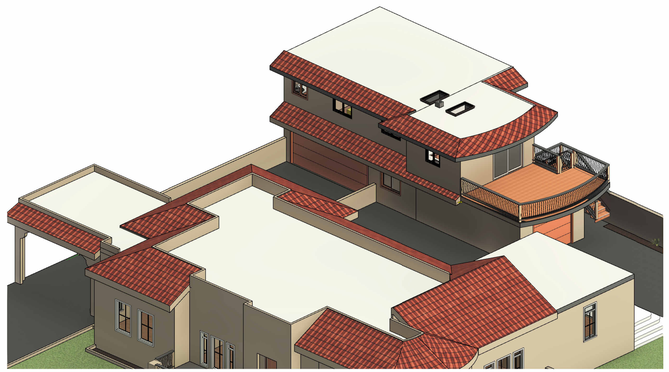
Vicinity Map



2 ADU North View

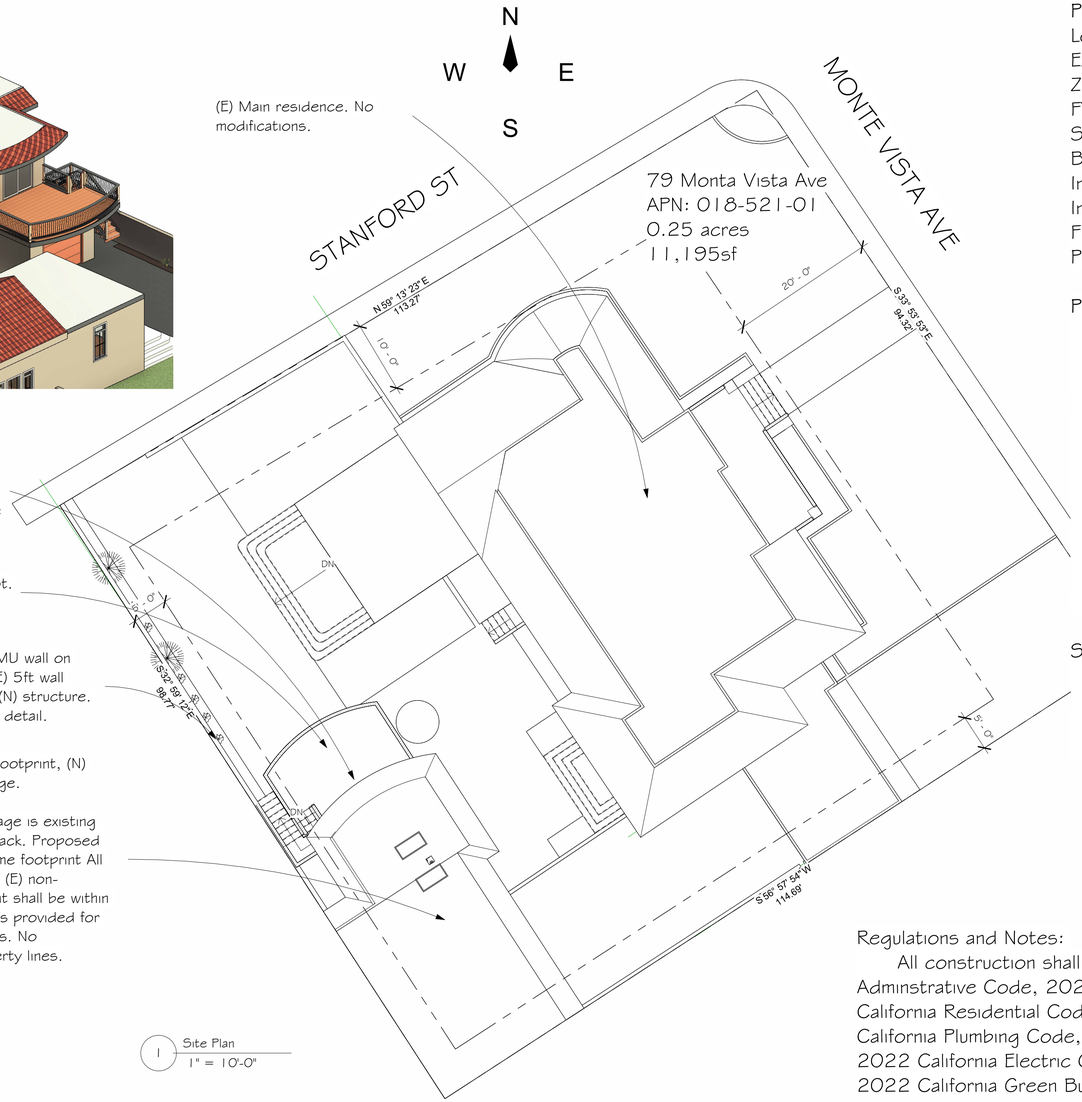
4" high house number with 1/2" stroke with contrasting color shall installed such that it visible from the street.

(N) 1-car garage with entrance from Stanford St. to be built beneath ADU and ADU deck.

(N) 5ft high 38ft long CMU wall on property line extending (E) 5ft wall from street to corner of (N) structure. See structural sheets for detail.

(E) Garage rebuilt in same footprint, (N) ADU added above (E) garage.

IMPORTANT NOTE: (E) garage is existing non-conforming within setback. Proposed ADU shall be within this same footprint All (N) construction outside of (E) non-conforming garage footprint shall be within setbacks with exceptions as provided for stairs, overhangs and eaves. No construction beyond property lines.



1 Site Plan
1" = 10'-0"

PROJECT LOCATION:
79 Monte Vista Ave.
Watsonville, CA 95076
APN : 018-521-01

PROJECT SUMMARY:
Rebuild of existing detached garage, addition of new 1-car garage, and adding new 750sf ADU with ADU deck above both garages.

SCOPE OF WORK:
1) Demolish and replace in same space (E) 2-car garage which is existing non-conforming (over setbacks).
2) Add (N) 1-car garage within setbacks to expand garage footprint.
3) Add (N) 750sf 2br2ba ADU above garage pair with exterior stairs.
4) Add (N) ADU deck above (N) 1-car garage below.
5) Finish all exterior with stucco 1-hour fire rated to match existing.
6) Finish roofing to match exterior.
7) Extend (E) 5ft CMU wall 38ft to corner of new structure as shown.

PARCEL:
Lot 0.25 acres (11,195sf)
Existing residence R3 type V-A unsprinklered
Zoning R1: Single Family
FYSB: 20ft
SYSB: 5ft interior side 10ft street side
BYSB: 5ft
Inside USL: Yes
Inside WUI: No
Fire designation: Local FRA
Property lines as defined in Santa Cruz County GIS

PROJECT DATA:
Existing 3br/2ba main residence (no change)
Existing conditioned space 2488sf
Footprint: 2488sf
Existing Garage replaced with new garage with ADU above
Existing unconditioned garage 580sf
* Rebuilt in same footprint with added 1/2 bath
Addition of unconditoined 1-car garage 300sf
Addition of ADU conditioned on second floor 750sf
Addition of ADU deck above 1-car garage 222sf
Final area 1630sf
Footprint 880sf
NO CHANGE TO IMPERVIOUS SURFACES

SITE DATA:
Lot 0.25 acres (11,195sf)
Structure footprint area 3368sf
Proposed lot coverage: 30%
(< 40% OK)

Regulations and Notes:
All construction shall conform to 2022 California Adminstrative Code, 2022 California Building Code, 2022 California Residential Code, 2022 California Fire Code, 2022 California Plumbing Code, 2022 California Mechanical Code, 2022 California Electric Code, 2022 California Energy Code, 2022 California Green Building Code, and Local Amendments.

Sheet List	
Sheet Number	Sheet Name
0	Site
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A102	Garage and ADU Floor Plans
A103	Ceiling Plans
A104	Roof Plans
A105	Door and Window Schedules
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A111	Main Residence Elevations E/W
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EN.1	Energy 1
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S1.2	Upper Floor Plan
S1.3	Roof Plan
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S2.0	Concrete General Details
S3.0	Wood General Details
S3.1	Wood General Details
S3.2	Wood General Details
S3.3	Wood Details

No.	Revision Description	Date
	Initial Submission	9/23/2024

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Coffman-Gomez ADU+Garage

APN: 018-521-01

79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

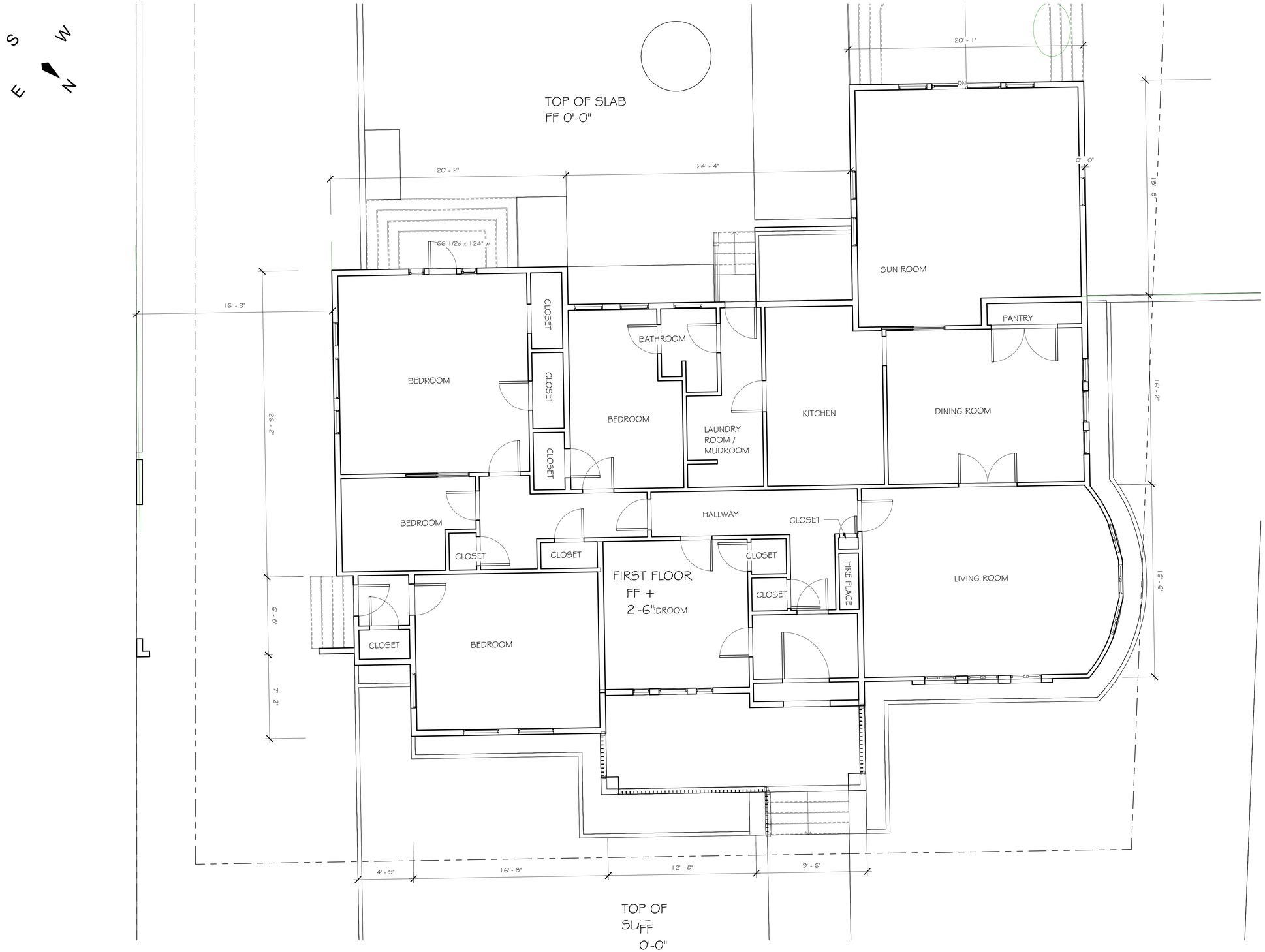
Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD
PETER ODRYNA
STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
Drawn by	PO
Scale	AS SHOWN

0
Site



1 Main Residence Top of Slab
1/4" = 1'-0"

No Proposed Changes

No.	Revision Description	Date
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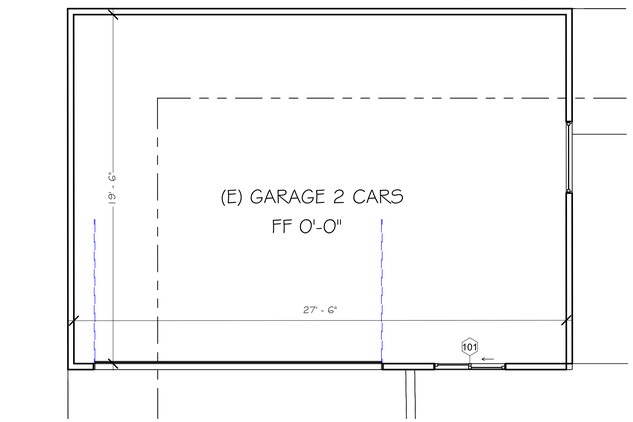
A101

Main Residence Floor Plan

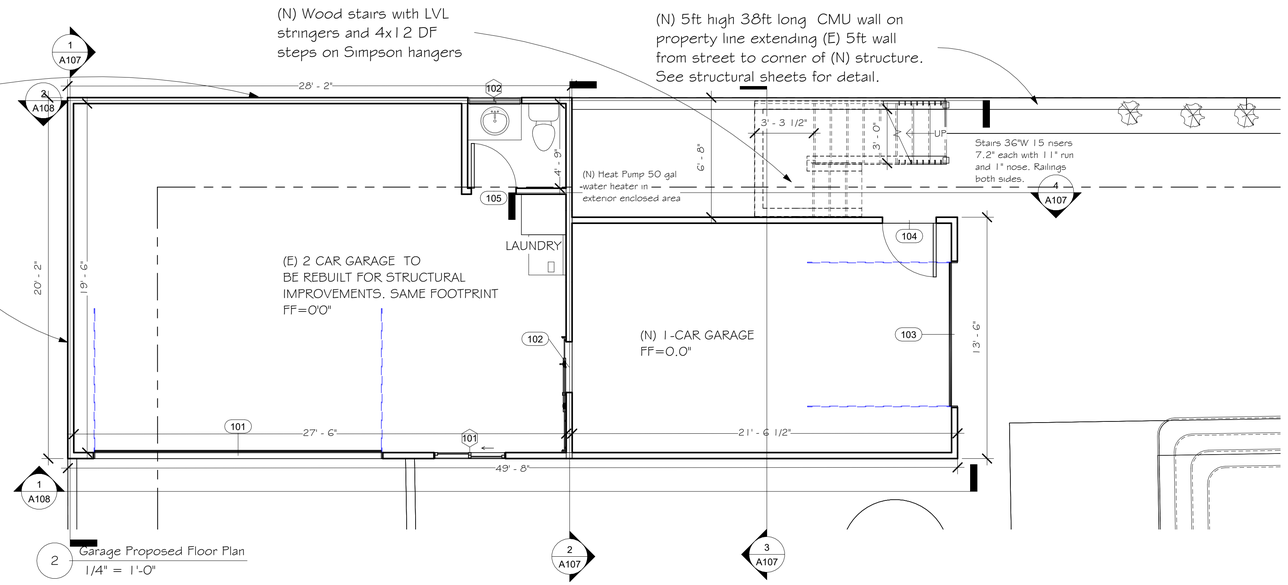


1 Garage Existing Floor Plan
1/4" = 1'-0"

Exterior walls within setback shall be 1-hour fire rated (stucco) and windows shall be 1-hour fire rated with maximum area coverage not to exceed 25%. Calc OK.

(N) Wood stairs with LVL stringers and 4x12 DF steps on Simpson hangers

(N) 5ft high 38ft long CMU wall on property line extending (E) 5ft wall from street to corner of (N) structure. See structural sheets for detail.



2 Garage Proposed Floor Plan
1/4" = 1'-0"

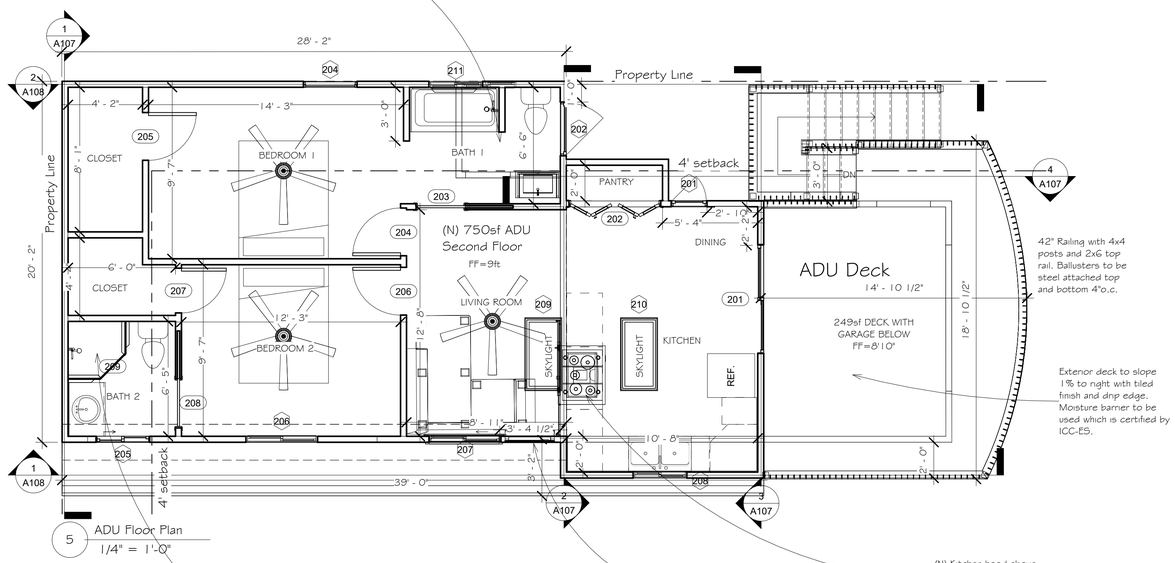
IMPORTANT NOTE TO CONTRACTOR: The existing garage door is to be removed and saved for reinstallation folllowing structure rebuild. Measure EXISTING opening exactly and frame replacement opening to match to ensure the existing garage door can be reinstalled. Contractor responsible for damage.

STAIR AND RAILING REQUIREMENTS:
* Stairs shall have 36" minimum stair width. Stair tread depth shall be 10" minimum plus tread nosing and riser height not to exceed 7.75". Landings shall be 36" minimum at the top and bottom of the stairs with a light fixture to illuminate the stairs.
* Handrails at decks exceeding 30" above the surface shall be 42" in height.
* Handrails at stairs are required to be 34" to 38" above the stair treads. and shall be continuous for the full length of the flight, from a point directly above the top riser to the lowest riser flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1-1/2" between the wall and the handrails and shall be graspable.
* Handrail connection shall be designed to withstand a 200-pound load applied in any direction at any point along the top of the rail.
* The spacing of the openings at the guards to be such that a sphere, 4 inch in diameter shall not pass through.

AGING IN PLACE REQUIREMENTS (CRC R327):
a. At least one bathroom on the entry level shall be provided with reinforcement (for grab bars) installed in accordance with this section. Where there is no bathroom on the entry level, at least one bathroom on the floor above shall comply with this section.
i. The reinforcement to be solid lumber and not less than 2X8.
ii. Dimension the reinforcement shall be located between 32" and 39 ¼" above the finished floor.
iii. The water closet reinforcement to be installed on both side walls of the fixture, or one side wall and the back wall.
iv. Where the water closet is not located adjacent to the side wall, grab bar reinforcement for a ground-mounted installation is acceptable.
v. The shower reinforcement shall be continuous where wall framing is provided.
vi. Bathtub and combination bathtub/shower reinforcement shall be continuous on each end of the bathtub and the back wall. Additionally, back wall reinforcement for a lower grab bar shall be provided with the bottom edge located no more than 6" above the bathtub rim.
b. Electrical receptacle outlets, switches and controls intended to be used by occupants shall be located no more than 48" measured from the top of the outlet box and not less than 15" measured from the bottom of the outlet box above the finish floor.
c. Doorbell controls to not exceed 48" above exterior floor, measured from the top of the doorbell button assembly.

Insulation Schedule in (N) ADU:
Roof: R-30 : Rigid foam or spray foam with vapor barrior. No ventilation required.
Walls: R-15 : Fiberglass batts
Floor: R-30 : Fiberglass batts

Bathroom fan always on for IAQ 45cfm 1 sone max such as Panasonic Whisper Choice DC Pick-A-Flow 80/110 CFM or equiv. See sheet EN.1. HERS rating required.



5 ADU Floor Plan
1/4" = 1'-0"

Bath notes:
a. The bathtub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a nonabsorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet above the floor.
b. Gypsum board shall not be used where there will be direct exposure to water, or in areas subject to continuous high humidity.

(N) Shower shall be 1024sq.in. minimum and capable of encompassing 30" diameter circle. Shower glass door shall be tempered with 22" minimum clearance at opening.

Exterior door landing notes:
a. Landings at an egress door shall not be more than 1-½" lower than the top of the threshold. Landing shall not be more than 7.75" lower than the top of the threshold where door does not swing over the landing.
b. Landings at non-egress exterior doors to be 36" and not to be more than 7.75" below the top of the threshold

(N) Hessaire 21.7 SEER 12,000 BTU or equivelent Minisplit with condenser located under stairs near HW heater.

(N) Kitchen hood above range 250cfm 1.5 sones. See EN.1 for details. HERS rating required.

