WHOLE HOUSE	4,296

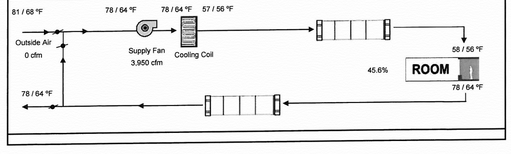
ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
			CFM	Sensible	Latent	CFM	Sensible
Number of Systems	2	Total Room Loads	1,970	42,425	2,647	1,885	72,713
Heating System		Return Vented Lighting		0			
Output per System	80,000	Return Air Ducts		2,091			3,830
Total Output (Btuh)	160,000	Return Fan		0			0
Output (Btuh/sqft)	37.2	Ventilation	0	0	0	0	0
Cooling System		Supply Fan		0			0
Output per System	58,000	Supply Air Ducts		2,091			3,830
Total Output (Btuh)	116,000						
Total Output (Tons)	9.7						
Total Output (Btuh/sqft)	27.0						
Total Output (sqft/Ton)	444.4	TOTAL SYSTEM LOAD		46,607	2,647		80,374
Air System							
CFM per System	1,975	**HVAC EQUIPMENT SELECTION**					
Airflow (cfm)	3,950	CARRIER 24APA760A/S8MVC-80-20 (5 TON)		89,252	28,698		160,000
Airflow (cfm/sqft)	0.92						
Airflow (cfm/Ton)	408.6						
Outside Air (%)	0.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		89,252	28,698		160,000
Outside Air (cfm/sqft)	0.00	TIME OF SYSTEM PEAK			Aug 3 PM		Jan 1 AM

Note: values above given at ARI conditions

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



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



APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

REGISTERED PROFESSIONAL ENGINEER — RAYMOND MENG ZHONG — No. M 27635 — EXP. 09-30-25 — MECHANICAL — STATE OF CALIFORNIA

REVISIONS	BY

PERFECT DESIGN & MANAGEMENT INC.
•Design & Consulting •Plumbing, Fire Sprinkler System, •Air-Conditioning, Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd. Tel: (626) 289-8808
Alhambra, CA 91803 Fax: (626) 289-4913
E-Mail:perfectasa2@gmail.com

SINGLE HOUSE ADDITION
3039 CAPRI LN.
COSTA MESA, CA 92626

Date	9/5/2024
Scale	
Drawn	
Job	M23-3408RR
Sheet	3

RESIDENTIAL T24 SHEET

Of 3 Sheets

CM-02-27-2025

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 1 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

GENERAL INFORMATION					
01	Project Name	POOL HOUSE			
02	Run Title	Title 24 Analysis			
03	Project Location	3039 CAPRI LN.			
04	City	COSTA MESA	05	Standards Version	2022
06	Zip code	92626	07	Software Version	EnergyPro 9.3
08	Climate Zone	6	09	Front Orientation (deg/ Cardinal)	225
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	618	19	Glazing Percentage (%)	32.12%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

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

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 2 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

ENERGY DESIGN RATINGS	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	43.4	44.6	59.9			
Proposed Design	42.1	37.2	56.6	1.3	7.4	3.3
RESULT[3]: PASS						

[1]Efficiency EDR includes improvements like a better building envelope and more efficient equipment
[2]Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries
[3]Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

- Standard Design PV Capacity: 0.00 kWdc
- PV System(s) removed due to Reduced PV Requirement of 0 kWdc

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 3 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft^2-yr)	Standard Design TDV Energy (EDR2) (kTDV/ft^2-yr)	Proposed Design Source Energy (EDR1) (kBtu/ft^2-yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft^2-yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0.57	2.63	1.12	8.41	-0.55	-5.78
Space Cooling	0.53	19.41	0.27	13.28	0.26	6.13
IAQ Ventilation	0.42	4.42	0.42	4.42	0	0
Water Heating	2.76	30.93	1.92	21.78	0.84	9.15
Self Utilization/Flexibility Credit			0	0	0	0
Efficiency Compliance Total	**4.28**	**57.39**	**3.73**	**47.89**	**0.55**	**9.5**
Photovoltaics	0	0	0	0		
Battery			0	0		
Flexibility			0			
Indoor Lighting	1.05	10.56	1.05	10.56		
Appl. & Cooking	7.65	50.61	7.61	50.17		
Plug Loads	5.84	61.1	5.84	61.1		
Outdoor Lighting	0.22	2.01	0.22	2.01		
TOTAL COMPLIANCE	**19.04**	**181.67**	**18.45**	**171.73**		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 4 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

ENERGY USE INTENSITY	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Compliance Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	24.43	23.33	1.1	4.5
Net EUI[2]	24.43	23.33	1.1	4.5

Notes
1. Gross EUI is Energy Use Total (not 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	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
0	No PV - required PV less than 1.8kWdc	Standard (14-17%)	Fixed	none	true	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 150.1(c)14) < 1.8 kWdc (0 kW)
- 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

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 5 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

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 CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood
- Verified EER/EER2
- Verified SEER/SEER2
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.1.7)
- Verified HSPF
- 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
POOL HOUSE	618	1	1	1	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
FLOOR PLAN	Conditioned	POOL HOUSE1	618	10	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
NORTHWEST WALL	FLOOR PLAN	R-15 Wall	315	Left	230	8	90
SOUTHEAST WALL	FLOOR PLAN	R-15 Wall	135	Right	230	0	90
SOUTHWEST WALL	FLOOR PLAN	R-15 Wall	225	Front	280	135.5	90

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01-E

Project Name: POOL HOUSE — **Calculation Date/Time:** 2024-09-05T17:14:34-07:00 — (Page 6 of 10)

Calculation Description: Title 24 Analysis — **Input File Name:** M23-3408-2.ribd22x

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
NORTHEAST WALL	FLOOR PLAN	R-15 Wall	45	Back	280	55	90
R-30 Roof	FLOOR PLAN	R-30 Roof Attic	n/a	n/a	618	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 FLOOR PLAN	Attic RoofFLOOR PLAN	Ventilated	4	0.1	0.85	No	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
WINDOWS	Window	NORTHWEST WALL	Left	315			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
WINDOWS 2	Window	SOUTHWEST WALL	Front	225			1	135.5	0.3	NFRC	0.23	NFRC	Bug Screen
WINDOWS 3	Window	NORTHEAST WALL	Back	45			1	55	0.3	NFRC	0.23	NFRC	Bug Screen

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Covered Slab	FLOOR PLAN	618	102	none	0	80%	No

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

11 - 07 - 2022

REGISTERED PROFESSIONAL ENGINEER — RAYMOND MENG ZHONG — No. M-27635 EXP.06-30-25 — MECHANICAL — STATE OF CALIFORNIA

REVISIONS	BY

PERFECT DESIGN & MANAGEMENT INC.
•Design & Consulting •Air-Conditioning, Plumbing, Fire Sprinkler System, Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd. Tel: (626) 289-8808
Alhambra, CA 91803 Fax: (626) 289-4913
E-Mail:perfectaaa2@gmail.com

POOL HOUSE
3039 CAPRI LN.
COSTA MESA, CA 92626

Date 9/5/2024
Scale
Drawn
Job #M23-3408-2
Sheet 1 RESIDENTIAL T24 SHEET
Of 3 Sheets

CM-02-27-2025

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-15 / 2x4 Exterior Finish: 3 Coat Stucco
Attic RoofFLOOR PLAN	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in. O. C.	R-0	None / 0	0.64	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x6
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x8 @ 16 in. O. C.	R-30	None / None	0.033	Over Ceiling Joists: R-11.2 insul. Cavity / Frame: R-18.9 / 2x8 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04	05
Quality Insulation Installation (QII)	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 (#)
DHW Sys 1	Domestic Hot Water (DHW)	Standard	DHW Heater 1	1	n/a	None	n/a	DHW Heater 1 (1)

WATER HEATERS - NEEA HEAT PUMP

01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1	1	50	Rheem	XE50T10H45U0 (50 gal, JA13)	Outside	FLOOR PLAN	FLOOR PLAN

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Shower Drain Water Heat Recovery
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
POOL HOUSE1	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	n/a	n/a	Setback

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating				Cooling			Zonally Controlled	Compressor Type	HERS Verification
			Heating Efficiency Type	HSPF/HS PF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SEER2	EER/EER 2/CEER			
Heat Pump System 1	VCHP-ductless	1	HSPF	9.3	22000	13900	EERSEER	18	12.5	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Required	Required	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 Sizing & Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.3.4.1	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

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE/ASRE	Includes Fault Indicator Display?	HERS Verification	Status
5Fam IAQVentRpt	33	0.35	Exhaust	No	n/a / n/a	No	Yes	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Raymond Zhong	Documentation Author Signature: Raymond Zhong
Company: Perfect Design	Signature Date: 09/05/2024
Address: 2416 W. Valley Boulevard	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Alhambra, CA 91803	Phone: 626-289-8808

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: Oscar Almendarez	Responsible Designer Signature: Oscar Almendarez
Company: O H A Construction	Date Signed: 09/05/2024
Address: 24361 Conejo St. #3	License: 980490
City/State/Zip: Laguna Hills, CA 92656	Phone: (951) 990-4834

Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

REGISTERED PROFESSIONAL ENGINEER RAYMOND MENG ZHONG No. M-27835 EXP. 06-30-25 MECHANICAL STATE OF CALIFORNIA

REVISIONS | BY

PERFECT DESIGN & MANAGEMENT INC.
•Design & Consulting •Air-Conditioning, Plumbing, Fire Sprinkler System, Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd. Tel: (626) 289-8808
Alhambra, CA 91803 Fax: (626) 289-4913
E-Mail:perfectaaa2@gmail.com

POOL HOUSE
3039 CAPRI L.N.
COSTA MESA, CA 92626

Date 9/5/2024
Scale
Drawn
Job # M23-3408-2
Sheet 2
RESIDENTIAL T24 SHEET
Of 3 Sheets

CM-02-27-2025

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type			Date
POOL HOUSE	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration		9/5/2024
Project Address	**California Energy Climate Zone**	**Total Cond. Floor Area**	**Addition**	**# of Units**
3039 CAPRI LN. COSTA MESA	CA Climate Zone 06	618	n/a	1

INSULATION

Construction Type	Cavity	Area (ft^2)	Special Features	Status
Roof — Wood Framed Attic	R 30	618		New
Wall — Wood Framed	R 15	822		New
Slab — Unheated Slab-on-Grade	- no insulation	618	Perim = 102'	New

FENESTRATION

Total Area: 199 | Glazing Percentage: 32.1% | New/Altered Average U-Factor: 0.30

Orientation	Area (ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Left (NW)	8.0	0.300	0.23	none	none	N/A	New
Front (SW)	135.5	0.300	0.23	none	none	N/A	New
Rear (NE)	55.0	0.300	0.23	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Electric Heat Pump	9.30 HSPF	Split Heat Pump	18.0 SEER	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
POOL HOUSE	Ductless / with Fan	Ductless	n/a	n/a	New

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Heat Pump	50	3.20	Standard	New

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)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; 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 vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.*

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 110.5(e):	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *

Space Conditioning, Water Heating, and Plumbing System:

§ 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.

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(j)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 § 609.11 of the California Plumbing Code. *
§ 150.0(j)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(h). 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 ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to 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 ¼', 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 tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(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 tosunlight, 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. *

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 andcontrolled per §150.0(o)1BiiiBiv. 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 sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1CI-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)1GIi,enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1GIi-iv. Airflow must be measured by the installer per §150.0(o)1GIv, and rated for sound per §150.0(o)1GVi. *
§ 150.0(o)1H&I:	**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 MAEDbS; 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). *

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 cut 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 Shutoff 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 cut 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(b)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 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 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:

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 collocated 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."

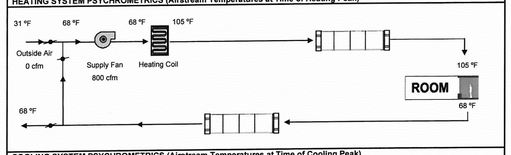
*Exceptions may apply.

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

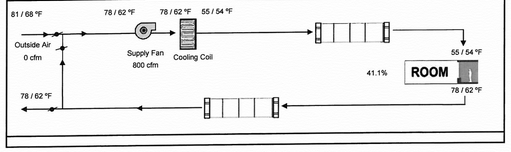
Project Name						Date
POOL HOUSE						9/5/2024
System Name						Floor Area
POOL HOUSE						618

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
			CFM	Sensible	Latent	CFM	Sensible
Number of Systems	1	Total Room Loads	271	6,695	391	253	10,092
Heating System		Return Vented Lighting		0			0
Output per System	22,000	Return Air Ducts		0			0
Total Output (Btuh)	22,000	Return Fan		0			0
Output (Btuh/sqft)	35.6	Ventilation	0	0	0	0	0
Cooling System		Supply Fan		0			0
Output per System	18,000	Supply Air Ducts		0			0
Total Output (Btuh)	18,000	TOTAL SYSTEM LOAD		6,695	391		10,092
Total Output (Tons)	1.5						
Total Output (Btuh/sqft)	29.1						
Total Output (sqft/Ton)	412.0						
Air System		HVAC EQUIPMENT SELECTION					
CFM per System	800						
Airflow (cfm)	800	FUJITSU AOU18RLXFZ/NON-DUCTED (1.5T)(MUL		14,378	3,488		15,655
Airflow (cfm/sqft)	1.29						
Airflow (cfm/Ton)	533.3						
Outside Air (%)	0.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		14,378	3,488		15,655
Outside Air (cfm/sqft)	0.00						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK		Aug 3 PM			Jan 1 AM

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



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



APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

REGISTERED PROFESSIONAL ENGINEER — RAYMOND-MENG ZHONG — No. M27835 — EXP. 08-30-25 — MECHANICAL — STATE OF CALIFORNIA

REVISIONS	BY

PERFECT DESIGN & MANAGEMENT INC.
•Design & Consulting •Plumbing, Fire Sprinkler System,
•Air-Conditioning, Electrical, Title 24 Energy Calculation.
2416 W. Valley Blvd. Tel: (626) 289-8808
Alhambra, CA 91803 Fax: (626) 289-4913
E-Mail:perfectasa2@gmail.com

POOL HOUSE
3039 CAPRI LN.
COSTA MESA, CA 92626

Date	9/5/2024
Scale	
Drawn	
Job #	M23-3408-2
Sheet	3
	RESIDENTIAL T24 SHEET
Of	3 Sheets

CM-02-27-2025

"THE STRUCTURAL ELEMENTS, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE (CBC)"

MATERIAL SPECIFICATIONS

2022 CBC, IBC 2022, 2018 NDS, ASCE 7-16, CITY OF COSTA MESA REQUIREMENTS

TIMBER: Parallam 2.0E; Fb=2,900 psi; Fv=290 psi E=2,000 ksi; Fc=650 psi
ICC ES ER Report 1387
GluLam 124F-V4 DF Fb=2,400 psi; Fv=265 psi; E=1,800 ksi: Fc=650 psi
ICC ES ER Report 1040
Microllam 1.9E; Fb=2,600 psi; Fv=285 psi; E=1,900 ksi: Fc=750 psi ICC ESR 1387
Douglas Fir – Larch No 1 Fb=1,200 psi ; Fc=1,000 psi ; E=1,600 ksi
Douglas Fir – Larch No 2 Fb=875 psi ; Fv=95 psi ; E=1,600 ksi
Adhesive MACCO liquid nails

METAL CONNECTORS: Nail 2018 NDS table 11N and 11P
Lag Screws 2018 NDS table 12.2A, 12J to 12K
Wood Screws 2018 NDS table 12.2B, 12L to 12M
Bolts 2018 NDS table 12A to 12I
Simpson Strap MSTA21 T=1,270 lbs.
Simpson Strap CS16 T=1,705 lbs.

CONCRETE: Fc'=4,500 psi ; Fy=60,000 psi
Special Inspection Required

STRUCTURAL STEEL: HSS4x4x3/8 STL COLUMN ASTM A500 ; GRADE C Fy=50 ksi ; E=29,000 ksi
HSS6x6x3/8 STL COLUMN ASTM A500 ; GRADE C
HSS 8x8x3/8 STL COLUMN E=29,000 ksi
STEEL BOLTS ASTM A325 TENSILE STRENGTH 120 ksi ; E=29,000 ksi
STEEL PLATE Fy=36 ksi ; E=29,000 ksi

Wood Structural Panels shall comply with PS1-95 and/or PS2-92
Table No. 2304.7(4)-ALLOWABLE SPANS FOR PLYWOOD SUBFLOOR AND ROOF SHEATHING CONTINUOUS OVER TWO OR MORE SPAN AND FACE

1. GRAIN PERPENDICULAR TO SUPPORTS

Floor plywood details." plywood grade, and span rating", thickness
-The rating is: APA rated sheathing
32/16 15/32 inch thick or , 19/32", 5/8"
sized for spacing: 16 inches
Exposure I NER-QA397 PRP-108
APA rated sheathing
40/20 inch thick or 19/32",5/8",23/32",7/8"
sized for spacing: 20 inches
Exposure I NER-QA397 PRP-108

2. Roof plywood details." Plywood grade and span rating", thickness
-The rating is: APA rated sheathing
32/16 15/32 inch or , 19/32", 5/8"
sized for spacing: 32 inches edges blocked;
28 inches edges unblocked
Exposure I NER-QA397 PRP-108

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

SOIL BEARING CAPACITY=1,600 psf

NOTES & DESIGN CRITERIA:

-ALL NEW SHEAR WALLS TO BE PLYWOOD
-SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
-ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1
(ACCEPTABLE SDPWS 4.3.6.4.3)
-FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
-ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
-ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
-HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
-HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
-ROOFING MATERIAL WEIGHT= 5.5 PSF
-FLOOR LIVE LOAD= 40 PSF
-ROOF LIVE LOAD= 20 PSF
-BASIC WIND SPEED= 95 MPH
-WIND IMPORTANCE FACTOR I=1.0
-WIND OCCUPANCY CATEGORY=II
-WIND EXPOSURE= C
-WIND VELOCITY PRESSURE= 16.69 PSF
-COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
-SEISMIC RISK CATEGORY=II
-SEISMIC IMPORTANCE FACTOR=I
-Ss=1.348 ; S1=0.485
-SITE CLASSIFICATION= D
-SDS=1.078 ; SD1=0.587
-SEISMIC DESIGN CATEGORY= D
-BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
-RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
-Cs=.1538 ; OMEGA=2.5
-EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8

GEOTECHNICAL REPORT 24145-01
BY SA GEOTECHNICAL
DATED NOVEMBER 14, 2024

NOTE: GALVANIZED 8d BOX NAILS MAY BE USED IN LIEU OF COMMON NAILS PER 2022 CBC, TABLE 2304.9.1

NOTE:
SPECIAL INSPECTION IS REQUIRED PER CBC 2022 FOR OVER 2500 p.s.i. CONC. AND FIELD WELDING/ HIGH-STRENGTH BOLTING CONST.
OR PROVIDE REPORT FROM APPRV'D FABRICATOR SHOP TO INSPECTOR PRIOR TO INSTALLATION.

NOTES:

-MSTA21 STRAP V=1,505 LBS.
-CS16 STRAP V=1,705 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

POST	SIMPSON POST BASE
4X4	CB44
4X6	CB46
4X8	CB48
6X6	CB66
6X8	CB68
6X10	CB610
8X8	CB88
8X10	CB810

UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUM NAILING SHALL APPLY:

CONCRETE

ANCHOR BOLTS TO BE A-307

CONCRETE IN CONTACT WITH THE SOIL SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF 4,500 p.s.i. WATER -CEMENT RATIO OF 0.45 MAXIMUM AND TYPE V CEMENT DUE TO POTENTIAL FOR SOIL SULFATES COMMON IN THE AREA (SCMC) UNLESS SOIL REPORT INDENTIFIES NEGLIGIBLE SOIL SULFATES.

REINFORCING STEEL TO CONFORM TO ASTM STD A-615 GRADE 60 DEFORMED FOR REINFORCING BARS, AND A-185 FOR WIRE MESH

REINFORCEMENT CLEARANCES:

CONCRETE AGAINST EARTH UNFORMED.....3"
CONCRETE AGAINST EARTH FORMED.....2"
TOP OR BOTTOM SLAB STEEL NOT EXPOSED TO WEATHER.....3/4"

USE ST 6236 @ TOP PLATE SPLICE (TYP) AND MSTA21 AT SHEARWALLS

NOTES:

1. FOOTING TO BE MIN. 30" INTO COMPETENT SOIL AS APPROVED BY THE GEOTECHNICAL CONSULTANT
2. MUDSILL TO BE PRESSURE TREATED
3. CONCRETE TO REACH 4,500 PSI IN 28 DAYS
4. ALL A.B. AND HOLDDOWNS TO BE IN PLACE PRIOR TO FOOTING INSPECTION
5. USE RAMSET /ITW/ REDHEAD WS1254 WEDGE TYPE ANCHORS FOR MISSED 5/8" # A.B.AT 1:1 RATIO @ NON-BEARING WALL ONLY ICC ES ESR-1799
6. PROVIDE SIMPSON CBS AT ALL EXTERIOR ISOLATED POSTS AND SIMPSON PBS AT ALL INTERIOR INSULATED POSTS U.O.N.
7. CONCRETE COVER AT REINFORCING STEEL TO BE 3" FOR UNFOMED AND 2" FOR FORMED CONCRETE FOOTINGS
8. REINFORCING STEEL TO BE GRADE 60 DEFORMED BARS CONFORMING TO ASTM A 615 LATEST EDITION, EXCEPT TIES MAY BE PLAIN BARS U.O.N.
9. ALL EXTERIOR WALLS TO BE SECURED WITH 5/8" DIAX 10" LONG ANCHOR BOLTS WITH MIN. 7" EMBEDMENT AT 72" O.C. MAX. WITH
10. ALL (NON BEARING, NON SHEARWALL) INTERIOR WALLS TO BE SECURED WITH SHOT-PINS PER MANUFACTURER'S SPECIFICATIONS U.O.N. ICC ES ESR-1799 RECOMMENDED ITW/RAMSET/REDHEAD #3348 AT 36" O.C. OR AS SHOWN IN THE PLANS
11. HOLD -DOWNS TO BE TIGHTENED JUST PRIOR TO WALL COVERING
13. SPECIAL INSPECTION REQUIRED BY CBC 2022 IF Fc>2,500 psi.
14. USE SIMPSON 3G EPOXY ADHESIVE ICC ES ER 4057
15. DEPUTY INSPECTORS ARE REQUIRED TO BE LISTED BY THE COSTA MESA BUILDING DEPARTMENT.
16. SPECIAL INSPECTION REQUIRED FOR WOOD SHEARWALLS FASTENING OF COMPONENTS OF LATERAL RESISTING SYSTEM WHEN SHEATHING NAIL SPACING IS 4" O.C. OR LESS.
17. ANCHOR BOLTS IN CONTACTS WITH PRESSURED TREATED SILL PLATE SHALL BE HOT-DIPPED ZINC COATED GALVANIZED STEEL, SILICON BRONZE OR COPPER, PER CBC 2304.10.6

GENERAL NOTES:

The contractor shall verify and be responsible for all dimensions and conditions at the job site. The contractor shall be responsible for bracing and shoring all excavations, temporary structures, and partially completed portions of the work.

The contractor shall hold the Engineer harmless and free of any and all claims, demands, cause of action, damages, costs, expenses, actual attorney's fees, losses, liabilities, or responsibility in law or equity, of any kind and nature whatsoever, araising out or in connection with the construction of this project.

All conditions not specifically shown or detailed shall be of the same type and character as those shown for similar conditions.

FOUNDATIONS

Footings shall rest on firm bedrock and at a minimum depth below finish grade as shown on drawings. Allowable soil bearing values are based on 1,500 psf.

All Holdowns shall be in place prior to foundation inspection.

Fasteners for preservative-treated shall be hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper.

FRAMING

ALL LUMBER SHALL BE DOUGLAS FIR LARCH OR AS NOTED ON PLANS.

ON PLANS. THE FOLLOWING MINIMUM GRADES SHALL APPLY:

LIGHT FRAMING.....STD
STRUCTURAL LIGHT FRAMING.....#2
STRUC. JOIST &PLANKS.....#2
BEAMS & STRINGERS.....#1
POST & TIMBERS.....#1

ALL PLYWOOD SHALL CONFORM TO PS1-95 and/or PS2-92, AND SHALL BE OF GRADE, INDEX NUMBER AND THICKNESS CALLED ON PLAN.

ALL PLYWOOD SHALL BE BONDED WITH EXTERIOR GLUE. ALL PLYWOOD DIRECTLY EXPOSED TO THE WEATHER SHALL BE EXTERIOR TYPE

PLYWOOD, UNLESS OTHER WISE NOTED ON PLANS. THE FOLLOWING MINIMUM STANDARDS SHALL APPLY:

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d NAILS EACH SIDE PER SPLICE.

CONCRETE SLAB NOTE:
NEW 6" CONCRETE SLAB ON GRADE W/#4 @ 18" OC.
A 2" THICK LAYER OF SAND OVER A VAPOR BARRIER MEETING ASTM 1745 (15MIL) OVER 2" OF SAND, OVER A 4" THICK BASE OF ½" OR LARGER CLEAN AGGREGATE.

SHEARWALL SCHEDULE - CBC 2022

SYMBOL	SHEAR (PLF)	MATERIAL AND NAILING DESCRIPTION	ANCHOR BOLT SCHEDULE	MINIMUM BOTTOM PLATE NAILING	SHEAR TRANSFER RIM JOIST/BLK'G	FOOTNOTES
7	220	3/8" CDX PLYWOOD w/ 8d @ 6" o.c. E.N. / 12" o.c. F.N.	5/8" DIA. ANCHOR BOLTS @ 48" o.c. w/ 2x SILL	2x BTM. PL. w/ 16d @ 6" o.c.	"LPT4" @ 24" o.c. (OR) "A35" @ 24" o.c.	
9	320	3/8" CDX PLYWOOD w/ 8d @ 4" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 36" o.c. w/ 2x SILL	2x BTM. PL. w/ 16d @ 4" o.c.	"LPT4" @ 16" o.c. (OR) "A35" @ 16" o.c.	
10	410	3/8" CDX STRUCTURAL 1 PLYWOOD w/ 8d @ 3" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 10" o.c. w/ 2x SILL @ 24" o.c. w/ 3x SILL	2x BTM. PL w/ 16d @ 3" o.c. "A35" @ 14" o.c.	"LPT4" @ 14" o.c. (OR) "A35" @ 16" o.c.	# 13
11	510	1/2" CDX STRUCTURAL 1 PLYWOOD w/ 10d @ 4" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 9" o.c. w/ 2x SILL @ 18" o.c. w/ 3x SILL	2x BTM. PL w/ 16d @ 3" o.c. "A35" @ 14" o.c. 4X RIM JOIST / BLK'G	"LPT4" @ 14" o.c. (OR) "A35" @ 16" o.c.	# 13
12	600	1/2" CDX PLYWOOD w/ 10d @ 3" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 16" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 12" o.c. INTO 4x RIM JOIST / BLK'G	"LPT4" @ 10" o.c. (OR) "A35" @ 10" o.c.	# 13
13	870	1/2" CDX STRUCTURAL 1 PLYWOOD w/ 10d @ 2" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 14" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 8" o.c. INTO 4X RIM JOIST / BLK'G	"LPT4" @ 8" o.c. (OR) "A35" @ 8" o.c.	# 13
14	530	3/8" CDX PLYWOOD w/ 8d @ 2" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 20" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 6" o.c. INTO 4X RIM JOIST / BLK'G	"LPT4" @ 6" o.c. (OR) "A35" @ 6" o.c.	# 14

NOTES:

-MSTA21 STRAP V=1,505 LBS.
-MSTA24 STRAP V=1,640 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.

1/20/2025

SHEARWALL SCHEDULE FOOTNOTES:

1. SHEAR PANELS SHALL BE APPLIED DIRECTLY TO STUD FRAMING.
2. PLYWOOD MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY.
3. ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED w/ 2x BLOCKING MIN.
4. SHEAR WALLS MORE THAN ONE VERTICAL PANEL IN HEIGHT SHALL HAVE EITHER VERTICAL OR HORIZONTAL STAGGERED SPLICED JOINTS.
5. PROVIDE 1/2" MIN. EDGE DISTANCE FOR ALL PLYWOOD EDGE NAILING.
6. ONLY COMMON NAILS ARE TO BE USED FOR ALL PLYWOOD SHEATHING ATTACHMENTS.
7. NAIL GUNS USING "CLIPPED HEAD" OR "SINKER" NAILS ARE NOT ACCEPTABLE.
8. ALL BOLT HOLES TO BE DRILLED 1/32" MIN. TO 1/16" MAX. OVERSIZED.
9. USE DOUGLAS FIR #2 PRESSURE TREATED SILL PLATES. ALL NAILS & ANCHOR BOLTS IN PRESSURE TREATED SILL PLATES SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL PER ASTM A 153. ANCHOR BOLTS MAY HAVE A MECHANICALLY DEPOSITED ZINC COATING WITH WEIGHTS PER ASTM B 695, CLASS 55.
10. ANCHOR BOLTS MUST BE EMBEDDED 7" MIN. INTO NEW CONCRETE. WHERE SHEARWALLS ARE TO BE ATTACHED TO EXISTING FOOTINGS, EPOXY 5/8 " dia. THREADED ROD ANCHORS WITH 5" MIN. EMBEDMENT USING SIMPSON "SET-XP" HIGH STRENGTH ADHESIVE (ESR-2508) WITH SPECIAL INSPECTION OR 5/8" dia. x 6" LONG SIMPSON "TITEN HD" ANCHORS (ESR-2713) INSTALLED AT THE SPACING INDICATED IN THE SHEARWALL SCHEDULE.
11. FOUNDATION ANCHOR BOLTS IN ALL SHEAR WALLS SHALL HAVE STEEL PLATE WASHERS, A MIN. OF 0.229"x3"x3" IN SIZE BETWEEN THE SILL PLATE AND NUT. (R602.11.1)
12. STUCCO AND/OR EXTERIOR VENEER OVER A PLYWOOD SHEARWALL SHALL BE WATERPROOFED WITH A MIN. OF (2) LAYERS OF 15lb. FELT PAPER.
13. ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL BE 3-INCH NOMINAL OR THICKER. ALL PLYWOOD EDGE NAILING SHALL BE STAGGERED.
14. WHERE PLYWOOD PANELS ARE APPLIED ON BOTH FACES OF A WALL, USE A 3x6 BTM. / SILL PLATE, 3x6 #2 STUDS @ 16" o.c., AND 3x6 #2 DBL. TOP PLATES. ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL BE A 4-INCH NOMINAL OR THICKER. ALL PLYWOOD EDGE NAILING SHALL BE STAGGERED AND BOTH VERTICAL AND HORIZONTAL INTERIOR PANEL JOINTS ON OPPOSITE SIDES OF THE WALL SHALL BE STAGGERED.
15. WHEN LTP4 IS INSTALLED OVER PLYWOOD, USE 8d COMMONS.
16. FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE WOOD. CBC 2304.9.5.1
17. MINIMUM 3X NOMINAL FRAMING AT PANEL EDGES AND STAGGERED EDGE NAILING WHERE NAILS ARE SPACED 2 INCHES ON CENTER OR CLOSER (FOOTNOTE d OR g), OR WHEN SHEAR DESIGN VALUE EXCEEDS 350 PLF (FOOTNOTE I)
18. WHERE PANELS ARA APPLIED ON BOTH SIDES OF WALL AND NAIL SPACING IS LESS THAN 6 INCHES ON CENTER, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFERENT FRAMING MEMBERS, OR FRAMING SHALL BE MINIMUM 3x NOMINAL AT ADJOINING PANEL EDGES AND EDGE NAILING ON EACH SIDE SHALL BE STAGGERED (FOOTNOTE h)
19. LOAD PATH TO THE FOUNDATIONS SHALL BE PROVIDED FOR UPLIFT, SHEAR AND COMPRESSION FORCES. ELEMENTS RESISTING SHEAR WALL FORCES CONTRIBUTED BY MULTIPLE STORIES SHALL BE DESIGNED FOR THE SUM FORCES CONTRIVUTED BY EACH STORY (SDPWS 4.3.6.4.4)

TYPICAL FASTENING SCHEDULE

NOTE: FASTENING SCHEDULE SHALL MEET THE REQUIREMENTS OF 2022CBC Table 2304.10.1

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common; or 3-10d box; or 3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	Each end, toenail
Blocking between rafters or trusses not at the wall top plate, to rafter or truss	2-8d common; 2-3"x0.131" nails 3-3" 14 ga staples	Each end, toenail
	2-16d common; 3-3"x0.131" nails 3-3" 14 ga staples	End nail
Flat Blocking to truss and web filler	16d common @ 16" oc. 3"x0.131" nails@ 6" oc. 3"x 14 ga staples @ 6" oc.	Face nail
2. Ceiling joists to top plate	3-8d common; or 3-10d box; or 3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	Each joist, toenail
3. Ceiling joists not attached to parallel rafter, laps over partitions (no thrust)	3-16d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 ga 7/16" crown	Face nail
4. Ceiling joists attached to parallel rafter, (heel joint)	per table 2308.7.3.1	
5. Collar tie to rafter	3-10d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 ga 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10d common; or 3-16d box; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14ga staples 7/16" crown	Toenail
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2 inch ridge beam	2-16d common; 3-10d box; or 3-3"x0.131 nails; 3-3"14ga staples	End nail
	3-10d common; 4-16d box; or 4-10d box; 4-3"x0.131" nails; or 4-3" 14ga staples 7/16" crown	Toenail

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
FLOOR		
21. Joist to sill, top plate, or girder	2-8d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	Toenail
22. Rim joist, band joist, or blocking to top plate, sill or other framing below	8d common; or 10d box;or 3"x0.131" nails; or 3" 14 gage 7/16" crown	6" oc. toenail
23. 1"x6" subfloor or less to each joist	2-8d common; or 2-10d box	Face nail
24. 2" subfloor to joist or girder	2-16d common	Face nail
25. 2" planks (plank and beam-floor & roof)	2-16d common	Each bearing face nail
26. Built-up girders and beams, 2" lumber layers	20d common	32" oc. face nail at top and bot stagg oppo sites
	10d box; 3"x0.131"; or 3"x14 ga staples 7/16" crown	24" oc. face nail at top and bot stagg oppo sites
	2-20d common;or 3-10d box; or 3-3"x0.131; or 3-3"x14ga staples	Ends and at each splice, face nail
27. Ledger strip supporting joists or rafters	3-16d common; or 4-10d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	Each joist or rafter, face nail
28. Joist to band or rim joist	3-16d common; or 4-10d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	End nail
29. Bridging or blocking to joist, rafter or truss	2-8d common; or 2-10d box;or 2-3"x0.131" nails; or2-3" 14 gage 7/16" crown	Each end, toenail

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
WALL		
8. Stud to stud (not at braced wall panels)	16d common	24" oc. face nail
	10d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	16" oc. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common	24" oc. face nail
	16d box	16" oc. face nail
	3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	12" oc. face nail
10. Built-up header (2" to 2" header)	16d common	16" oc. each edge, face nail
	16d box	12" oc. each edge, face nail
11. Continuous header to stud	1-8d common; or 4-10d box	Toenail
12. Top plate to top plate	16d common; or	16" oc. face nail
	10d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	12" oc. face nail
13. Top plate to top plate, at end joints	8-16d common; or 12-10d box;or 12-3"x0.131" nails; or 12-3" 14 gage 7/16" crown	Each side of end joint, face nail(min 24" lap splice ea side of end)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d commo	16" oc. face nail
	16d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	12" oc. face nail
15. Bottom plate to to joist, rim joist, band joist or blocking at braced wall panels	2-16d common; or 3-16d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	16" oc. face nail
16. Stud to top or bottom plate	4-8d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	Toenail
	2-16d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common; or 2-10d box;or 2-3"x0.131" nails; or 2-3" 14 gage 7/16" crown	
19. 1"x6" sheathing to each bearing	2-8d common; or 2-10d box	Face nail
20. 1"x8" and wide sheathing to each bearing	3-8d common; or 3-10d box	Face nail

"THE STRUCTURAL ELEMENTS, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE (CBC)"

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

REVISIONS
08-16-2024

ENGINEER
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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
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Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

SECTIONS

JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

SN1

CM-02-27-2025

STEEL MOMENT FRAME SPECIFICATIONS

A) GENERAL:

1) THE SEISMIC DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH
2022 AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS 14th. EDITION
2022 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
2022 AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES 14th. EDITION

2) ALL FIELD WELDING AND NONDESTRUCTIVE TESTING SHALL BE INSPECTED BY A DEPUTY INSPECTOR.

3) SPECIAL MOMENT FRAME SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO FABRICATION.

B) MATERIAL:

1) –SPECIAL MOMENT FRAME (SMF) W SECTIONS, COLUMNS AND BEAMS, SHALL BE ASTM A992 GRADE 50, PLATE SHALL BE ASTM A572 GRADE 50, AND ERECTION BOLTS SHALL BE ASTM A307 MIN.
–INTERMEDIATE MOMENT FRAME (IMF) TS SECTIONS, COLUMNS AND BEAMS, SHALL BE ASTM A6 2021 GRADE 50, PLATE SHALL BE ASTM A572 GRADE 50, AND ERECTION BOLTS SHALL BE ASTM A307 MIN.

2) COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL OF E70 ELECTRODES WITH A NOTCH TOUGHNESS OF 20 FOOT–POUNDS MINIMUM AT ZERO DEGREES FAHRENHEIT.

C) WELDING PROCEDURES:

1) ALL WELDING FOR BUILDINGS SHALL BE IN STRICT CONFORMANCE WITH A.W.S. D1.1–2022.

2) TO ASSURE THE PROPER AMPERAGE AND VOLTAGE OF THE WELDING PROCESS, THE USE OF A HAND HELD CALIBRATED AMP AND VOLT METER SHALL BE USED.
THIS EQUIPMENT SHALL BE USED BY THE FABRICATOR, ERECTOR AND THE INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
TRAVEL SPEED AND ELECTRODE STICK OUT SHALL BE VERIFIED TO BE IN COMPLIANCE WITH THE APPROVED W.P.S.

3) PREHEAT AND INTERPASS TEMPERATURES:
–THE PREHEAT TEMPERATURES AND CONDITIONS GIVEN IN A.W.S. D1.1, CHAPTER 3 SHOULD BE STRICTLY OBSERVED WITH SPECIAL ATTENTION GIVEN TO SECTION 3.5 TABLE 3.2 FOR THICKNESS OF THE BASE METAL TO BE WELDED.
–PREHEAT TEMPERATURES SHOULD BE MEASURED AT A DISTANCE FROM THE WELD EQUAL TO THE THICKNESS OF THE PART BEING WELDED, BUT NOT LESS THAN THREE INCHES, IN ANY DIRECTION INCLUDING THE THROUGH THICKNESS OF THE PIECE. WHERE PLATES ARE OF DIFFERENT THICKNESS, THE PRE–HEAT REQUIREMENT FOR THE THICKER PLATE SHOULD GOVERN. MAINTENANCE OF THESE TEMPERATURES THROUGH THE EXECUTION OF THE WELD (I.E. THE INTERPASS TEMPERATURE) IS ESSENTIAL. MAXIMUM INTERPASS TEMPERATURES SHOULD BE LIMITED TO 550 DEGREES F. FOR PRE–QUALIFIED W.P.S., FOR FRACTURE–CRITICAL APPLICATIONS. HIGHER INTERPASS TEMPERATURES COULD BE EMPLOYED IF THOSE HIGHER TEMPERATURE LIMITS ARE QUALIFIED BY TEST.

4) COMPLETE JOINT PENETRATION GROOVE WELDS BETWEEN THE BEAM FLANGE AND COLUMN FLANGE SHALL BE MADE PER THE ATTACHED DETAILS. ALL SHIELDED METAL ARC WELDING (SMAW), ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE AND SHALL BE SUBJECT TO THE REQUIREMENTS OF A.W.S. D1.1– 2000 SECTION 5.3.2 FOR SMAW AND FLUX CORED ARC WELDING (FCAW) THE MAXIMUM PERMITTED ELECTRODE DIAMETER SHALL BE PER THE ATTACHED TABLE. REFERENCE A.W.S. D1.1– 2010, TABLE 3.7

5) WELDING SEQUENCE: BOTH FLANGES SHALL BE WELDED PRIOR TO ANY SUPPLEMENTAL WELDING TO THE SHEAR TAB.

6) AFTER WELDING, THE BACKING BAR AND THE RUN–OFF TABS ARE TO BE REMOVED FROM THE BOTTOM FLANGE. (NOTE; ONLY THE RUN–OFF TABS NEED TO BE REMOVED FROM THE TOP FLANGE, NOT THE BACKING BAR). THE WELD ROOT SHALL BE INSPECTED AND TESTED PER A.W.S. REQUIREMENTS GIVEN IN SECTION 8. IF REJECTABLE INDICATIONS ARE FOUND, REMOVE BY BACK GOUGING TO SOUND METAL. THE BACK GOUGED AREA SHALL BE WELDED AND IF REINFORCING PLATES ARE NOT USED, THE WELD SHALL BE REINFORCED WITH A FILLET WELD. THE SIZE OF THE REINFORCING FILLET WELD SHALL BE EQUAL TO 1/4 OF THE BEAM FLANGE THICKNESS, BUT NOT LESS THAN 1/4", BUT NEED NOT EXCEED 3/8" PER A.W.S. D1.1– 2022 NOTE J OF FIGURE 3.3 AND 3.4.

7) FOR THE WELD OF THE BOTTOM BEAM FLANGE TO THE COLUMN FLANGE, FOLLOW STEPS a THROUGH g BELOW:
a. THE ROOT PASS SHOULD NOT EXCEED A 1/4" IN LAYER THICKNESS.
b. THE FIRST HALF LENGTH ROOT SHOULD BE MADE WITH ONE OF THE FOLLOWING TECHNIQUES, AT THE OPTION OF THE CONTRACTOR:
(1) THE ROOT PASS MAY BE INITIATED NEAR THE CENTER OF THE JOINT. IF THIS APPROACH IS USED, THE WELDER SHOULD EXTEND THE ELECTRODE THROUGH THE WELD ACCESS HOLE APPROXIMATELY 1" BEYOND THE OPPOSITE SIDE OF THE GIRDER WEB. THIS IS TO ALLOW ADEQUATE ACCESS FOR CLEARING AND INSPECTION OF THE INITIATION POINT OF THE WELD BEFORE THE SECOND HALF–LENGTH OF THE ROOT PASS IS APPLIED. IT IS NOT DESIRABLE TO INITIATE THE ARC IN THE EXACT CENTER OF THE GIRDER WIDTH SINCE THIS WILL LIMIT ACCESS TO THE START OF THE WELD DURING POST–WELD OPERATIONS. AFTER THE ARC IS INITIATED, TRAVEL SHOULD PROGRESS TOWARD THE END OF THE JOINT (OUTBOARD BEAM FLANGE EDGE), AND THE WELD SHOULD BE TERMINATED ON A WELD–TAB / RUN–OFF–TAB. TABS SHALL EXTEND THE JOINT, NO END DAMS.
(2) THE WELD MAY BE INITIATED ON THE WELD RUN–OFF TAB, WITH TRAVEL PROGRESSING TOWARD THE CENTER OF THE GIRDER FLANGE WIDTH. WHEN THIS APPROACH IS USED, THE WELDER SHOULD STOP WELD APPROXIMATELY 1" BEFORE THE BEAM WEB. IT IS NOT ADVISABLE TO LEAVE THE WELD CRATER DIRECTLY IN THE CENTER OF THE BEAM FLANGE WIDTH SINCE THIS WILL HINDER POST–WELD OPERATIONS.
c. THE HALF–LENGTH ROOT PASS SHOULD BE THOROUGHLY SLAGGED AND CLEANED.
d. THE END OF THE HALF–LENGTH ROOT PASS THAT IS NEAR THE CENTER OF THE BEAM FLANGE SHOULD BE VISUALLY INSPECTED TO ENSURE FUSION, SOUNDNESS, FREEDOM FROM SLAG INCLUSIONS AND EXCESSIVE POROSITY. THE RESULTING BEAD PROFILE SHOULD BE SUITABLE FOR OBTAINING FUSION BY THE SUBSEQUENT PASS TO BE INITIATED ON THE OPPOSITE SIDE OF THE GIRDER WEB. IF THE PROFILE IS NOT CONDUCIVE TO GOOD FUSION, THE START OF THE FIRST ROOT PASS SHOULD BE GROUND GOUGED, CHIPPED OR OTHERWISE PREPARED TO ENSURE ADEQUATE FUSION.
e. THE SECOND HALF OF THE WELD JOINT SHOULD HAVE THE ROOT PASS APPLIED BEFORE ANY OTHER WELD PASSES ARE PERFORMED. THE ARC SHOULD BE INITIATED AT THE END OF THE HALF–LENGTH ROOT PASS THAT IS NEAR THE CENTER OF THE BEAM FLANGE, AND TRAVEL SHOULD PROGRESS TO THE OUTBOARD END OF THE JOINT, TERMINATING ON THE WELD TAB.
f. EACH WELD LAYER SHOULD BE COMPLETED ON BOTH SIDES OF THE JOINT BEFORE A NEW LAYER IS DEPOSITED.
g. WELD RUN–OFF TABS SHOULD BE REMOVED AND GROUND FLUSH TO THE BEAM FLANGE.

DEVIATION FROM THE PRECEDING PROCEDURES MAY BE MADE, PROVIDING THE CONTRACTOR SUBMITS IN WRITING AN ALTERNATE SEQUENCE THAT IS APPROVED BY THE ENGINEER PRIOR TO FABRICATION OR REPAIR.

8) AT TOP FLANGE, EITHER (1) REMOVE WELD BACKING, BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD, OR (2) LEAVE BACKING IN PLACE AND ADD 5/16" FILLET UNDER BACKING.
ATTACHMENTS:
a. PREHEATING AND INTERPASS TEMPERATURE
COMMENTARY: THERE ARE TWO PRIMARY PURPOSES FOR PREHEATING AND INTERPASS TEMPERATURE REQUIREMENTS.
(1) TO DRIVE OUR ANY SURFACE MOISTURE OR CONDENSATION WHICH MAY BE PRESENT ON THE STEEL SO AS TO LESSEN THE POSSIBILITY OF HYDROGEN BEING INTRODUCED INTO THE WELD METAL AND HAZ, AND
(2) TO PREVENT THE STEEL MASS SURROUNDING THE WELD FROM QUENCHING THE HAZ AS COOLING OCCURS AFTER WELDING.
TABLE 3–AASHTO PREHEAT REQUIREMENTS FOR FRACTURE CRITICAL REPAIRS (AASHTO TABLE 8.6)

STEEL	THICK	TEMP.
A572	TO 1–1/2"	325
A572	>1–1/2"	375

(REFERENCE AASHTO/A.W.S. DI.5–95 BRIDGE WELDING CODE)

D) WELDER AND SPECIAL INSPECTOR QUALIFICATION:

1) A DEPUTY INSPECTOR SHALL BE LICENSED AS A STRUCTURAL STEEL AND WELDING (SSW) REGISTERED DEPUTY BUILDING INSPECTOR BY THE CITY OF COSTA MESA, CALIFORNIA.

2) A WELDER SHALL BE CERTIFIED BY THE CITY OF NEWPORT BEACH TO PERFORM WORKS DESCRIBED HERE–ON.

E) TESTING:

1) COMPLETE JOINT PENETRATION GROOVE WELDS (FP) SHALL BE TESTED 100 % EITHER BY ULTRASONIC TESTING OR BY RADIOGRAPHY.

2) FOR COMPLETE PENETRATION GROOVE WELDS ON MATERIALS LESS THAN 5/16" THICK, NONDESTRUCTIVE TESTING IS NOT REQUIRED.

3) THE TEST RESULT SHALL BE SUBMITTED TO KNA ENGINEERING FOR APPROVAL.

4) ALL COMPLETE JOINT PENETRATION GROOVE WELDS SHALL BE INSPECTED AND TESTED PER CITY OF NEWPORT BEACH REQUIREMENTS.

5) IN ADDITION TO THE REGULAR INSPECTIONS, A RE–INSPECTION SHALL BE DONE A MINIMUM OF 48 HOURS AFTER WELDING ON FLANGES WITH A THICKNESS OF 3" OR GREATER. THESE WELDS SHALL ALSO REQUIRE U.T.

PERTINENT QA/QC REQUIREMENTS

2.1 Seismic Critical Welds: All seismic critical welds be identified on the drawings The followings Seismic Weld Demand Categories (SWDC), as defined in FEMA 353, Part II, Table 5.1, shall be the minimum requirements.

Groups I and II (OMF R=3.0,3.5	Beam and Flange to Column, Cover Plates to Beam Flange and Columns, & Beam Web	A
	Shear Plate, Continuity & Doubler Plates	B
Group III (OMF R=1.5)	Beam Flange to Column, Cover Plates to Beam Flange, Shear Plate and/or Beam Web Continuity Plates	B
	Collector Splices	B
Base Plates	Fixed and/or uplift occurs	A
	Pinned	B

Inspection and NDT

3.3d Alternatively to AWS D1.1: Use Annex K and FEMA 353 Part 1 5.8.3 and 5.8.4

Quality Control

4.2.3 The rate of testing shall be 100% for SWDC-B. for SWDC-B, it may be reduced to 50% provided there are no rejections. On groove welds thicker than 1-1/2 inches, MT is recommended that 25% of complete penetration groove welds be retested 7 days after welding (for possible delay cracking).

4.2.4 PJPs and Fillet welds shall be tested by MT at the rate of 100% for SWDC-A. The rate of testing for SC-B fillet welds shall be 25%.

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WELDING PROPCEDURES

7.1 All beam to column and flange plate to column SWDC-A welds shall be pre-qualified. Recommended that for SWDC-A welds, the heat input, defined in AWS D1.1;2000, shall not increase by more that 10% above that specified in the WPS. WPSs shall include the Manufacture's electrode type and information.

7.6 Electrodes storage to comply with FEMA 353.

7.11 All welds, except as noted for joining of material conforming to ASTM A913, Grade 65, shall employ weld filler metals classified for nominal 70 ksi tensile strength, referred to as E70 electrodes meeting the following minimum mechanical property requirements of FEMA 350 and 353.

a. CVN toughness of 20 ft.lb @ 0ºF using test procedures prescribed in Appendix A of FEMA 353.
b. CVN toughness of 40 ft.lb.@ 70ºF using test procedures prescribed in Appendix A of FEMA 353.