No.	Revision Description	Date
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Coffman-Gomez ADU+Garage

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Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD PETER ODRYNA STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
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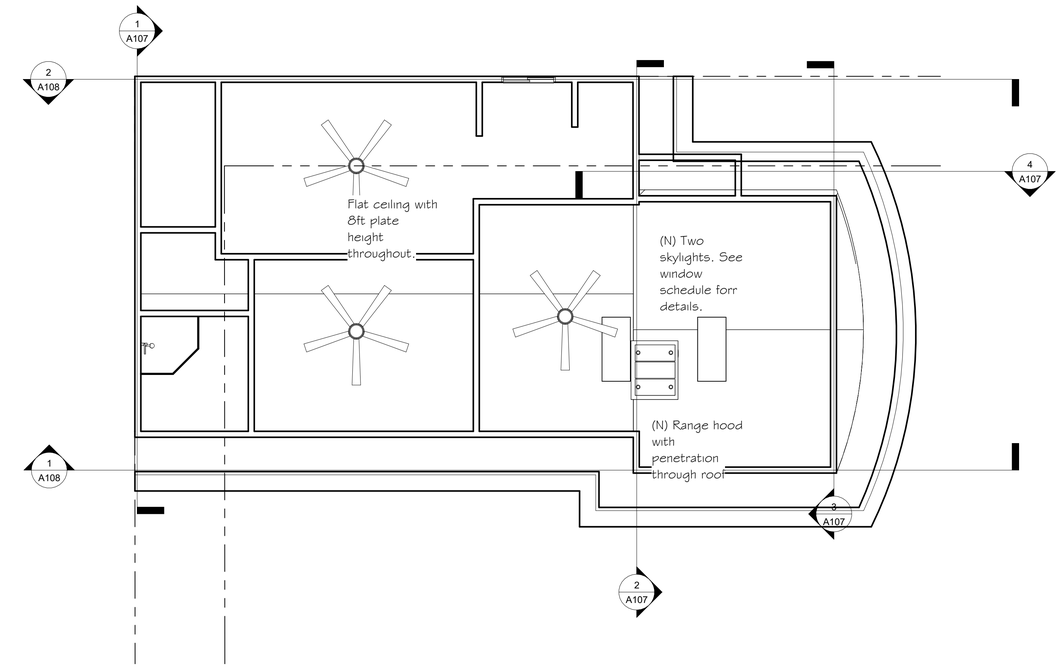
A102

Garage and ADU Floor Plans



1 ADU Ceiling Plan
1/4" = 1'-0"

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1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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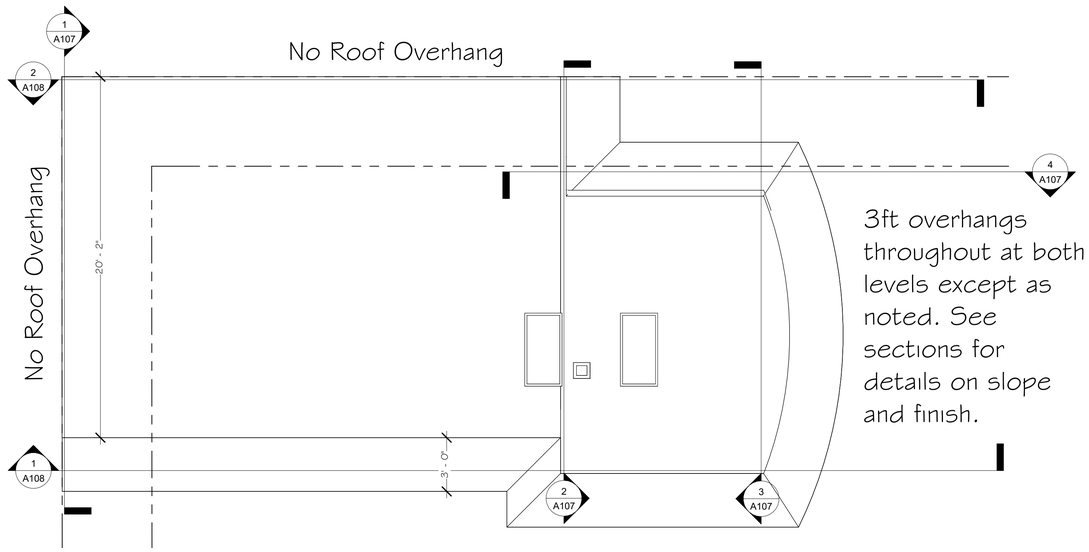
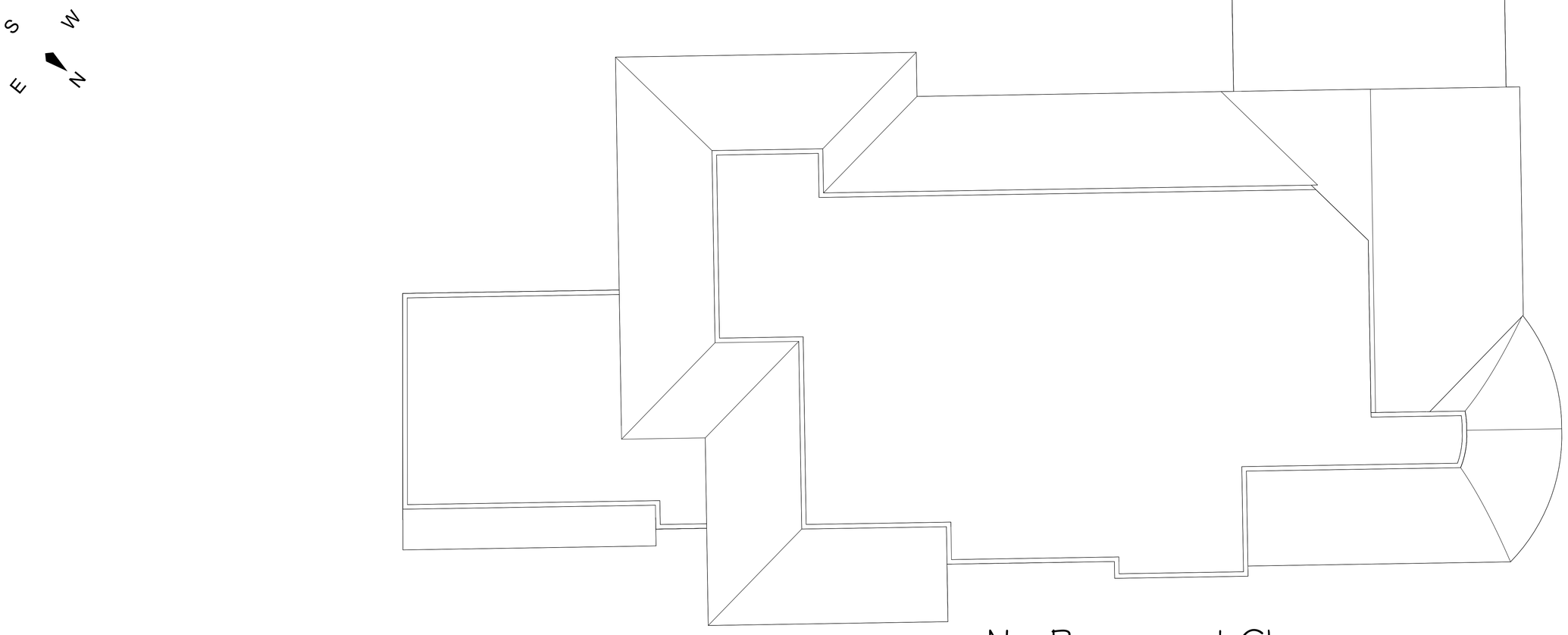
Ceiling Plans



2 ADU Roof
1/4" = 1'-0"



No Proposed Changes

1 Main Residence Roof Plan
1/4" = 1'-0"

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Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD
PETER ODRYNA
STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
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A104

Roof Plans

Door Schedule

Door Number	Width	Height	Head Height	Finish / Comments
1	2' - 8"	7' - 0"	7' - 0"	No Change
2	2' - 8"	7' - 0"	7' - 0"	No Change
3	2' - 8"	7' - 0"	7' - 0"	No Change
4	2' - 8"	7' - 0"	7' - 0"	No Change
5	2' - 8"	7' - 0"	7' - 0"	No Change
6	2' - 6"	7' - 0"	7' - 0"	No Change
7	2' - 8"	7' - 0"	7' - 0"	No Change
8	2' - 8"	7' - 0"	7' - 0"	No Change
9	2' - 6"	7' - 0"	7' - 0"	No Change
10	2' - 8"	7' - 0"	7' - 0"	No Change
11	2' - 6"	7' - 0"	7' - 0"	No Change
12	2' - 6"	7' - 0"	7' - 0"	No Change
13	2' - 6"	6' - 8"	6' - 8"	No Change
14	2' - 6"	6' - 8"	6' - 8"	No Change
15	2' - 6"	6' - 8"	6' - 8"	No Change
16	2' - 6"	6' - 8"	6' - 8"	No Change
17	2' - 6"	6' - 8"	6' - 8"	No Change
18	2' - 6"	6' - 8"	6' - 8"	No Change
19	2' - 6"	6' - 8"	6' - 8"	No Change
20	2' - 4"	6' - 6"	6' - 6"	No Change
21	4' - 0"	7' - 0"	7' - 0"	No Change
22	1' - 6"	6' - 0"	6' - 0"	No Change
23	5' - 0"	6' - 0"	6' - 0"	No Change
24	5' - 8"	6' - 8"	6' - 8"	No Change
25	2' - 8"	7' - 0"	7' - 0"	No Change
27	2' - 8"	6' - 8"	6' - 8"	No Change
28	0' - 0"	0' - 0"	0' - 0"	No Change
29	2' - 8"	7' - 0"	7' - 0"	No Change
30	0' - 0"	0' - 0"	0' - 0"	No Change
31	0' - 0"	0' - 0"	0' - 0"	No Change
53	5' - 10"	8' - 0"	8' - 0"	No Change
101	16' - 0"	6' - 11"	6' - 11"	Sectional garage door - REUSE existing
102	3' - 0"	7' - 0"	7' - 0"	Barn door 30-68
103	8' - 0"	6' - 11"	6' - 11"	Sectional garage door to match existing
104	3' - 0"	6' - 8"	6' - 8"	20-minute fire rated exterior door
105	2' - 6"	6' - 8"	6' - 8"	Interior 28-68
201	6' - 0"	6' - 8"	6' - 8"	60-68 Vinyl slider
202	5' - 0"	7' - 0"	7' - 0"	Bi-fold door
203	2' - 8"	6' - 8"	6' - 8"	Pocket door 2868
204	2' - 8"	6' - 8"	6' - 8"	Interior 28-68
205	2' - 8"	6' - 8"	6' - 8"	Interior 28-68
206	2' - 8"	6' - 8"	6' - 8"	Interior 28-68
207	2' - 6"	6' - 8"	6' - 8"	Interior 28-68
208	2' - 8"	6' - 8"	6' - 8"	Pocket door 2868
209	2' - 8"	6' - 8"	6' - 8"	Pocket door 2868
209	1' - 10"	6' - 0"	6' - 0"	Glass shower door tempered

Window Schedule

Mark	Rough Opening Width	Rough Opening Height	Sill Height	Head Height	Comments
9	2' - 8"	4' - 0"	1' - 6"	5' - 6"	No Change
10	2' - 8"	4' - 0"	1' - 6"	5' - 6"	No Change
11	2' - 8"	4' - 0"	1' - 6"	5' - 6"	No Change
12	2' - 0"	5' - 5"	1' - 0"	6' - 5"	No Change
13	2' - 0"	5' - 5"	1' - 0"	6' - 5"	No Change
14	2' - 8"	5' - 5"	1' - 0"	6' - 5"	No Change
15	2' - 8"	4' - 0"	1' - 0"	5' - 0"	No Change
16	2' - 8"	4' - 0"	1' - 0"	5' - 0"	No Change
17	2' - 8"	4' - 0"	1' - 0"	5' - 0"	No Change
18	1' - 5"	5' - 5"	0' - 3"	5' - 8"	No Change
19	1' - 5"	5' - 5"	0' - 3"	5' - 8"	No Change
20	2' - 5"	5' - 5"	0' - 3"	5' - 8"	No Change
21	3' - 0"	5' - 0"	2' - 0"	7' - 0"	No Change
22	3' - 0"	5' - 0"	2' - 0"	7' - 0"	No Change
23	2' - 5"	5' - 5"	2' - 8"	8' - 1"	No Change
24	2' - 5"	5' - 5"	2' - 8"	8' - 1"	No Change
25	2' - 5"	5' - 5"	2' - 0"	7' - 5"	No Change
28	2' - 0"	4' - 0"	3' - 0"	7' - 0"	No Change
29	2' - 0"	4' - 0"	3' - 0"	7' - 0"	No Change
30	2' - 5"	4' - 5"	3' - 0"	7' - 5"	No Change
31	2' - 5"	4' - 5"	3' - 0"	7' - 5"	No Change
32	2' - 5"	3' - 0"	4' - 5"	7' - 5"	No Change
33	1' - 4"	6' - 0"	0' - 9"	6' - 9"	No Change
34	1' - 4"	6' - 0"	0' - 9"	6' - 9"	No Change
35	3' - 0"	5' - 0"	2' - 0"	7' - 0"	No Change
36	2' - 0"	5' - 5"	2' - 0"	7' - 5"	No Change
37	3' - 6"	5' - 5"	2' - 0"	7' - 5"	No Change
38	2' - 0"	5' - 5"	2' - 0"	7' - 5"	No Change
60	2' - 5"	5' - 5"	2' - 0"	7' - 5"	No Change
61	2' - 5"	5' - 5"	3' - 0"	8' - 5"	No Change
101	4' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 40-40 XO slider
102	3' - 0"	4' - 0"	3' - 0"	7' - 0"	Fyre-tec 1-hour fire rated 30-30 XX Slider
201	2' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 20-40 single casement
202	3' - 0"	4' - 0"	3' - 0"	7' - 0"	Fyre-tec 1-Hour fire rated 40-30 XOX casement egress
204	3' - 0"	4' - 0"	3' - 0"	7' - 0"	Fyre-tec 1-Hour fire rated fixed obscured
205	3' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 30-40 XO slider
206	4' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 40-40 XO slider egress
207	4' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 40-40 XO slider
208	3' - 0"	4' - 0"	3' - 0"	7' - 0"	Milgard Tuscany 30-40 XO slider
209	2' - 0"	4' - 0"			Velux VSS C06 2004
210	2' - 0"	4' - 0"			Velux VSS C06 2004
211	3' - 0"	1' - 0"	6' - 0"	7' - 0"	Fyre-tec 1-Hour fire rated 3010 XO slider

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San Carlos, CA 94070
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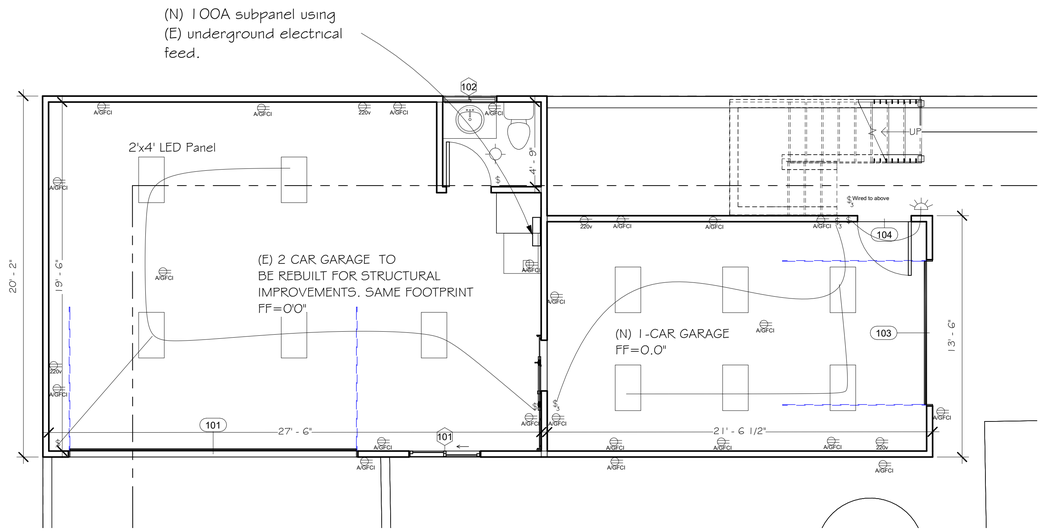
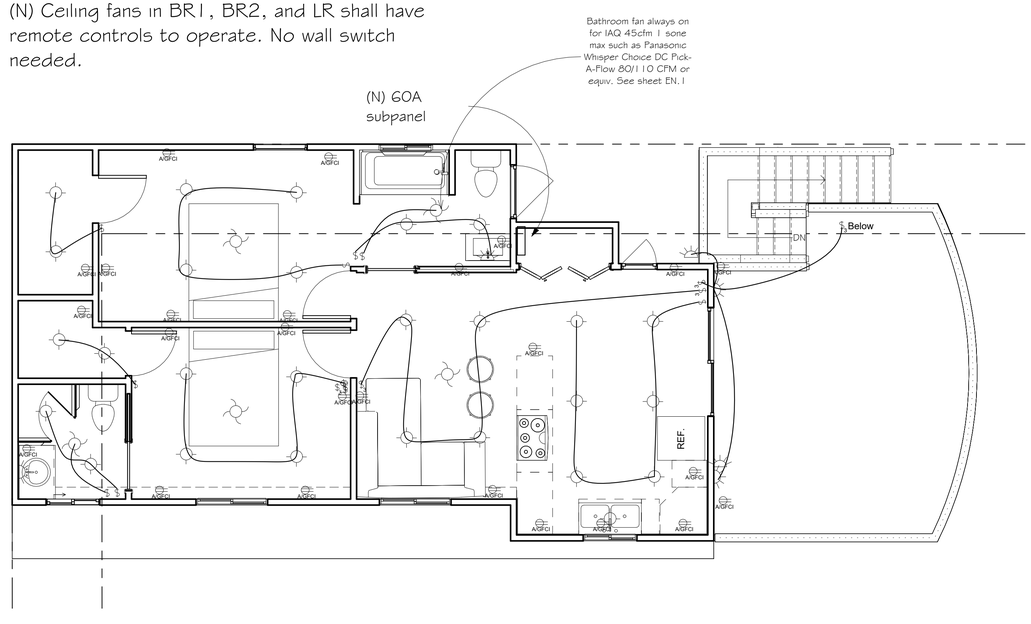
Scale	AS SHOWN

A105

Door and Window Schedules



(N) Ceiling fans in BR1, BR2, and LR shall have remote controls to operate. No wall switch needed.



Electrical notes:
* All lights shall be high efficacy LED. See energy sheets for details.
* Combo Smoke/CO detectors shall be interconnected and shall receive their primary power from the building wiring with battery backup.
* A/GFCI outlets may be either combo outlets or protection can be provided in the breaker panel.

Electrical Symbol Key:
- Outlet
- Outlet 220v
- Outlet Combo Arc/Ground Fault Circuit Interruptor
- Outlet Arc Fault Circuit Interruptor
- Switch
- Switch - 3way
- Dimming Switch
- LED Can Light
- Smoke/CO Detector
- Wall Sconce
- Ceiling Fan

No.	Revision Description	Date
	Initial Submission	9/23/2024

Coffman-Gomez ADU+Garage

APN: 018-521-01

79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA. 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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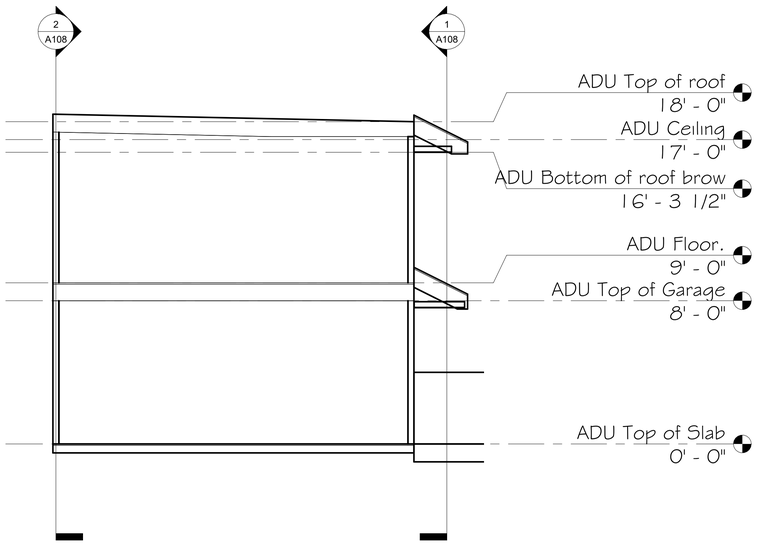
Project number	2024-09
Date	9/23/2024
Drawn by	PO
Scale	AS SHOWN

A106

Electrical Plan

Insulation Schedule in (N) ADU:
Roof: R-30 : Rigid foam or spray foam with vapor barnior. No ventilation required.
Walls: R-15 : Fiberglass batts
Floor: R-30 : Fiberglass batts

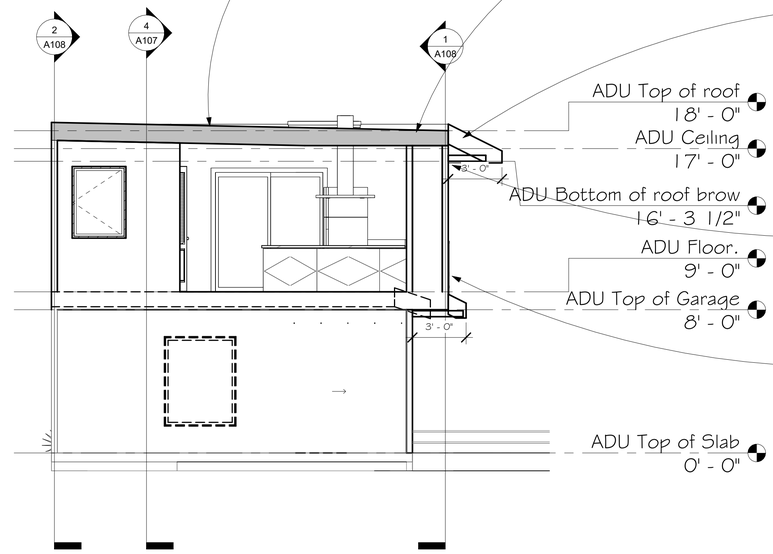


1 Section through SE Garage/ADU Wall
1/4" = 1'-0"

ADU roof to be sloped 1/4"/ft to the right (northeast). Finish with Dura-last PVC roof membrane or equivalent. Install per manufacturer's directions. Foam insulation with vapor barrier used, so no venting required.

Dutch gutter drains to be used at corners, draining through wall to exit to splash blocks or AC surface at corners of structure. Minimum three required. No gutters to be installed.

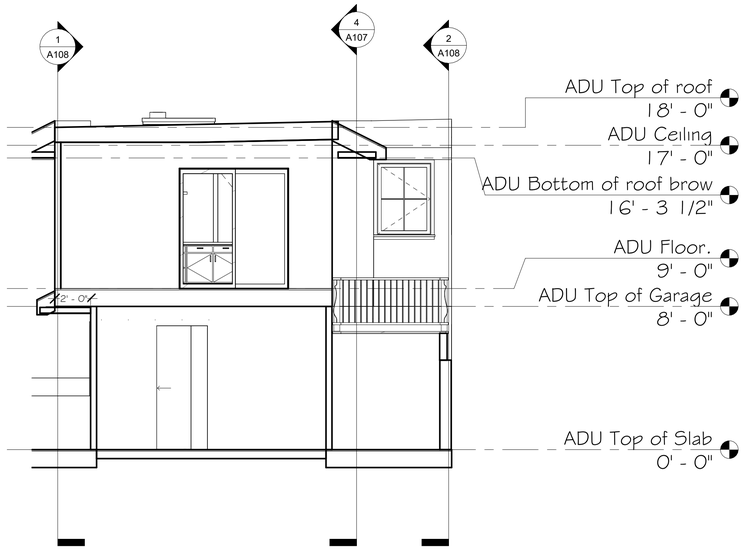
(N) Eyebrow roof segments to be covered in terra-cotta tile roof matching main residence. No exterior gutter. Dutch gutter from left only.