Higher toughness may be required for welds greater than 1-½ inch. WPS shall have heat input variations, allowing for permitting tolerances within the range tested in Appendix A of FEMA 353.

7.12 The Contractor shall submit a sequence of shop welds for all SWDC A and B welds for each piece defined on the drawings.

7.13 The Contractor shall submit a field welding sequence procedure to the RDPR prior to the start of work for all SWDC A and B field welds at each connection.
a. Girder flange to column flange field welds shall be completed prior to field welding of shear plate CJP, PJP of fillet welds.
b. Where high strength slip critical fasteners occur, the following shall apply:
(i) Faying surfaces of connections with high strength fasteners shall comply with the requirements of the AISC Manual of Steel Construction, Section 5 (Class A).
(ii) Bolted connections shall be in the snug tight condition prior to welding.
(iii) Upon completion of all welding, inspection and testing activities, all high strength fasteners shall be fully tensioned.
(iv) Proper tension of high strength slip critical fasteners shall be verified by a calibrated tension measuring device.

c. Alternative procedures may be submitted subject to review and approval of the RDPR.

7.14 The Field welding sequence of each connection within frame shall be submitted to the RDPR for review and approval prior to the start of work.

ROOF INSTALLATION NOTE:
THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S–4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

PART I
APPENDIX A. WELD METAL / WELDING PROCEDURE SPECIFICATION TOUGHNESS VERIFICATION TEST

Scope

This appendix supplements Part I, Section 2.4.1, and provides a standard method for qualification testing of weld filler metals required to have specified notch toughness for service in steel moment frames for seismic applications. The WPS Toughness Verification Test may be performed by the filler metal manufacturer or by the Contractor.

Testing and certification of each lot to be used in production shall be performed on each filler metal manufacturer's production lot, as defined in AWS A5.01, *Filler Metal Procurement Guidelines*, as follows:

1. Class C3 for SMAW electrodes,

2. Class S2 for GMAW-S and SAW electrodes,

3. Class T2 for FCAW and GMAW-C, or

4. Class F2 for SAW fluxes.

Alternatively, filler metal manufacturers approved for production of products meeting the above requirements, under a program acceptable to the Engineer, need not conduct the mechanical A5 tests or the Weld Metal / WPS Toughness Verification Test for each lot, and may rely upon the Manufacturer's certifications that the product meets the specified performance requirements.

Test Conditions

Tests shall be conducted at the range of heat inputs for which the weld filler metal will be qualified under the WPS. It is recommended that tests be conducted at the Low Heat Input Level and High Heat Input Level indicated in Table A-1. Alternatively, the filler metal manufacturer or Contractor may elect to test a wider or narrower range of heat inputs and interpass temperatures. The range of heat inputs and interpass temperatures tested shall be clearly stated on the test reports and user data sheets. Regardless of the method of selecting test heat input, the WPS, as used by the Contractor, must fall within the range of heat inputs and interpass temperatures tested.

Table A-1 WPS Toughness Verification Test Welding and Preheat Conditions

Cooling Rate	Heat Input	Preheat °F	Interpass °F
Low Heat Input Test	30 kJ/in.	70 +/- 25	200 +/- 50
High Heat Input Test	80 kJ/in.	300 +/- 25	500 +/- 50

Test Specimens

Two test plates shall be used for each heat input level and five CVN test specimens shall be made per test plate. Each plate shall be steel, of any AISC-listed structural grade. The test plate shall be ¾-inch thick with a ½-inch root opening and 45? included groove angle. The test plate and specimens shall be as shown in Figure 2A in AWS A5.20-22, or as in Figure 5 in AWS A5.29-89R. A minimum of two passes per layer shall be used to fill the width.

All test specimens shall be taken from near the centerline of the weld at the mid-thickness location, in order to minimize dilution effects. CVN specimens shall be prepared in accordance with AWS B4.0-92, *Standard Methods for Mechanical Testing of Welds*, Section A3. The test assembly shall be welded in the flat position and shall be restrained during welding, or preset at approximately 5 degrees to prevent warpege in excess of 5 degrees. A welded test assembly that has warped more than 5 degrees shall be discarded. Welded test assemblies shall not be straightened.

The test assembly shall be tack welded and heated to the specified preheat temperature, measured by temperature indicating crayons or surface temperature thermometers one inch from the center of the groove at the location shown in the figures cited above. Welding shall continue until the assembly has reached the interpass temperature prescribed in Table A-1. The interpass temperature shall be maintained for the remainder of the weld. Should it be necessary to interrupt welding, the assembly shall be allowed to cool in air. The assembly shall then be heated to the prescribed interpass temperature before welding is resumed.

No thermal treatment of welding or test specimens is permitted, except that machined tensile test specimens may be aged at 200oF to 220oF for up to 48 hours, then cooled to room temperature before testing.

Acceptance Criteria

All test samples shall meet the strength requirements for the electrodes as provided in Part I, Section 2.4.1.1. The lowest and highest values obtained from each of five specimens from a single test plate shall be disregarded. Two of the remaining three values shall equal, or exceed, the specified toughness of 40 ft-lbf energy level at the testing temperature. One of the three may be lower, but not lower than 30 ft-lbf, and the average of the three shall not be less than the required 40 ft-lbf energy level.

The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.

1/20/2025

REGISTERED PROFESSIONAL ENGINEER MOHAMMAD REZA SABERI No. 3071 GEOTECHNICAL STATE OF CALIFORNIA

Table 5-1 Seismic Weld Demand Categories

Demand		Example
A HIGH	Welds in which services stresses are anticipated to be at or beyond the yield level, with some inelastic strain into the strain hardening region anticipated.	Beam-flange-to-column-flange CJP groove welds in: • unreinforced connections, • RBS connections, with "weak" panel zones, • free-flange connections.
B MEDIUM	Welds in which services stresses are anticipated to be near or slightly beyound the yield level, with for which negligible strain demand is anticipated.	Beam-flange-to-column-flange CJP groove welds in: • unreinforced connections, • RBS connections, with "weak" panel zones, • free-flange connections. In haunched connections, haunch-to-beam-flange and haunch -flange-to column-flange CJP groove welds. Fillet welds in cover-plated and haunched connections. WEb welds (shear tab or direct welded) in all moment connections. Doubler plate and continuity plate welds (both groove and fillet welds). CJP and PJP groove welded splices in butt joints with applied tension. In braced frames, all CJP and PJP groove welds between brace and beam or column (but not including gusset plates.)
C LOW	Welds in which service stress are anticipated to remain below stresses permitted for design, or will remain in compression. Note: For LRFD, permitted design stress is defined as using(ØF- as 0.8(0.6F_{EXX}) or lower as the design strength. For ASD, permitted design stress is defined as using an allowable stress of .3F_{EXX}.	All other CJP and PJP groove welds in shear or compression, or a combination of shear and compression. All other fillet welds. All plug and slot welds.

Table 5-4 Nondestructive Testing

Consequence	Demand		
	A	B	C
H	**CJP** MT 100% of joints, full length UT 100% of joints, full length PJP, fillets MT 100% of joints full length	**CJP** MT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded UT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded (Reduce UT to 25% of joints, of length as above, with high acceptance rate) PJP, fillets MT 25% of joints, full length if transversely loaded, partial length if longitudinally loaded.	**CJP** UT 10% of joints, full length if transversely loaded, partial length if longitudinally loaded PJP, fillets MT 10% of joints, 6" spot at random
M	**CJP** MT 100% of joints, full length UT 100% of joints, full length (reduce UT to 25% of joints, full length, with high acceptance rate) PJP, fillets MT 100% of joints full length	**CJP** MT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded UT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded (Reduce UT to 25% of joints, of length as above, with high acceptance rate) PJP, fillets MT 25% of joints, full length if transversely loaded, partial length if longitudinally loaded.	No NDT required
L	**CJP** MT 25% of joints, full length. UT 25% of joints, full length PJP, fillets MT 100% of joints full length	**CJP** UT 10% of joints, full length PJP, fillets MT 10% of joints, 6" spot at random	No NDT required

Note: 1. CJP, complete joint penetration: PJP, partial joint penetration; MT, magnetic particle testing; UT, ultrasonic testing
2. UT only when weld throat is 5/16" or greater.
3. Reduce rate of UT and MT when an individual welder's reject rate is less than 5% after 40 welds have been inspected.
4. Partial length testing for longitudinally loaded welds is applicable for welds over 24" in length, and includes the beginning and end of each weld for a 6" length, plus any location along the length of the weld where a start and restart is visually noted for a distance of 6" on either side of the stop/start location, and a 6" length every 10' for a given weld.
5.CJP and PJP groove welded column splices that are a part of the seismic force-resisting system and are subject to applied tension shall be ultrasonically tested as BH/T.

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

REVISIONS
08-16-2024
11-20-2024

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER JOSE VENTOCILLA C 47942 Exp.12–31–2025 CIVIL STATE OF CALIFORNIA

Electronically signed on 12/03/2024 at 9:50am

LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL
STEEL NOTES

JV
CHECKED
VENTOCILLA
DATE
07–04–2024
JOB NO.

SCALE
1/4"=1'-0"

SN2

CM-02-27-2025

SOIL BEARING CAPACITY=1,600 psf

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

FOUNDATION BOLT FOR SDC "D": FOUNDATION BOLTS SHALL BE MINIMUM 1/2 INCH DIAMETER WITH 0.229 INCH x 3 INCH x 3 INCH PLATE WASHERS, EMBEDDED AT LEAST 7 INCHES INTO CONCRETE OR MASONRY FOUNDATION, SPACED NOT MORE THAN 6 FEET APART, R602.11.1 AND MAX 4 FT. FOR BUILDINGS OVER TWO STORIES IN HEIGHT. ALL CRIPPLE WALLS SHALL BE BRACED"
AT SHEARWALL LOCATIONS THE CONTRACTOR SHALL INSTALL THE ANCHOR BOLTS AT THE INDICATED SPACING FOR EACH REFERENCED SHEARWALL

CONCRETE SLAB NOTE:
NEW 6" CONCRETE SLAB ON GRADE W/#4 @ 18" OC.
A 2" THICK LAYER OF SAND OVER A VAPOR BARRIER MEETING ASTM 1745 (15MIL) OVER 2" OF SAND, OVER A 4" THICK BASE OF ½" OR LARGER CLEAN AGGREGATE.

SPECIAL INSPECTION IS REQUIRED WHEN USING "3G" EPOXY ADHESIVE ICC ESR4057

GRADING AND FOUNDATION SHALL BE INSPECTED AND CERTIFIED BY THE SOILS ENGINEER PRIOR TO PLACEMENT OF CONCRETE

BOLT RETROFIT NOTE:
"DEPUTY INSPECTOR SHALL BE PRESENT DURING THE DRILLING, CLEANING AND PLACEMENT OF THE RETROFIT BOLT. DEPUTY INSPECTOR SHALL FURNISH A REPORT TO THE CONTRACTOR, ENGINEER AND THE INSPECTOR. THE REPORT SHALL BE SPECIFIC TO THE SPECIFIC WORK OBSERVED AND THE WORK IS IN ACCORDANCE WITH THE PLANS AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SHOULD THE INSPECTED WORK NOT TO BE IN ACCORDANCE WITH THE PLANS OR THE MANUFACTURER'S INSTALLATION INSTRUCTIONS; THE DEPUTY INSPECTOR SHALL FURNISH A CORRECTION REPORT TO THE CONTRACTOR, ENGINEER OF RECORD AND THE BUILDING INSPECTOR.
ALL REVISIONS TO THE APPROVED PLANS MUST BE APPROVED BY THE ENGINEER OF RECORD AND BUILDING DEPARTMENT BEFORE PROCEEDING WITH ANY CORRECTIVE WORK"

GEOTECHNICAL REPORT 24145-01
BY SA GEOTECHNICAL
DATED NOVEMBER 14, 2024

SEE SHEAR WALL SCHEDULE ON SHEET SN-1

THE CONTRACTOR SHALL VERIFY EVERY EXISTING SHEARWALL CALLED ON THE PLANS

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.

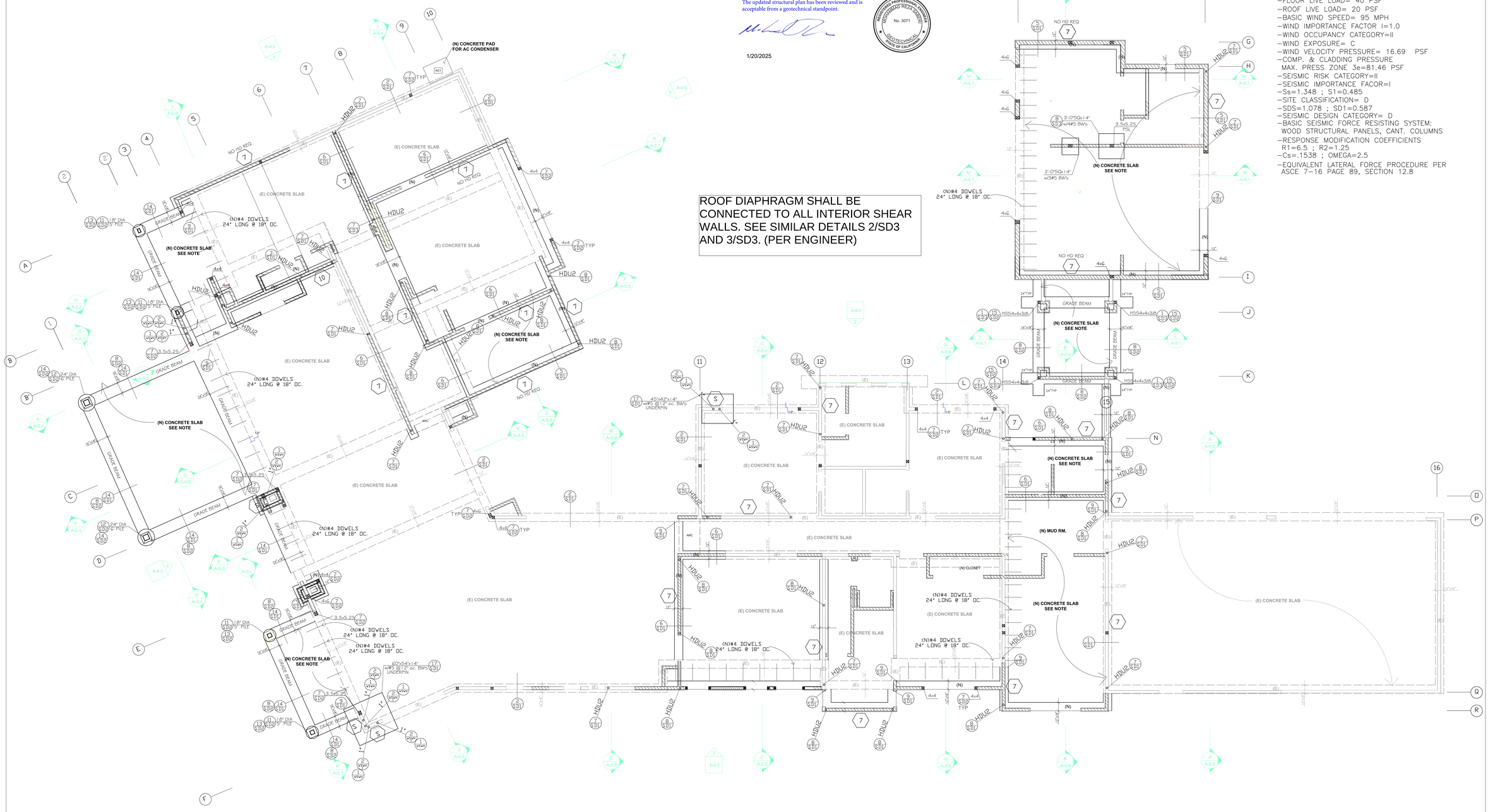
1/20/2025

REGISTERED PROFESSIONAL ENGINEER
MOHAMMAD REZA SOLEIMANI
No. 3071
GEOTECHNICAL
STATE OF CALIFORNIA

ROOF DIAPHRAGM SHALL BE CONNECTED TO ALL INTERIOR SHEAR WALLS. SEE SIMILAR DETAILS 2/SD3 AND 3/SD3. (PER ENGINEER)

NOTES:
-MSTA21 STRAP V=1,505 LBS.
-MSTA24 STRAP V=1,640 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

NOTES & DESIGN CRITERIA:
- ALL NEW SHEAR WALLS TO BE PLYWOOD
- SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
- ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1 (ACCEPTABLE SDPWS 4.3.6.4.3)
- FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
- ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
- ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
- HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
- HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- ROOFING MATERIAL WEIGHT= 5.5 PSF
- FLOOR LIVE LOAD= 40 PSF
- ROOF LIVE LOAD= 20 PSF
- BASIC WIND SPEED= 95 MPH
- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
- COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
- SDS=1.078 ; SD1=0.587
- SEISMIC DESIGN CATEGORY= D
- BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
- RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
- Cs=.1538 ; OMEGA=2.5
- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8



WALL LEGEND
- EXISTING WALL FOUNDATION
- NEW WALLS FOUNDATION
- EXISTING WALLS TO REMAIN
- WALLS TO BE DEMOLISHED
- NEW WALLS

PROPOSED FOUNDATION PLAN

REVISIONS
08-16-2024
11-30-2024
01-10-2025

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 01/10/2025 at 5:30pm

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

FOUNDATION PLAN

DRAWN JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

S-1

CM-02-27-2025

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

ROOF DIAPHRAM

15/32" CDX UNBLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/32-16d NAILS
PER SPLICE.

ROOF INSTALLATION NOTE

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS.

RIDGE BEAMS, HIPS, AND VALLEYS SHALL BE SUPPORTED BY POSTS PERPENDICULAR TO THESE STRUCTURAL ELEMENTS TO PREVENT UNNECESSARY TORSIONAL FORCES TO THE SUPPORTING CEILING BEAMS OR WALLS SEE DETAIL 10/SD-1

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

SEE SHEAR WALL SCHEDULE ON SHEET SN-1

THE CONTRACTOR SHALL VERIFY EVERY EXISTING SHEARWALL CALLED ON THE PLANS

NOTES:
- MSTA21 STRAP V=1,505 LBS.
- MSTA24 STRAP V=1,640 LBS.
- HDU2 HOLDOWN T=3,075 LBS.
- SDS 1/4X6 WOOD SCREW V=350LBS.

NOTES & DESIGN CRITERIA:

- ALL NEW SHEAR WALLS TO BE PLYWOOD
- SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
- ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1 (ACCEPTABLE SDPWS 4.3.6.4.3)
- FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
- ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
- ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
- HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
- HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- ROOFING MATERIAL WEIGHT= 5.5 PSF
- FLOOR LIVE LOAD= 40 PSF
- ROOF LIVE LOAD= 20 PSF
- BASIC WIND SPEED= 95 MPH
- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
- COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
- SDS=1.078 ; SD1=0.587
- SEISMIC DESIGN CATEGORY= D
- BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
- RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
- Cs=.1538 ; OMEGA=2.5
- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8



PROPOSED FRAMING PLAN

WALL LEGEND
- EXISTING WALL FOUNDATION
- NEW WALLS FOUNDATION
- EXISTING WALLS TO REMAIN
- WALLS TO BE DEMOLISHED
- NEW WALLS

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.

REVISIONS
08-16-2024
01-10-2025

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 01/10/2025 at 5:30pm

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

FRAMING PLAN

DRAWN JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

S-2

CM-02-27-2025

ROOF INSTALLATION NOTE

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS.

RIDGE BEAMS, HIPS, AND VALLEYS SHALL BE SUPPORTED BY POSTS PERPENDICULAR TO THESE STRUCTURAL ELEMENTS TO PREVENT UNNECESSARY TORSIONAL FORCES TO THE SUPPORTING CEILING BEAMS OR WALLS SEE DETAIL 10/SD-1

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.

ROOF INSTALLATION NOTE:

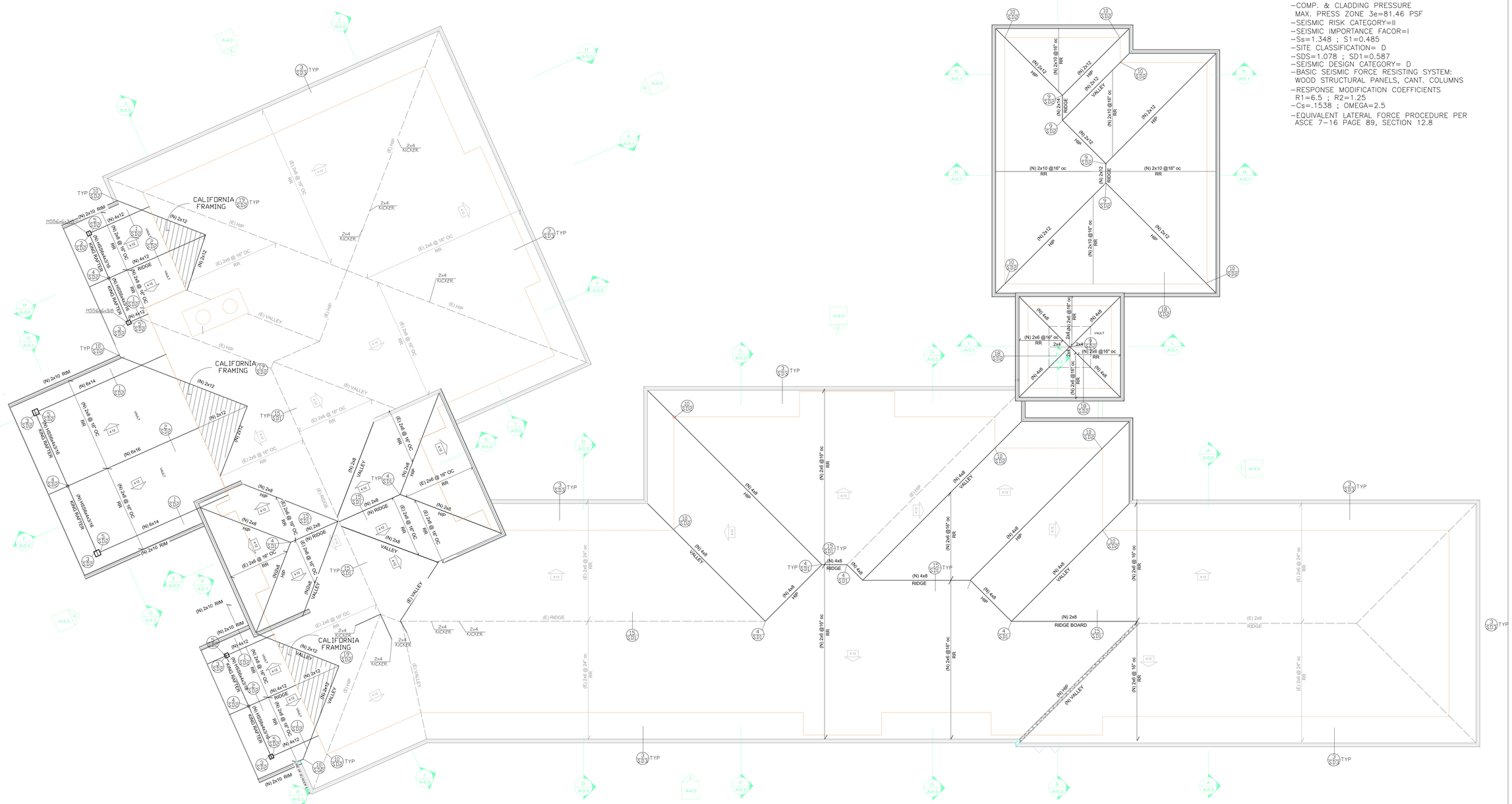
THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S-4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

NOTES:
- MSTA21 STRAP V=1,505 LBS.
- MSTA24 STRAP V=1,640 LBS.
- HDU2 HOLDOWN T=3,075 LBS.
- SDS 1/4X6 WOOD SCREW V=350LBS.