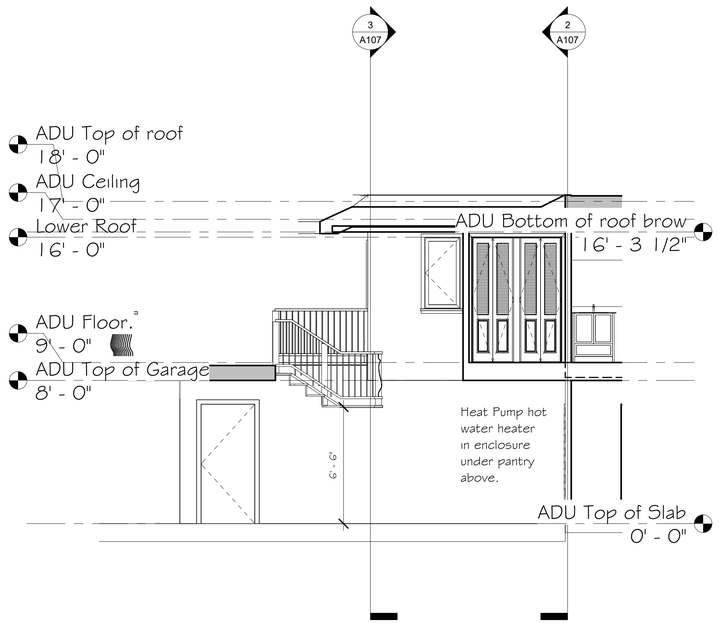
Flat soffit beneath to provide framing support for eyebrow roof. Vent eaves using Smartvent or equivalent. Finish horizontal soffit to match wall color.

Walls to be finished with stucco matching style and color of existing main residence.

2 Section through garage centar wWall
1/4" = 1'-0"



3 Section through NW Garage/ADU Wall
1/4" = 1'-0"



4 Section through top of stairs
1/4" = 1'-0"

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Watsonville, CA 94076
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200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
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Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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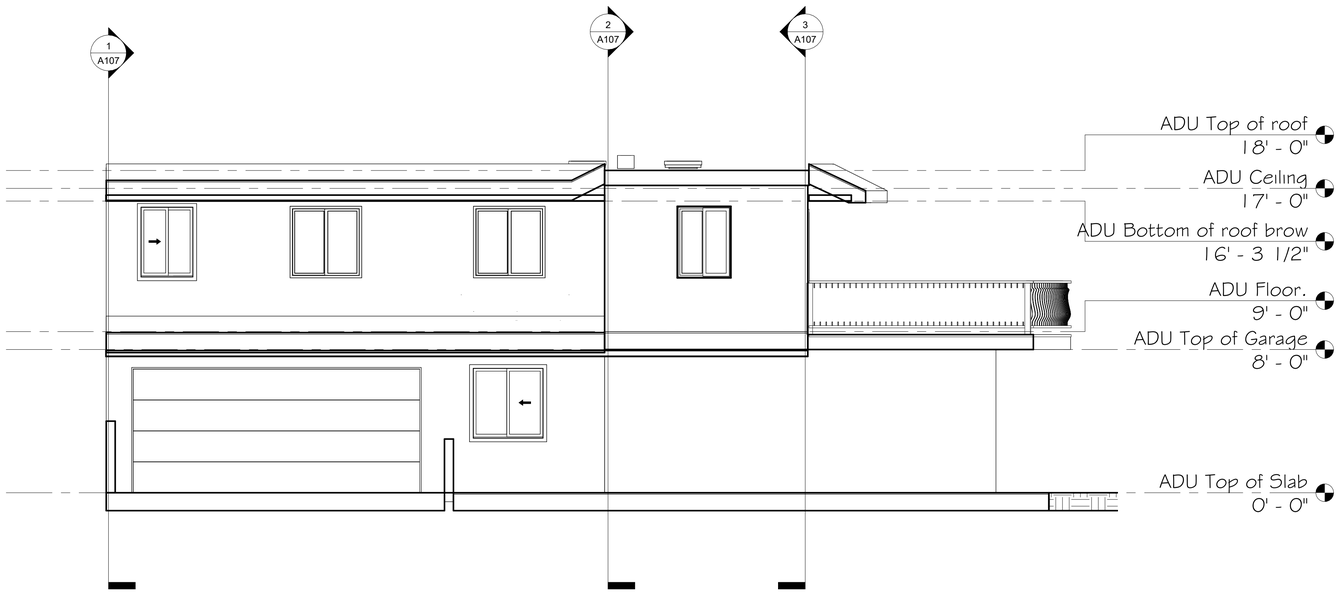
PETER ODRYNA
STATE OF CALIFORNIA

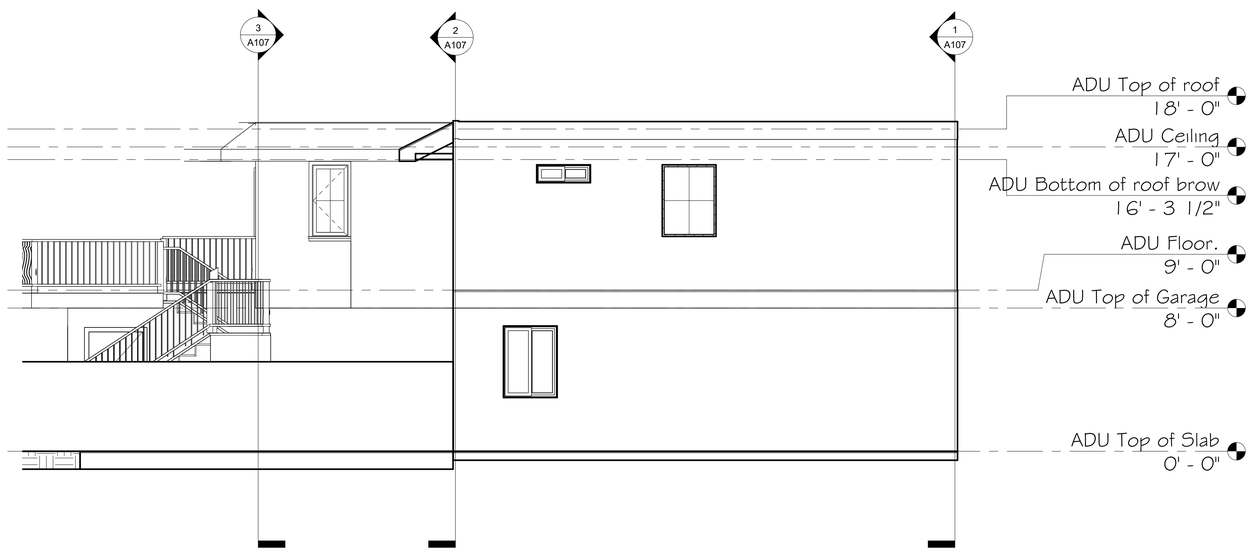
Project number	2024-09
Date	9/23/2024
Drawn by	PO
Scale	AS SHOWN

A107

Garage ADU Sections



1 Section through NE Garage/ADU Wall
1/4" = 1'-0"



2 Section through SW Garage/ADU Wall
1/4" = 1'-0"

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Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
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Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

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Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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A108

Garage ADU Sections-2

1 Main Residence North
1/4" = 1'-0"

2 Main Residence South
1/4" = 1'-0"

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	Initial Submission	9/23/2024

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200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
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Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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STATE OF CALIFORNIA

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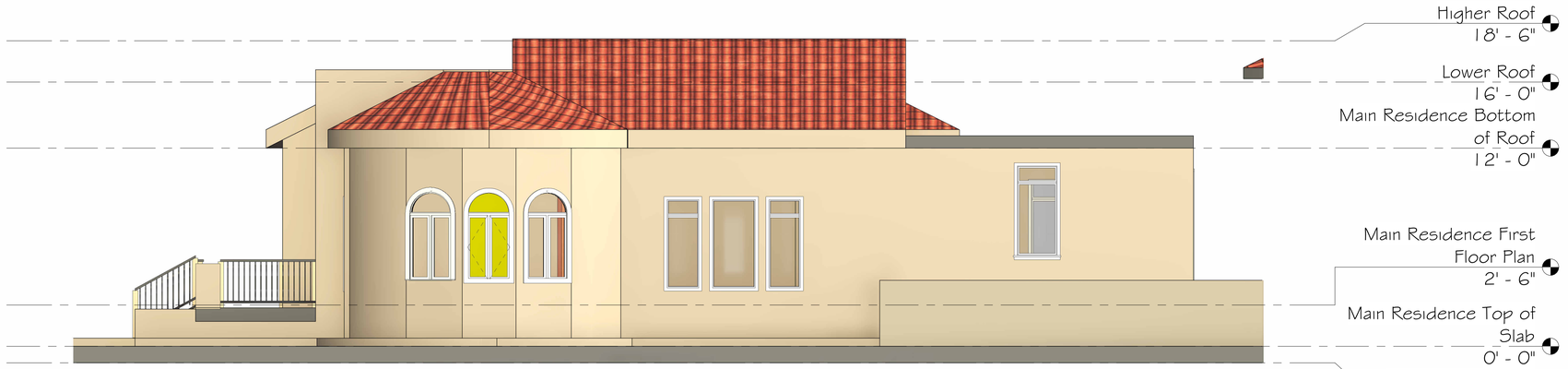
Date	9/23/2024
Drawn by	Author
Scale	AS SHOWN

A110

Main Residence Elevations N/S



1 Main Residence East
1/4" = 1'-0"

2 Main Residence West
1/4" = 1'-0"

No.	Revision Description	Date
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email: rsengineer@cruzio.com
phone: (831) 254-3758

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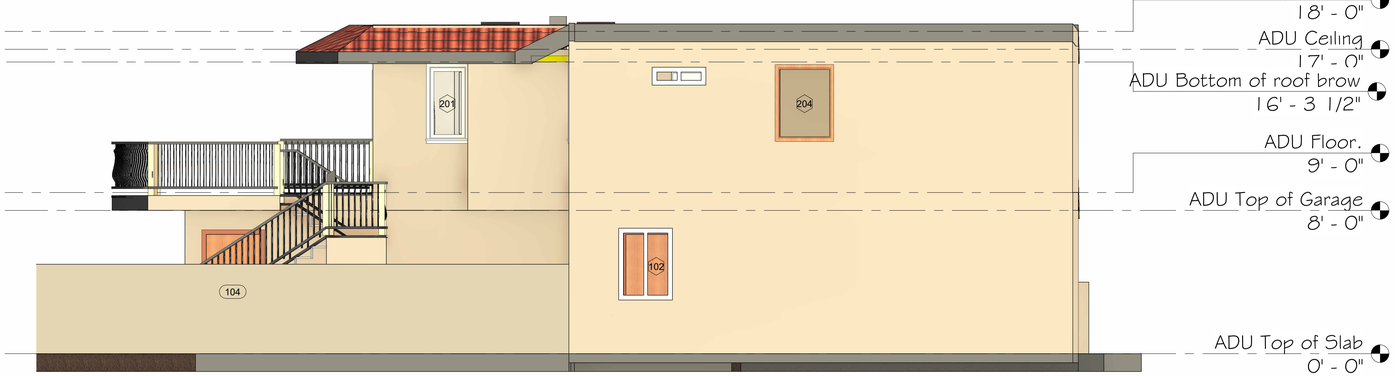
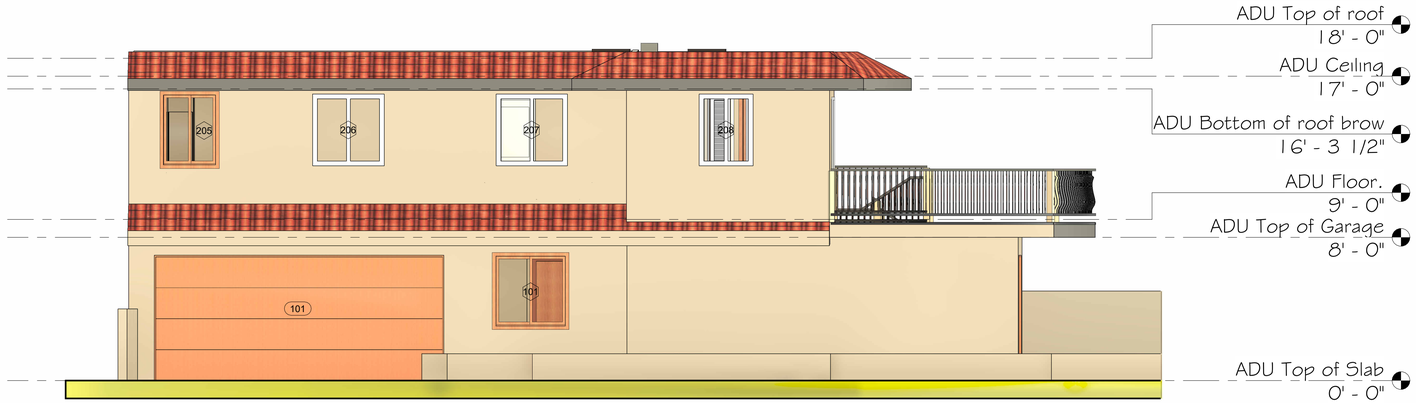
Main Residence Elevations E/W



1 ADU North
1/4" = 1'-0"

Average roof height calculation:
Area of ADU roof:
739sf @ 18ft. (58.6%)
Area of 1-car garage roof:
249sf @ 9ft. (19.7%)
Area of "eyebrow" on two sides:
274sf @ 16.5ft (21.7%)
Total: 1191sf
Calc: (18*0.586)+(9*0.19.7)+16.5*0.217
=15.89ft avg. Garage/ADU roof height.



2 ADU South
1/4" = 1'-0"

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Watsonville, CA 94076
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phone: 408-670-4846

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Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
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Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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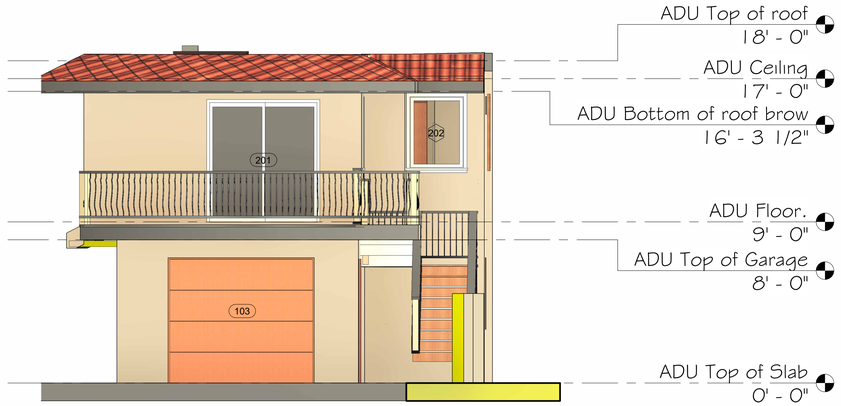
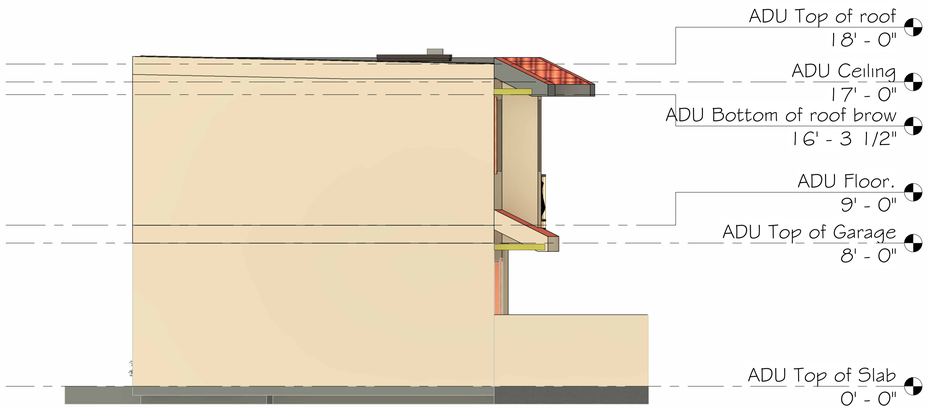
A112

ADU Elevations N/S



1 ADU East
1/4" = 1'-0"



2 ADU West
1/4" = 1'-0"

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200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
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Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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STATE OF CALIFORNIA

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Drawn by	PO
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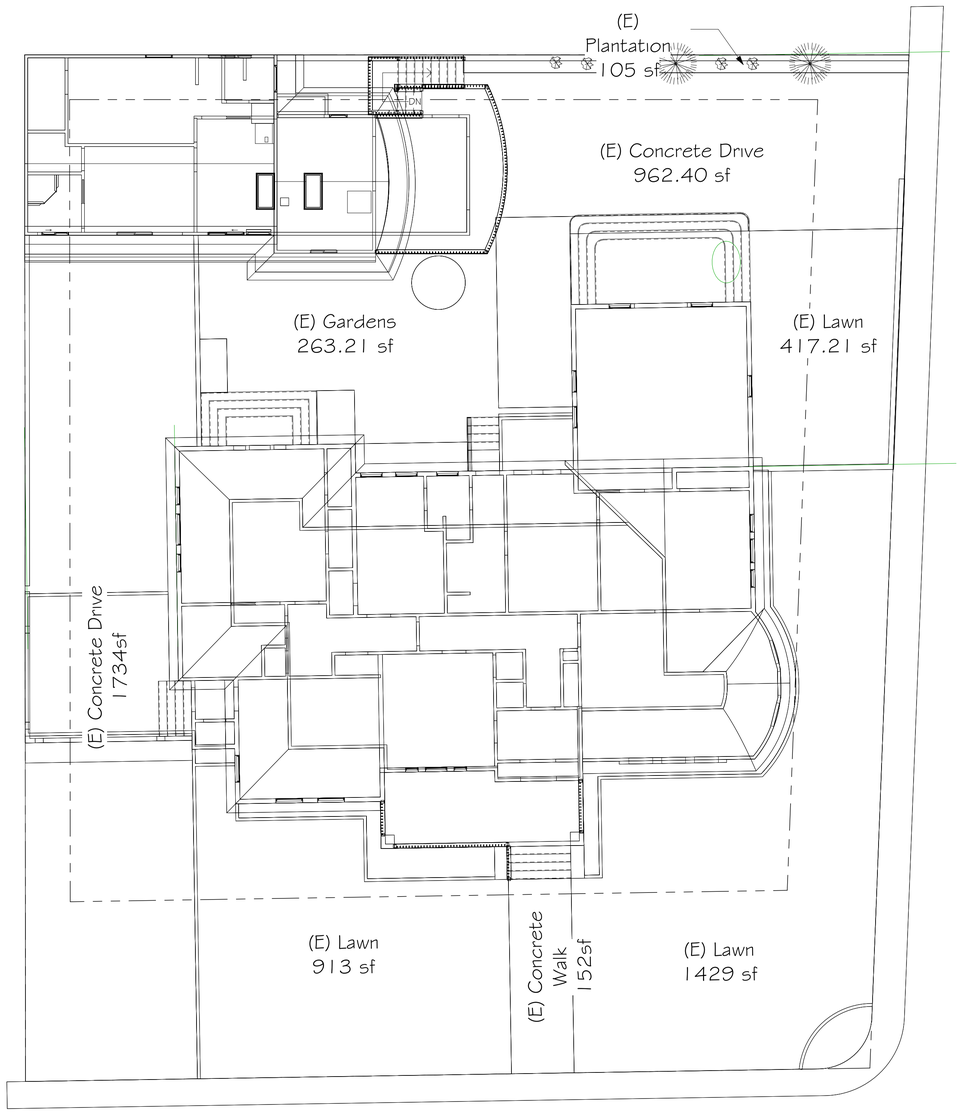
A113

ADU Elevations E/W



2 Site Plan Landscape
1/8" = 1'-0"

Landscape areea calculation:
Pcrcel area: 11,195sf
Hardscapes: 2,896sf
Landscaped area: 4,931sf
Structures: 3368sf

Landscaped area 44% OK

NO CHANGE TO IMPERVIOUS SURFACES

No.	Revision Description	Date
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Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

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PETER ODRYNA
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Drawn by	PO
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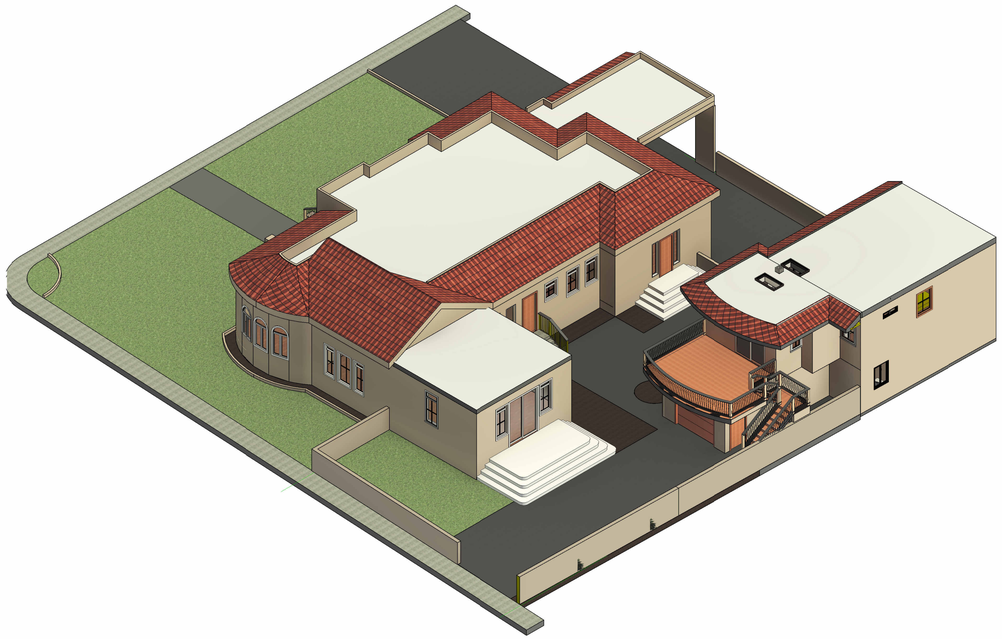
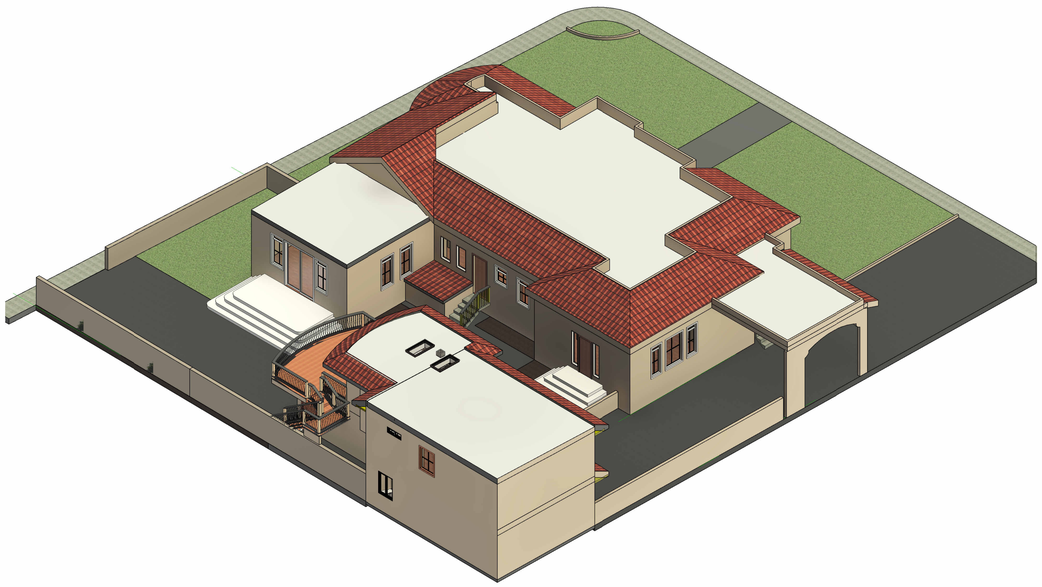
A114
Landscape plan

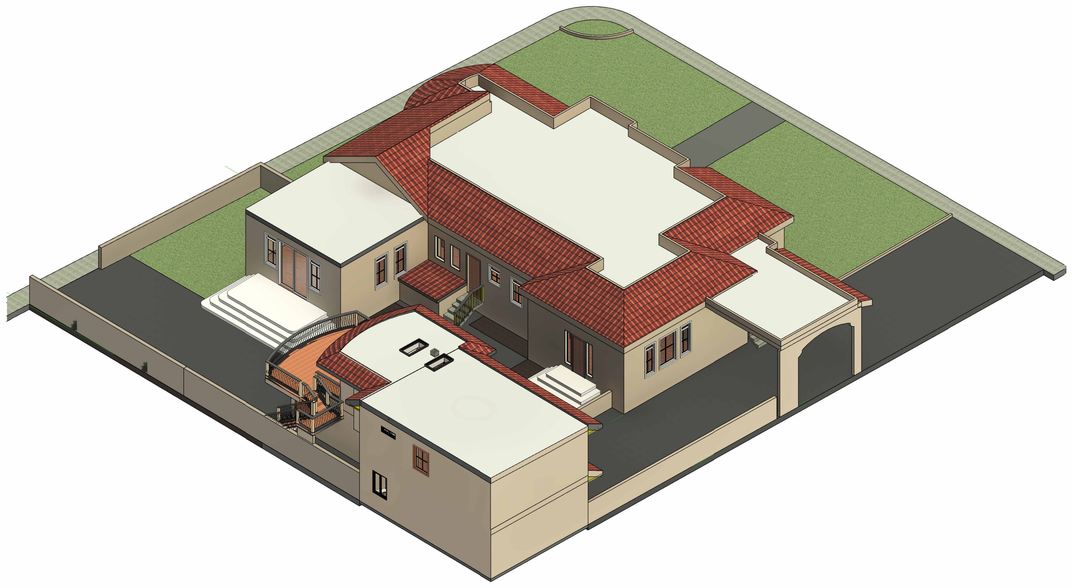
1 North 3D View



2 West 3D View



3 South 3D View



4 East 3D View

No.	Revision Description	Date
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Morris-Shaffer Engineering
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1300 Industrial Rd Suite 14
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email: rsengineer@cruzio.com
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Drawn by	RDS
Scale	AS SHOWN

A115

3d Views

GENERAL INFORMATION					
01	Project Name	Residential Building			
02	Run Title	Title 24 Analysis			
03	Project Location	79 Monte Vista Avenue			
04	City	Watsonville	05	Standards Version	2022
06	Zip code	95076	07	Software Version	CBECC-Res 2022.3.1
08	Climate Zone	3	09	Front Orientation (deg/ Cardinal)	45
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed Addition	13	Number of Bedrooms	5
14	Addition Cond. Floor Area (ft²)	750	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	2488	17	Fenestration Average U-factor	0.32
18	Total Cond. Floor Area (ft²)	3238	19	Glazing Percentage (%)	19.60%
20	ADU Bedroom Count	2	21	ADU Conditioned Floor Area	750
22	Fuel Type	All electric	23	No Dwelling Unit:	No

ADDITION ALONE - Project Analysis Parameters

01	02	03	04	05	06
Existing Area (excl. new addition) (ft2)	Addition Area (excl. existing) (ft2)	Total Area (ft2)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms
2488	750	3238	3	2	5

ADDITION ALONE - ACCESSORY DWELLING UNIT (ADU) PROJECT ANALYSIS PARAMETERS

01	02	03	04	05	06	07	08
Zone Name	Existing Area (excl. new addition) (ft²)	ADU Area (excl. existing) (ft²)	Total Area (ft²)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms	Attached vs. Detached
First Floor	2488	750	3238	3	2	5	Detached

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

ENERGY USE SUMMARY

Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft²-yr)	Standard Design TDV Energy (EDR2) (kTDV/ft²-yr)	Proposed Design Source Energy (EDR1) (kBtu/ft²-yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft²-yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	5.25	0	22.76	0	-17.51
Space Cooling	0	11.62	0	7.95	0	3.67
IAQ Ventilation	0	4.99	0	4.99	0	0
Water Heating	0	37.2	0	23.18	0	14.02
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**0**	**59.06**	**0**	**58.88**	**0**	**0.18**
Photovoltaics		0		0		
Battery				0		
Flexibility						
Indoor Lighting	0	6.66	0	6.66		
Appl. & Cooking	0	61.9	0	61.29		
Plug Loads	0	64.06	0	64.06		
Outdoor Lighting	0	7.5	0	7.5		
TOTAL COMPLIANCE	**0**	**199.18**	**0**	**198.39**		

ENERGY USE INTENSITY

	Standard Design (kBtu/ft² - yr)	Proposed Design (kBtu/ft² - yr)	Compliance Margin (kBtu/ft² - yr)	Margin Percentage
Gross EUI[1]	23.47	23.78	-0.31	-1.32
Net EUI[2]	23.47	23.78	-0.31	-1.32

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 SPECIAL FEATURES

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

- Floor has high level of insulation
- 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

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

- Indoor air quality ventilation
- Kitchen range hood
- Verified SEER/SEER2
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.1.7)
- 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)

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Status
First Floor	Conditioned	HVAC System1	750	8.4	DHW Sys 1	New

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft²)	07 Window and Door Area (ft2)	08 Tilt (deg)	09 Wall Exceptions	10 Status
Northeast Wall	First Floor	R-15 Wall	45	Front	331.8	56	90	none	New
Southeast Wall	First Floor	R-15 Wall	135	Left	185.6	0	90	none	New
Southwest Wall	First Floor	R-15 Wall	225	Back	331.8	23	90	none	New
Northwest Wall	First Floor	R-15 Wall	315	Right	185.6	52	90	none	New
Raised Floor (No Crawlspa	First Floor	R-30 Floor No Crawlspace	n/a	n/a	25	n/a	n/a		New
Interior Surface Floor (G	First Floor	R-30 Floor No Crawlspace1	n/a	n/a	725	n/a	n/a		New

OPAQUE SURFACES - CATHEDRAL CEILINGS

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Area (ft²)	07 Skylight Area (ft²)	08 Roof Rise (x in 12)	09 Roof Reflectance	10 Roof Emittance	11 Cool Roof
Roof	First Floor	R-38 Roof No Attic (Flat)	45	Front	750	16	0	0.1	0.85	No

FENESTRATION / GLAZING

01 Name	02 Type	03 Surface	04 Orientation	05 Azimuth	06 Width (ft)	07 Height (ft)	08 Mult.	09 Area (ft²)	10 U-factor	11 U-factor Source	12 SHGC	13 SHGC Source	14 Exterior Shading
Window	Window	Northeast Wall	Front	45			1	56	0.3	NFRC	0.45	NFRC	Bug Screen
Window 2	Window	Southwest Wall	Back	225			1	23	0.3	NFRC	0.45	NFRC	Bug Screen
Window 3	Window	Northwest Wall	Right	315			1	52	0.3	NFRC	0.45	NFRC	Bug Screen
Skylight	Skylight	Roof	Front	45			1	16	0.49	NFRC	0.29	NFRC	

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
R-38 Roof No Attic (Flat)	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-38	None / None	0.029	Roofing: 5 PSF (Normal Gravel) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-38 / 2x10 Inside Finish: Gypsum Board
R-30 Floor No Crawlspace	Exterior Floors	Wood Framed Floor	2x10 @ 16 in. O. C.	R-30	None / None	0.034	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10
R-30 Floor No Crawlspace1	Interior Floors	Wood Framed Floor	2x10 @ 16 in. O. C.	R-30	None / None	0.033	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Ceiling Below 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
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 (#)
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 Name	02 # of Units	03 Tank Vol. (gal)	04 NEEA Heat Pump Brand	05 NEEA Heat Pump Model	06 Tank Location	07 Duct Inlet Air Source	08 Duct Outlet Air Source
DHW Heater 1	1	50	Rheem	PROPH50 T2 RH37515 (50 gal, JA13)	Outside	First Floor	First Floor

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
HVAC System1	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	n/a	n/a	Setback

HVAC - HEAT PUMPS

01 Name	02 System Type	03 Number of Units	04 Heating Efficiency Type	05 HSPF/HSPF2/COP	06 Cap 47	07 Cap 17	08 Cooling Efficiency Type	09 SEER/SEER2	10 EER/EER 2/CEER	11 Zonally Controlled	12 Compressor Type	13 HERS Verification
			Heating				Cooling					
Heat Pump System 1	VCHP-ductless	1	HSPF2	7.5	12000	7400	EER2SEER2	21.7	10.6	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01 Name	02 Verified Airflow	03 Airflow Target	04 Verified EER/EER2	05 Verified SEER/SEER2	06 Verified Refrigerant Charge	07 Verified HSPF/HSPF2	08 Verified Heating Cap 47	09 Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Not Required	Required	Yes	No	Yes	Yes

VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION

01 Name	02 Certified Low-Static VCHP System	03 Airflow to Habitable Rooms	04 Ductless Units in Conditioned Space	05 Wall Mount Thermostat	06 Air Filter Sizing & Pressure Drop Rating	07 Low Leakage Ducts in Conditioned Space	08 Minimum Airflow per RA3.3 and SC3.3.3.4.1	09 Certified non-continuous Fan	10 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 Dwelling Unit	02 Airflow (CFM)	03 Fan Efficacy (W/CFM)	04 IAQ Fan Type	05 Includes Heat/Energy Recovery?	06 IAQ Recovery Effectiveness - SRE/ASRE	07 Includes Fault Indicator Display?	08 HERS Verification	09 Status
SFam ADU IAQVentRpt	45	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: Matt Policarpio	Documentation Author Signature: Matt Policarpio
Company: NRG Compliance	Signature Date: 08/20/2024
Address: 4480 Main St Suite B	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Riverside, CA 92501	Phone: 707-237-6957

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: Peter Odryna	Responsible Designer Signature: Peter Odryna
Company: Santa Cruz Drafting and Design	Date Signed: 08/20/2024
Address: 200 Citron Dr.	License:
City/State/Zip: Soquel, CA 95073	Phone: 8314648483

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.

No.	Revision Description	Date
	Initial Submission	9/23/2024

Coffman-Gomez ADU+Garage

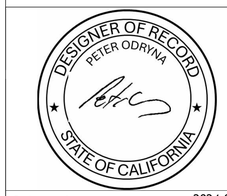
APN: 018-521-01

79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758



Project number	2024-09
Date	9/23/2024
Drawn by	PO
Scale	AS SHOWN

EN.1

Energy I

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type	Date
Coffman-Gomez, Trina ADU	☑ Single Family ☑ Addition Alone ☐ Multi Family ☐ Existing+ Addition/Alteration	8/20/2024

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
79 Monte Vista Avenue Watsonville	CA Climate Zone 03	750	750	1

INSULATION

Construction	Type	Cavity	Area (ft^2)	Special Features	Status
Wall	Wood Framed	R 15	904		New
Roof	Wood Framed Rafter	R 38	734		New
Floor	Wood Framed w/o Crawl Space	R 30	750		New

FENESTRATION — Total Area: 147 | Glazing Percentage: 19.6% | New/Altered Average U-Factor: 0.32

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Front (NE)	56.0	0.300	0.45	none	none	N/A	New
Rear (SW)	23.0	0.300	0.45	none	none	N/A	New
Right (NW)	52.0	0.300	0.45	none	none	N/A	New
Skylight	16.0	0.490	0.29	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Electric Heat Pump	7.50 HSPF2	Split Heat Pump	21.7 SEER2	Setback	New

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
HVAC System	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

5/6/22

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 Pump 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.

5/6/22

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. Filler 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. *

5/6/22

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	Date
Coffman-Gomez, Trina ADU	8/20/2024
System Name	Floor Area
HVAC System	750

ENGINEERING CHECKS

Number of Systems	1
Heating System	
Output per System	12,000
Total Output (Btuh)	12,000
Output (Btuh/sqft)	16.0
Cooling System	
Output per System	12,000
Total Output (Btuh)	12,000
Total Output (Tons)	1.0
Total Output (Btuh/sqft)	16.0
Total Output (sqft/Ton)	750.0
Air System	
CFM per System	0
Airflow (cfm)	0
Airflow (cfm/sqft)	0.00
Airflow (cfm/Ton)	0.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

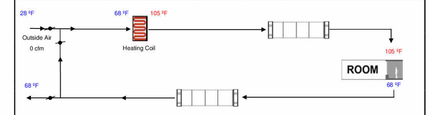
SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	426	9,178	299	192	7,642
Return Vented Lighting		0			0
Return Air Ducts		0			0
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		0			0
TOTAL SYSTEM LOAD		9,178	299		7,642

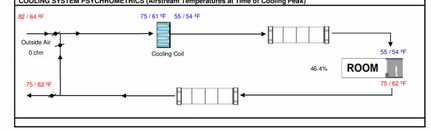
HVAC EQUIPMENT SELECTION

Ductless Mini Split Heat Pump	11,718	0	7,908
Total Adjusted System Output (Adjusted for Peak Design conditions)	11,718	0	7,908
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)



5/6/22

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)1Bii&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)1C-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.(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves. *

Lighting:

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

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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:

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2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(s)	**Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their source 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.

5/6/22

No.	Revision Description	Date

Coffman-Gomez ADU+Garage

APN: 018-521-01

79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD
PETER ODRYNA
STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
Drawn by	PO
Scale	AS SHOWN

EN.2

Energy 2

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2024 Supplement)

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

Y	N/A	RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

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

301.1.1 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 *CAL*Green, 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 Section 4.106.4.1 or 4.106.4.2. Electric vehicle supply equipment (EVSE) shall comply with the *California Electrical Code*.

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 Section 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 an EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.

4.106.4.2.1 Reserved.

4.106.4.2.2 Multifamily dwellings, hotels and motels

1. EV ready parking spaces with receptacles.

a. Hotels and motels. Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles.

b. Multifamily parking facilities. Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. EV charging receptacles required by this section shall be located in at least one assigned parking space per dwelling unit where assigned parking is provided but need not exceed forty (40) percent of the total number of assigned parking spaces provided on the site.

Exception: Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the *California Building Code*; or parking facilities otherwise incapable of supporting electric vehicle charging.

c. Receptacle power source. EV charging receptacles in multifamily parking facilities shall be provided with a dedicated branch circuit connected to the dwelling unit's electrical panel, unless determined as infeasible by the project builder or designer and subject to concurrence of the local enforcing agency.

Exception: Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the *California Building Code*; or parking facilities otherwise incapable of supporting electric vehicle charging.

d. Receptacle configurations. 208/240V EV charging receptacles shall comply with one of the following configurations:

1. For 20-ampere receptacles, NEMA 6-20R
2. For 30-ampere receptacles, NEMA 14-30R
3. For 50-ampere receptacles, NEMA 14-50R

2. EV ready parking spaces with EV chargers.

a. Hotels and motels. Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors.

b. Multifamily parking facilities. Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors. Where common use parking or unassigned parking is provided, EV chargers shall be located in common use or unassigned parking areas and shall be available for use by all residents or guests.

Where low power Level 2 EV charging receptacles or Level 2 EV chargers 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 EV chargers shall have a capacity of not less than 30 amperes.

4.106.4.2.2.1 Electric vehicle charging stations (EVCS).
Electric vehicle charging stations required by Section 4.106.4.2.2, Item 2, with EV chargers installed shall comply with Section 4.106.4.2.2.1.1.

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 Electric vehicle charging stations (EVCS) spaces with EV chargers installed; dimensions and location.

EVCS spaces shall be designed to comply with the following:

1. The minimum length of each EVCS space shall be 18 feet (5486 mm).
2. The minimum width of each EVCS space shall be 9 feet (2743 mm).
3. One in every 25 EVCS 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 EVCS space is 12 feet (3658 mm). Surface slope for this EVCS space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction. These EVCS spaces shall also comply with at least one of the following:

   a. The EVCS 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.
   b. The EVCS 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.

4.106.4.2.2.1.2 Accessible electric vehicle charging station spaces.
In addition to the requirements in Section 4.106.4.2.2.1.1, all EV chargers, where 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 Reserved.

4.106.4.2.4 Reserved.

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 multi-family buildings.
Where 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 EV capable spaces to support future Level 2 electric vehicle supply equipment. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE."

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.

No.	Revision Description	Date

Coffman-Gomez ADU+Garage

APN: 018-521-01

79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD
PETER ODRYNA
STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
Drawn by	Author
Scale	AS SHOWN

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2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 2 (July 2024 Supplement)

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 O^3/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.

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.*

No.	Revision Description	Date

Coffman-Gomez ADU+Garage
APN: 018-521-01
79 Monte Vista Ave. Watsonville, CA 95076

Owner name
Trina Coffman-Gomez
79 Monte Vista Ave.
Watsonville, CA 94076
email: Integrity_Lending@yahoo.com
phone: 408-670-4846

Designer of Record
Santa Cruz Drafting and Design
Peter Odryna, Principle
200 Citron Dr.
Soquel CA, 95073
email:peter@scdrafting.com
phone: (831) 334-2191

Structural Engineering
Morris-Shaffer Engineering
Robert Shaffer - Principle
1300 Industrial Rd Suite 14
San Carlos, CA 94070
email: rsengineer@cruzio.com
phone: (831) 254-3758

DESIGNER OF RECORD PETER ODRYNA STATE OF CALIFORNIA

Project number	2024-09
Date	9/23/2024
Drawn by	Author
Scale	AS SHOWN

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Mandatory Calgreen
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GENERAL NOTES

1. THE GENERAL NOTES CONTAINED WITHIN APPLY TO ALL DRAWINGS.
2. ALL WORK SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL BUILDING CODES AND SAFETY ORDINANCES IN EFFECT AT THE PLACE OF BUILDING. REF.: 2022 CALIFORNIA BUILDING CODE (CBC).
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY POTENTIAL DISCREPANCIES OR CONFLICTS, INCLUDING BUT NOT LIMITED TO INCONSISTENCIES WITHIN THE STRUCTURAL DRAWINGS, INCONSISTENCIES BETWEEN THE STRUCTURAL DRAWINGS AND OTHER DISCIPLINES INCLUDING ARCHITECTURAL DRAWINGS, GEOTECHNICAL RECOMMENDATIONS, EXISTING SITE CONDITIONS, ETC.
4. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING AND NEW DIMENSIONS SHOWN ON THESE PLANS AND TO COORDINATE ALL DIMENSIONS BETWEEN STRUCTURAL AND ARCHITECTURAL PLANS. THE DIMENSIONS PROVIDED ON STRUCTURAL PLANS ARE SOLELY FOR THE PURPOSE OF DESIGN.
5. ANY CONFLICTS OR DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER AND CORRECTED AS DIRECTED BY THE ENGINEER.
6. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
7. CONTRACTOR ACKNOWLEDGES THAT HE HAS THOROUGHLY FAMILIARIZED HIMSELF WITH THE BUILDING SITE CONDITIONS, GRADES, ETC., WITH THE DRAWINGS AND SPECIFICATIONS, WITH THE DELIVERY FACILITIES AND ALL OTHER MATTERS AND CONDITIONS WHICH MAY AFFECT THE OPERATION AND COMPLETION OF THE WORK AND ASSUMES ALL RISKS THEREFROM.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES. ALL DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. THE DRAWINGS SCHEMATICALLY INDICATE EXISTING AND NEW CONSTRUCTION. DUE TO THE NATURE OF THE WORK, ADJUSTMENTS WILL LIKELY BE REQUIRED IN THE FIELD TO MEET THE DESIGN OBJECTIVES. SUCH ADJUSTMENTS ARE PART OF THE CONTRACT AND SHALL BE INCLUDED IN THE LUMP SUM BID.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY SHORING. SHORING SHALL BE PROVIDED TO SUPPORT THE STRUCTURE UNTIL ALL WORK ON THE DRAWINGS IS COMPLETED.
11. DRAINAGE SYSTEMS AND WATERPROOFING ARE NOT A PART OF THE STRUCTURAL PLANS AND SHALL BE DESIGNED BY OTHERS AS REQUIRED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK, REQUIRED INSPECTIONS, AND STRUCTURAL OBSERVATIONS INCLUDING, BUT NOT LIMITED TO THAT SHOWN ON THESE DRAWINGS.
13. ANY REQUEST FOR SUBSTITUTION OR MODIFICATION TO THESE DRAWINGS SHALL BE MADE IN WRITING BY CONTRACTOR TO THE ARCHITECT AND ENGINEER. ANY DESIGN COST ASSOCIATED WITH SUCH CHANGES SHALL BE ABSORBED BY THE CONTRACTOR. SHOP DRAWINGS DO NOT CONSTITUTE "IN WRITING" UNLESS IT IS CLEARLY NOTED THAT SPECIFIC CHANGES ARE BEING REQUESTED.
14. VERIFY ALL DIMENSIONS AND OPENINGS WITH ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH WORK. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.

CONCRETE GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 301-20: SPECIFICATIONS FOR STRUCTURAL CONCRETE AND ACI 318-19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
2. ALL CONCRETE SHALL MEET THE MIX DESIGN CRITERIA NOTED IN THE SCHEDULE BELOW.
   - 2.1. ALL NORMAL WEIGHT AGGREGATE SHALL CONFORM TO ASTM C33, FOR LOW SHRINKAGE AGGREGATE, USE LIMESTONE OR GRANITE. LIGHTWEIGHT AGGREGATE SHALL CONFORM TO ASTM C330.
   - 2.2. ALL CONCRETE SHALL BE MIXED AND DELIVERED TO THE SITE IN CONFORMANCE WITH ASTM C94.
   - 2.3. ALL WATER SHALL BE POTABLE, CLEAN, AND NOT DETRIMENTAL TO THE CONCRETE.
   - 2.4. ALL PORTLAND CEMENT USED IN CONCRETE SHALL CONFORM TO ASTM C150, TYPE I OR II
   - 2.5. FLY ASH CONFORMING TO ASTM C618 CLASS F MAY BE USED AS A CEMENT REPLACEMENT UP TO THE TOTAL PERCENT CEMENT CONTENT NOTED IN THE SCHEDULE.
   - 2.6. ENTRAINED AIR CONTENT SHALL BE BELOW 3% WHERE A TROWEL FINISH WILL BE APPLIED.