NOTES & DESIGN CRITERIA:

- ALL NEW SHEAR WALLS TO BE PLYWOOD
- SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
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- HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- ROOFING MATERIAL WEIGHT= 5.5 PSF
- FLOOR LIVE LOAD= 40 PSF
- ROOF LIVE LOAD= 20 PSF
- BASIC WIND SPEED= 95 MPH
- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
- COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
- SDS=1.078 ; SD1=0.587
- SEISMIC DESIGN CATEGORY= D
- BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
- RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
- Cs=.1538 ; OMEGA=2.5
- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8



PROPOSED ROOF FRAMING PLAN

REVISIONS
08-16-2024
01-10-2025

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 01/10/2025 at 5:30pm

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

ROOF PLAN

DRAWN	JV
CHECKED	VENTOCILLA
DATE	07-04-2024
JOB NO.	-----
SCALE	1/4"=1'-0"

S-3

CM-02-27-2025

ROOF INSTALLATION NOTE:

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S-4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

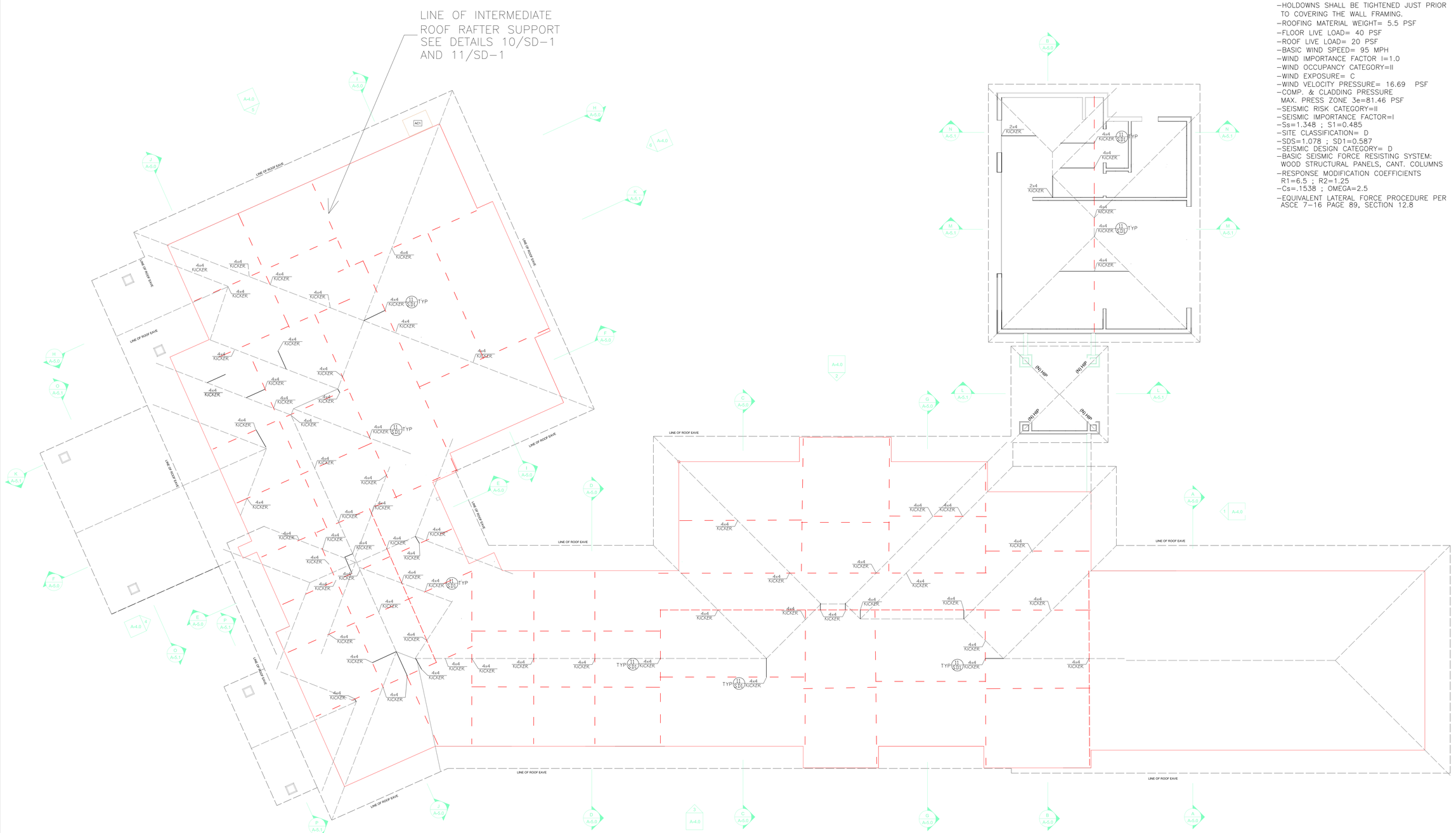
DATE: 2/25/2025

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.

NOTES & DESIGN CRITERIA:

- ALL NEW SHEAR WALLS TO BE PLYWOOD
- SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
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- HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- ROOFING MATERIAL WEIGHT= 5.5 PSF
- FLOOR LIVE LOAD= 40 PSF
- ROOF LIVE LOAD= 20 PSF
- BASIC WIND SPEED= 95 MPH
- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
- COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACTOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
- SDS=1.078 ; SD1=0.587
- SEISMIC DESIGN CATEGORY= D
- BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
- RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
- Cs=.1538 ; OMEGA=2.5
- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8



PROPOSED INTERMEDIATE RAFTER SUPPORT DIAGRAM

REVISIONS
08-16-2024
11-30-2024

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 12/03/2024 at 9:50am

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

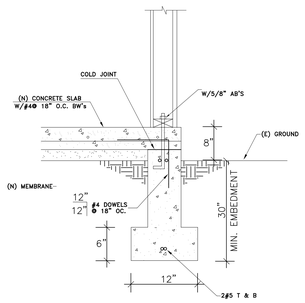
RAFTERS INTERMEDIATE SUPPORT PLAN

DRAWN	JV
CHECKED	VENTOCILLA
DATE	07-04-2024
JOB NO.	-----
SCALE	1/4"=1'-0"

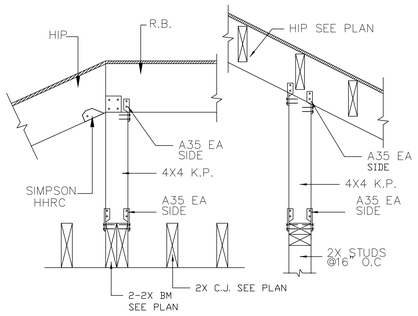
S-4

CM-02-27-2025

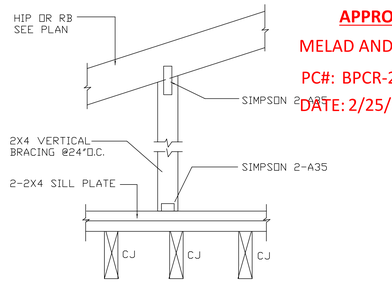
APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025



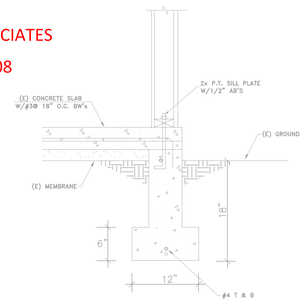
NEW EXTERIOR WALL FOUNDATION DETAIL | 5



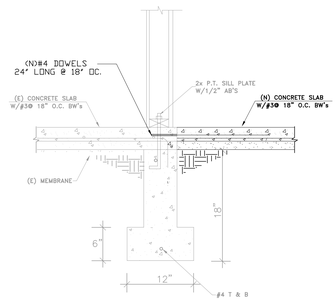
HIP BOARD SUPPORT CONNECTION DETAIL | 4



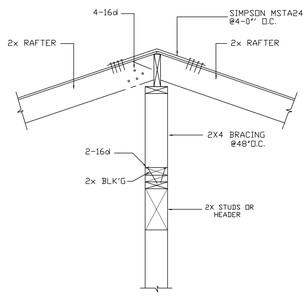
BRACING TO RAFTERS CONNECTION DETAIL | 3



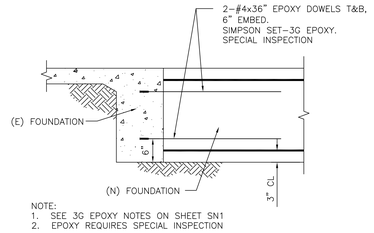
EXISTING EXTERIOR WALL FOUNDATION DETAIL | 2



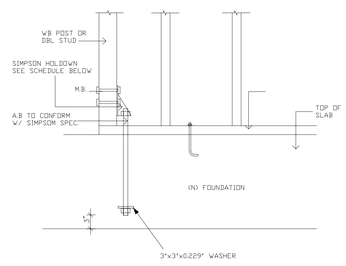
EXTERIOR GARAGE WALL FOUNDATION DETAIL | 1



TYPICAL KICKER FOR RIDGE BOARD SUPPORT DETAIL | 10



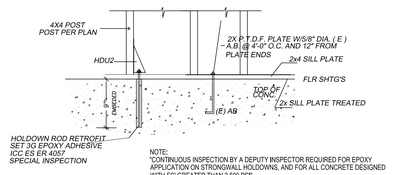
TYPICAL NEW TO EXISTING FOUNDATION DETAIL | 9



HOLDOWN INSTALLATION DETAIL ON NEW FOUNDATION | 8

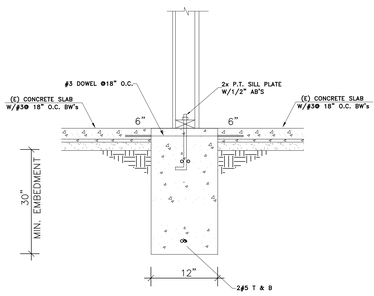
TYPE	ANCHOR TYPE	DIA.	Le MIN.
HDU2	ALL THREAD	5/8"	9"
HDU4	ALL THREAD	5/8"	9"
HDU8	ALL THREAD	7/8"	9"

NOTE:
HOLDOWN ANCHOR BOLT SHALL BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION.

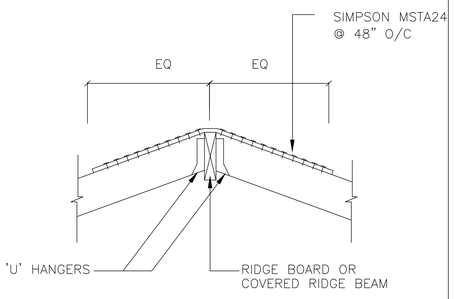


NOTE:
"CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR REQUIRED FOR EPOXY APPLICATION ON STRONGWALL HOLDOWNS, AND FOR ALL CONCRETE DESIGNED WITH FC' GREATER THAN 2,500 PSI"

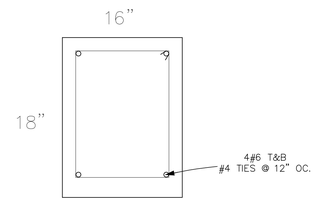
HOLDOWN INSTALLATION DETAIL ON EXISTING FOUNDATION | 7



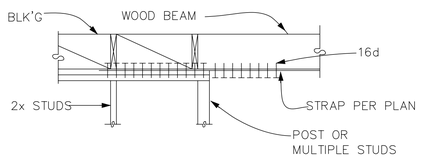
NEW INTERIOR WALL FOUNDATION DETAIL | 6



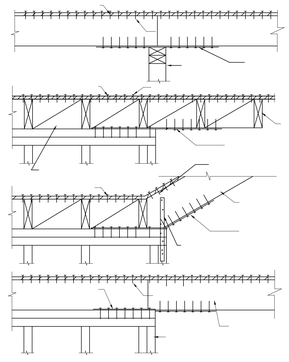
ROOF RAFTERS TO RIDGE BOARD CONNECTION DETAIL | 15



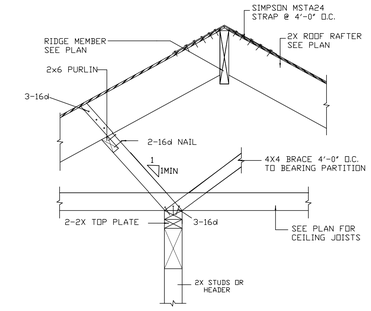
GRADE BEAM SECTION DETAIL | 14



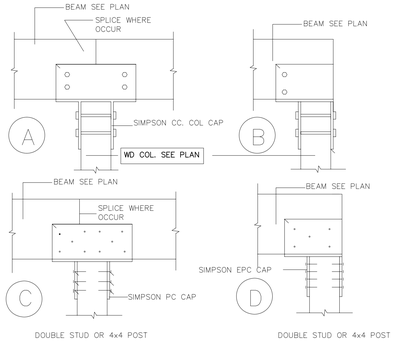
DRAG STRUT DETAIL | 13



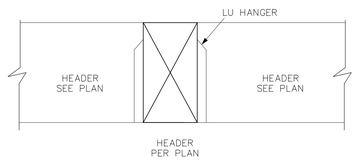
TYPICAL DRAG STRUT DETAILS | 12



TYPICAL INTERMEDIATE RAFTER SUPPORT DETAIL | 11



TYPICAL BEAM TO POST CONNECTION DETAIL | 20

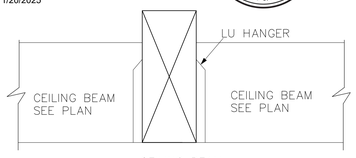


HEADER TO HEADER CONNECTION DETAIL | 19

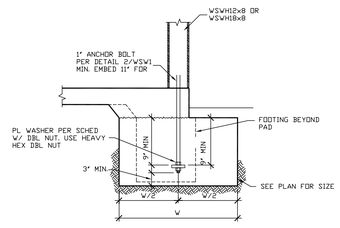
The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.

1/20/2025

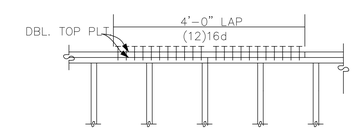
REGISTERED PROFESSIONAL ENGINEER MOHAMMAD REZA GHARIB No. 3071 GEOTECHNICAL STATE OF CALIFORNIA



CEILING BEAM TO CEILING BEAM CONNECTION DETAIL | 18



EXTERIOR FOOTING FOR STRONGWALL DETAIL | 17



LINE	DIAPHRAGM	16d	LAP
A	ROOF	32	4'

WALL TOP PLATE SPLICE DETAIL | 16

REVISIONS
08-16-2024
11-30-2024

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER JOSE VENTOCILLA C 47942 Exp.12-31-2025 CIVIL STATE OF CALIFORNIA

Electronically signed on 12/03/2024 at 9:50am

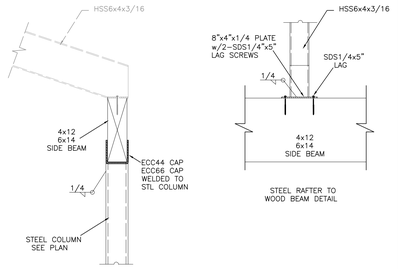
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL DETAILS

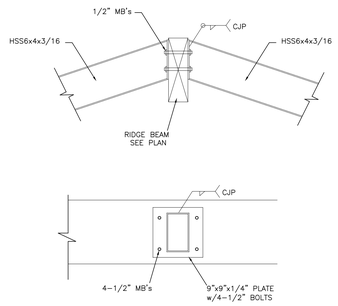
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CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

SD1

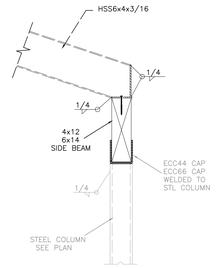
CM-02-27-2025



WOOD SIDE BEAM TO STEEL COLUMN CONNECTION DETAIL | 5

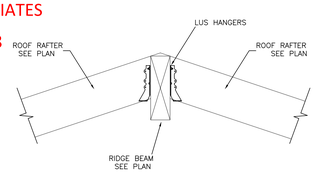


STEEL RAFTER TO RIDGE BEAM CONNECTION DETAIL | 4

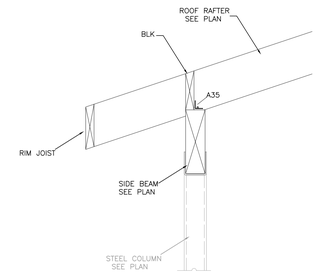


STEEL RAFTER TO WOOD BEAM CONNECTION DETAIL | 3

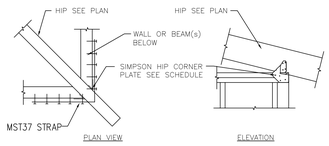
APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025



WOOD RAFTER TO RIDGE BEAM CONNECTION DETAIL | 2



WOOD RAFTER TO SIDE BEAM CONNECTION DETAIL | 1

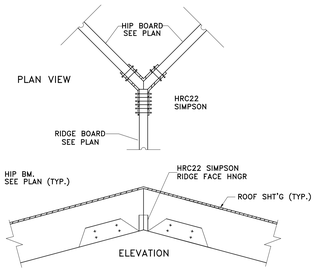


SIMPSON HIP CORNER PLATE

MEMBER SIZE	MODEL NO.	FASTENERS TO HIP	FASTENERS TO SUPPORT
2X	HCP2	(6) 10dX 11/2"	(6) 10dX 11/2"
4X	HCP4Z	(8) 10d	(8) 10d

1. INSTALL ALL FASTENERS PER SIMPSON
2. ICC ESR 2551

HIP BEAM AT TOP PLATE CONNECTION DETAIL | 10

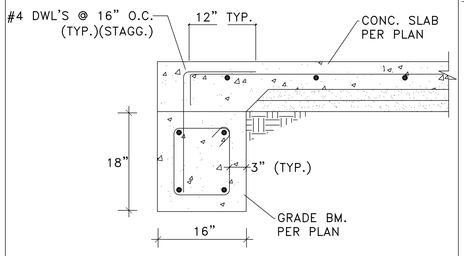


ALTERNATE HIP BOARD CONNECTION DETAIL | 9

The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.

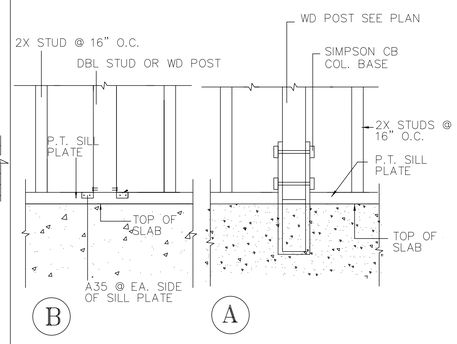
1/20/2025

REGISTERED PROFESSIONAL ENGINEER
MOHAMMAD REZA SHIRZAD
No. 3071
GEOTECHNICAL
STATE OF CALIFORNIA

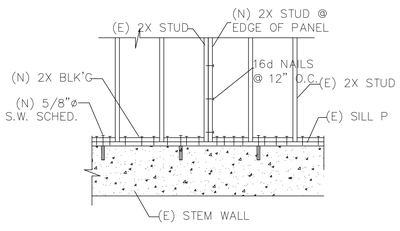


SEE DETAIL 14/SD-1

GRADE BEAM AT NEW SLAB CONNECTION DETAIL | 8

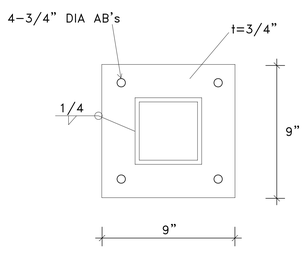


WOOD POST TO FOOTING CONNECTION DETAIL | 7



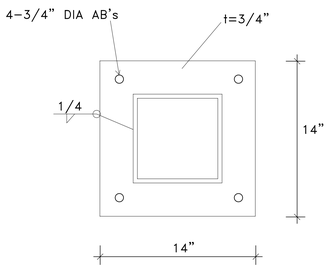
SHEAR TRANSFER DETAIL

NEW SHEARWALL OVER EXISTING SILL PLATE DETAIL | 6



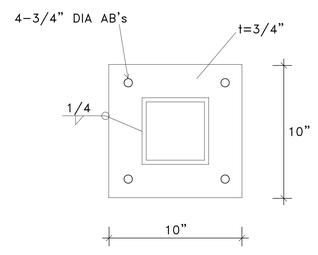
ENTRY GATE AREA

STEEL BASE PLATE FOR HSS4x4x3/8 COLUMN DETAIL | 15



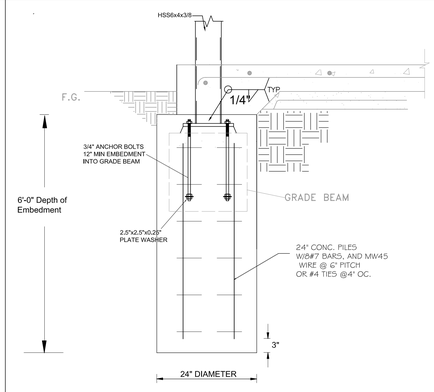
PATIO COVER LINE 1

STEEL BASE PLATE FOR HSS8x8x3/8 COLUMN DETAIL | 14

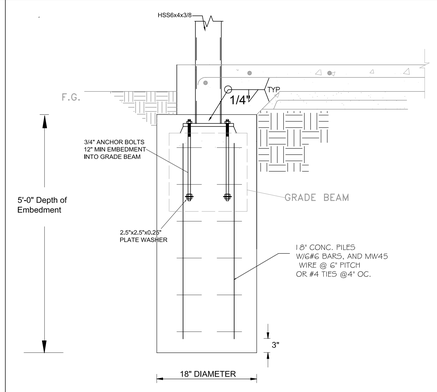


PATIO COVER LINES 2 & 2'

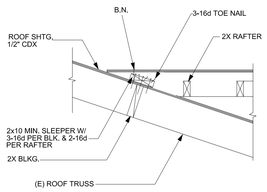
STEEL BASE PLATE FOR HSS6x6x3/8 COLUMN DETAIL | 13



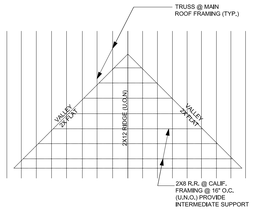
CONCRETE PILE AND STEEL COLUMN CONNECTION DETAIL | 12



CONCRETE PILE AND STEEL COLUMN CONNECTION DETAIL | 11

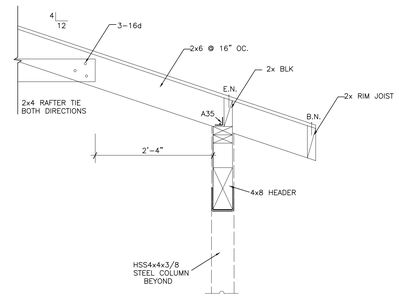


CALIFORNIA FRAME ROOF RIDGE DETAIL | 20

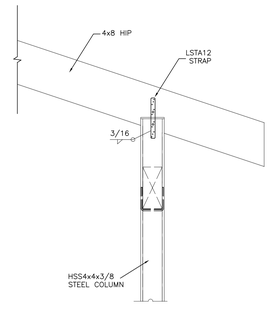


SEE DETAIL 20/SD-2

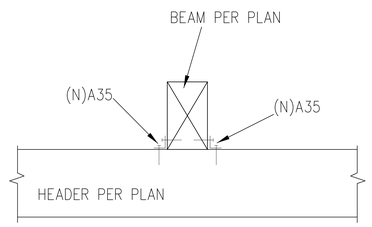
CALIFORNIA FRAME ROOF PLAN VIEW | 19



RAFTER TIE CONNECTION DETAIL | 18



HIP TO STEEL COLUMN CONNECTION DETAIL | 17



BEAM TO HEADER CONNECTION DETAIL | 16

REVISIONS
08-16-2024
01-10-2025

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 01/10/2025 at 5:30pm

LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

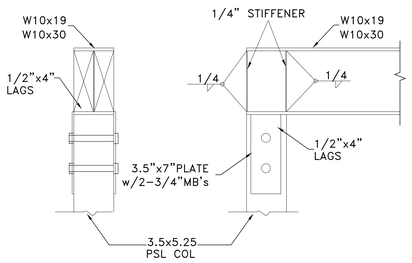
STRUCTURAL DETAILS

JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

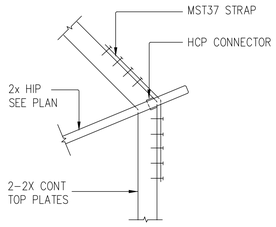
SD2

CM-02-27-2025

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

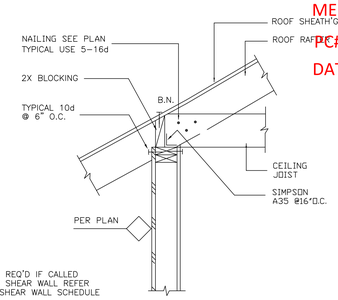


STEEL BEAM TO TIMBER COLUMN DETAIL 5

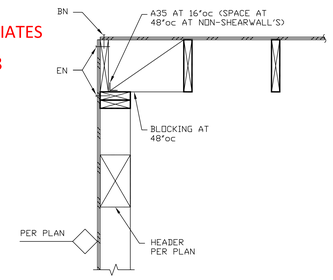


SEE DETAIL 10/SD-2

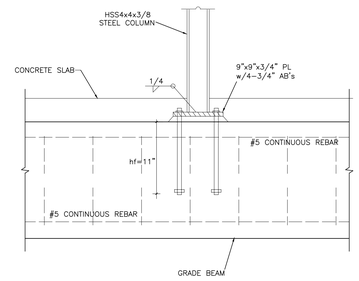
2x HIP TO CORNER ALTERNATE CONNECTION 4



TYPICAL EAVE SHEAR TRANSFER DETAIL 3



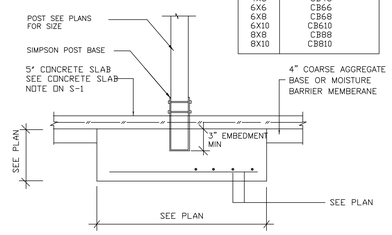
TYPICAL SHEAR TRANSFER AT RAKE 2



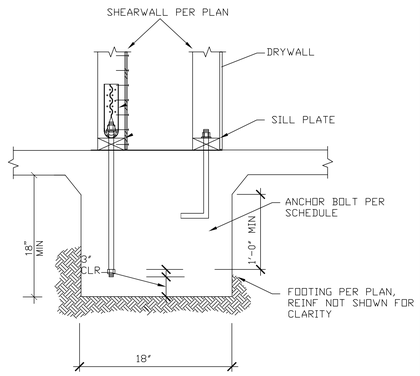
SEE DETAIL 8/SD-2

ANCHORAGE DETAIL FOR HSS4x4x3/8 STEEL COLUMN 1

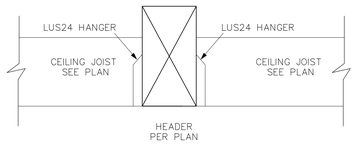
POST	SIMPSON POST BASE
4X4	CB44
4X6	CB46
4X8	CB48
6X6	CB66
6X8	CB68
6X10	CB610
8X8	CB88
8X10	CB810