CONCRETE MIX DESIGN SCHEDULE

MIX CLASS	CONCRETE USE	28-DAY STRENGTH SEE NOTE #3	MAX AGGREGATE SIZE (IN)	CONCRETE WEIGHT (PCF)	MAX W/C RATIO	MIN, MAX FLY ASH (%, %)
A	FOOTINGS	3,000	3/4	150	0.50	15 , 25
B	SLAB-ON-GRADE	3,000	3/4	150	0.45	15 , 25

3. THE MINIMUM 28-DAY COMPRESSIVE STRENGTH IN PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39. (NO SPECIAL INSPECTION IS REQUIRED, UON)
4. CONCRETE USED IN FOUNDATIONS, DRILLED PIERS, AND FOUNDATION WALLS SHALL HAVE A MAXIMUM SLUMP OF 4 INCHES. ALL OTHER CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 5 INCHES. WHERE A GREATER SLUMP IS REQUIRED, USE AN ADMIXTURE AND DO NOT ADD ADDITIONAL WATER. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO CONSOLIDATE CONCRETE, SUCH AS MECHANICAL VIBRATION.
5. THE CONTRACTOR SHALL SUBMIT MIX DESIGNS TO THE ENGINEER FOR REVIEW AND APPROVAL A MINIMUM OF 72 HOURS PRIOR TO PLACING CONCRETE. ALL ADMIXTURES THAT WILL BE ADDED TO THE CONCRETE SHALL BE CLEARLY DENOTED IN THE MIX DESIGN FOR APPROVAL BY THE ENGINEER. NO ADDITIONAL ADMIXTURES NOT APPROVED BY THE ENGINEER MAY BE USED.
6. STEPS SHALL BE TAKEN TO ENSURE STRUCTURAL CONCRETE IS KEPT ADEQUATELY MOIST FOR CURING. THE FOLLOWING MATERIALS MAY BE USED:
   - 6.1. ABSORPTIVE COVER: BURLAP CLOTH MADE FROM JUTE OR KENAF, WEIGHING APPROXIMATELY 9 OUNCES PER SQ. YD.
   - 6.2. MOISTURE RETAINING COVER: POLYETHYLENE FILM COMPLYING WITH ASTM C171.
   - 6.3. LIQUID MEMBRANE FORMING CURING COMPOUNDS: DISSIPATING RESIN CURING COMPOUND: VOC COMPLIANT, CLEAR, WATER-BASED RESIN, COMPLYING WITH ASTM C309, TYPE 1 (OR 1D WITH DYE), CLASS B; EUCLID CHEMICAL COMPANY "KUREZ VOX", L&M CONSTRUCTION CHEMICALS "L&M CURE R" OR APPROVED EQUAL. USE IN AREAS TO RECEIVE SUBSEQUENTLY-APPLIED FLOORING. LOCATIONS SHALL BE APPROVED BY THE PROJECT ARCHITECT PRIOR TO USE.
7. CONTROL JOINTS SHALL BE PROVIDED AT ALL SLABS ON GRADE AT 10' O.C. MAX EACH WAY (UON). LOCATIONS SHALL BE APPROVED BY THE PROJECT ARCHITECT.
8. EXPANSION JOINTS SHALL BE PROVIDED AT 100' O.C. AT CONCRETE WALLS, CONTRACTION JOINTS SHALL BE PROVIDED AT 25' O.C. AN EXPANSION JOINT REPLACES ONE CONTRACTION JOINT.
9. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING BARS:

CONCRETE CASTING CONDITION	MINIMUM REBAR COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER:	
#6 AND LARGER REBAR	2"
#5 AND SMALLER REBAR	1-1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALL, AND JOISTS	3/4"
BEAMS, GIRDERS, AND COLUMNS	1-1/2"

10. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60, EXCEPT #3 BARS AND DOWELS MAY BE GRADE 40 (UON). HOLD REINFORCEMENT IN ITS POSITION WITH DEVICES AND/OR TIES SUFFICIENTLY NUMEROUS TO PREVENT DISPLACEMENT DURING PLACING OF CONCRETE. WET SETTING IS NOT PERMITTED. REINFORCEMENT SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN AND APPROVED BY THE ENGINEER. ALL WELDED REINFORCING STEEL SHALL BE ASTM A706 GRADE 60.
11. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED LOCATIONS OF CONSTRUCTION JOINTS TO THE ENGINEER AND OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO PLACING CONCRETE.
12. ALL HARDENED SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED TO REMOVE DUST, CHIPS, OR OTHER FOREIGN MATERIALS PRIOR TO PLACING ADJACENT CONCRETE.
13. NO PIPES OR BLOCKOUTS SHALL BE PLACED IN STRUCTURAL CONCRETE ELEMENTS UNLESS SPECIFICALLY DETAILED ON THESE PLANS OR WITHOUT PRIOR APPROVAL FROM E.O.R.

CONCRETE GENERAL NOTES (CONT.)

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND COORDINATING WITH ALL TRADES THE LOCATION OF ANY ELEMENTS TO BE EMBEDDED IN OR PENETRATING CONCRETE PRIOR TO PLACEMENT OF CONCRETE.
15. REFER TO TYPICAL CONCRETE DETAILS FOR REQUIRED REINFORCING HOOK LENGTHS, BAR SPLICES, ETC.
16. DO NOT REMOVE ANY CONCRETE FORMS UNTIL THE CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT AND CONSTRUCTION LIVE LOADS WITHOUT DAMAGE TO THE STRUCTURE.
17. FOR STRUCTURAL SLABS NOT IN CONTACT WITH GROUND, DO NOT REMOVE FORMWORK UNTIL CONCRETE TESTING DEMONSTRATES THE CONCRETE HAS REACHED ITS DESIGN 28-DAY COMPRESSIVE STRENGTH. SLABS SHALL BE KEPT ADEQUATELY MOIST FOR CURING.

WOOD GENERAL NOTES

1. ALL FRAMING LUMBER SHALL CONFORM TO THE "AMERICAN SOFTWOOD LUMBER STANDARD, DOC PS 20-10".
2. ALL WOOD FRAMING SHALL BE BUILT ACCORDING TO CBC SECTION 2308 "CONVENTIONAL LIGHT FRAME CONSTRUCTION," UON.
3. PORTIONS OF THE CONSTRUCTION NOT SPECIFICALLY DETAILED SHALL BE CONSTRUCTED IN SIMILAR FASHION TO PROVIDED DETAILS. THESE PLANS ARE INTENDED FOR USE BY CONTRACTORS EXPERIENCED IN LIGHT FRAME CONSTRUCTION METHODS AND TECHNIQUES.
4. ALL LUMBER SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 19% AT TIME OF USE.
5. HORIZONTAL FRAMING LUMBER SHALL BE DOUGLAS FIR (DF) MINIMUM GRADE #2 EXCEPT MEMBERS 4 INCHES AND WIDER SHALL BE DOUGLAS FIR (DF) MINIMUM GRADE #1 FOHC, UNLESS OTHERWISE NOTED ON PLANS.
6. STUDWALL FRAMING 2x STUDS SHALL BE DOUGLAS FIR (DF) MINIMUM GRADE #2 OR CONSTRUCTION GRADE. ALL 4X AND LARGER POSTS SHALL BE DF MINIMUM GRADE #1.
7. ALL SCREWED CONNECTIONS IN WOOD SHALL BE PRE-DRILLED. DRILL FULL DEPTH PILOT HOLE WITH DIAMETER THE SAME AS THE SCREW MINOR DIAMETER MINUS $\frac{1}{16}$". PROVIDE LEAD HOLE FOR SHANK FOR ITS DEPTH WITH A DIAMETER THE SAME AS THE SCREW MAJOR DIAMETER.
8. GLUED LAMINATED TIMBER SHALL COMPLY WITH ASTM D 3737, AND ANSI/AITC A190.1-12, 24F, EXTERIOR GLUE, INDUSTRIAL APPEARANCE. COMBINATION V4 SHALL BE USED FOR MEMBERS WITH SIMPLE SPANS. COMBINATION V8 SHALL BE USED FOR CONTINUOUS AND CANTILEVERED MEMBERS.
9. ALL STRUCTURAL WOOD CONNECTORS (JOIST HANGERS, POST CAPS, FRAMING CLIPS ETC.) SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE COMPANY. OTHER BRANDS MAY BE USED PROVIDED THEY HAVE AN EQUAL OR BETTER ICC APPROVED LOAD VALUE. USE Z-MAX OR HOT-DIP FINISH HARDWARE WHEN HARDWARE WILL BE IN CONTACT WITH PRESSURE TREATED LUMBER.
10. ALL MUDSILLS AND WOOD MEMBERS IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR. AT LOCATIONS WHERE PRESSURE-TREATED MEMBERS ARE CUT, APPLY A ROT-RESISTANT TREATMENT TO THE CUT FACE.
11. PROVIDE DOUBLE FLOOR JOISTS UNDER ALL PARTITIONS PARALLEL TO JOISTS. SEPARATE DOUBLE JOISTS WITH 2X BLOCKS AT 4' O.C. AT PLUMBING WALLS.
12. STITCH MULTIPLE JOISTS TOGETHER WITH STAGGERED (2) 16d NAILS @ 16" O.C. THROUGH EACH JOIST. (SEE SPECIAL REQUIREMENTS FOR LVL)
13. ALL FLOOR AND CEILING JOISTS SHALL BE INSTALLED CROWN UP, LEVEL END TO END.
14. 2X SOLID BLOCKING SHALL BE PLACED BETWEEN JOISTS AND RAFTERS OVER ALL SUPPORTS AND UNDER ALL PERPENDICULAR BEARING WALLS.
15. JOISTS DEEPER THAN 10" SHALL HAVE FULL DEPTH BLOCKING OR BRIDGING AT 8' O.C. MAXIMUM.
16. A MINIMUM OF THREE STUDS ARE REQUIRED AT ALL WALL CORNERS AND INTERSECTIONS. THE THREE STUDS SHALL BE STITCHED TOGETHER WITH 16d NAILS AT THE SAME SPACING AS THE SHEARWALL EDGE NAILING (EN) WHERE SHEARWALLS OCCUR. SPECIFIED CORNER POSTS SUPERSEDE THIS MINIMUM.
17. ALL NAILS SPECIFIED ON THESE PLANS ARE COMMON NAILS. REFER TO TABLE 2304.10.2 (2022 CBC) FOR MINIMUM NAILING REQUIREMENTS.
18. ALL NAILS, BOLTS, SCREWS AND LAGS IN CONTACT WITH PRESSURE TREATED (P.T.) LUMBER SHALL BE HOT-DIP GALVANIZED OR HAVE AN APPROVED CORROSION-RESISTANT FINISH.
19. ALL TOP PLATES SHALL BE MADE UP OF TWO 2X MEMBERS, STITCH NAILED TOGETHER WITH (2) 16d NAILS @ 16" O.C. OFFSET SPLICE JOINTS IN MEMBERS BY AT LEAST 48" AND PROVIDE A MINIMUM OF (12) 16d NAILS BOTH SIDES OF SPLICE. WHERE 48" MINIMUM SPLICE CANNOT BE OBTAINED, INSTALL CS14 X 36" LONG STRAP ON BOTH SIDES OF PLATE. TOP PLATES WHICH STEP IN ELEVATION SHALL HAVE 4X BLOCKING ADDED TO THE TALLER PLATES, ALIGNED WITH THE LOWER PLATES, AND CS14 X 36" LONG STRAPS SHALL BE APPLIED BOTH SIDES OF WALL FROM TOP PLATE TO BLOCKS. STRAP ACROSS ANY POST OR PIPE WHICH BREAKS THE TOP PLATES.
20. ALL BEAMS SHALL BE SUPPORTED AT THE ENDS TO PREVENT ROTATION OF BEAM WITH EITHER STEEL HARDWARE, BLOCKS, STRAPS OR BOLTS AS DETAILED ON PLANS AND SPECIFIED IN NOTES AND SCHEDULES.
21. CUTTING, BORING OR NOTCHING STRUCTURAL BEAMS SHALL NOT BE PERMITTED UNLESS FIRST APPROVED BY THE ENGINEER.
22. NOTCHES ON THE ENDS OF JOISTS SHALL NOT EXCEED 1/4 OF THE JOIST DEPTH. HOLES BORED IN JOISTS SHALL NOT BE WITHIN 2" OF THE TOP OR BOTTOM OF THE JOIST AND THE DIAMETER OF ANY SUCH HOLE SHALL NOT EXCEED 1/3 THE DEPTH OF THE JOIST. NOTCHES IN THE TOP OR BOTTOM OF JOISTS SHALL NOT EXCEED 1/6 THE DEPTH AND SHALL NOT OCCUR IN THE MIDDLE 1/3 OF OF THE SPAN.
23. STUDS AND PLATES IN WALLS NOT DESIGNATED AS SHEAR WALLS ON PLANS MAY HAVE NOTCHES AND HOLES. STUDS AND PLATES MAY HAVE NOTCHES UP TO 1/4 THE STUD WIDTH PROVIDED A SIMPSON RPS STRAP IS APPLIED OVER NOTCH. STUDS AND PLATES MAY HAVE BORED HOLES UP TO 1 3/8" DIAMETER IN 2X4 MEMBERS AND UP TO 2 1/4" DIAMETER IN 2X6 WALLS. ALL BORED HOLES SHALL BE AT LEAST 5/8" FROM EDGE OF FRAMING MEMBER.
24. EXISTING WALL FRAMING MAY REMAIN PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET; WOOD MUST BE IN GOOD CONDITION FREE OF ANY VISUAL SIGNS OF DECAY, PESTS OR DAMAGE, THE SIZES AND SPACING MEET THE MINIMUM REQUIRED, THE COMPLETED WALL SHALL HAVE ALL BLOCKS, CLIPS AND NAILING AS SHOWN ON DETAILS, PLANS AND NOTED HEREON.
25. AT AREAS OF NEW CONSTRUCTION, ALL EXTERIOR WALLS NOT DESIGNATED ON THE PLANS AS SHEAR WALLS SHALL BE SHEATHED WITH 15/32" CDX STRUCTURAL I APA RATED PLYWOOD AND NAILED WITH A MINIMUM OF 10d NAILS @ 6" O.C. ALONG EDGES, AND 12" O.C. FIELD NAILING.

CMU GENERAL NOTES

1. CONCRETE MASONRY SHALL BE SUPPLIED PER 2022 CBC SECTION 2105 AND PLACED PER SECTION 2104.
2. THE CMU ASSEMBLY STRENGTH SHALL BE f'm = 1,500 PSI AT 28 DAYS. MORTAR ASTM C270 TYPE M.
3. CMU UNITS SHALL BE MEDIUM WEIGHT 2 CELL BLOCKS PER ASTM C 90. MAX SHRINKAGE = 0.065% PER ASTM C426.
4. GROUT: ALL CELLS SHALL BE FULLY GROUTED UNLESS OTHERWISE NOTED, ASTM C476
5. GROUT IN LIFTS NO GREATER THAN 4'. HIGH LIFT GROUTING MAY BE APPROVED UPON CONTRACTOR'S REQUEST TO EOR
6. ALL CMU SHALL BE REINFORCED WITH REINFORCING STEEL SECURED IN PLACE PRIOR TO PLACING GROUT. PROVIDE MINIMUM REINFORCING STEEL PER TYPICAL DETAILS UNLESS OTHERWISE NOTED
7. ALL CMU WALLS SHALL HAVE VERTICAL CONTROL JOINTS SPACED A MAXIMUM OF 25' FEET APART. SEE PLAN FOR LOCATIONS AND TYPICAL DETAILS.
8. INSPECTIONS: LEVEL 2 SPECIAL INSPECTIONS ACCORDING TO TMS 402-2016.

LOADING CRITERIA

DEAD/LIVE LOADS

ROOF LOAD:
DL = 15 PSF (FLAT ROOF)
DL = 26 PSF (ROOF OVERHANG)
LL = 20 PSF

FLOOR LOAD:
DL = 16 PSF
LL = 40 PSF

EXTERIOR DECK LOAD:
DL = 28 PSF
LL = 60 PSF

WIND LOADS

DESIGN WIND SPEED:
V = 91 MPH

WIND RISK CATEGORY:
RC = II

WIND DESIGN PROCEDURE:
DIRECTIONAL PROCEDURE

WIND EXPOSURE (N-S & E-W):
K_d = 0.85
K_e = 1.0
K_{zt} = 1.0
$K_z = K_h$ = 0.62
EXP CATEGORY = B

FOUNDATION DESIGN CRITERIA

BEARING PRESSURE
1,500 PSF (DEAD & LIVE)
2,000 PSF (w/ SEISMIC)

SEISMIC LOADS

RISK CATEGORY & IMPORTANCE FACTOR:
RC = II
Ie = 1.0

REDUNDANCY FACTOR:
RHO = 1.3

MAPPED SPECTRAL RESPONSE:
S_S = 2.296
S_1 = 0.879
S_{DS} = 1.837
S_{D1} = 1.494

SITE CLASS: (DEFAULT PER ASCE 7-16)
D

SEISMIC DESIGN CATEGORY:
E

BASIC SEISMIC FORCE-RESISTING SYSTEMS:
WOOD SHEAR WALLS

SEISMIC RESPONSE COEFFICIENT:
C_S = 0.283

RESPONSE MODIFICATION FACTORS:
CONSTRUCTION TYPE:
LIGHT-FRAMED WALLS WITH WOOD STRUCTURAL SHEAR PANELS, R = 6.5

ANALYSIS PROCEDURE USED:
EQUIVALENT LATERAL FORCE PROCEDURE

FOUNDATION DESIGN CRITERIA

1. MORRIS SHAFFER ENGINEERING STRONGLY RECOMMENDS THAT THE OWNER PROVIDE A FOUNDATION INVESTIGATION, PREPARED BY A LICENSED PROFESSIONAL ENGINEER OR GEOLOGIST, TO MORRIS SHAFFER ENGINEERING PRIOR TO THE STRUCTURAL DESIGN OF THE FOUNDATION OF THIS PROJECT. IT IS THE SOLE RESPONSIBILITY OF THE OWNER TO OBTAIN AND PROVIDE A FOUNDATION INVESTIGATION TO THE ENGINEER. MORRIS SHAFFER ENGINEERING DOES NOT HAVE THE IN-HOUSE EXPERTISE OR EQUIPMENT TO PREPARE THIS INVESTIGATION. BY PROCEEDING WITH THE DESIGN OF THIS STRUCTURE MORRIS SHAFFER ENGINEERING MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE SUITABILITY OF THE SOILS PRESENT FOR THE PROPOSED STRUCTURE OR ALTERATIONS TO THE EXISTING STRUCTURE.
2. THE ENGINEER IS NOT RESPONSIBLE FOR THE ADEQUACY OF THE FOUNDING SOILS. THE FOUNDATION DESIGN ASSUMES AVERAGE SOIL CONDITIONS WITH CLASS 5 MATERIAL PER CBC TABLE 1806.2. ALL LOOSE SOILS SHALL BE REMOVED FROM TRENCHES PRIOR TO PLACEMENT OF ANY CONCRETE. IN THE EVENT THAT A FOUNDATION INVESTIGATION IS NOT PROVIDED THE FOUNDATION DESIGN SHALL BE BASED UPON THE FOLLOWING ASSUMPTIONS:
   - 2.1. THERE ARE NO EXPANSIVE SOILS PRESENT WITHIN OR NEAR THE BUILDING FOOTPRINT.
   - 2.2. THERE IS NO POTENTIAL FOR LIQUEFACTION PRESENT WITHIN OR NEAR THE BUILDING FOOTPRINT.
   - 2.3. THE FOUNDATION SHALL CONFORM TO THE SECTION 1806.2 OF THE 2022 CBC.
   - 2.4. PROPERTIES OF CLASS V SOIL PER TABLE 1806.2, 2022 CBC WILL BE USED.
3. DIFFERENTIAL SETTLEMENT IS THE NON-UNIFORM SETTLEMENT, IMMEDIATE OR CONSOLIDATION, OF A FOUNDATION SYSTEM AND CAN CAUSE STRUCTURAL DISTRESS. DIFFERENTIAL SETTLEMENT OF THE STRUCTURE CAN OCCUR UNDER NUMEROUS CONDITIONS WHICH MAY BE PRESENT ON THIS PROJECT. CONDITIONS WHICH MAY CAUSE DIFFERENTIAL SETTLEMENT INCLUDE, BUT ARE NOT LIMITED TO; EXPANSIVE SOILS PRESENT ON SITE, CONSOLIDATION OF SOIL DUE TO STRONG GROUND MOTIONS, CONSOLIDATION OF LOOSE TO MODERATELY DENSE SOIL, THE INCREASE OR REDUCTION OF LOADS TO EXISTING FOUNDATIONS, THE ADDITION OF NEW FOUNDATIONS ADJACENT TO OR NEAR EXISTING FOUNDATIONS, AND SEASONAL CHANGES TO THE WATER CONTENT OF THE SOIL. MORRIS ENGINEERING & ASSOCIATES, INC MAKES NO WARRANTY, EXPRESSED OR IMPLIED, THAT DIFFERENTIAL SETTLEMENT WILL NOT OCCUR.

STEEL GENERAL NOTES

1. FABRICATION - ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.
2. STEEL USAGE, UON
   - A. BEAMS & COLUMNS:
     - WIDE FLANGE: ASTM A992, Fy=50 ksi
     - HSS RECTANGULAR: ASTM A500, GRADE C, Fy=50 ksi
   - B. MISC PIPES: ASTM A53, GR B,
     - CONTINUITY PLATES, STIFFENER PLATES, WEB DOUBLER PLATES, SHEAR TABS: ASTM A36, ASTM A572, GR 50 WHERE NOTED
   - C. HIGH STRENGTH BOLTS (H.S.B.): ASTM A325X
     - BOLTS NOT NOTED HSB: ASTM A307
   - D. SHEAR CONNECTORS (WELDED STUDS)
     - ASTM A108
   - E. THREADED RODS/ ANCHORS
     - ASTM F1554 (GR. 36)
3. ALL STRUCTURAL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH LATEST A.I.S.C. SPECIFICATIONS
4. WELDER QUALIFICATION REQUIREMENTS, WELDING PROCEDURES, ETC., SHALL BE ACCORDING TO AWS D1.1 EXCEPT AS MODIFIED IN AISC 360-16. ALL WELDING TO CONFORM TO LATEST A.W.S AND TO BE PERFORMED BY QUALIFIED WELDERS.
5. ALL BUTT WELDS ARE TO BE COMPLETE PENETRATION, UON. ALL FILLET WELDS TO BE A.I.S.C. MINIMUM SIZES BASED ON THICKNESS OF MATERIAL JOINED, UON.
6. WELDING ELECTRODE - E70XX, LOW H.
   WELD METAL FOR ALL BEAM TO COLUMN CONNECTIONS AT BRACED FRAMES AND MOMENT FRAMES SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT. LBS. AT 0° F.
7. BOLT HOLES FOR H.S.B. SHALL BE NO MORE THAN 1/16" OVERSIZE, UON. WHERE OVERSIZED HOLE IS REQUIRED, PROVIDE $\frac{5}{16}$"x3"x3" PLATE WASHER WELDED TO STRUCTURAL MEMBER, UON.
8. ALL STEEL MEMBERS CONNECTING TO OR SUPPORTING FURRING SHALL HAVE $\frac{1}{2}$" DIAMETER THREADED STUDS AT 24" O.C. TYPICAL, UON.
9. ALL STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED, UON.
10. CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS FOR ALL STEEL TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
11. NON-SHRINK GROUT:
   - A. SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (F'c) OF 5,000 PSI
   - B. NON METALLIC CONFORMING TO ASTM 1107, MASTERFLOW 928 OR EQUAL
   - C. COMPLY WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND REQUIREMENTS

ABBREVIATIONS:

[symbol: rectangle with X]		CONTINUOUS WOOD
[symbol: rectangle with diagonal]		DISCONTINUOUS WOOD (BLOCKING)
@	=	AT
AB	=	ANCHOR BOLTS
ADJ	=	ADJOINING / ADJACENT
ADD'L	=	ADDITIONAL
ALT	=	ALTERNATE
AP	=	ADJOINING PANEL (AT STUDS)
ARCH	=	ARCHITECTURAL DRAWINGS
BLDG	=	BUILDING
BLK	=	BLOCK(ING)
BM	=	BEAM
BN	=	BOUNDARY NAILING
BOT (B)	=	BOTTOM
BTWN	=	BETWEEN
CANT	=	CANTILEVERED
CIP	=	CAST-IN-PLACE
CLG	=	CEILING
CLR	=	CLEAR
CMU	=	CONCRETE MASONRY UNIT
CONC	=	CONCRETE
CONT	=	CONTINUOUS
DBL	=	DOUBLE
DF	=	DOUGLAS FIR
DIA	=	DIAMETER
DN	=	DOWN
(E)	=	EXISTING
E/O	=	EVERY OTHER
EA	=	EACH
EF	=	EACH FACE
ELEV	=	ELEVATION
EN	=	EDGE NAILING
EOR	=	ENGINEER OF RECORD
EQ	=	EQUAL
EW	=	EACH WAY
EXP AB	=	EXPANSION ANCHOR BOLT
EXT	=	EXTERIOR
FIN	=	FINISH
FHS	=	FOUNDATION HOLD DOWN SCD
FND	=	FOUNDATION
FS	=	FAR SIDE
FT	=	FEET
GLB	=	GLUED LAMINATED BEAM
GND	=	GROUND
GWB	=	GYPSUM WALLBOARD
HD	=	HOLDOWN
HORIZ	=	HORIZONTAL
HDG	=	HOT-DIPPED GALVANIZED
HDR	=	HEADER
HDS	=	HOLDOWN SCHEDULE
HGR	=	HANGER
HT	=	HEIGHT
IN	=	INCHES
INT	=	INTERIOR
LOC	=	LOCATION
LSL	=	LAMINATED STRAND LUMBER
LVL	=	LAMINATED VENEER LUMBER
MB	=	MACHINE BOLTS
MF	=	MOMENT FRAME
MAX	=	MAXIMUM
MIN	=	MINIMUM
N/A	=	NOT APPLICABLE
(N)	=	NEW
NIC	=	NOT IN CONTRACT
NS	=	NEAR SIDE
NTS	=	NOT TO SCALE
o/	=	OVER
oc	=	ON CENTER
PAF	=	POWDER ACTUATED FASTENER
PLY	=	PLYWOOD
PLYWD	=	PLYWOOD
PSL	=	PARALLEL STRAND LUMBER
PT	=	PRESSURE TREATED
RDWD	=	REDWOOD
REINF	=	REINFORCED(ING)
REQ	=	REQUIRED
SAD	=	SEE ARCHITECTURAL DRAWINGS
SCD	=	SCHEDULE
SCHED	=	SCHEDULE
SECT	=	SECTION
SIM	=	SIMILAR
SOG	=	SLAB ON GRADE
STL	=	STEEL
SW	=	SHEAR WALL
SWS	=	SHEAR WALL SCHEDULE
SYM	=	SYMETRICAL
TOP (T)	=	TOP
TYP	=	TYPICAL
UON	=	UNLESS OTHERWISE NOTED
UOS	=	UNLESS OTHERWISE SPECIFIED
VERT	=	VERTICAL
VIF	=	VERIFY IN FIELD
w/	=	WITH
w/o	=	WITHOUT
WWF	=	WELDED WIRE FABRIC
WD	=	WOOD

STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATIONS, AS REQUIRED BY CHAPTER 17 OF THE 2022 CALIFORNIA BUILDING CODE SHALL BE REQUIRED FOR THIS PROJECT. THESE OBSERVATIONS ARE SEPARATE FROM ANY REQUIRED SPECIAL INSPECTIONS OR BUILDING INSPECTION REQUIREMENTS.
2. THE PURPOSE OF THE STRUCTURAL OBSERVATIONS ARE TO REVIEW THE OVERALL PROGRESS OF THE JOB AND TO ENSURE THAT THE STRUCTURAL INTENT OF THESE DRAWINGS IS BEING EXECUTED. A VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE WITH THESE DRAWINGS WILL BE COMPLETED.

SPECIAL INSPECTIONS & TESTING

1. CONTRACTOR SHALL NOTIFY THE SPECIAL INSPECTION AGENCY AND GEOTECHNICAL ENGINEER A MINIMUM OF 48 HOURS PRIOR TO THE TIME OF INSPECTION.
2. SPECIAL INSPECTIONS SHALL BE COMPLETED IN CONFORMANCE WITH CHAPTER 17 OF THE 2022 CALIFORNIA BUILDING CODE AND SHALL BE PROVIDED FOR THE FOLLOWING WORK, UNDER THE SUPERVISION OF AN OUTSIDE SPECIAL INSPECTION TESTING AGENCY EMPLOYED BY THE OWNER'S REPRESENTATIVE.
3. THE ENGINEER OF RECORD WILL NOT PROVIDE A STRUCTURAL OBSERVATION LETTER FOR OBSERVATIONS NOT PERFORMED.
4. THESE INSPECTIONS IN NO WAY RELIEVES THE CONTRACTOR FROM HIS RESPONSIBILITY TO CONFORM TO THE PLANS, SPECIFICATIONS, THE CALIFORNIA BUILDING CODE AND ANY OTHER LOCAL ORDINANCES IN EFFECT. IF LOCAL JURISDICTION INSPECTION/OBSERVATION REQUIREMENTS ARE LESS STRINGENT, THE REQUIREMENTS OF THESE DRAWINGS MUST STILL BE MET.
5. THE GEOTECHNICAL ENGINEER SHALL BE PRESENT TO OBSERVE AND TEST, AS NECESSARY, THE EARTHWORK, FOUNDATION, AND DRAINAGE INSTALLATION PHASES OF THE PROJECT.
6. ONE COPY OF ANY AND ALL INSPECTION REPORTS PREPARED BY AN INDEPENDENT TESTING LABORATORY, BUILDING DEPARTMENT, AND/OR GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER.
7. IT IS RECOMMENDED THAT ADDITIONAL INSPECTIONS BE REQUESTED AT REGULAR INTERVALS DURING THE COURSE OF CONSTRUCTION AS THESE REGULAR INSPECTIONS COULD REDUCE THE AMOUNT OF DEMOLITION AND REWORKING REQUIRED BY POSSIBLE MISTAKES, OMISSIONS OR MISINTERPRETATIONS.

REQUIRED INSPECTIONS, TESTING, & OBSERVATION

ITEM	TESTING	SPECIAL INSPECTION	ENGINEERS OBSERVATION
GRADING AND COMPACTION (CBC 1705.6)			
FOOTING EXCAVATION (CBC 1705.6)			
DRILLED PIER EXCAVATION (CBC 1705.8)			
CONCRETE STRENGTH (CBC 1705.3)			
CONCRETE REINFORCING (CBC 1705.3)			X 1
SHEAR WALL & DIAPHRAGM NAILING AND SEISMIC HARDWARE (CBC 1704.6.1)			X 1
DIAPHRAGM OR SHEAR WALL NAILING w/ FASTENERS AT LESS THAN 6"o.c. (CBC 1705.12.1)		P 3	
SIMPSON SHEAR WALL PANELS (PER ICC REPORT)		P 3	
CAST-IN CONCRETE ANCHORS (CBC 1705.3)		P 3	X 1
EPOXY ANCHOR INSTALLATION (PER ICC REPORT)		P 3	
POST-INSTALLED ANCHOR BOLTS (PER ICC REPORT)		P 3	
EPOXY ANCHOR HOLDOWN PULL-TEST (PER ICC REPORT)			
FINAL FRAMING OBSERVATION PRIOR TO COVER			X 1

NOTES:
1. ENGINEERING OBSERVATION SHALL BE DONE BY THE ENGINEER OF RECORD
2. ENGINEERING OBSERVATION SHALL BE DONE BY THE GEOTECHNICAL ENGINEER OF RECORD
3. SPECIAL INSPECTION SHALL BE DONE BY A CERTIFIED & APPROVED INDEPENDENT TESTING LAB OR SPECIAL INSPECTION FIRM
4. 'C' = CONTINUOUS SPECIAL INSPECTION. 'P' = PERIODIC SPECIAL INSPECTION

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
www.morris-shaffer.com

DETACHED GARAGE AND ADU

GENERAL STRUCTURAL NOTES

79 MONTE VISTA AVENUE
WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER
ROBERT H. SHAFFER
C 45322
CIVIL
STATE OF CALIFORNIA

SUBMITTAL SET

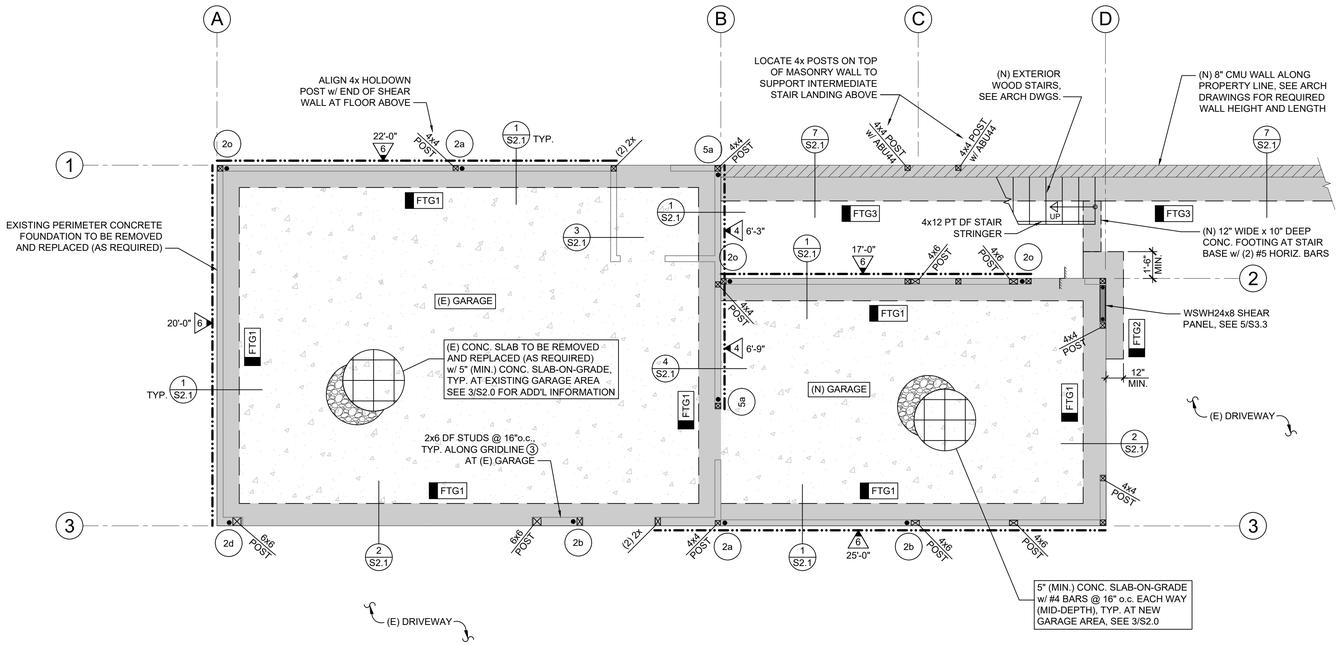
SCALE:	AS NOTED
DRAWN BY:	TS
JOB:	24031
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

S0.1

STRUCTURAL OBSERVATION REQUIRED

ALL REINFORCING STEEL, PLYWOOD SHEARWALL NAILING AND EMBEDDED SEISMIC HARDWARE SHALL BE OBSERVED BY MORRIS SHAFFER ENGINEERING. IT IS THE SOLE RESPONSIBILTY OF THE CONTRACTOR TO CONTACT M.S.E. TO SCHEDULE REQUIRED OBSERVATIONS. SEE SHEET S0.1 FOR ADDITIONAL INFORMATION



MAIN FLOOR / FOUNDATION PLAN

SCALE: 1/4" = 1'-0"
DO NOT SCALE DRAWINGS

N REF

FOUNDATION PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS. SEE SHEETS S2.0 AND S2.1 FOR TYPICAL FOUNDATION DETAILS. SEE SHEETS S3.0 AND S3.1 FOR TYPICAL WOOD FRAMING DETAILS.
2. ALL STRUCTURAL CONCRETE SHALL HAVE MINIMUM 28-DAY COMPRESSIVE STRENGTH PER THE CONCRETE MIX DESIGN SCHEDULE ON SHEET S0.1. HARD ROCK MIX WITH (6) SACKS OF CEMENT PER YARD (UON).
3. ALL REINFORCING AND EMBEDDED STEEL ITEMS SHALL BE SECURELY ATTACHED TO FORMWORK OR FALSEWORK PRIOR TO CONCRETE PLACEMENT.
4. ALL FOOTING DEPTHS ARE SHOWN AS APPROXIMATE AND THE FINAL DEPTH SHALL BE DETERMINED BY A GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION (WHERE REQUIRED).
5. ALL EXTERIOR WALLS AND SHEAR WALLS SHALL HAVE CONTINUOUS TOP PLATES PER 8/S3.0. WHERE SPLICES ARE NOT POSSIBLE, A STRAP IS REQUIRED.
6. DO NOT SCALE DRAWINGS. SCALE IS FOR REFERENCE ONLY. ALL DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
7. VERIFY ALL OPENINGS WITH ARCHITECTURAL DRAWINGS AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.
8. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND BRACING DURING CONSTRUCTION UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS.

FOUNDATION LEGEND

- SOLID WOOD WALLS ON FLOOR LEVEL, ALL NEW WALLS SHALL BE MINIMUM 2x DF STUDS @ 16" o.c. (UON)
- SHADE DENOTES NEW CONCRETE FOOTINGS AND THICKENED PERIMETER FOOTINGS
- LIGHT CONCRETE HATCH DENOTES SLAB-ON-GRADE
- EXCEPTION AS NOTED — WOOD POST ABOVE, MATCH WALL THICKNESS (MIN. (2) 2x, UON), SEE 13/S3.1
- X / X'-XX" — SHEARWALL & MINIMUM LENGTH (LENGTH DEFINED AS OUTSIDE EDGE TO OUTSIDE EDGE OF HOLDOWN POST), SEE SHEARWALL SCHEDULE (1/S3.1) FOR REQUIREMENTS
- DENOTES PRE-MANUFACTURED SHEAR PANEL, SEE PLAN FOR TYPE & SIZE
- # — POST & HOLDOWN / STRAP AT END OF SHEARWALL, SEE HOLDOWN SCHEDULE (9/S2.0)
- DENOTES STEP IN ELEVATION, SEE ARCH DWGS

FOOTING SCHEDULE [1,3]

SYMBOL	LENGTH	WIDTH	THICK	DEPTH [2]	REINFORCING	DETAIL(S)
FTG1	CONT.	18" MIN.	18" MIN.	2'-6"	(2) #5 BARS TOP & BOTTOM	1 / S2.1
FTG2	6'-0" MIN.	2'-6"	18" MIN.	2'-6"	(4) #5 BARS TOP & BOTTOM w/ #4 TIES	5 / S2.1
FTG3	CONT.	2'-0"	15" MIN.	SEE DETAIL	(3) #5 BARS BOTTOM	7 / S2.1

1. DETAIL REFERENCE IN TABLE IS TYPICAL, DETAILS REFERENCES SPECIFIED ON FOUNDATION PLANS SUPERCEDE TABLE.
2. DEPTH SPECIFIED IS MINIMUM DEPTH TO BOTTOM OF FOOTING. ADDITIONAL DEPTH MAY BE REQUIRED BY EOR OR GEOTECHNICAL ENGINEER IN FIELD.
3. REFER TO SHEET S2.0 FOR TYPICAL FOUNDATION REINFORCING, ANCHOR BOLTS AND HOLDOWN ANCHORS.

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MAIN FLOOR / FOUNDATION PLAN

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WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER
ROBERT H. SHAFFER
C 45322
CIVIL
STATE OF CALIFORNIA

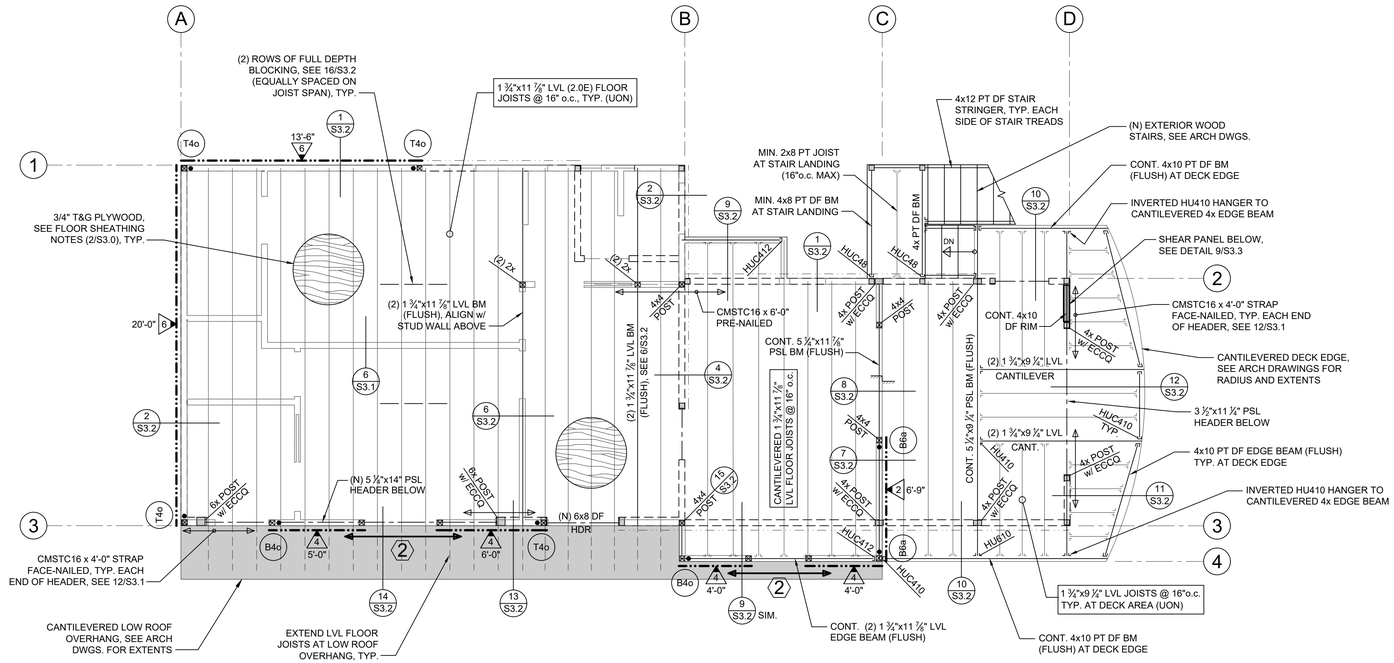
SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
JOB:	24031
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

S1.1

STRUCTURAL OBSERVATION REQUIRED

ALL PLYWOOD SHEARWALL NAILING AND SEISMIC HARDWARE SHALL BE OBSERVED BY MORRIS SHAFFER ENGINEERING. IT IS THE SOLE RESPONSIBILTY OF THE CONTRACTOR TO CONTACT M.S.E. TO SCHEDULE REQUIRED OBSERVATIONS. SEE SHEET S0.1 FOR ADDITIONAL INFORMATION



UPPER FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"
DO NOT SCALE DRAWINGS

N REF

FRAMING PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS. SEE SHEETS S3.0, S3.1 AND S3.2 FOR TYPICAL FRAMING DETAILS.
2. ALL NEW HEADERS SHALL BE MIN. 6x8 DF#1 AT 2x6 WALLS AND 4x8 DF#1 AT 2x4 WALLS. HEADERS TO BE FRAMED PER SCHEDULE 5/S3.0. HEADER SIZES CALLED OUT ON PLAN SUPERCEDE THE SIZE INDICATED ABOVE.
3. ALL EXTERIOR WALLS AND SHEAR WALLS SHALL HAVE CONTINUOUS TOP PLATES PER 8/S3.0. WHERE SPLICES ARE NOT POSSIBLE, A STRAP IS REQUIRED.
4. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND BRACING DURING CONSTRUCTION UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS.
5. DO NOT SCALE DRAWINGS. SCALE IS FOR REFERENCE ONLY. ALL DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. VERIFY ALL OPENINGS WITH ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH WORK. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.