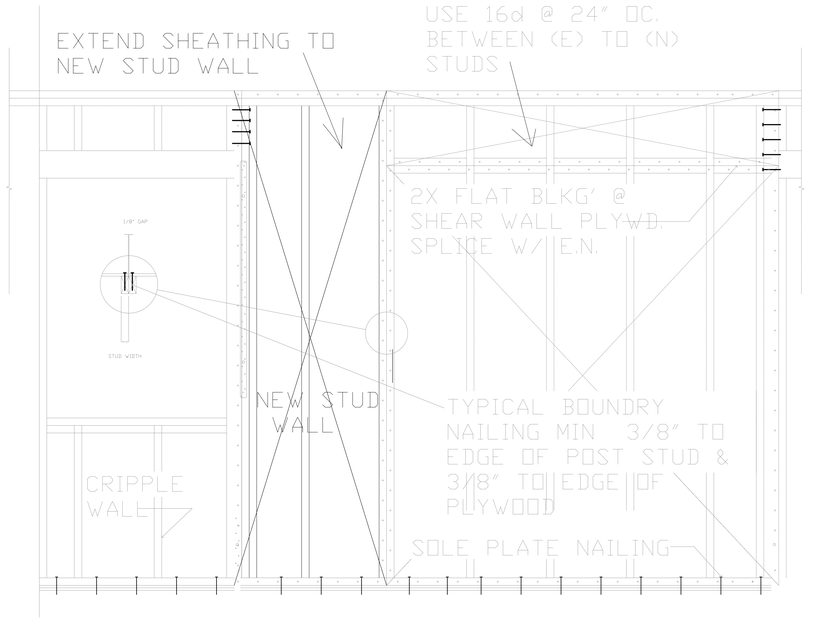
FOOTING PAD INSTALLATION DETAIL 8



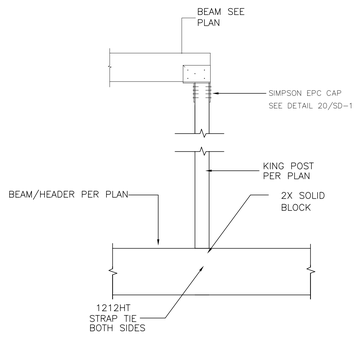
HOLDOWN INSTALLATION DETAIL 7



CEILING JOIST TO HEADER CONNECTION DETAIL 6



(N) TO (E) WALLSTUDS CONNECTION DETAIL 9



KING POST CONNECTION DETAIL 10

The updated structural plan has been reviewed and is acceptable from a geotechnical standpoint.
1/20/2025
REGISTERED PROFESSIONAL ENGINEER MOHAMMAD REZA JOUDEH No. 3071 GEOTECHNICAL STATE OF CALIFORNIA

11

12

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14

15

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17

REVISIONS
08-16-2024
01-10-2025

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER JOSE VENTOCILLA C 47942 Exp.12-31-2025 CIVIL STATE OF CALIFORNIA
Electronically signed on 01/10/2025 at 5:30pm

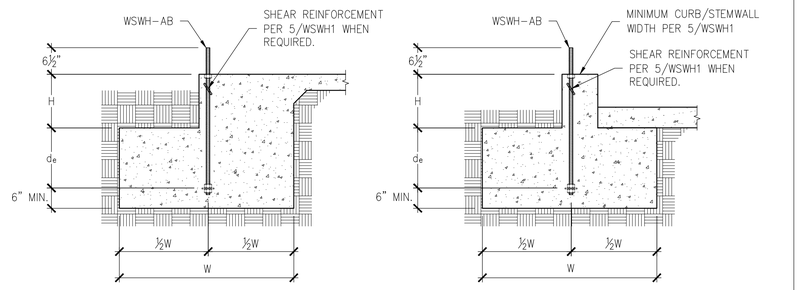
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL DETAILS

JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

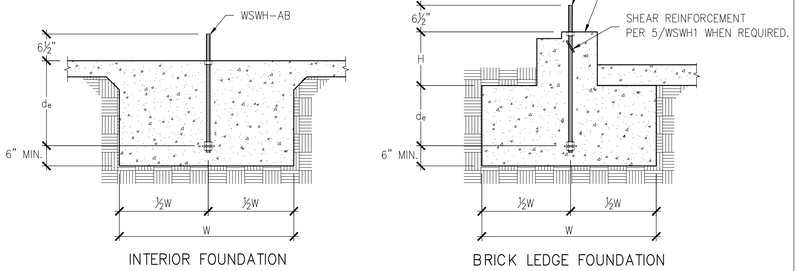
SD 3

CM-02-27-2025

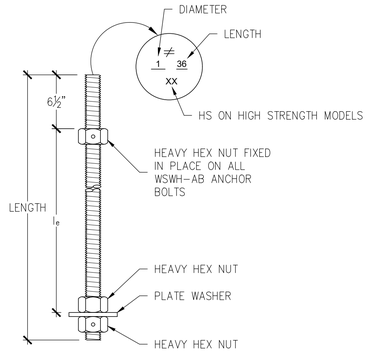


NOTES :
1. SEE 2/WSWH1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSWH1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e–d_e. SEE 3/WSWH1 AND 4/WSWH1 FOR l_e.

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

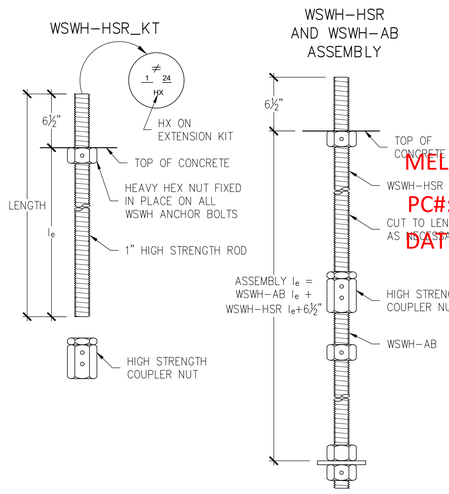


STRONG–WALL® WSWH ANCHORAGE – TYPICAL SECTIONS | 1



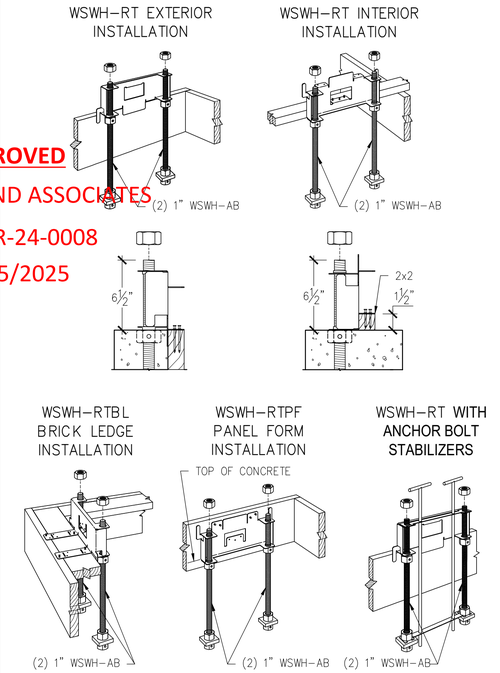
WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH–AB1x24	1"	24"	15½"
	WSWH–AB1x24HS	1"	24"	15½"
	WSWH–AB1x30	1"	30"	21½"
	WSWH–AB1x30HS	1"	30"	21½"
	WSWH–AB1x36	1"	36"	27½"
	WSWH–AB1x36HS	1"	36"	27½"
	WSWH–AB1x42	1"	42"	33½"
	WSWH–AB1x42HS	1"	42"	33½"
	WSWH–AB1x48	1"	48"	39½"
	WSWH–AB1x48HS	1"	48"	39½"

WSWH ANCHOR BOLTS | 3

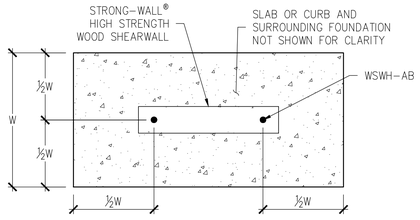


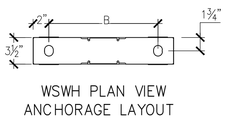
WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH–HSR1x24KT	1"	24"	17½"
	WSWH–HSR1x36KT	1"	36"	29½"

WSWH ANCHOR BOLT EXTENSION | 4



WSWH ANCHOR BOLT TEMPLATES | 6





ANCHOR BOLT LAYOUT	
STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL MODEL NO.	DISTANCE FROM CENTER–TO–CENTER OF WSWH–AB, B (in)
WSWH12	8⅛
WSWH18	14
WSWH24	20

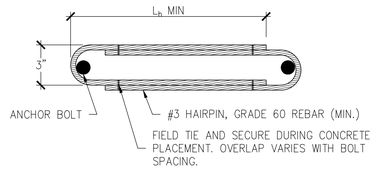
NOTES :
1. ANCHORAGE DESIGNS CONFORM TO ACI 318–11 APPENDIX D, ACI 318–14 CHAPTER 17 AND ACI 318–19 CHAPTER 17 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSWH–AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A193 GRADE B7).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C–F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318–11 SECTION D.3.3.4.3, ACI 318–14 SECTION 17.2.3.4.3 AND ACI 318–19 SECTION 17.10.5.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE DESIGNER MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSWH1 FOR d_e.

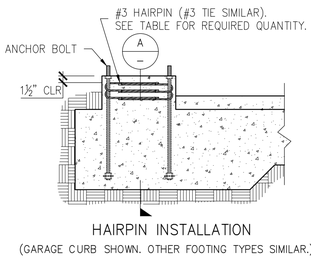
WSWH ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	33	11
			17,100	35	12
		HIGH STRENGTH	34,100	52	18
			36,800	55	19
	UNCRACKED	STANDARD	15,700	28	10
			17,100	30	10
		HIGH STRENGTH	33,500	45	15
			36,800	48	16
WIND	CRACKED	STANDARD	6,200	16	6
			11,400	24	8
			17,100	32	11
		HIGH STRENGTH	21,100	36	12
			27,300	42	14
			34,100	48	16
			36,800	51	17
	UNCRACKED	STANDARD	6,400	14	6
			12,500	22	8
			17,100	28	10
		HIGH STRENGTH	22,900	33	11
			26,400	36	12
			34,200	42	14
			36,800	44	15

WSWH ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	31	11
			17,100	33	11
		HIGH STRENGTH	33,900	49	17
			36,800	52	18
	UNCRACKED	STANDARD	16,300	27	9
			17,100	28	10
		HIGH STRENGTH	34,000	43	15
			36,800	46	16
WIND	CRACKED	STANDARD	5,600	14	6
			10,200	21	7
			17,100	30	10
		HIGH STRENGTH	20,000	33	11
			26,500	39	13
			33,600	45	15
			36,800	48	16
	UNCRACKED	STANDARD	6,200	13	6
			12,800	21	7
			17,100	26	9
		HIGH STRENGTH	21,800	30	10
			28,900	36	12
			33,100	39	13
			36,800	42	14

WSWH ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	27	9
			17,100	29	10
		HIGH STRENGTH	34,700	44	15
			36,800	46	16
	UNCRACKED	STANDARD	15,700	23	8
			17,100	25	9
		HIGH STRENGTH	33,900	38	13
			36,800	40	14
WIND	CRACKED	STANDARD	6,800	14	6
			11,600	20	7
			17,100	26	9
		HIGH STRENGTH	21,400	30	10
			28,400	36	12
			32,400	39	13
			36,800	43	15
	UNCRACKED	STANDARD	6,800	12	6
			12,400	18	8
			17,100	23	8
		HIGH STRENGTH	22,800	27	9
			26,700	30	10
			30,700	33	11
			36,800	37	13

STRONG–WALL® WSWH ANCHORAGE – SOLUTIONS FOR 2,500, 3,000 AND 4,500 PSI | 2





DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL SHEAR ANCHORAGE						
MODEL	SEISMIC[3]			WIND[4]		
	L_t OR L_h (in.)	SHEAR REINFORCEMENT	MIN. CURB/STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MIN. CURB/STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.)
						UNCRACKED / CRACKED
WSWH12	10¼	(1) #3 TIE	6	SEE NOTE 7	6	1,080 / 770
WSWH18	15	(2) #3 HAIRPINS[5,6]	6	(1) #3 HAIRPIN	6	HAIRPIN REINF. ACHIEVES MAX. ALLOW SHEAR LOAD OF THE WSWH
WSWH24	19	(2) #3 HAIRPINS[5]	6	(2) #3 HAIRPINS[5]	6	

NOTES :
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318–19, ACI 318–11 AND ACI 318–14 AND ASSUME MINIMUM 2,500 PSI CONCRETE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED WALL PANEL APPLICATIONS.
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC SHEAR REINFORCEMENT DESIGNS CONFORM TO ACI 318–19, SECTION 17.10.6.3, ACI 318–14, SECTION 17.2.3.5.3
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
5. ADDITIONAL TIES MAY BE REQUIRED AT GARAGE CURB OR STEMWALL INSTALLATIONS BELOW ANCHOR REINFORCEMENT PER DESIGNER.
6. USE (1) #3 HAIRPIN FOR WSWH18 WHEN STANDARD STRENGTH ANCHOR IS USED.
7. USE (1) #3 TIE FOR WSWH12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
8. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSWH SHEAR ANCHORAGE SOLUTIONS.
9. CONCRETE EDGE DISTANCE FOR ANCHORS MUST COMPLY WITH ACI 318–19 SECTION 17.9.2, ACI 318–14 SECTION 17.7.2 AND ACI 318–11 SECTION D.8.2.
10. THE DESIGNER MAY SPECIFY ALTERNATE SHEAR ANCHORAGE.

STRONG–WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS | 5

NO.	DATE	REVISIONS
0	02-26-2021	FIRST RELEASE - 2018 IBC
1	03-16-2021	2021 IBC REVISIONS
2	04-29-2022	ADDED WSWH-AB MODELS

APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

SIMPSON Strong-Tie, Co. Inc.
• 5956 W. Las Positas Blvd.
Pleasanton, CA 94588
• Tel: (800) 999–5099
• Website: www.strongtie.com

SIMPSON Strong-Tie THERE IS NO EQUAL

STRONG-WALL® WSWH
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie THERE IS NO EQUAL

NAME
DATE 04-29-2022
SCALE N.T.S.
CHECKED
SHEET WSWH1
OF SHEETS
JOB NO.

CM-02-27-2025

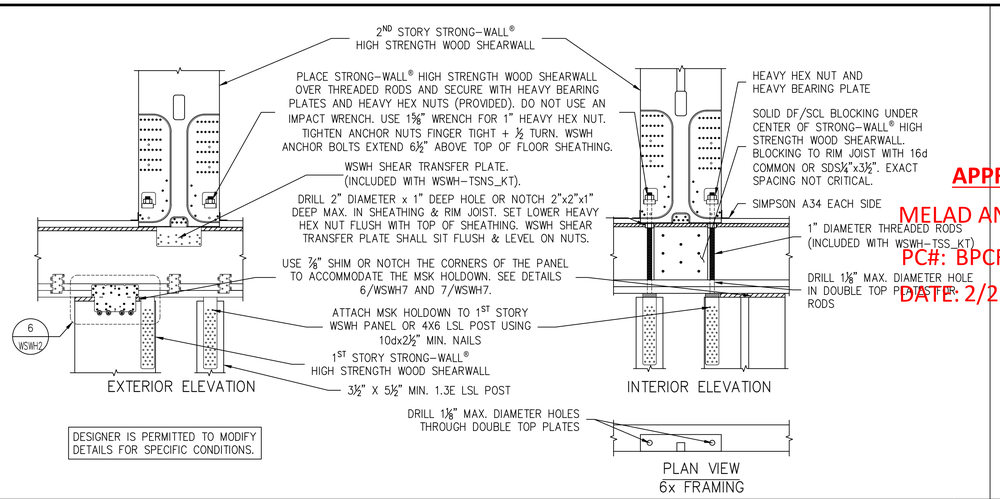
TABLE 1:
STRONG-WALL® WSWH SECOND-STORY WALLS STACKED APPLICATION

MODEL NO.	W (in.)	H (in.)	TOTAL WALL WEIGHT (lb.)
WSWH18x7	18	84	155
WSWH18x8	18	96	175
WSWH24x8	24	96	225
WSWH18x9	18	108	195
WSWH24x9	24	108	250
WSWH18x10	18	120	210
WSWH24x10	24	120	275
WSWH18x12	18	144	245
WSWH24x12	24	144	325
WSWH18x14	18	168	285
WSWH24x14	24	168	370

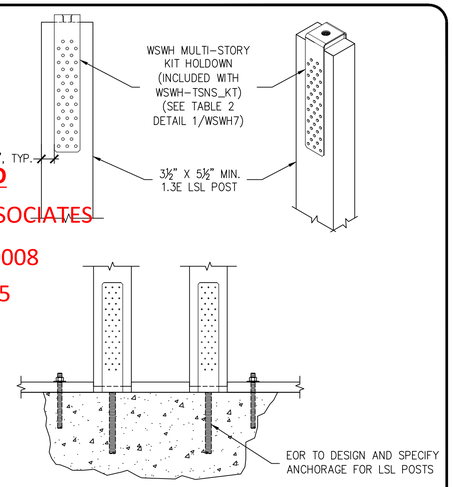
NOTES:
1. ALL PANELS COME WITH PRE-ATTACHED HOLDOWNS, TWO HEAVY HEX NUTS, TWO HEAVY BEARING PLATES, ONE WSWH-TP TOP CONNECTION PLATE WITH REQUIRED FASTENERS AND INSTALLATION INSTRUCTIONS.
2. ORDER TWO-STORY NON-STACKED WALL CONNECTOR KIT SEPARATELY FOR TWO-STORY NON-STACKED APPLICATIONS. KIT INCLUDES FOUR MULTI-STORY KIT HOLDOWNS, TWO THREADED RODS, SHEAR TRANSFER PLATE, TWO HEAVY HEX NUTS, AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

TABLE 2:
TWO-STORY NON-STACKED WALL CONNECTION KIT

WALL WIDTH (in.)	MODEL NO.	CONTENTS
18	WSWH-TSNS18KT	EACH KIT CONTAINS: (1) SHEAR TRANSFER PLATE (4) MULTI-STORY KIT HOLDOWNS (2) 1" x 30" THREADED RODS (ASTM A193 B7) (2) HEAVY HEX NUTS INSTALLATION INSTRUCTIONS
24	WSWH-TSNS24KT	

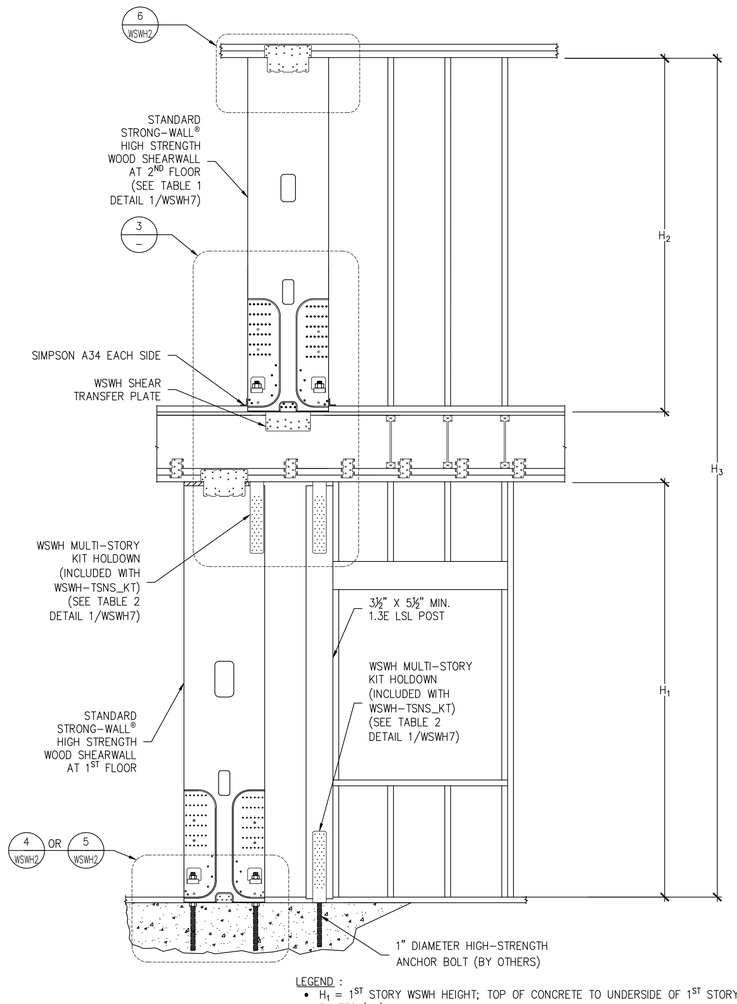


DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



APPROVED
MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

TWO-STORY NON-STACKED WSWH MODELS | 1

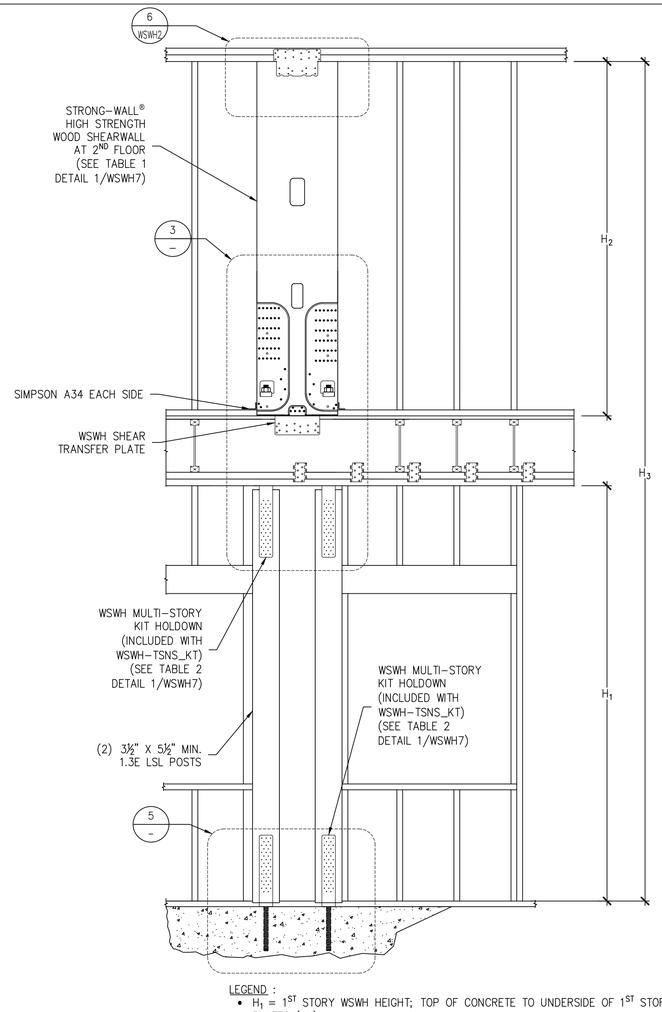


LEGEND :
- H_1 = 1ST STORY WSWH HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 1ST STORY TOP PLATES (IN.)
- H_2 = 2ND STORY WSWH HEIGHT; TOP OF FLOOR SHEATHING TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)
- H_3 = TOTAL ASSEMBLY HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

TWO-STORY NON-STACKED WITH STACKING PANEL BELOW | 2

TWO-STORY NON-STACKED FLOOR FRAMING | 3



LEGEND :
- H_1 = 1ST STORY WSWH HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 1ST STORY TOP PLATES (IN.)
- H_2 = 2ND STORY WSWH HEIGHT; TOP OF FLOOR SHEATHING TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)
- H_3 = TOTAL ASSEMBLY HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)

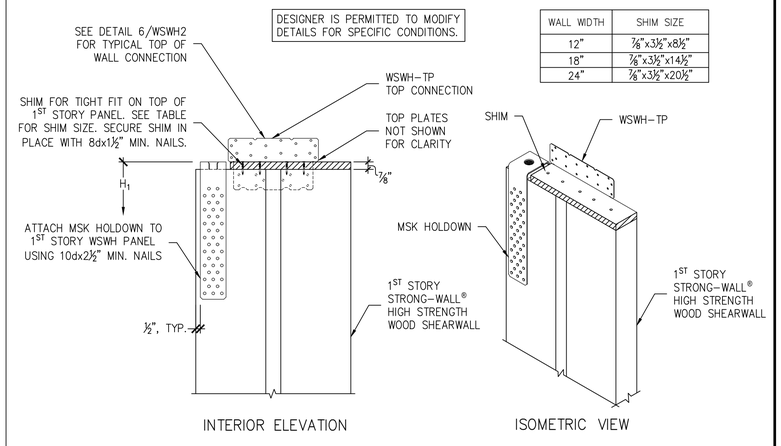
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

TWO-STORY NON-STACKED WITH TWO POST BELOW | 4

POST CONNECTION | 5

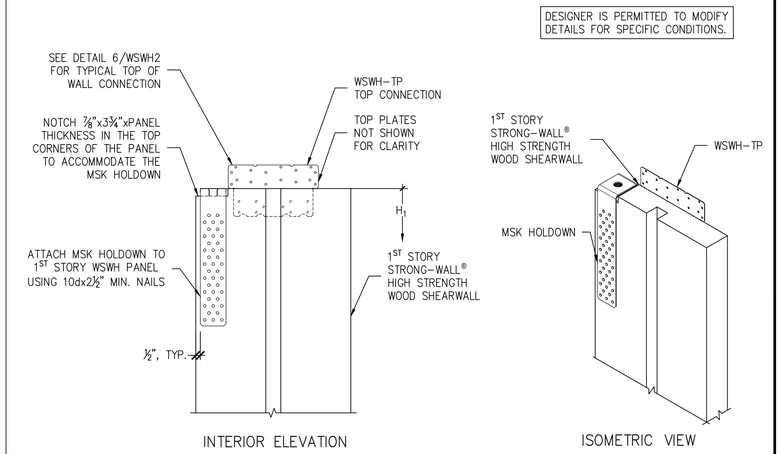
DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

WALL WIDTH	SHIM SIZE
12"	⅞"x3½"x8½"
18"	⅞"x3½"x14½"
24"	⅞"x3½"x20½"



TOP OF 1ST STORY PANEL CONNECTION | 6

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



ALTERNATIVE TOP OF 1ST STORY PANEL CONNECTION | 7

NO.	DATE	REVISIONS
0	10-23-2023	FIRST RELEASE - 2021 IBC

SIMPSON Strong-Tie, Co. Inc.
• 5956 W. Las Positas Blvd.
• Pleasanton, CA 94588
• Tel: (800) 999-5099
• Website: www.strongtie.com

SIMPSON Strong-Tie® THERE IS NO EQUAL

STRONG-WALL® WSWH
FRAMING DETAILS
TWO-STORY NON-STACKED
ENGINEERED DESIGNS

SIMPSON Strong-Tie® THERE IS NO EQUAL

NAME	
DATE	10-23-2023
SCALE	N.T.S.
CHECKED	
SHEET	WSWH7
OF	SHEETS
JOB NO.	