FRAMING LEGEND

- SOLID WALLS ON FLOOR LEVEL, ALL NEW WALLS SHALL BE MINIMUM 2x DF STUDS @ 16" o.c. (UON)
- WALLS BELOW SHOWN DASHED
- SHEARWALL BELOW
- EXCEPTION AS NOTED — POST BELOW (MIN. (2) 2x, UON)
- EXCEPTION AS NOTED — POST ABOVE AND BELOW, MATCH WALL THICKNESS (MIN. (2) 2x, UON)
- EXCEPTION AS NOTED — POST ABOVE, MATCH WALL THICKNESS (MIN. (2) 2x, UON), SEE 13/S3.1
- EXCEPTION AS NOTED — FRAMING MEMBER w/ SIMPSON HU HANGER WHERE SHOWN (UON)
- FRAMING MEMBER w/ SIMPSON IUS HANGER WHERE SHOWN (UON)
- HEADER FRAMING BELOW, SEE PLAN NOTE #2 (UON)
- STRAP x LENGTH MOUNTING LOC. — STRAP / CONTINUITY TIE x TOTAL STRAP LENGTH AND MOUNTING LOCATION (10/S3.0) WHERE GIVEN, SEE STRAP SCHEDULE (9/S3.0) FOR ADDITIONAL FRAMING HARDWARE
- X X'-XX" — SHEARWALL & MINIMUM LENGTH (LENGTH DEFINED AS OUTSIDE EDGE TO OUTSIDE EDGE OF HOLDOWN POST), SEE SHEARWALL SCHEDULE (1/S3.1) FOR REQUIREMENTS
- # — POST & HOLDOWN / STRAP AT END OF SHEARWALL, SEE HOLDOWN SCHEDULE (7/S3.1)
- # — SHEARWALL SHEATHING WITH STRAP ABOVE & BELOW OPENINGS, SEE DETAIL 9/S3.1
- DENOTES PRE-MANUFACTURED SHEAR PANEL BELOW
- SOLID HATCH DENOTES LOW ROOF OVERHANG w/ 2x FRAMING @ 16"o.c. (MAX), SEE ARCH DRAWINGS FOR ROOF ASSEMBLY, SLOPE AND FINISHES, TYP.
- DENOTES STEP IN FLOOR ELEVATION, SEE ARCH DWGS

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DETACHED GARAGE AND ADU

UPPER FLOOR PLAN

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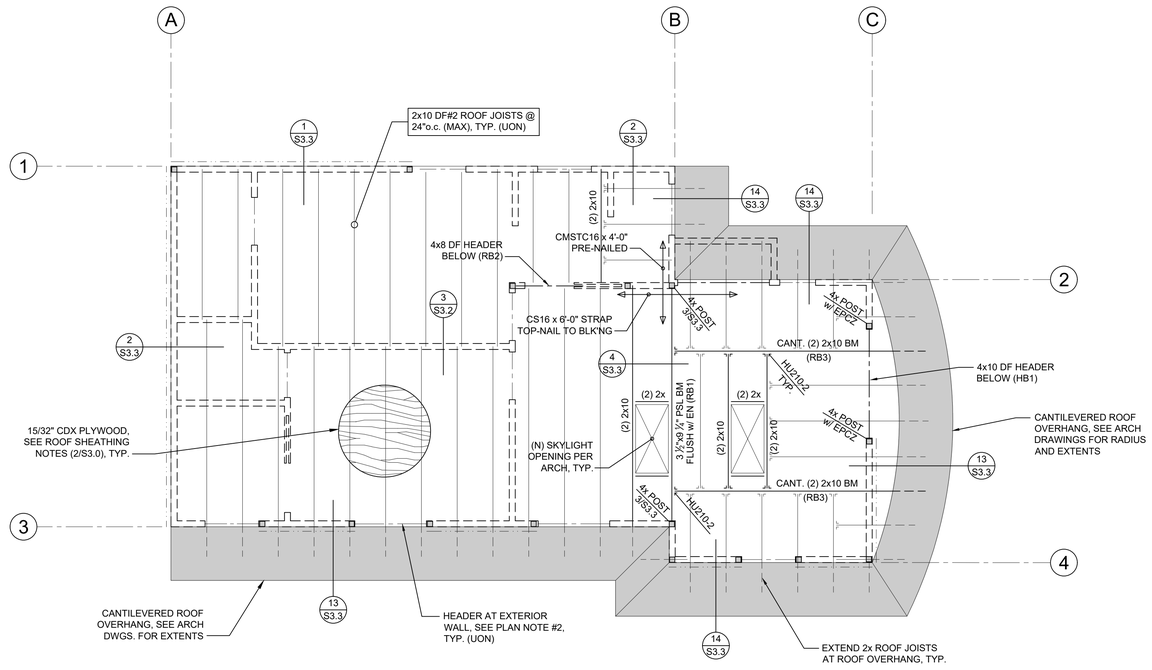
SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
JOB:	24031
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

S1.2

STRUCTURAL OBSERVATION REQUIRED

ALL PLYWOOD SHEARWALL NAILING AND SEISMIC HARDWARE SHALL BE OBSERVED BY MORRIS SHAFFER ENGINEERING. IT IS THE SOLE RESPONSIBILTY OF THE CONTRACTOR TO CONTACT M.S.E. TO SCHEDULE REQUIRED OBSERVATIONS. SEE SHEET S0.1 FOR ADDITIONAL INFORMATION



ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"
DO NOT SCALE DRAWINGS

N REF

FRAMING PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS. SEE SHEETS S3.0, S3.1 AND S3.3 FOR TYPICAL FRAMING DETAILS.
2. ALL HEADERS SHALL BE MIN. 6x8 DF#1 AT 2x6 WALLS AND 4x8 DF#1 AT 2x4 WALLS. HEADERS TO BE FRAMED PER SCHEDULE 5/S3.0. HEADER SIZES CALLED OUT ON PLAN SUPERCEDE THE SIZE INDICATED ABOVE.
3. ALL EXTERIOR WALLS AND SHEAR WALLS SHALL HAVE CONTINUOUS TOP PLATES PER 8/S3.0. WHERE SPLICES ARE NOT POSSIBLE, A STRAP IS REQUIRED AT THE BREAK IN THE PLATES.
4. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND BRACING DURING CONSTRUCTION UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS.
5. DO NOT SCALE DRAWINGS. SCALE IS FOR REFERENCE ONLY. ALL DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. VERIFY ALL OPENINGS WITH ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH WORK. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.

FRAMING LEGEND

- WALLS BELOW SHOWN DASHED
- SHEARWALL BELOW
- EXCEPTION AS NOTED — POST BELOW (MIN. (2) 2x, UON)
- FRAMING MEMBER w/ SIMPSON LUS HANGER WHERE SHOWN (UON)
- EXCEPTION AS NOTED — FRAMING MEMBER w/ SIMPSON HU HANGER WHERE SHOWN (UON)
- HEADER FRAMING BELOW, SEE PLAN NOTE #2 (UON)
- STRAP x LENGTH MOUNTING LOC. — STRAP / CONTINUITY TIE x TOTAL STRAP LENGTH AND MOUNTING LOCATION (10/S3.0) WHERE GIVEN, SEE STRAP SCHEDULE (9/S3.0) FOR ADDITIONAL FRAMING HARDWARE
- SOLID HATCH DENOTES ROOF OVERHANG w/ 2x FRAMING @ 24"o.c. (MAX), SEE ARCH DRAWINGS FOR ROOF ASSEMBLY, SLOPE AND FINISHES, AS WELL AS THE ROOF DRAINAGE REQUIREMENTS, TYP.

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DETACHED GARAGE AND ADU

ROOF PLAN

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REGISTERED PROFESSIONAL ENGINEER
ROBERT H. SHAFFER
C 45322
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SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
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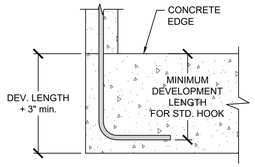
ISSUED:	SEPT. 20, 2024
REVISIONS:	

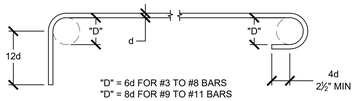
SHEET:

S1.3



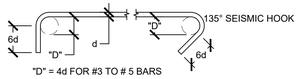
STD. HOOK DEVELOP. LENGTH	
BAR SIZE	DEV. LENGTH
#3	9"
#4	12"
#5	15"
#6	18"
#7	21"
#8	24"

HOOK DEVELOPMENT LENGTHS



"D" = 6d FOR #3 TO #8 BARS
"D" = 8d FOR #9 TO #11 BARS

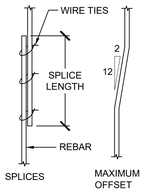
MAIN REINFORCING TYPICAL HOOKS & BENDS



"D" = 4d FOR #3 TO # 5 BARS

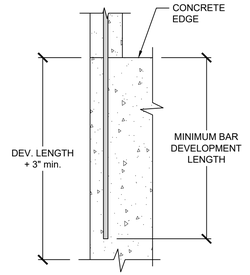
TIES & STIRRUPS

BAR LAP SPLICES	
BAR SIZE	SPLICE LENGTH
#3	18"
#4	24"
#5	30"
#6	36"
#7	42"
#8	48"



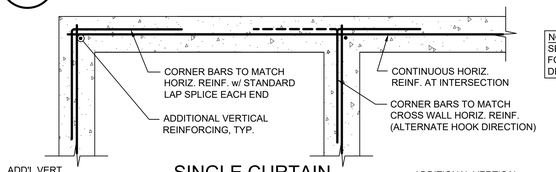
LAP SPLICES & OFFSETS

BAR DEVELOP. LENGTH	
BAR SIZE	DEV. LENGTH
#3	24"
#4	48"
#5	60"
#6	72"
#7	108"
#8	120"

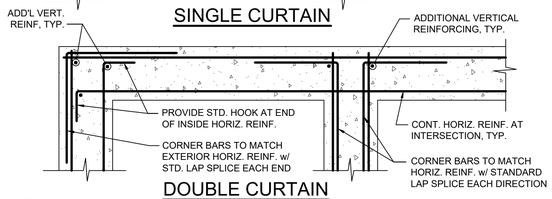


BAR DEVELOPMENT LENGTHS IN TENSION

1 REINFORCING STEEL DIMENSIONAL DETAILS

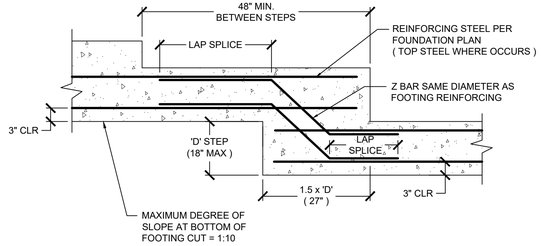


SINGLE CURTAIN

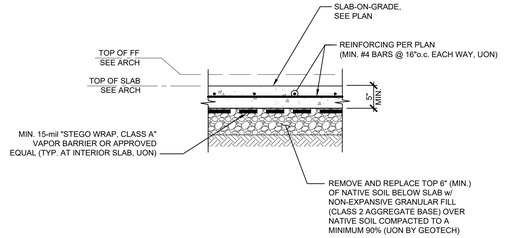


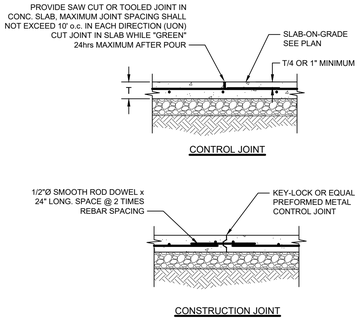
DOUBLE CURTAIN

NOTE:
SEE SCHEDULE 1/S2.0 FOR REQ'D SPLICE AND DEVELOPMENT LENGTHS

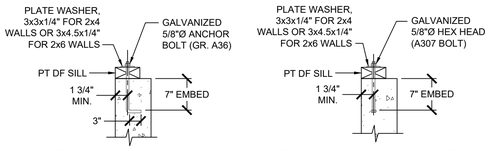


3 SLAB ON GRADE SECTION AND CONTROL JOINT INFORMATION

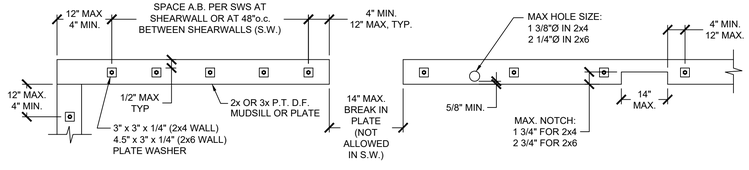




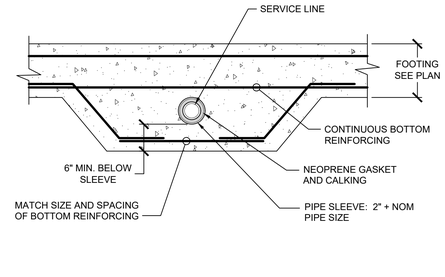
4 TYPICAL REINF. AT CORNERS & INTERSECTIONS CONCRETE WALLS AND FOOTINGS



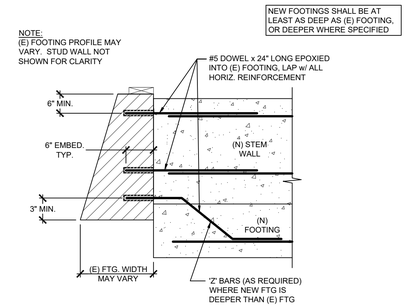
* SEE EPOXY NOTES (10/S2.0) FOR ADD'L INFORMATION



5 TYPICAL STEPPED FOOTING



6 SERVICE LINE THRU FOOTING



7 NEW FOOTING TO EXISTING FOOTING

HOLDOWN SCHEDULE

	SYMBOL	TYPE	ANCHOR IN NEW CONC. FOUNDATION	'Le' EMBEDMENT DEPTH FROM TOP OF CONCRETE
HOLDOWN	2 _	HDU2-SDS2.5	SB5/8x24 (5/8"Ø)	18"
	5 _	HDU5-SDS2.5	SB5/8x24 (5/8"Ø)	18"
	8 _	HDU8-SDS2.5	SB7/8x24 (7/8"Ø)	18"
	11 _	HDU11-SDS2.5	SB1x30 (1"Ø)	24"

NOTES:
1. DO NOT INSTALL SHIMS OR SPACERS BETWEEN HOLDOWN AND POST
2. WHERE HOLDOWN DOES NOT ALIGN WITH POST, ANGLE THREADED ROD A MAXIMUM OF 5° AND INSTALL BOTTOM OF HOLDOWN A MAXIMUM OF 18" ABOVE THE SILL

EXAMPLES:

2 o = HDU2 with (2) 2x POST

8 b = HDU8 with 4x6 POST

POST SCHEDULE

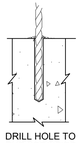
	SYMBOL	POST
POST	_ o	(2) 2x STITCH NAILED w/ (20) 10d NAILS EACH
	_ p	(3) 2x STITCH NAILED w/ (20) 10d NAILS EACH
	_ a	4x4
	_ b	4x6
	_ c	4x8
	_ d	6x6

HOLDOWN NOTES

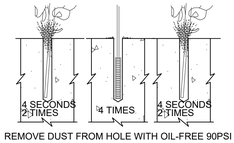
1. ALL HOLDOWNS SHALL CONFORM TO ICC REPORT NUMBERS ESR-2330 AND ESR-2611. SEE MANUFACTURER FOR INSTALLATION INSTRUCTIONS
2. AT RAISED FLOOR AND PLATFORM FRAMED CONSTRUCTION, PROVIDE 4X OR DOUBLE 2X BLOCK BELOW ALL HOLDOWN POSTS / STRAPS IN FLOOR CAVITY.
3. ALL HOLDOWNS SHALL BE INSTALLED WITHIN 6" OF THE END OF THE SHEARWALL, UON.
4. ANCHOR NUTS SHOULD BE HAND-TIGHT PLUS 1/2 TURN. RETIGHTEN ALL HOLD DOWN BOLTS TO WOOD MEMBERS JUST PRIOR TO COVERING WITH FINISHES.
5. THE SPECIFIED SHEAR WALL EDGE NAILING SHALL BE APPLIED TO THE HOLDOWN POST FOR THE FULL WALL HEIGHT, REGARDLESS OF PLYWOOD EDGE LOCATION.
6. WHERE (2) HOLDOWNS ARE INSTALLED ON OPPOSITE SIDES OF A SINGLE POST EITHER INCREASE THE SIZE OF THE POSTS TO PREVENT OPPOSING SCREW INTERFERENCE, OR STAGGER THE HOLDOWNS VERTICALLY TO PREVENT SCREW INTERFERENCE
7. ALL FLOOR TO FLOOR HOLDOWN STRAPS MAY BE APPLIED TO THE STUDS OR OVER THE PLYWOOD SHEATHING. INSTALL STRAPS PER ICC ESR-2105.
8. FILL ALL NAIL HOLES IN THE PORTION OF STRAP ATTACHED TO POST. ALIGN POSTS OF THE SAME SIZE ABOVE AND BELOW FLOOR LEVEL AT HOLDOWN STRAP AND PROVIDE EDGE NAILING FULL HEIGHT OF BOTH POSTS TO FOUNDATION.
9. WHEN HOLDOWN ANCHOR OCCURS IN FOUNDATION CRIPPLE WALLS LESS THAN 24" IN HEIGHT LOCATE HOLDOWN IN WALL ABOVE AND EXTEND FOUNDATION ANCHOR WITH ALL-THREAD BOLT AND COUPLE NUTS. WHERE CRIPPLE WALLS EXCEED 24" INSTALL HOLDOWN IN CRIPPLE WALL AND STRAP TO LEVEL ABOVE. MATCH DENOTED POST SIZE IN CRIPPLE WALLS UNDER HOLDOWN POST.

8 MUDSILL OR SOLE PLATE ANCHORAGE REQUIREMENTS

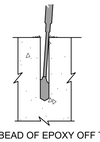
1. ALL EPOXY FOR USE WITH THREADED RODS, REBAR DOWELS AND SILL ANCHORS SHALL BE SIMPSON 'SET-3G' (ESR-4057) HIGH STRENGTH EPOXY OR HILTI HY-200 (ESR-3187) ADHESIVE.
2. THE CONTRACTOR SHALL CAREFULLY READ THE ICC REPORT FOR INSTRUCTIONS FOR CORRECT EPOXY INSTALLATION PROCEDURES. SPECIAL INSPECTION IS REQUIRED FOR THIS INSTALLATION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK AND SCHEDULE SPECIAL INSPECTION. DO NOT INSTALL ANY ANCHORS UNTIL SPECIAL INSPECTION HAS BEEN COMPLETED. ANY ANCHORS INSTALLED WITHOUT SPECIAL INSPECTION SHALL BE REMOVED AND NEW ANCHORS WITH PROPER INSPECTION SHALL BE INSTALLED.
3. THE SPECIAL INSPECTOR IS REQUIRED TO VERIFY HOLE DEPTH, HOLE DIAMETER, HOLE PREPARATION AND EPOXY PRODUCT TO BE USED. EPOXY PRODUCT SHALL BE NEW IN UNOPENED CONTAINERS.
4. THE SPECIAL INSPECTOR SHALL PROVIDE COPIES OF THE FIELD REPORTS TO THE ENGINEER OF RECORD, THE BUILDING DEPARTMENT, AND TWO COPIES TO THE CONTRACTOR. ONE COPY SHALL BE AVAILABLE ON THE JOB SITE FOR REVIEW.



DRILL HOLE TO THE SPECIFIED DIAMETER AND DEPTH.



REMOVE DUST FROM HOLE WITH OIL-FREE 90PSI COMPRESSED AIR. CLEAN HOLE WITH NYLON BRUSH AND BLOW OUT REMAINING DUST. DUST OR OIL IN HOLE WILL REDUCE THE STRENGTH OF THE EPOXY.

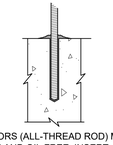


DISPENSE BEAD OF EPOXY OFF TO THE SIDE TO CHECK FOR THE PROPER MIXTURE (UNIFORM COLOR) BEFORE DISPENSING EPOXY INTO HOLE. FILL HOLE HALFWAY, STARTING FROM BOTTOM OF HOLE TO AVOID AIR POCKETS. WITHDRAW NOZZLE AS HOLE FILLS UP.

NOTE: SEE ICC REPORT FOR FULL DETAILED INSTALLATION PROCEDURE

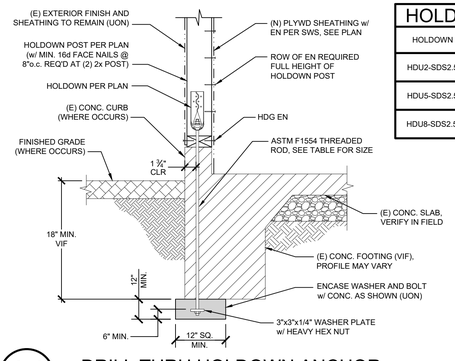
NOTE: SPECIAL INSPECTION IS REQUIRED FOR TENSION & SHEAR ANCHORS

NOTE: EPOXY HOLDOWNS MUST BE PULL-TESTED BY AN APPROVED SPECIAL INSPECTION AGENCY



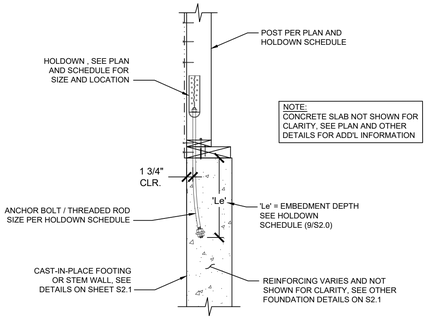
ANCHORS (ALL-THREAD ROD) MUST BE CLEAN AND OIL FREE. INSERT ANCHOR, TURNING SLOWLY UNTIL THE ANCHOR HITS THE BOTTOM OF THE HOLE. DO NOT DISTURB DURING SET TIME.

9 FOUNDATION HOLDOWN SCHEDULE & NOTES



HOLDOWN TABLE

HOLDOWN	ANCHOR	MIN. POST (UON)
HDU2-SDS2.5	⅝"Ø ALL THREAD	(2) 2x
HDU5-SDS2.5	⅝"Ø ALL THREAD	(2) 2x
HDU8-SDS2.5	⅞"Ø ALL THREAD	4x



10 EPOXY ANCHOR HOLDOWN INSTALLATION PROCEDURE

11 DRILL THRU HOLDOWN ANCHOR AT EXISTING FOOTING

12 HOLDOWN ANCHOR AT NEW FOUNDATION

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
www.morris-shaffer.com

DETACHED GARAGE AND ADU

CONCRETE GENERAL DETAILS

79 MONTE VISTA AVENUE
WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER
ROBERT H. SHAFFER
C 45322
CIVIL
STATE OF CALIFORNIA

SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
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ISSUED:	SEPT. 20, 2024
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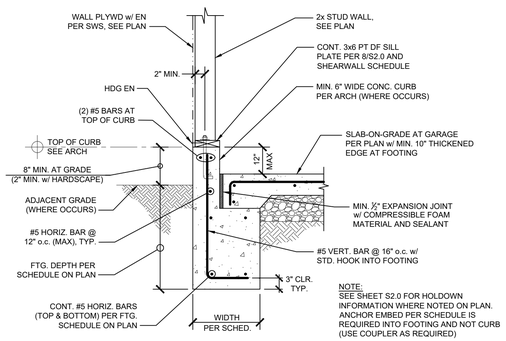
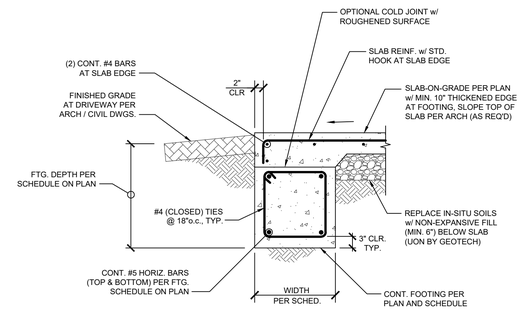
SHEET:

S2.0

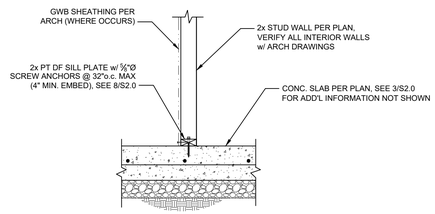


NOTE:
SEE SHEET S2.0 FOR HOLDOWN INFORMATION WHERE NOTED ON PLAN. ANCHOR EMBED PER SCHEDULE IS REQUIRED INTO FOOTING AND NOT CURB (USE COUPLER AS REQUIRED)

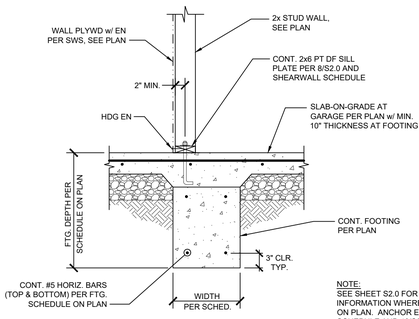
1 PERIMETER FOOTING SECTION AT GARAGE w/ CONC. CURB



2 PERIMETER FOOTING SECTION AT GARAGE DOOR OPENING



3 INTERIOR PARTITION WALL NON-STRUCTURAL



NOTE:
SEE SHEET S2.0 FOR HOLDOWN INFORMATION WHERE NOTED ON PLAN. ANCHOR EMBED PER SCHEDULE AND 12/S2.0

4 INTERIOR FOOTING SECTION AT GARAGE

5 FOOTING SECTION AT WSWH PANEL ANCHOR REINFORCMENT

SECTION A-A

7 MASONRY SITE WALL AT PROPERTY LINE

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
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REVISIONS:	

SHEET:
S2.1

CONNECTION	COMMON NAILING[1]	GUN NAILING EQUIV.[2]
1. Blocking between joists or rafters to top plate	(3) 8d toenails	(3) 3" x .131"Ø
2. Joist to sill or girder, toenail	(3) 8d	(4) 3" x .131"Ø
6. Rafter to plate, toenail	(3) 10d	(4) 3" x .131"Ø toenails
8. Double studs, face nail	16d at 24" o.c.	3" x .131"Ø @ 16" o.c.
11. Continuous header to stud, toenail	(4) 8d toenail	
12. Double top plates, face nail Double top plates, lap splice	16d at 16" o.c. (24) 16d, each side	3" x .131"Ø at 12" o.c. (36) 3" x .131"Ø
13. Top plates, laps and intersections, face nail	(8) 16d	(12) 3" x .131"Ø
14. Sole plate to joist or blk'g, face nail	16d at 16" o.c.	3" x .131"Ø @ 8" o.c.
15. Sole plate to joist or blk'g, @ braced wall panels	(2) 16d per 16"	(4) 3" x .131"Ø per 16"
16. Stud to sole plate	(4) 8d, toenails or (2) 16d, end nail	(4) 3" x .131"Ø toenails (3) 3" x .131"Ø endnails
17. Top plate to stud, end nail	(2) 16d	(3) 3" x .131"Ø
4. Ceiling joists to parallel rafters, face nail	(3) 10d	(4) 3" x .131"Ø
23. Rim joist to top plate, toenail	8d at 6" o.c. toenails	3" x .131"Ø @ 6" o.c.