CM-02-27-2025

LEGEND

BRICK	EDGE OF BRICK HARDSCAPE
CO	CLEANOUT
CONC	EDGE OF CONCRETE
DECK	EDGE OF DECK
DRO	DRAIN OUTLET
EAVE	EAVE OF ROOF
EDISON	EDISION UTILITY VAULT
EP	EDGE OF AC PAVEMENT
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
FS	FINISHED SURFACE
GFF	GARAGE FINISHED FLOOR
GM	GAS METER
GUT	EDGE OF GUTTER
INV	INVERT
MS	CONCRETE MOW STRIP
NG	NATURAL GRADE
RIDGE	RIDGE OF ROOF
SCO	SEWER CLEANOUT
SDGE	SDGE UTILITY VAULT
SMH	SEWER MANHOLE
STEP	TOP OF STEP
TC	TOP OF CURB
TG	TOP OF GRATE
TW	TOP OF WALL
UTIL	UTILITY VAULT
WALK	EDGE OF SIDEWALK
WM	WATER METER
WV	WATER VALVE

HARDSCAPE

WOOD DECK

BUILDING WALL

STREET CENTERLINE

BOUNDARY LINE

FLOWLINE

EAVE OF ROOF

RIGHT-OF-WAY

WALL

SITE DATA

SITE ADDRESS: 3039 CAPRI LN., COSTA MESA

APN: 139-461-05

SURVEY NOTES

REFER TO SEPARATE CORNER RECORD FOR BOUNDARY LINE ESTABLISHMENT

LEGAL DESCRIPTION

LOT 5 IN TRACT NO. 2998, BOOK 170, PAGES 20-24 OF MISCELLANEOUS MAPS IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

APN: 139-461-05

BENCHMARK

DESIGNATION: CM-35-81

DESCRIPTION: DESCRIBED BY OCS 2001 - FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "CM-35-81" SET IN THE NORTHWEST CORNER OF A 4 FT. BY 5 FT. CONCRETE EDISON VAULT. MONUMENT IS LOCATED IN THE NORTHWEST CORNER OF THE INRESECTION OF MESA VERDE DRIVE WEST AND COUNTRY CLUB DRIVE AND 28 FT. NORTHERLY OF A STREET STANDARD #19279286. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

ELEV = 51.696' NAVD88, LEVELED 2005

CITY OF COSTA MESA, CALIFORNIA
COUNTY OF ORANGE

TOPOGRAPHIC MAP

3039 CAPRI LANE

LOT 5, TRACT NO. 2998, BK 170, PGS 20-24, M.M.

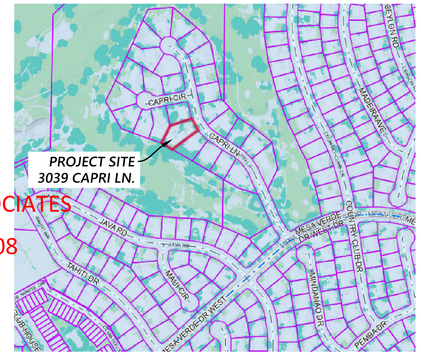
APN: 139-461-05

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025



VICINITY MAP

NO SCALE

LOT 7

ONE STORY BUILDING
1845 CAPRI CIRCLE

LOT 6

ONE STORY BUILDING
3041 CAPRI LANE

POOL

LOT 5
TRACT NO. 2998,
M.M. 170/20-24

ONE STORY BUILDING
3039 CAPRI LANE
COSTA MESA, CA 92626
APN: 139-461-05

DETACHED GARAGE

ONE STORY BUILDING
3037 CAPRI LANE

LOT 4

CAPRI LANE

6' WIDE PUBLIC UTILITY EASEMENT

PROPERTY LINE

ELECTRIC METER

GAS METER

MULTI TRUNK

N25°17'55"E

N68°13'40"E

N60°59'55"W

N52°53'18"E

103.92'

125.81'

65.99'

175.78'

L=74.15', R=260.00', Δ=16°20'20"

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE CALL 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NORTH

0 8 16

SCALE IN FEET
1 INCH =8 FEET

CIVILSCAPES ENGINEERING
28052 CAMINO CAPISTRANO, STE 213
LAGUNA NIGUEL, CA 92677
949.464.8115 info@civilscapes.com

TOPOGRAPHIC MAP FOR EXISTING RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROSTI
C 76698
CIVIL
STATE OF CALIFORNIA

JOB NO. 24007

DATE 3/15/2024

SHEET NO.

TM

SHEET NO. 1 OF 1

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CM-02-27-2025

CITY OF COSTA MESA
PRECISE GRADING PLAN
FOR
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA 92626

APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

GRADING NOTES

1. All work shall be in accordance with the Grading Code of the County of Orange and any amendments by the City of Costa Mesa or any special requirements of the permit. A copy of the City Code and City Manual shall be retained on the job site while work is in progress. When referenced on the grading plans, a copy of
OC Public Works Standard Plans shall also be retained on the site.

2. Grading shall not be started without first notifying the assigned City Inspector. A pregrading meeting on the site is required before start of grading with the following people present: Owner, Grading Contractor, Design Civil Engineer, Soil Engineer, Engineering Geologist, OC Grading Inspector, and when required, the Archaeologist, Paleontologist, and Surveyor. The required inspections for grading will be explained at the meeting.

3. Issuance of a grading permit does not eliminate the need for permits from other agencies with regulatory responsibilities for construction activities associated with the work authorized on this plan.

4. The Grading Permit and an approved copy of the approved Grading Plan shall be on the permitted site while grading work is in progress.

5. Preliminary soil and geology reports, and all subsequent reports as approved by the Building Division are considered a part of the approved grading plan.

6. The Soil Engineer and Engineering Geologist shall perform sufficient inspections and be available during grading and construction to verify compliance with the plans, specifications and the Code within their purview.

7. The Civil Engineer shall be available during grading to verify compliance with the plans, specifications, City Code, and any special conditions of the permit within their purview.

8. The Soil Engineer and Engineering Geologist shall, after clearing and prior to placement of fill in canyons, inspect each canyon for areas of adverse stability, and to determine the presence or absence of subsurface water or spring flow. If needed, subdrains will be designed and constructed prior to the placement of fill in each respective canyon.

9. Subdrain outlets shall be completed at the beginning of the subdrain construction.

10. The exact location of the subdrains shall be surveyed in the field for line/grade and shown on as graded or revised plans.

11. Areas to receive fill shall be properly prepared and approved in writing by the Soil Engineer and the Building Official prior to placing fill.

12. Fills shall be benched into competent material per OC Public Works Standard Plan No 1322.

13. All existing fills shall be approved by the Building Official or removed prior to placing additional fills.

14. Fills shall be compacted throughout to a minimum of 90% relative compaction. Aggregate base for asphaltic areas shall be compacted to a minimum of 95% relative compaction. Maximum density shall be determined by ASTM D1557 or approved equivalent and filed density by ASTM D1556 (Sand-Cone) and ASTM D6938 (Nuclear Gauge Method) or an approved equivalent.

15. Cut and fill slopes shall be no steeper than 2-feet horizontal to 1-foot vertical (2:1) except where specifically approved by the Building Official.

16. All cut slopes shall be investigated both during and after grading by the Engineering Geologist to determine if any slope stability problems exist. Should excavation disclose any geological hazards or potential geological hazards, the Engineering Geologist shall submit recommended treatment to the Building Official for approval.

17. Where support or buttressing of cut and natural slopes is determined necessary by the Engineering Geologist and Soil Engineer, the Soil Engineer shall submit design, locations and calculations to the Building Official prior to construction. The Engineering Geologist and Soil Engineer shall inspect and control the construction of the buttressing and certify to the stability of the slope and adjacent structures upon completion.

18. When cut pads are brought to near grade, the Engineering Geologist shall determine if the bedrock is extensively fractured or faulted, and will readily transmit water. If considered necessary by the Engineering Geologist and Soil Engineer, a compacted fill blanket will be placed.

19. All trench backfill shall be tested and approved by the Soil Engineer per the City Code.

20. Any existing irrigation lines and cisterns shall be removed or crushed in place and approved by the Building Official and the Soil Engineer.

21. Any existing water wells shall be abandoned in compliance with the specifications approved by Orange County Health Care Agency and Division of Environmental Health.

22. Any existing cesspools and septic tanks shall be abandoned in compliance with the California Plumbing Code to the approval of Building Official.

EARTHWORK QUANTITIES

RAW CUT	10	CUBIC YARDS
RAW FILL	35	CUBIC YARDS
OVER-EX	150	CUBIC YARDS
SHRINKAGE (±5%)	5	CUBIC YARDS
NET	30	CUBIC YARDS (IMPORT)

SOILS ENGINEER

REFER TO GEOTECHNICAL INVESTIGATION FOR ADDITIONAL INFORMATION:

SA GEOTECHNICAL
15520 ROCKFIELD BOULEVARD, E100
IRVINA, CA 92618
949.403.7229

GRADING NOTES (CONTINUED)

23. The stockpiling of excess material shall be approved by the Building Official prior to excavation.

24. Export soil must be transported to a legal dump or to a permitted site approved by the Building Division.

25. The permittee is responsible for dust control measures.

26. The permittee shall give reasonable notice to the owner of adjoining lands and building prior to beginning excavations which may affect the lateral and subjacent support of the adjoining property. The notice shall state the intended depth of the excavation and when the excavation will commence. The adjoining owner shall be allowed at least 30 days and reasonable access on the permitted property to protect his structure, if he so desires, unless otherwise protected by law.

27. All concrete structures that are exposed to the on-site soils shall be constructed with Type V cement, unless deemed unnecessary by soluble sulfate-content tests conducted by the Soil Engineer.

28. Slopes exceeding 5 feet in height shall be planted with an approved plant material. In addition, slopes exceeding 15 feet in height shall be provided with an approved irrigation system, unless otherwise approved by the Building Official.

29. All existing drainage courses through this site shall remain open until facilities to handle storm water are approved and functional, however, in any case, the permittee shall be held liable for any damage due to obstructing natural drainage patterns.

30. Sanitary facilities shall be maintained on site.

31. The location and protection of all utilities is the responsibility of the permittee.

32. Approved protective measures and temporary drainage provisions shall be used to protect adjoining properties during grading.

33. Grading operations including maintenance of equipment within one-mile of a human occupancy shall be conducted between the hours of 7:00 a.m. and 7:00 p.m. Monday thru Friday. Saturdays 9:00 a.m. thru 6:00 p.m. Prohibited all hours Sundays and the following Federal holidays: Christmas Day, New Years Day, Memorial Day, Independence Day, Labor Day, and Thanksgiving Day. CMMC sec 13-279

a) All construction vehicles or equipment, fixed or mobile, operated within 1000 feet of a dwelling shall be equipped with properly operational and maintained mufflers.

b) Stockpiling and/or vehicle staging areas shall be located as far as practical from dwellings and within the limits of the grading permit.

34. Grading and excavation shall be halted during periods of high winds. According to AQMD Rule 403, high wind conditions means instantaneous wind speeds exceed 25 MPH. This level occurs only under extreme conditions such as Santa Ana Wind conditions.

35. Asphalt sections must be per City Code: Parking stall – 3" A/C over 6" A/B, Drives 3" A/C over 10" (Commercial), and 12" (Industrial). Or: Prior to rough grade release for Building Permits by the City Inspector; the Soil Engineer shall submit for approval pavement section recommendations, based on "R" value analysis of the sub-grade soils, and expected traffic indices.

36. Roof gutters shall be installed to prevent roof drainage from falling on manufactured slopes, with appropriate down spouts and outlets.

37. The Civil Engineer, as a condition of rough grade approval, shall provide a blue top with accompanying witness stake, set at the center of each pad reflecting the pad elevation for precise permits, and a blue top with witness stake set at the drainage swale high-point reflecting the high point elevation for Preliminary Permits.

38. Prior to final approval, the Civil Engineer shall certify to the Building Official the amount of earth moved during the grading operation.

39. The Engineering Geologist shall perform periodic inspections and submit a complete report and map upon completion of the rough grading.

40. The Grading Contractor shall submit a statement of compliance to the assigned Grading Inspector that the grading is in accordance with the approved Grading Plan prior to final approval.

41. The compaction report and approval from the Soil Engineer shall indicate the type of field testing performed. The method of obtaining the in-place density shall be identified whether sand cone, drive ring or nuclear, and shall be noted for each test. Sufficient maximum density determinations shall be performed to verify accuracy of the maximum density curves used by the Field Technician.

42. In the event that soil contamination is discovered during excavation and removal of an existing tank, work shall be stopped until a site assessment and mitigation plan has been prepared, submitted and approved by the OC Health Care Agency/Environmental Health and the Building Division.

EROSION CONTROL

43. In the case of emergency (24-Hour/Day), call Will Rolph at
Work Telephone 949.464.8115.

44. 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.

45. Erosion, sediment and chemical control devices shall not be moved or modified without the approval of the Building Official.

46. All removable erosion protective devices shall be in place at the end of each working day when the 5-Day Rain Probability Forecast exceeds 40%,

47. After a rainstorm, all silt and debris shall be removed from streets, check berms and basins.

48. Graded areas of the permitted area perimeter must drain away from the face of slopes at the conclusion of each working day. Drainage is to be directed towards desilting facilities.

49. The permittee and contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a hazardous condition.

50. The permittee and contractor shall inspect the erosion control work and insure that the work is in accordance with the approved plan.

ENVIRONMENTAL NOTES

51. The permittee shall notify all general contractors, subcontractors, material suppliers, lessees and
property owners that dumping of chemicals into the storm drain system or the watershed is prohibited.

52. Permittee shall maintain construction site in a condition that an anticipated storm does not carry
wastes or pollutants off the site. Potential pollutants include but are not limited to: solid or liquid chemical spills, wastes from paint, stains, sealants, glues, limes, pesticides herbicides, wood preservatives and solvents; asbestos fibers, paint flakes or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator or battery fluids; fertilizers, vehicle/equipment wash water and concrete wash water; concrete, detergent or floatable wastes; wastes from any engine/equipment steam cleaning or chemical degreasing and super chlorinated potable water line flushing. During construction, permittee shall dispose of such materials in a specified and controlled temporary area on-site, physically separated from potential storm water runoff, with ultimate disposal in accordance with local, state and federal requirements.

53. Permittee may discharge material other than storm water only when necessary for performance and completion of construction practices and where they do not: cause or contribute to a violation of any water quality standard; cause or threaten to cause pollution, contamination or nuisance; or contain a hazardous substance in a quantity reportable under Federal Regulation 40 CFR, Parts 117 and 302.

54. Dewatering of contaminated groundwater or discharging contaminated soils via surface erosion is prohibited. Dewatering of non-contaminated groundwater requires a National Pollutant Discharge
Elimination System Permit from the respective State Regional Water Quality Control Board.

55. SPECIAL NOTE: "Survey monuments shall be preserved and referenced before construction and replaced after construction pursuant to Section 8771 of the Business and Professional Code."

SPECIAL NOTE

ALL GRADING SHALL COMPLY PER SOILS REPORT'S RECOMMENDATIONS.

SCOPE OF WORK

THE PROJECT PROPOSES REMODEL OF AN EXISTING SINGLE-FAMILY RESIDENCE WITH YARD IMPROVEMENTS.

SURVEY NOTE

SURVEYOR OR ENGINEER (LICENSE BELOW 33966) SHALL MONUMENT PROPERTY CORNERS BEFORE STARTING GRADING.

PERMITS REQUIRED

SEPARATE PLAN CHECKS AND PERMITS SHALL BE REQUIRED FOR RETAINING WALLS AND BLOCK WALLS.

AN ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY FROM THE PUBLIC SERVICES DEPARTMENT

SHEET INDEX

C1 TITLE SHEET
C2 GRADING PLAN
C3 DRAINAGE PLAN
C4 EROSION CONTROL PLAN
C5 WATER QUALITY MANAGEMENT PLAN
C6 SECTIONS AND DETAILS
C7 GEOTECHNICAL NOTES
C8 GEOTECHNICAL NOTES (CONTD.)

BENCHMARK

OCS BENCHMARK DESIGNATION: CM-48-81

DESCRIBED BY OCS 2001 - FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "CM-35-81", SET IN THE NORTHWEST CORNER OF A 4 FT. BY 5 FT. CONCRETE EDISON VAULT. MONUMENT IS LOCATED IN THE NORTHWEST CORNER OF THE INTERSECTION OF MESA VERDE DRIVE WEST AND COUNTRY CLUB DRIVE AND 28 FT. NORTHERY OF A STREET STANDARD #1927928E. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

NAVD88 ELEVATION =51.696 (LEVELED 2005)

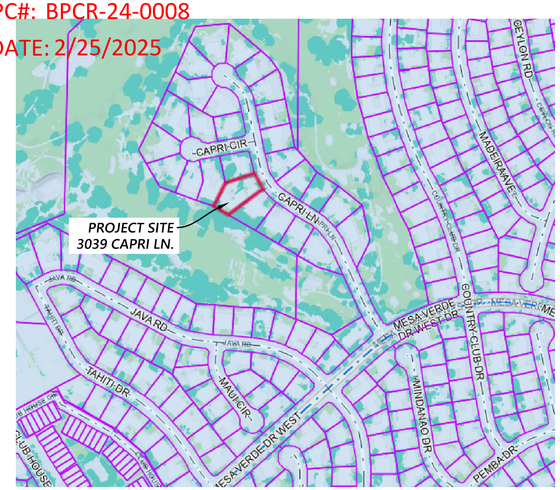
LEGAL DESCRIPTION

LOT 5 OF TRACT NO. 2998, IN THE CITY OF COSTA MESA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 170, PAGES 20-24 OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN: 139-461-05

LEGEND

TS	TOP OF STEM WALL
TOP	TOP OF SLOPE
TRW	TOP OF RETAINING WALL
FF	FINISHED FLOOR ELEVATION
TG	TOP OF GRATE
TC	TOP OF COPING OR TOP OF CURB
PA	PLANTER AREA
TW	TOP OF WALL
LS	LANDSCAPE
FS	FINISHED SURFACE
FL	FLOW LINE
FG	FINISHED GRADE
GB	GRADE BREAK
HP	HIGH POINT
INV	INVERT
GFF	GARAGE FINISHED FLOOR
EG	EXISTING GRADE
( )	EXISTING SPOT ELEVATION
	PROPERTY LINE AND LIMIT-OF-WORK
	PROPOSED WALL
(102.6) OR 102.6	EXISTING ELEVATION; CONTRACTOR SHALL FIELD VERIFY ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO CIVILSCAPES ENGINEERING
	FLOWLINE
R	RIDGE LINE
	STORM DRAIN PIPE



VICINITY MAP

NO SCALE

BENCHMARK:
OCS DESIGNATION: CM-35-81

NAVD88 ELEVATION =51.696' (LEVELED 2005)

SOILS ENGINEER:
SA GEOTECHNICAL
15520 ROCKFIELD BOULEVARD, E100
IRVINE, CA 92618
949-403-7229

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE — CALL 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

CIVILSCAPES ENGINEERING
28052 CAMINO CAPISTRANO, STE 213
LAGUNA NIGUEL, CA 92677
949.464.8115 info@civilscapes.com

PRECISE GRADING PLAN
FOR LAW RESIDENCE
TITLE SHEET
3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROLPH
C 76698
CIVIL
STATE OF CALIFORNIA

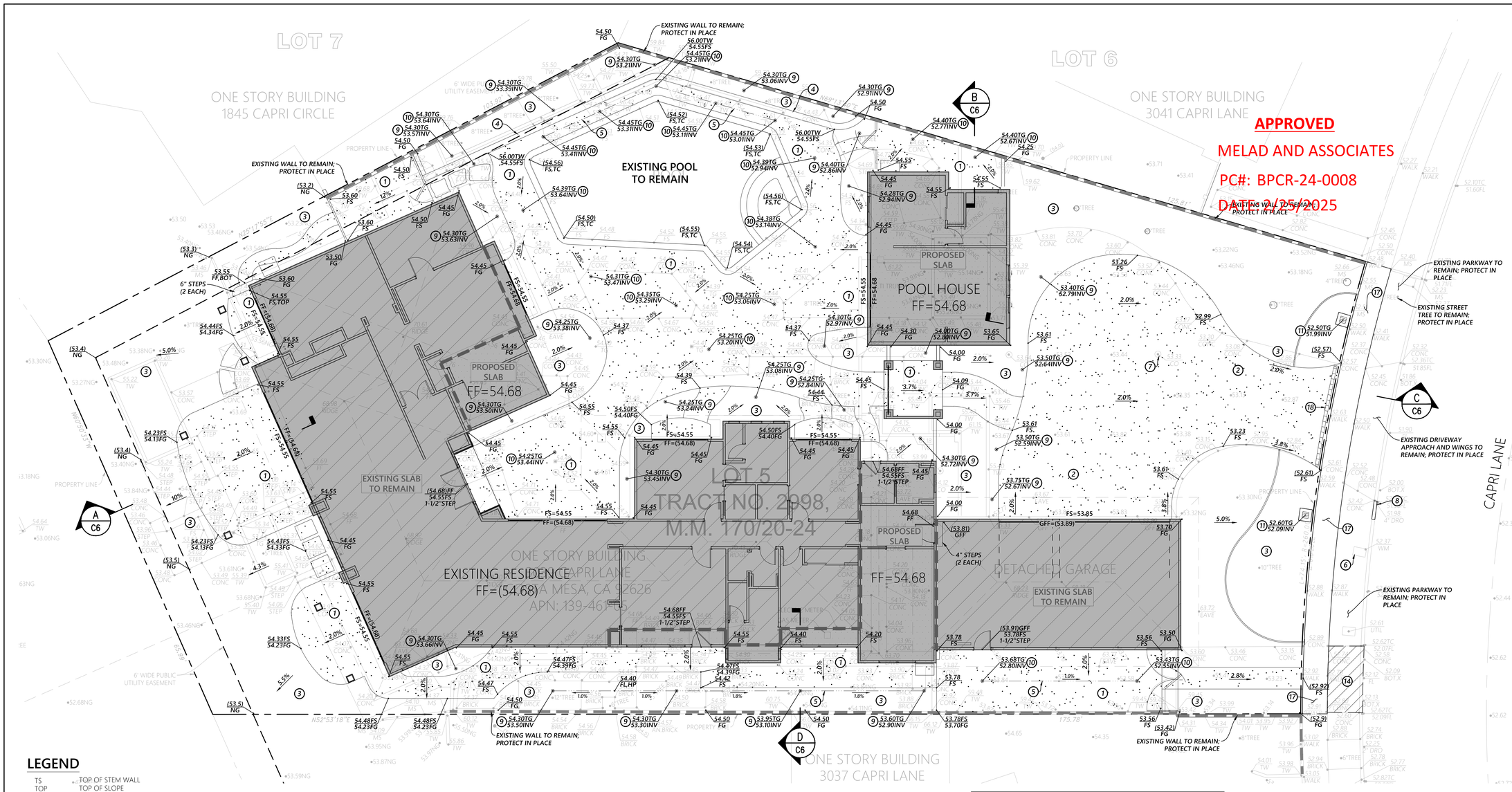
JOB NO. 24037

DATE 2/5/2025

SHEET NO. C1

SHEET NO. 1 OF 8

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APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

NORTH

0 8 16

SCALE IN FEET
1 INCH =8 FEET

LEGEND

TS	TOP OF STEM WALL
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INV	INVERT
GFF	GARAGE FINISHED FLOOR
EG	EXISTING GRADE
( )	EXISTING SPOT ELEVATION

HARDSCAPE PER LANDSCAPE ARCHITECT'S PLAN

PROPERTY LINE AND LIMIT-OF-WORK AND LIMIT-OF-PERMIT

PROPOSED WALL

EXISTING DIRECTION OF FLOW

(102.6) OR — EXISTING ELEVATION; CONTRACTOR SHALL FIELD VERIFY ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO CIVILSCAPES ENGINEERING

DIGALERT

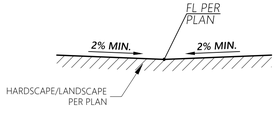
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG

TOLL FREE CALL 811

A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

PUBLIC SERVICES GENERAL NOTES

1. PUBLIC SERVICES INSPECTION IS REQUIRED PRIOR TO ISSUANCE OF BUILDING FINAL. AT THE TIME OF INSPECTION, IF ANY EXISTING PUVLIC IMPROVEMENTS SURROUNDING THE SITE IS DAMAGED; NEW CURB & GUTTER AND STREET PAVEMENT WILL BE REQUIRED.
2. PLEASE OBTAIN WRITTEN APPROVAL FROM SEWER AND WATER AGENCIES
3. LANDSCAPE WITHIN THE PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH SECTION 3.0 OF COSTA MESA STREETSCAPE AND MEDIAN DEVELOPMENT



5 FLOWLINE DETAIL
NO SCALE

*** ALL WORK RELATED TO WASTEWATER IN THE PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED BY A C-42 LICENSED SANITATION SEWER CONTRACTOR OR AN A LICENSED GENERAL ENGINEERING CONTRACTOR.

**** ALL WORK RELATED TO WATER IN THE PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED BY A C-34 LICENSED PIPELINE CONTRACTOR OR AN A LICENSED GENERAL ENGINEERING CONTRACTOR.

CONSTRUCTION NOTES

1. HARDSCAPE PER ARCHITECT'S PLAN.
2. DRIVEWAY PER ARCHITECT'S PLAN.
3. PLANTER AREA PER ARCHITECT'S PLAN.
4. WALL OR FENCE PER ARCHITECT'S PLAN.
5. CONSTRUCT FLOWLINE PER DETAIL HEREON.
**** 6. EXISTING WATER METER AND SERVICE TO REMAIN; PROTECT IN PLACE.
*** 7. EXISTING SEWER CLEANOUT AND LATERAL TO REMAIN.
8. ABANDON AND PLUG EXISTING CURB CORE; RECONSTRUCT CURB AND GUTTER PPER CITY OF COSTA MESA STD 312. CONTRACTOR SHALL RECONSTRUCT MINIMUM OF 3FT OF AC ADJACENT TO NEW GUTTER. EXTEND CURB & GUTTER REMOVAL TO NEXT JOINT OF LESS THAN 8-FT AWAY.
9. FURNISH & INSTALL 6" NDS SPEE-D BASIN W/6" GREEN ATRIUM GRATE PER DETAIL ON SHEET C3.
10. FURNISH & INSTALL 6" NDS SPEE-D BASIN W/6" BRASS SQUARE GRATE PER DETAIL ON SHEET C3.
11. FURNISH & INSTALL 12"X12" DROP INLET W/ REMOVABLE ALHAMBRA FOUNDRY A-2010 CAST IRON GRATE OR EQUIV. PER CITY OF COSTA MESA STD 418.
14. REMOVE EXISTING DRIVEWAY APPROACH PER CITY OF COSTA MESA STD 811 AND CONSTRUCT TYPE (C-6) CURB & GUTTER PER CITY OF COSTA MESA STD 312. CONTRACTOR SHALL RECONSTRUCT MINIMUM OF 3FT OF AC ADJACENT TO NEW GUTTER. EXTEND CURB & GUTTER REMOVAL TO NEXT JOINT OF LESS THAN 8-FT AWAY.
17. RECONSTRUCT SIDEWALK PER PER SITY OF COSTA MESA STANDARD STD 411.
18. CONSTRUCT BOTTOMLESS TRENCH DRAIN PER DETAIL "E" ON SHEET C6.

CIVILSCAPES ENGINEERING
28052 CAMINO CAPISTRANO, STE 213
LAGUNA NIGUEL, CA 92677
949.464.8115 info@civilscapes.com

PRECISE GRADING PLAN FOR LAW RESIDENCE GRADING PLAN

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER WILLIAM D. ROSTEN C 76698 CIVIL STATE OF CALIFORNIA

JOB NO. 24037

DATE 2/5/2025

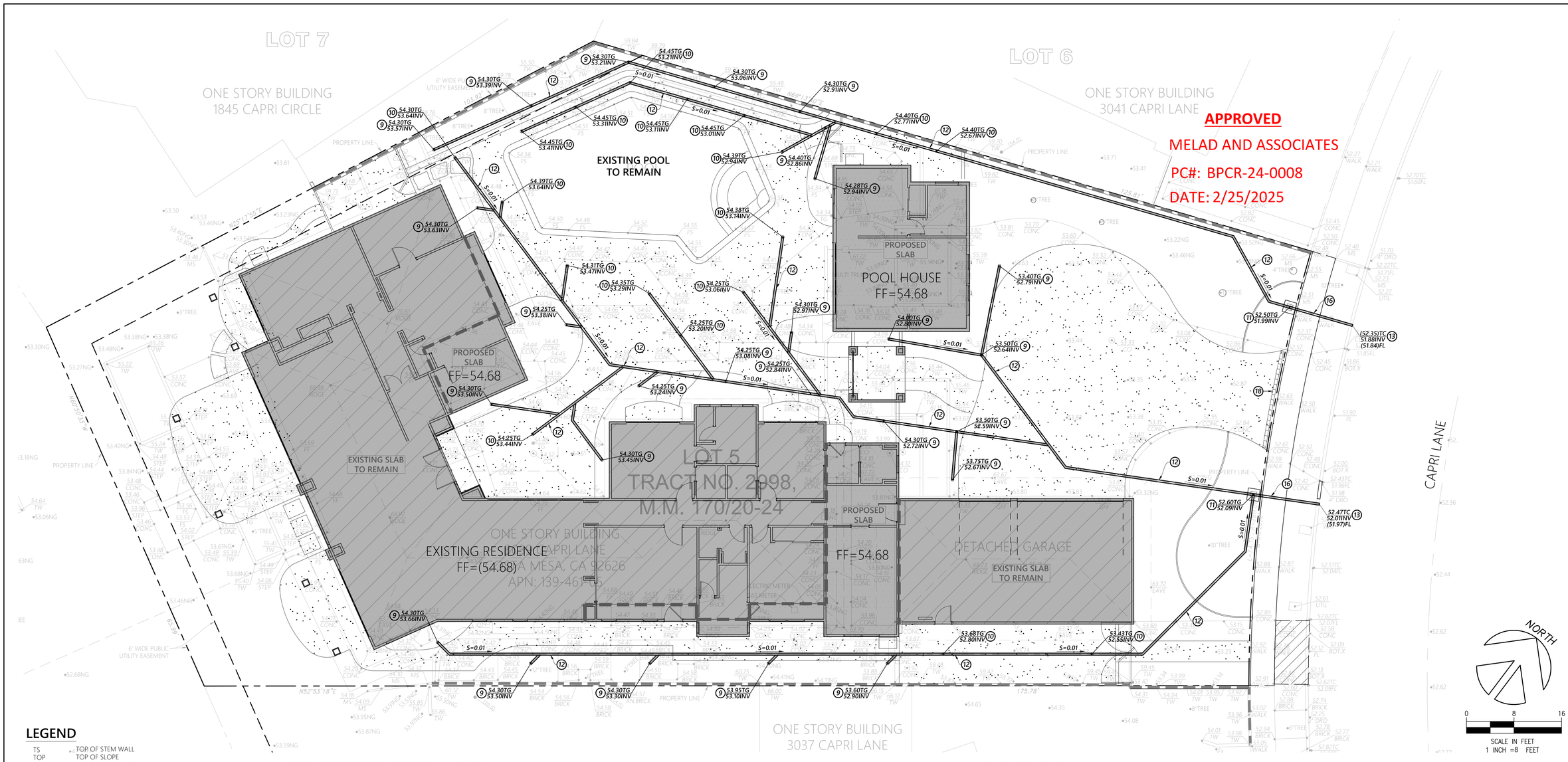
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C2

SHEET NO. 2 OF 8

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CM-02-27-2025



APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

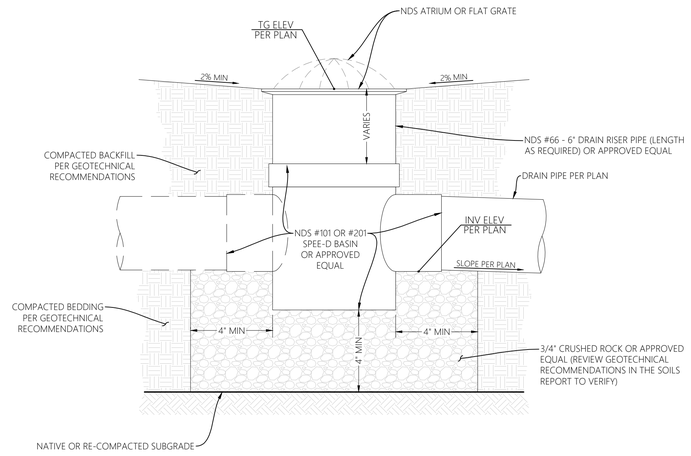
DATE: 2/25/2025

LEGEND

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PUBLIC SERVICES GENERAL NOTES

1. PUBLIC SERVICES INSPECTION IS REQUIRED PRIOR TO ISSUANCE OF BUILDING FINAL. AT THE TIME OF INSPECTION, IF ANY EXISTING PUVLIC IMPROVEMENTS SURROUNDING THE SITE IS DAMAGED; NEW CURB & GUTTER AND STREET PAVEMENT WILL BE REQUIRED.
2. PLEASE OBTAIN WRITTEN APPROVAL FROM SEWER AND WATER AGENCIES
3. LANDSCAPE WITHIN THE PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH SECTION 3.0 OF COSTA MESA STREETSCAPE AND MEDIAN DEVELOPMENT



9 10 NDS SPEE-D BASIN DETAIL

NO SCALE

CONSTRUCTION NOTES

9 FURNISH & INSTALL 6" NDS SPEE-D BASIN W/6" GREEN ATRIUM GRATE PER DETAIL HEREON.

10 FURNISH & INSTALL 6" NDS SPEE-D BASIN W/6" BRASS SQUARE GRATE PER DETAIL HEREON.

11 FURNISH & INSTALL 12"X12" DROP INLET W/ REMOVABLE ALHAMBRA FOUNDRY A-2010 CAST IRON GRATE OR EQUIV. PER CITY OF COSTA MESA STD 418.

12 FURNISH & INSTALL 4-INCH SDR-35 PVC STORM DRAIN (OR APPROVED EQUAL) PER CPC. INCLUDE REQUIRED JOINTS AND FITTINGS PER CPC. CONSTRUCT TRENCH, BEDDING, AND BACKFILL PER ASTM D 2321 AND SOILS REPORT.

13 CONSTRUCT PARKWAY DRAIN AND INLET PER CITY OF COSTA MESA STD NO. 418 CASE I CIRCULAR 3" DIA. PIPE.

16 FURNISH & INSTALL 3-INCH SDR-35 PVC STORM DRAIN (OR APPROVED EQUAL) PER CPC. INCLUDE REQUIRED JOINTS AND FITTINGS PER CPC. CONSTRUCT TRENCH, BEDDING, AND BACKFILL PER ASTM D 2321 AND SOILS REPORT.

18 CONSTRUCT BOTTOMLESS TRENCH DRAIN PER DETAIL "E" ON SHEET C6.

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PRECISE GRADING PLAN FOR LAW RESIDENCE DRAINAGE PLAN

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. MELAD
C 76698
CIVIL
STATE OF CALIFORNIA

JOB NO. 24037

DATE 2/5/2025

SHEET NO.

C3

SHEET NO. 3 OF 8

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CM-02-27-2025



APPROVED

MELAD AND ASSOCIATES

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PUBLIC SERVICES GENERAL NOTES

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3. LANDSCAPE WITHIN THE PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH SECTION 3.0 OF COSTA MESA STREETSCAPE AND MEDIAN DEVELOPMENT

DIGALERT

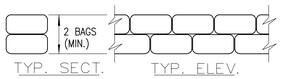
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG

TOLL FREE CALL 811

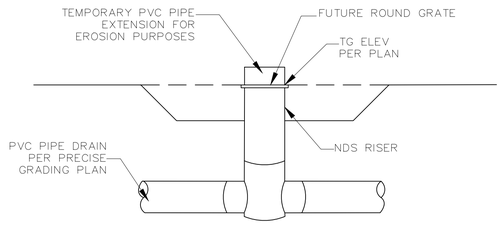
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NPDES NOTES:

1. IN THE CASE OF EMERGENCY, CALL
   AT WORK PHONE # _____
   OR HOME PHONE # _____
2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TACKING, OR WIND.
4. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OR THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIALS OTHER THAN STORMWATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPER CHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NONCONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
11. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS: THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
18. APPROPRIATE BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.



A GRAVEL BAG DETAIL
NO SCALE



B AREA DRAIN INLET PROJECTION
NO SCALE

EROSION CONTROL CONSTRUCTION NOTES

(A) INSTALL GRAVEL BAG BARRIER PER CASQA SE-6

(B) INLET PROTECTION PER DETAIL HEREON

(C) STABILIZED CONSTRUCTION ENTRANCE USING CRUSHED ROCK PER CASQA TC-1

(D) 6' TALL CHAIN-LINK FENCE WITH DUST CONTROL COVER AROUND PERIMETER OF PROPERTY BEHIND PROPERTY LINE.

NOTES:

1. CONTRACTOR SHALL PROVIDE ONSITE CONCRETE WASHOUT FACILITY AND COMPLY WITH CASQA BMP WM-8.
2. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
3. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OF ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
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LAGUNA NIGUEL, CA 92677
949.464.8115 info@civilscapes.com

PRECISE GRADING PLAN
FOR LAW RESIDENCE
EROSION CONTROL PLAN

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROOTH
C 76698
CIVIL
STATE OF CALIFORNIA

JOB NO. 24037

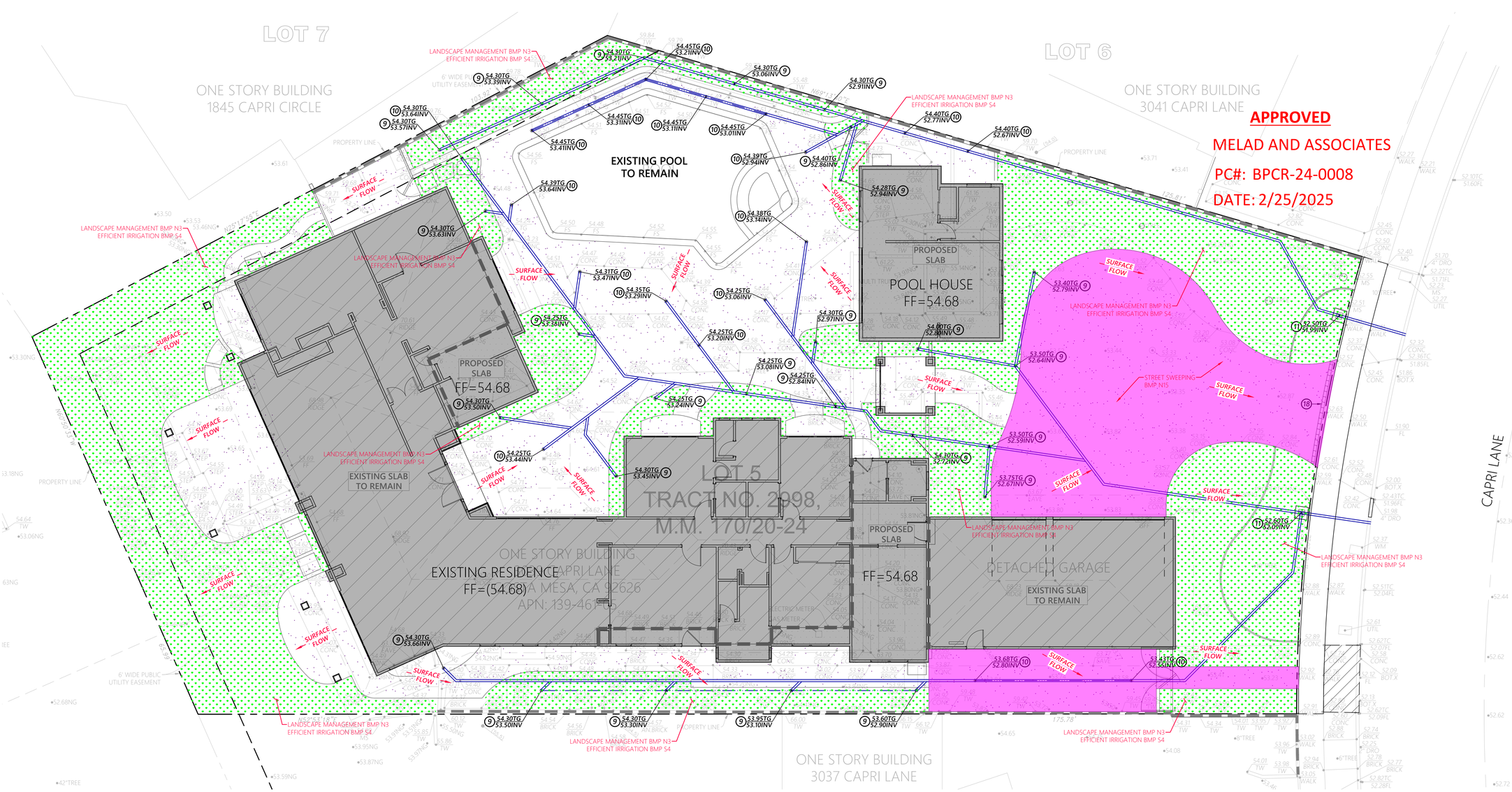
DATE 2/5/2025

SHEET NO. **C4**

SHEET NO. 4 OF 8

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CM-02-27-2025



APPROVED

MELAD AND ASSOCIATES

PC#: BPCR-24-0008

DATE: 2/25/2025

NOTE TO CITY PLAN CHECK CONSULTANT

REFER TO GRADING PLAN FOR ALL SPOT ELEVATIONS, GRADES AND SLOPES.

LEGEND

- (9) ATRIUM AREA DRAIN INSPECTION AND MAINTENANCE PER BMP N14
- (10) FLAT AREA DRAIN INSPECTION AND MAINTENANCE PER BMP N14
- (11) INSPECT DISCHARGE POINT FOR SEDIMENT AND DEBRIS
- (18) CONSTRUCT BOTTOMLESS TRENCH DRAIN PER DETAIL "E" ON SHEET C6.

TG TOP OF GRATE
INV INVERT

HARDSCAPE PER LANDSCAPE ARCHITECT'S PLAN (5,579 SF)

LANDSCAPE PER LANDSCAPE ARCHITECT'S PLAN

DRIVEWAY AREA BEING REHABILITATED (1,968 SF)

PROPERTY LINE AND LIMIT-OF-WORK AND LIMIT-OF-PERMIT
PROPOSED WALL
FLOW LINE
4" DIA. DRAIN PIPE

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TOLL FREE CALL 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

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PRECISE GRADING PLAN
FOR LAW RESIDENCE
WATER QUALITY MANAGEMENT PLAN

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROSTH
C 76698
CIVIL
STATE OF CALIFORNIA

JOB NO. 24037

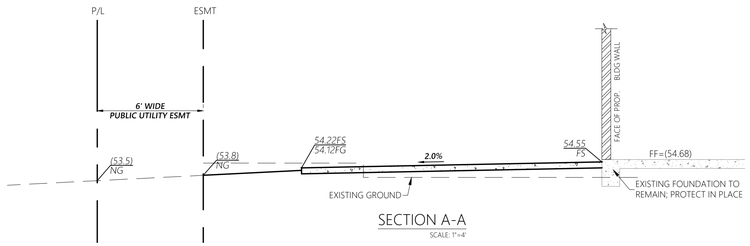
DATE 2/5/2025

SHEET NO. C5

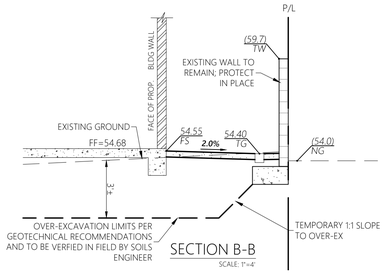
SHEET NO. 5 OF 8

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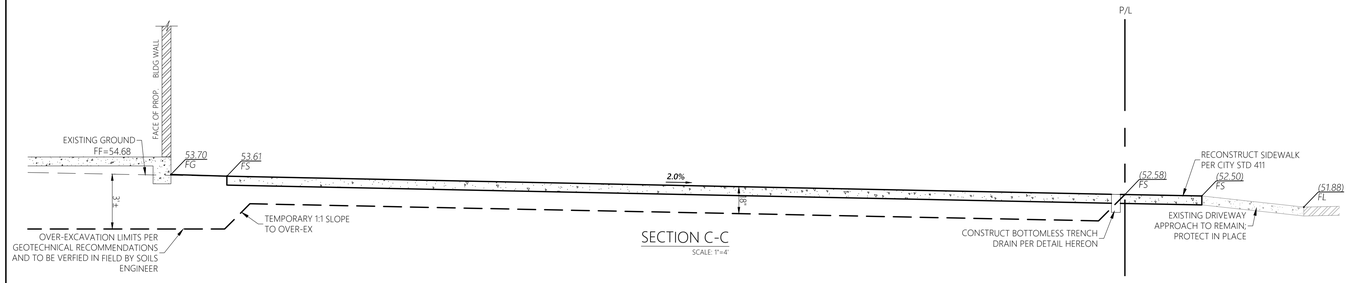
CM-02-27-2025



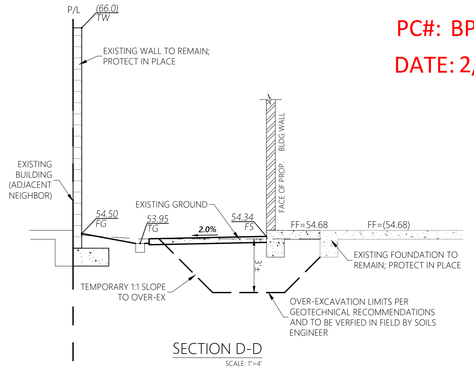
SECTION A-A
SCALE: 1"=4'



SECTION B-B
SCALE: 1"=4'



SECTION C-C
SCALE: 1"=4'



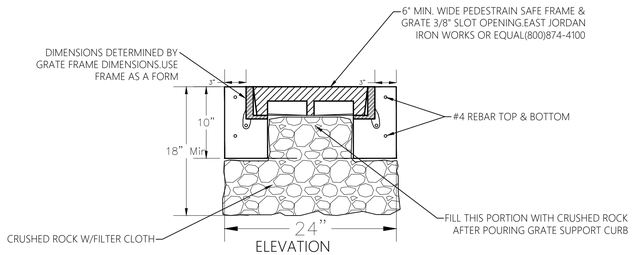
SECTION D-D
SCALE: 1"=4'

APPROVED

MELAD AND ASSOCIATES

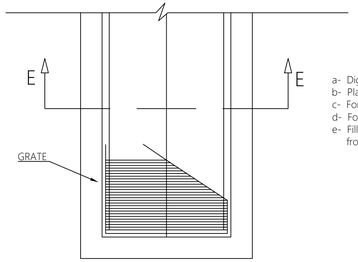
PC#: BPCR-24-0008

DATE: 2/25/2025



ELEVATION

SECTION E-E

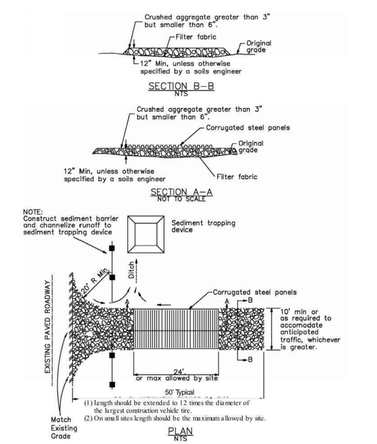


PLAN VIEW

a- Dig a 24" wide x 18" minimum depth trench
b- Place filter cloth in the trench.Lap 12" @ top
c- Form bottom of the trench with crushed rock.
d- Form and pour perimeter concrete curb
e- Fill the rest of the trench with crushed rock to 4" from top of trench

DETAIL E
(18) BOTTOMLESS TRENCH DRAIN
NO SCALE

Stabilized Construction Entrance/Exit TC-1



July 2012 California Stormwater BMP Handbook 6 of 6
Construction
www.casqa.org

C STABILIZED CONSTRUCTION ENTRANCE, CASQA TC-1
NO SCALE

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PRECISE GRADING PLAN FOR LAW RESIDENCE SECTIONS AND DETAILS

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROTEN
C 76698
CIVIL
STATE OF CALIFORNIA

JOB NO. 24037

DATE 2/5/2025

SHEET NO.

C6

SHEET NO. 6 OF 8

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CM-02-27-2025

3.0 CONCLUSION AND RECOMMENDATIONS

3.1 General Conclusion and Recommendation

Based on the results of our preliminary exploration, the proposed improvements at the subject site, as described herein, are considered geotechnically feasible provided the recommendations in this report are implemented during design, grading, and construction. New structural foundation elements should be supported in geotechnically reviewed/approved compacted artificial fill or geotechnically reviewed, undisturbed alluvium.

Our recommendations are based on anticipated geotechnical conditions, which should be verified during grading and construction. Additional soil testing and/or revised recommendations may be required if exposed geotechnical conditions vary significantly from the anticipated conditions presented in this report. Geotechnical observation and testing should be conducted during grading and construction.

Due to the absence of specific foundation and grading plans, the conclusions and recommendations provided herein should be considered preliminary and subject to change. The future precise grading, foundation, retaining wall (if any), and landscape plans should be reviewed by the geotechnical consultant to confirm the design assumptions outlined in this report and provide updated recommendations as needed. The recommendations in this report are considered minimum and may be superseded by more stringent requirements of others.

3.2 Site Preparation and Earthwork

Site preparation and grading should be performed in accordance with the recommendations provided herein and the requirements of the City of Costa Mesa. SA GEO's General Earthwork and Grading Specifications are included in Appendix E.

3.2.1 Site Demolition and Clearing

Prior to remedial grading, deleterious materials and debris should be cleared from the site and disposed of offsite. Excavations for the removal of existing foundation elements, utilities, and vegetation, including onsite trees, should be observed by the geotechnical consultant. Large roots, highly organic soils, and existing utilities should be removed from the site and should not be incorporated into new fills.

Soil that is disturbed as part of excavations for removal of trees, underground utilities, and/or existing structures should be evaluated by the geotechnical consultant. Excavations that require backfill should be properly documented and compacted upon the removal and replacement of the disturbed soil under the observation and testing of the geotechnical consultant.

3.2.2 Protection of Existing Improvements and Utilities

Existing buildings, improvements, and utilities adjacent to the site that are to be protected in place should be located and visually marked prior to grading operations. Excavations adjacent to improvements to be protected in-place or any utility easement should be performed with care, so as not to undermine existing foundations or destabilize the adjacent ground. The adjacent properties should be surveyed and/or photo documented by the project contractor prior to demolition and grading of the site.

Stockpiling of soils more than 5 feet in height at or near existing structures and over utility lines should not be allowed. If deeper removals are required, shoring or other special measures (i.e., setback or laybacks) to provide safety and mitigate the potential for lateral/vertical movements may be required.

3.2.3 Remedial Grading Measures

The near-surface soils (weathered/disturbed alluvium) in the upper 2 to 3 feet are considered unsuitable for structural support in the current condition. New structural foundation elements should be supported in compacted artificial fill observed and tested by the geotechnical consultant or competent alluvium. For structural improvements, the depth of overexcavation and recompaction is anticipated to be 3 feet below existing grades. Where not limited by the adjacent properties, the remedial removals should extend 3 feet laterally beyond the building footprint. Non-critical hardscape and landscape areas, including the proposed patios, walkways, and entry way should be overexcavated and recompacted to a depth of approximately 18 inches below existing grades. Locally and in the areas where existing trees or shrubs and/or utility lines are planned to be removed, deeper removals on the order of 4 to 5 feet may be required. Actual limits and depth of overexcavation will be determined by SA GEO during grading. The bottom of all excavations should be observed by this office and approved in writing prior to fill placement.

Temporary slopes exposing onsite materials should be cut in accordance with Cal/OSHA Regulations. It is anticipated that the exposed onsite earth materials will predominately consist of stiff/dense silty clays and clayey sands. Unsurcharged temporary vertical cuts may be made to a maximum height of 4 feet with a 1H:1V layback atop, pending review by the geotechnical consultant. Excavations along the property boundaries should be made at a 1H:1V inclination from the property line. Areas with spatial limitations that do not allow for laybacks or where surcharges occur should be shored for the duration of the temporary excavation exposure. The material exposed in temporary excavations should be evaluated by the contractor and geotechnical consultant during excavation and construction. Temporary excavations should not be left open for more than 60 days and should be field reviewed by the geotechnical consultant on a regular basis. Temporary excavations should be covered with visqueen and sandbag protected from runoff during rainy seasons and/or when rainfall is anticipated.

Flatter laybacks, shoring and/or slot cutting could be required if groundwater/seepage zones or unstable layers are encountered within excavations. Excavations should proceed in a manner so as not to remove lateral or bearing support of adjacent properties, structures, or other improvements. Bedrock is not anticipated to be encountered during the proposed grading and construction.

The safety and stability of temporary construction slopes and cuts is deferred to the general contractor, who should implement the safety practices as defined in Section 1541, Subchapter 4, of Cal/OSHA T8 Regulations. The geotechnical consultant makes no warranties as to the stability of temporary cuts. Soil conditions may vary locally, and the contractor(s) should be prepared to remedy local instability if necessary. Contract documents should be written in a manner that places the contractor in the position of responsibility for the stability of all temporary excavations. Stability of excavations is also time dependent. Cuts should not be allowed to dry out and should not be left open for extended time periods. The contractor should consider the use of excavation treatments that help the soils retain moisture for any cuts left open more than several days.

3.2.4 Fill Placement

Upon the completion of remedial grading measures, the approved removal bottoms should be scarified a minimum of 6 inches. The removal bottoms and fill materials should be compacted to at least 90 percent of maximum dry density, as determined by ASTM Test Method D1557. Fill materials should be placed in loose lifts no thicker than 6 inches.

Fills should be relatively free of deleterious material. The existing onsite soils should generally be suitable for re-use as compacted fill. Rocks greater than 6 inches in any dimension should be broken into smaller fragments or disposed of offsite. We recommend that the new fill soils be placed at moisture contents 3 to 4 percentage points above the optimum moisture content but should be within the compactable moisture range. Appropriate equipment should be used and other measures (e.g., mixing, stockpiling, drying) may be needed to achieve the uniform and correct moisture content for placement of the fill. If the soils become extremely wet, special measures for mixing and drying may be required. These will need to be determined based on the actual field conditions.

Any import soils to be used as fill material should have engineering properties similar or better than the onsite soils. Sources should be identified and accepted by the geotechnical consultant prior to import.

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MELAD AND ASSOCIATES
PC#: BPCR-24-0008
DATE: 2/25/2025

3.3 Seismic Design Parameters

The following table summarizes the seismic design criteria for the subject site. The seismic design parameters are developed in accordance with ASCE 7-16 and 2022 CBC. Please note that, considering the proposed 2-story structure and anticipated structural periods, site-specific ground-motion hazard analysis was not performed for the site. Per Supplement 3 of ASCE 7-16, the value of S_{M1} and therefore S_{D1} have been increased by 50 percent. The seismic response coefficient, Cs, should be determined per the parameters provided below and using equation 12.8-2 of ASCE 7-16.

Selected Seismic Design Parameters from 2022 CBC/ASCE 7-16	*Seismic Design Values*	*Reference*
Latitude	33.6816 North	
Longitude	-117.9341 West	
Controlling Seismic Source	San Joaquin Hills	USGS, 2024
Site Class per Table 20.3-1 of ASCE 7-16	D	
Spectral Acceleration for Short Periods (Ss)	1.347 g	SEA/OSHPD, 2024
Spectral Accelerations for 1-Second Periods (S_1)	0.484 g	SEA/OSHPD, 2024
Site Coefficient F_a, Table 11.4-1 of ASCE 7-16	1.0	SEA/OSHPD, 2024
Site Coefficient F_v, Table 11.4-2 of ASCE 7-16	1.816	
Design Spectral Response Acceleration at Short Periods (S_{DS}) from Equation 11.4-4 of ASCE 7-16	0.898 g	SEA/OSHPD, 2024
Design Spectral Response Acceleration at 1-Second Period (S_{D1}) from Equation 11.4-4 of ASCE 7-16 (includes 50% increase per Supplement 3)	0.879 g	
T_S S_{D1} /S_{DS} 11.4.6 of ASCE 7-16	0.98 sec	
T_L Long-Period Transition Period	8 sec	SEA/OSHPD, 2024
Peak Ground Acceleration Corrected for Site Class Effects (PGA_M) from Equation 11.8-1 of ASCE 7-16	0.64 g	SEA/OSHPD, 2024
Seismic Design Category, Section 11.6 of ASCE 7-16	D	

3.4 Foundation and Slab Design

The foundation soils are anticipated to have "Very High" expansion potential and will be subject to climatic and landscape moisture fluctuations. Thus, slab and foundations should be designed in accordance with Wire Reinforcement Institute (WRI) or Post-Tension Institute (PTI) methods (per the 2022 CBC). Design of slabs and foundations are the purview of the structural engineer.

New structural loads should be supported on foundations meeting the criteria specified herein. At minimum, new foundations should be deepened to below the existing structural foundation depths. The property owner should recognize and accept that the use of existing foundations in conjunction with new foundations or new structural elements may result in differential performance between foundation systems or impact the performance of the existing foundations. Consideration should be given to the structural framing and floor coverings used at transitions. The support conditions and structural capacity of existing foundations are speculative based on past performance, available documentation, and limited observation. While the structural engineer should review and analyze existing foundations for anticipated new loading, it should be understood that the foundation conditions for existing elements contain some degree of uncertainty.

For preliminary design, the sizing of foundations may be based on an allowable bearing capacity of 1,600 psf for a 12-inch-wide footing embedded a minimum of 30 inches below the nearest adjacent grade. The allowable bearing capacity may be increased by 300 psf for each additional foot of embedment and by 75 psf for each additional foot of width to a maximum value of 2,000 psf. The allowable bearing pressure may be increased by one-third for wind or seismic loading. Lateral loads may be resisted by passive pressure forces and friction acting on the bottom of footings and mat slabs. For footings cast against approved earth materials, the lateral bearing resistance may be computed using a value of 250 pounds per square foot per foot of depth below natural level grade but should not exceed 3,750 pounds per square foot. The coefficient of frictional resistance of 0.25 against sliding for concrete in contact with approved soil may also be used. Passive resistance and frictional resistance may be used in combination without reduction.

Exterior foundations should have a minimum embedment of 30 inches below adjacent grades but will need to be extended to below existing foundations if adjacent to existing structures. The minimum recommended depth for interior building footings is 18 inches below adjacent grades. Other minimum footing dimensions should be provided by the Structural Engineer and should comply with Table 1809.7 of the 2022 CBC.

Slabs-on-grade that are underlain entirely by geotechnically approved compacted fill and/or undisturbed alluvium should be at least 6-inches thick (actual) and should be reinforced with No. 4 bars placed on chairs 18 inches on center as a minimum. The design of slab-on-grade should meet the requirements of the 2022 CBC for expansive soils. If slab and foundations are designed in accordance with Wire Reinforcement Institute (WRI) an effective Plasticity Index of 40 may be assumed for the soils in the upper 15 feet. Subgrade soils in the upper 24 inches should be presaturated to 140 percent of optimum moisture content.

Exposed slabs should be designed with appropriately spaced expansion joints, as needed, to limit the visibility of unsightly, irregular cracks. Contractors should be advised to take appropriate precautions such as maintaining proper concrete slump and providing proper concrete curing, particularly when pouring concrete during hot, dry, or windy weather, in order to limit potential cracking of large slabs.

3.5 Slope Setbacks

Footings for the proposed improvements should be excavated such that the bottom outside face of all structural foundation elements are a horizontal distance of H/3 (H = slope height) from the slope face or structural setback plane, up to a maximum horizontal setback of 40-feet per section 1808.7.1 of the 2022 CBC. Structural setbacks shall be verified by the geotechnical consultant when the final plans become available.

3.6 Interior Slab Moisture Mitigation

In addition to geotechnical and structural considerations, the project owner should also consider moisture mitigation when designing and constructing mat slabs or slabs-on-grade. The intended use of the interior space, type of flooring, and the type of goods and/or materials in contact with the floor may dictate the need for, and design of, measures to mitigate potential effects of moisture emission from and/or moisture vapor transmission through the slab. A vapor retarder or barrier is required in accordance with Section 1805.2.1 of the 2022 CBC under residential slabs to help mitigate moisture transmission through the concrete. Slabs should additionally be underlain by 4 inches of open graded gravel and slab subgrade soils should be well-moistened prior to placement of the vapor retarder. All subgrade materials should be geotechnically approved prior to placing the gravel for the slab underlayment.

Slab underlayment is deferred to the project architect; however, in accordance with the American Concrete Institute, we suggest that slabs be underlain by a 15-mil thick vapor retarder/barrier (Stego Wrap or equivalent) placed over the gravel in accordance with the requirements of ASTM E:1745 and E:1643.

Concrete mix design and curing are also significant factors in mitigating slab moisture problems. Concrete with lower water/cement ratios result in denser, less permeable slabs. They also "dry" faster with regard to when flooring can be installed (reduced moisture emission quantities and rates). Rewetting of the slab following curing should be avoided since this can result in additional drying time required prior to flooring installation. Proper concrete slab moisture testing prior to flooring installation is also important.

Also, the concrete mix design and the type and location of the vapor retarder should be determined in coordination with all parties involved in the finished product, including the project owner, architect, structural engineer, geotechnical consultant, concrete subcontractors, and flooring subcontractors.

3.7 Settlement Potential

Based on the subsurface soil conditions, recommended remedial measures and the anticipated foundation loads associated with the proposed residential improvements, the total settlement should be on the order of 1 inch and the post-construction differential settlement is anticipated to be approximately ½-inch over a 40-foot span.

3.8 Retaining Walls

The recommended lateral earth pressures for competent onsite soils (compacted fill) in drained conditions are as follows:

Equivalent Fluid Unit Weight Pressure (psf/ft)		
Static Conditions	*Horizontal Adjacent Ground*	*2:1 Slope*
Active	55	85
At Rest	75	105
Passive	250	130

In addition to the above lateral forces due to retained earth, the influence of surcharge due to other loads such as adjacent footings, vehicular traffic or lateral loads acting on the retaining wall should be considered during the design of retaining walls.

To design an unrestrained retaining structure, such as a cantilever wall, the active earth pressure may be used. For a restrained retaining structure, such as a basement wall or at restrained-wall corners, the at-rest

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PRECISE GRADING PLAN
FOR LAW RESIDENCE
GEOTECHNICAL NOTES

3039 CAPRI LANE
COSTA MESA, CA 92626

REVISIONS

NO.	REVISION	DATE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. ROSEN
C 76608
CIVIL
STATE OF CALIFORNIA

JOB NO. 24037

DATE 2/5/2025

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pressure should be used. Retaining wall foundations, if any, should utilize the parameters included in Section 3.4 of this report.

We do not anticipate the proposed walls at the site will retain more than 6 feet of soil. Thus, per the 2022 CBC, seismic lateral earth pressure will not need to be applied (Section 1803.5.12).

Drainage behind retaining walls should also be provided. A recommended drainage design for achieving control of seepage forces behind retaining walls consists of open graded gravel wrapped with geotextile fabric separator or a graded washed gravel placed in contact with undisturbed native material. Collection is with a 4-inch diameter perforated pipe embedded at the base of the gravel tied to a 4-inch diameter non-perforated outlet pipe which discharges at convenient locations selected during foundation plan review. The pipe should be placed such that the gradient is not less than 0.01 ft./ft. The fabric wrapped gravel envelope should be placed at a similar gradient.

All drainpipes should be Schedule 40, SDR-35, or approved equivalent. Perforations may be either bored holes, not less than 3/16-inch or larger than 1/2-inch diameter, or 1/8-inch slots placed on the bottom one-third of the pipe perimeter. If the pipe is to be bored, a minimum of 5 holes should be uniformly placed per foot of length in two rows at approximately the 4 and 8 o'clock positions. Slots should not exceed 2 inches in length and total length of slots should not be less than 50 percent of the pipe length. Subdrain pipes are intended for evacuation of water, and as such the holes in the pipes should be directed downward on the lower portion of the pipe. Proper outlets should be provided for retaining wall subdrains.

The geotextile filter fabric should be in accordance with Orange County Standard Plan 1808. The fabric pore spaces should be between 30 and 100 mesh openings. The fabric should be placed such that a minimum lap of 6 inches exists at all splices. The fabric wrapped gravel envelope should consist of ½-inch minimum single size drain rock. All subdrain installations should be inspected by this office or designated representative.

Additional recommendations for drainage behind retaining walls are provided in the attached detail (Figure 4, rear of text).

3.9 Corrosivity

Based on our laboratory testing, soluble sulfate exposure in the onsite soils may be classified as "S0" per Table 19.3.1.1 of ACI-318-14. Structural concrete elements in contact with soil include footings and building slabs-on-grade. The flatwork and sidewalk concrete are typically not considered structural elements. Concrete mix for structural elements should be based on the "S0" soluble sulfate exposure class of Table 19.3.2.1 in ACI-318-14. Other ACI guidelines for structural concrete are recommended. Also, onsite soils are anticipated to be corrosive to metals. Additional laboratory testing may need to be performed at the completion of grading in order to verify the actual condition of the as-graded soils at the site.

3.10 Exterior Concrete

The patio slabs and other flatwork elements should be at least 4 inches thick (actual) and minimum steel reinforcement should consist of No. 3 bars placed on chairs 24 inches on center both ways. Concrete flatwork should be underlain by 4 inches of granular materials placed over compacted subgrade. Concrete slabs should be provided with construction or weakened plane control joints at a maximum spacing of 6 feet. The control joints should have a thickness that is ¼ of the total concrete thickness. We recommend that the upper 24 inches of subgrade be pre-saturated to 140 percent of optimum moisture content.

Exterior concrete elements such as curb and gutter, driveways, sidewalks and patios are susceptible to lifting and cracking when constructed over expansive soils. With expansive soils, the impacts to flatwork/hardscape can be significant, generally requiring removal and replacement of the affected improvements. Please also note that reducing concrete problems is often a function of proper slab design, concrete mix design, placement, and curing/finishing practices. Adherence to guidelines of the American Concrete Institute (ACI) is recommended. Also, the amount of post-construction watering, or lack thereof, can have a very significant impact on the adjacent concrete flatwork.

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For exterior slabs, the use of a granular sublayer is primarily intended to provide a better working surface over the subgrade material. It also helps retain the added moisture in the native soil in the event that the soils do become dried out. (Section 3.4)

On projects with expansive soils, additional measures such as thickened concrete edges/footings, subdrains and/or impervious barriers should be considered where planter or natural areas with irrigation are located adjacent to the concrete improvements. Design and maintenance of proper surface drainage is also very important. If the concrete will be subject to heavy loading from cars/trucks or other heavy objects, at minimum, a 6-inch thick reinforced concrete pavement section should be used.

The above recommendations typically are not applied to curb and gutter but should be considered in areas with highly expansive soils.

3.11 Trench Excavation and Backfill

Excavations should be performed in accordance with the requirements set forth by Cal/OSHA Excavation Safety Regulations (Construction Safety Orders, Section 1504, 1539 through 1547, Title 8, California Code of Regulations). In general, onsite soils are anticipated to be classified as Type "B". Cal/OSHA regulations apply to excavations that are up to 20 feet deep.

Trenches, including interior utility, should be backfilled with native soil or clean sand (SE 30 or better) and compacted to 90 percent relative compaction. We recommend that backfill soils be placed at above optimum moisture content.

Where utility lines transect footings, any bedding sand or gravel backfill should be "dammed" with compacted on-site soils or slurry to limit the potential for water to enter beneath slab areas through bedding sand or gravel. Contractors are advised to notify this office of backfilling operations and keep a record or map of the location of utility line trenches. Certain review agencies (City and County) require reporting of all utility and sewer trench backfills to include location, depth and backfill compaction test results. It is the builder's responsibility to ensure that trench backfills are documented and tested as required by the building or grading inspector for the project location.

3.12 Groundwater

As previously discussed, groundwater was not observed at the time of our onsite exploration. However, perched water may occur within alluvial deposits on an annual and seasonal basis as a result of rainfall, irrigation and/or seepage from adjacent properties. Groundwater seepage is not anticipated to be a significant design or construction constraint, provided proper surface drainage and subdrainage systems are incorporated into the project. However, the presence of groundwater in excavations during construction is possible and may cause caving in steep sided excavations.

Subdrains and waterproofing should be included in retaining wall design and construction as a precaution against the development of hydrostatic pressure loading the walls and/or seepage/nuisance water issues.

Additional drainage recommendations may be provided following the completion of grading at the site.

3.13 Stormwater Infiltration

Onsite stormwater infiltration is not recommended as the site is underlain by highly expansive clays with low permeability. This is in accordance with the County of Orange guidelines. Other methods of stormwater filtration should be evaluated by the project civil engineer, as needed.

3.14 Surface Drainage and Irrigation

Finished grades should be designed and constructed so that no water ponds in the vicinity of foundations. Drainage design in accordance with the 2022 CBC, Section 1804.4, is recommended per local City/County requirements. Roof gutters should be provided, and outflow directed away from the house in a non-erosive manner as specified by the project civil engineer or landscape architect. Proper interception and disposal of onsite surface discharge is presumed to be a matter of civil engineering or landscape architectural design.

The performance of the planned foundation and improvements is dependent upon maintaining adequate surface drainage both during and after construction. The ground surface around foundations and improvements should be graded so that surface water will not collect and pond. The impact of heavy irrigation can artificially create perched water conditions. This may result in seepage or shallow groundwater conditions where previously none existed.

Attention to surface drainage and controlled irrigation will significantly reduce the potential for future problems related to water infiltration. Irrigation should be well controlled and minimized. Seasonal adjustments should be made to prevent excessive watering. Sources of uncontrolled water, such as leaky water pipes or drains, should be repaired if identified.

The Owner should be aware of the potential problems that could develop when drainage is altered through construction of retaining walls (if any), paved walkways, utility installations or other various improvements. Ponded water, incorrect drainage, leaky irrigation systems, overwatering or other conditions that could lead to unwanted groundwater infiltration must be avoided.

Area drains should be installed in all planter and landscape areas. Planter surfaces should be sloped away from building areas in accordance with code requirements. Roof drainage should be tight-lined into the area drain system or carried to outlets at least 5 feet from building foundations. Planters and lawn areas should not be allowed adjacent to foundations unless they are lined with a bottom barrier installed with a minimum 5 percent gradient away from foundations and drained with a subdrain. Also, to reduce the potential for soil drying and shrinkage, root barriers should be considered along foundations next to heavily landscaped areas.

Irrigation water should be controlled for the landscape areas in a way that maintains uniform moisture conditions around and below the building slab and footings. Changes in exterior moisture will promote heave and desiccation in the soil supporting foundations and must therefore be avoided. Any planters located adjacent to the building foundation must be lined in a manner that directs subsurface water at least 5 feet from the building before infiltration into the soil below.

3.15 Review of Future Plans

Future grading and improvement plans should be reviewed and accepted by the geotechnical consultant. Additional recommendations or modifications to the recommendations provided herein may be necessary

depending on the extent of the changes. SA GEO should also review foundation, retaining wall (if any) and landscape plans for conformance with the geotechnical design parameters provided herein. SA GEO shall not be responsible for any deviations from, changes to, or revisions to plans which are not approved by us.

Homeowners and their design/construction team should be familiar with the recommendations in this report as well as principles described in a useful reference published by the California Geotechnical Engineers Association (CalGeo), titled, "Coexisting with Expansive Soil: An Informational Guide for Homeowners." This free booklet can be downloaded at www.calgeo.org.

3.16 Observation and Testing during Grading and Construction

Geotechnical observation and testing should be performed by SA GEO during the following phases of grading and construction:

- During site demolition, preparation and clearing;
- During excavations performed for remedial grading and to relocate or remove existing underground improvements;
- During earthwork, including observation and acceptance of remedial removal bottoms and fill placement, including import material (if any);
- Following the completion of grading, in order to verify soil properties for foundations, slab-on-grade and pavements;
- Upon completion of any foundation or structural excavation, prior to pouring concrete;
- During slab and flatwork subgrade preparation including pre-saturation prior to pouring of concrete;
- During excavation, construction, and backfill of storm water filtration systems, if any;
- During placement of backfill for utility trenches;
- During placement of backfill for retaining structures, if any; and
- When any unusual soil conditions are encountered.

3.17 Limitations

This report has been prepared for the exclusive use of our clients, Cheryl & Mark Law, within the scope of services requested by our client for the subject property located at 3039 Capri Lane in the City of Costa mesa, California, as described herein. This report or its contents should not be used or relied upon for other projects or purposes, or by other parties without the acknowledgement of SA GEO and the consultation of a geotechnical professional. The means and methods used by SA GEO for this study are based on local geotechnical standards of practice, care, and requirements of governing agencies. No warranty or guarantee, expressed or implied, is given.

Our findings, conclusions, and recommendations are professional opinions based on interpretations and inferences made from geologic and engineering data from specific locations and depths, observed or collected at a given time. By nature, geologic conditions can vary from point to point, can be very different in-between exploration points, and can also change over time. Our conclusions and recommendations are, by nature, preliminary and subject to verification and/or modification during grading and construction when more subsurface data is exposed.

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PRECISE GRADING PLAN FOR LAW RESIDENCE
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DATE 2/5/2025

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