1. COMMON OR BOX NAILS MAY BE USED UNLESS OTHERWISE NOTED.
2. SPECIFIC DETAILS OR SHEARWALL SCHEDULES SHALL SUPERSEDE THIS TABLE.
3. PNEUMATIC NAILS SHALL BE ICC APPROVED AND MEET THE SIZES (LENGTH & DIAMETER) IN THE TABLE. A PNEUMATIC GUN CAPABLE OF USING FULL ROUND HEAD .162"Ø NAILS MAY USE THE COMMON NAIL COLUMN.
4. REFER TO ICC ESR-1539 "POWER-DRIVE STAPLES AND NAILS" FOR PNEUMATIC NAIL REQUIREMENTS

1 CONVENTIONAL NAILING REQUIREMENTS PORTIONS OF CBC TABLE 2304.10.2

ROOF SHEATHING

ROOF SHEATHING SHALL BE MINIMUM 15/32" CDX PLYWOOD PANEL SPAN RATING 32/16 (EXP. 1) AND FOIL BACKED AT ATTICS (WHERE REQUIRED). MINIMUM WIDTH OF PLYWOOD SHALL BE 2'-0" OR IT SHALL BE SUPPORTED AND NAILED ON ALL EDGES.
NAIL ALL PLYWOOD w/ 10d NAILS AS FOLLOWS:

@ SUPPORTED EDGES AND BOUNDARIES : 10d nails @ 6" O.C.
@ FIELD NAILING : 10d nails @ 12" O.C.

FLOOR SHEATHING

FLOOR SHEATHING SHALL BE MINIMUM 3/4" T&G PLYWOOD w/ EXT. GLUE (APA RATED FLOOR). PANEL SPAN RATING 48/24 (EXP. 1). MINIMUM WIDTH OF PLYWOOD SHALL BE 2'-0" OR IT SHALL BE SUPPORTED AND NAILED ON ALL EDGES.
NAIL ALL PLYWOOD w/ 10d SCREW SHANK NAILS AND SUBFLOOR ADHESIVE AS FOLLOWS:

@ SUPPORTED EDGES AND BOUNDARIES : 10d nails @ 6" O.C.
@ FIELD NAILING : 10d nails @ 12" O.C.

2 ROOF & FLOOR SHEATHING NOTES

OPENING WIDTH (MAX)	EXTERIOR WALL			
	BEARING STUD**	KING STUD**	WINDOW SILL**	FRAMING CLIPS
4'-0"	(2) 2x	2x	2x	NONE
6'-0"	(2) 2x	(2) 2x	2x	A35 WHERE SHOWN
8'-0"	(2) 2x	(3) 2x	(2) 2x	A35 WHERE SHOWN
10'-0" OR GREATER	SEE PLAN & DETAILS			

**MATCH STUD WIDTH

OPENING WIDTH (MAX)	INTERIOR WALL	
	BEARING STUD**	KING STUD**
4'-6"	(2) 2x	2x
6'-0"	(2) 2x	2x
8'-0"	(2) 2x	2x
10'-0" OR GREATER	SEE PLAN & DETAILS	

**MATCH STUD WIDTH

C SCHEDULE

1. ALL STRUCTURAL COMPOSITE LUMBER SHALL CONFORM TO ICC REPORT NUMBER ESR-1387. ALL MICROLLAM (LVL) FRAMING MEMBERS SHALL HAVE A MINIMUM E = 1,900,000 PSI, FV = 285 PSI, AND FB = 2600 PSI. ALL PARALLEL STRAND LUMBER (PSL) FRAMING MEMBERS SHALL HAVE A MINIMUM E = 2,200,000 PSI, FV = 290 PSI, AND FB = 2900 PSI. ALL LAMINATED STRAND LUMBER (LSL) FRAMING MEMBERS SHALL HAVE A MINIMUM E = 1,550,000 PSI, FV = 310 PSI, AND FB = 2325 PSI.
2. ALL BEAMS SHALL BE DESIGNATED ON THE PLANS AS LSL 1.55E, LVL 1.9E OR PSL 2.2E DEFINING THE MINIMUM MODULUS OF ELASTICITY (MOE) PER ICC REPORT ESR-1387. THE SIZE SPECIFIED ON THE PLANS IS THE NOMINAL SIZE OF BEAM AND THE ACTUAL BEAM DIMENSIONS MAY BE LESS.
3. LVL 1.9E BEAMS ARE COMPOSED OF BUILT-UP 1 3/4" WIDE BEAMS X SPECIFIED DEPTH w/ 16d FACE NAILS SPACED AT 16" O.C. (STAGGERED).
4. THE CLOSEST ON-CENTER SPACING OF NAILS IN A ROW IN THE NARROW FACE IS GIVEN IN THE TABLES BELOW. WHEN ADDITIONAL NAILING IS REQUIRED, A SECOND STAGGERED ROW OF NAILS MAY BE ADDED PROVIDED THAT THERE IS AT LEAST 3/4" SPACING BETWEEN ROWS.
5. ALL BEAMS SHALL BE WRAPPED FOR SHIPPING. CONTRACTOR SHALL KEEP BEAMS WRAPPED AND PROTECTED FROM THE WEATHER UNTIL THEY ARE INCORPORATED INTO THE STRUCTURE.
6. NO NOTCHING OR CUTTING OF BEAMS IS ALLOWED WITHOUT WRITTEN APPROVAL BY ENGINEER. A MAXIMUM OF A 2" DIAMETER HOLE MAY BE DRILLED IN THE MIDDLE OF THE BEAM DEPTH AND WITHIN THE MIDDLE 1/3 OF THE BEAM SPAN.

PSL PARALLAM	
NAIL SIZE	CLOSEST ON-CENTER NAIL SPACING
8d	3"o.c.
10d	4"o.c.
16d	6"o.c.

LSL TIMBERSTRAND	
NAIL SIZE	CLOSEST ON-CENTER NAIL SPACING
8d	3"o.c.
10d	4"o.c.
16d	6"o.c.

LVL MICROLAM	
NAIL SIZE	CLOSEST ON-CENTER NAIL SPACING
8d	3"o.c.
10d	4"o.c.
16d	8"o.c.

3 STRUCTURAL COMPOSITE LUMBER (LVL, PSL and LSL)

STUD WALL TYPE	MAXIMUM STUDWALL HEIGHT* SUPPORTING JOISTS FROM:			
	ROOF	ROOF + 1 FLOOR	ROOF + 2 FLOORS	NON-BEARING
2x4 AT 16"o.c.	10'-0"	10'-0"	6'-0"	11'-0"
(2) 2x4 OR 4x4 AT 16"o.c.	15'-0"	11'-0"	8'-0"	16'-0"
2x6 AT 16"o.c.	17'-0"	14'-0"	11'-0"	17'-0"

*STUDWALL HEIGHTS ARE CALCULATED ARE VALID FOR THE FOLLOWING DESIGN CRITERIA:

1. EXTERIOR WALLS WITH UP TO 8' FLOOR/ROOF TRIBUTARY WIDTH**
2. INTERIOR WALLS WITH UP TO 16' FLOOR/ROOF TRIBUTARY WIDTH**
3. STUDS ARE BRACED AGAINST WEAK-AXIS BENDING BY CONVENTIONAL GYPSUM OR WALL SHEATHING
4. LOADING AS FOLLOWS (TYPICAL OF CONVENTIONAL LIGHT WOOD-FRAMED CONSTRUCTION)
   4.1. EXTERIOR WALLS: 15 PSF DEAD LOAD SELF WEIGHT, 20 PSF LATERAL WIND LOAD
   4.2. INTERIOR WALLS: 10 PSF DEAD LOAD SELF-WEIGHT, 5 PSF LATERAL LIVE LOAD
   4.3. ROOFS: 15 PSF DEAD LOAD, 20 PSF LIVE LOAD
   4.4. FLOORS: 15 PSF DEAD LOAD, 40 PSF LIVE LOAD
5. WHERE LOADING EXCEEDS THE ABOVE CRITERIA (EXAMPLE: MASONRY CLADDING, STUCCO FINISHES, CONCRETE TOPPING SLABS, THICK STONE TILE), CONTACT E.O.R.
6. WHERE WALL HEIGHTS NEED TO EXCEED THE ABOVE CRITERIA, CONTACT E.O.R.

**TRIBUTARY WIDTH IS TAKEN AS HALF THE LENGTH OF ALL JOISTS BEARING ON THE WALL.

4 ALLOWABLE STUDWALL HEIGHTS

5 TYPICAL HEADER FRAMING

6 TYPICAL BEAM CONNECTIONS

POST / BEAM BEAM TO BEAM MID SPAN SUPPORT

7 WOOD JOIST - NOTCHES & HOLES

TOP PLATE SPLICES AND STEPS

NOTCHES AND HOLES IN STUDS AND PLATES

PLATE HEIGHT STEP > 12"

8 WALL TOP PLATES & SILL PLATES - NOTCHES, HOLES, SPLICES AND STEPS

A: PRE-NAIL STRAP B: TOP-NAIL STRAP C: TOP-NAIL STRAP w/ BLK'G D: RIDGE-NAIL STRAP E: FACE-NAIL STRAP F: UNDER-MOUNT STRAP

9 STRAP NOTES, SCHEDULE, AND HARDWARE

	SYMBOL	TYPE	FRAMING ATTACHMENT (MIN.)	MINIMUM END LENGTH TO PRIMARY FRAMING MEMBER	MINIMUM FRAMING CLIPS (WHERE REQ'D)
STRAP	CS16 X'-X"	CS16 (1705#)	2x	13"	(4) A35 OR LTP4
	CS14 X'-X"	CS14 (2490#)	2x	16"	(6) A35 OR LTP4
	CMSTC16 X'-X"	CMSTC16 (4585#)	(2) 2x	20"	(10) A35 OR LTP4
	CMST14 X'-X"	CMST14 (6490#)	4x	30"	(15) A35 OR LTP4
	CMST12 X'-X"	CMST12 (9215#)	4x	39"	(20) A35 OR LTP4

STRAP / TIE NOTES:
1. REQUESTS FOR SUBSTITUTION / MODIFICATION SHALL BE MADE IN WRITING TO THE ENGINEER OF RECORD (EOR)
2. SEE MANUFACTURER FOR INSTALLATION INSTRUCTION
3. IF NO LENGTH IS SPECIFIED ON PLAN, SIZE STRAP TO HAVE MIN END LENGTH ON EACH PRIMARY MEMBER
4. AT LOCATIONS WITH PLYWOOD, STRAP SHOULD BE INSTALLED ON TOP OF PLYWOOD WITH 10d NAILS. BOUNDARY NAILING (BN) SHALL BE OMITTED UNDER OR ADJACENT TO STRAP
5. USE MINIMUM NUMBER OF FASTENERS AS SPECIFIED IN SIMPSON CATALOG
6. OTHER THAN 15/32" WALL SHEATHING, DO NOT INSTALL SHIMS OR SPACERS BETWEEN STRAP AND FRAMING
7. WHERE STRAPS WILL BE INSTALLED TO THE NARROW FACE OF STRUCTURAL COMPOSITE LUMBER (LVLs, PSLs, TJIs, LSLs), CONFORM TO MINIMUM NAILING REQUIREMENTS GIVEN UNDER THE "STRUCTURAL COMPOSITE LUMBER" SECTION
8. WHERE STRAP LENGTH IS DENOTED ON PLANS, IT IS PERMISSIBLE TO OMIT NAILS IN THE STRAP (DO NOT EXCEED 3" NAIL SPACING), PROVIDED THE MINIMUM NUMBER OF FASTENERS PER MANUFACTURER REQUIREMENTS IS MET
9. TAKE CARE NOT TO SPLIT MEMBERS WITH NAILS FROM STRAPS. WHERE MEMBERS ARE AT RISK OF SPLITTING, IT IS PERMISSIBLE TO LENGTHEN THE STRAP AND REDUCE THE NUMBER OF NAIL HOLES FILLED, PROVIDED THE MINIMUM NUMBER OF FASTENERS PER MANUFACTURER REQUIREMENTS IS MET

CEILING JOIST SCHEDULE

MAX SPAN	CEILING JOIST	SPACING	LEDGER NAILING
6'-0"	2x4	16"o.c.	(2) 16d @ 16"o.c.
10'-0"	2x6	16"o.c.	(2) 16d @ 16"o.c.
14'-0"	2x8	16"o.c.	(3) 16d @ 16"o.c.
18'-0"	2x10	16"o.c.	(4) 16d @ 16"o.c.
22'-0"	2x12	16"o.c.	(5) 16d @ 16"o.c.

NOTES:
1. CEILING JOIST SCHEDULE IS BASED UPON 10psf DEAD LOAD AND 20psf LIVE LOAD
2. SPAN/DEFLECTION RATIO EXCEEDS L/280
3. JOIST MATERIAL GRADE SHALL BE DOUGLAS FIR LARCH #2 MINIMUM
4. SCHEDULE DOES NOT APPLY TO AREAS OF THE CEILING THAT WILL BE USED AS LOFTS OR HABITABLE SPACE
5. 2x4 & 2x6 CEILING JOISTS ARE NOT REQUIRED TO HAVE FLAT BRACING

10 TYPICAL STRAP INSTALLATION DETAILS

11 CEILING JOIST SCHEDULE

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
www.morris-shaffer.com

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WOOD GENERAL DETAILS

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WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER ROBERT H. SHAFFER C 45322 CIVIL STATE OF CALIFORNIA

SUBMITTAL SET

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DRAWN BY:	TS
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ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET: S3.0

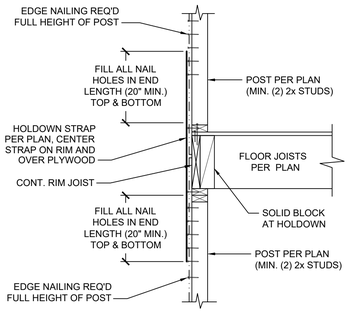
1. SPECIFIED EDGE NAILING IS REQ'D ALONG ALL PANEL EDGES, TOP AND BOTTOM PLATES. ALL NAILS SHALL BE LOCATED AT LEAST 3/8" FROM THE PANEL EDGES.
2. ALL PLYWOOD (OR OSB) STRAND BOARD USED IN SHEAR WALLS SHALL BE APA RATED SHEATHING STRUCTURAL 1 (UON) AND COMPLY WITH "STRUCTURAL PLYWOOD, DOC PS 1-07" AND "PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL-USED PANELS, DOC PS 2-10". VERIFY SUITABILITY OF OSB WITH ARCHITECT PRIOR TO ORDERING MATERIAL.
3. ALL NAILS ARE TO BE FULL HEADED COMMON NAILS UNLESS OTHERWISE NOTED (UON). NAILS EXPOSED TO THE EXTERIOR OR PRESSURE TREATED WOOD SHALL BE GALVANIZED - HOT DIPPED OR TUMBLED CONFORMING TO ASTM A153.
4. WHERE PLYWOOD IS APPLIED TO BOTH FACES OF THE WALL, THE PANEL JOINTS SHALL BE OFFSET SUCH THAT AN ADJOINING PANEL EDGE OCCURS ONLY ON ONE SIDE OF ANY 3x STUD.
5. WHERE SPECIFIED ON THE SHEAR WALL SCHEDULE (SWS), FRAMING AND BLOCKING AT ADJOINING PLYWOOD (A.P.) EDGES SHALL BE 3x OR WIDER AND NAILING SHOULD BE STAGGERED ON EITHER SIDE OF PLYWOOD JOINT. WHERE 3x OR WIDER BLOCKING REQUIRES TWO ROWS OF NAILS AT PLYWOOD EDGE, STAGGER 1/2" BETWEEN ROWS. REPLACE ANY STUDS WHICH SPIT DUE TO NAILING, PRE-DRILL OR UPSIZE STUD IF REQ'D.
6. FOR EXISTING WALLS WHICH REQUIRE 3x MEMBERS AT ADJOINING PLYWOOD (A.P.) EDGES, A SECOND 2x STUD MAY BE STITCHED TO THE EXISTING STUD WITH 16d NAILS PER SWS EDGE NAIL SPACING. ALIGN PLYWOOD EDGE WITH CENTER OF DOUBLE STUD AND BOTH STUDS SHALL HAVE ONLY ONE ROW OF NAILING.
7. PANELS SHALL NOT BE LESS THAN 4'x8', EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING.
8. HOLDOWNS, CLIPS, AND ANCHORS AS SPECIFIED ON THE FOUNDATION AND FRAMING PLANS SUPERCEDE THE SHEAR WALL SCHEDULE.
9. REMOVE ALL SHINERS PRIOR TO INSPECTION BY THE BUILDING DEPARTMENT OR ENGINEER.
10. NO HOLES GREATER THAN 3/4"Ø MAY BE INSTALLED IN A DESIGNATED SHEAR WALL WITH 2x4 STUDS. USE 2x6 STUDS FOR SHEAR WALLS WITH PLUMBING PIPES UP TO 3" IN DIAMETER MAX. PROVIDE A SECONDARY FURRING WALL TO CONCEAL PIPES WHICH DO NOT MEET THIS CRITERIA.
11. PENETRATIONS THROUGH SHEAR WALLS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF EOR.

SHEARWALL SCHEDULE (SWS)

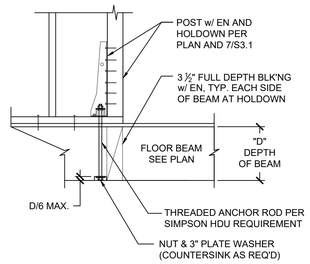
SYMBOL	MATERIAL	EDGE NAILING	SHEAR TRANSFER		A.P. STUD BLK'G SIZE	5/8"Ø ANCHOR SPACING	
			SOLE PLATE	FRAMING CLIP SPACING		3x SILL	2x SILL
6	15/32" PLYWD (310 #/fl)	10d AT 6" o.c.	16d @ 6"o.c. or SDS @ 12" o.c.	A35 @ 24" LTP4 @ 24"	2x	48"o.c.	48"o.c.
4	15/32" PLYWD (460 #/fl)	10d AT 4" o.c.	16d @ 4"o.c. or SDS @ 8" o.c.	A35 @ 16" LTP4 @ 16"	3x	48"o.c.	32"o.c.
3	15/32" PLYWD (600 #/fl)	10d AT 3" o.c.	16d @ 3"o.c. or SDS @ 6" o.c.	A35 @ 12" LTP4 @ 12"	3x	16"o.c.	8"o.c.
2	15/32" PLYWD (770 #/fl)	10d AT 2" o.c.	DBL. ROW 16d @ 4"o.c. or SDS @ 4" o.c.	A35 @ 8" LTP4 @ 8"	3x	12"o.c.	N / A
1	15/32" PLYWD BOTH SIDES	NAILING PER ABOVE EA SIDE	DOUBLE ABOVE REQ	DOUBLE ABOVE REQ	3x	DOUBLE ABOVE REQ	N / A

FIELD NAILING: 10d @ 12" o.c.

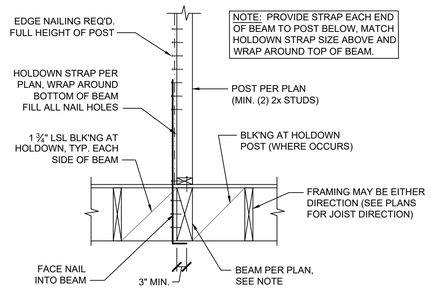
1 SHEARWALL SCHEDULE (SWS) & NOTES



HOLDOWN STRAP TO POSTS

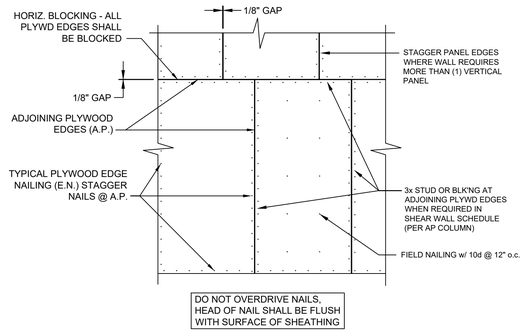


HOLDOWN TO WOOD BEAM

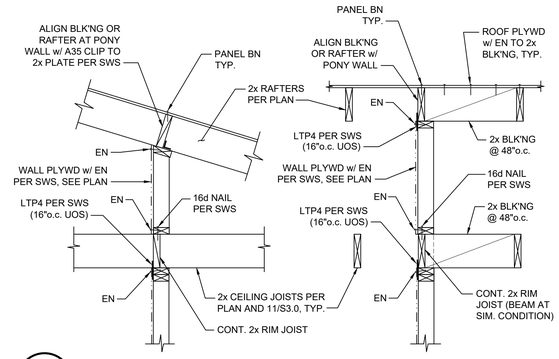


HOLDOWN STRAP TO BEAM

2 PLYWOOD SHEARWALL NAILING



3 SHEARWALL FROM CEILING TO ROOF



4 HOLDOWN AT FLOOR FRAMING POST ABOVE TO POST BELOW

STRAP HOLDOWN SCHEDULE			
	SYMBOL	TYPE	MINIMUM END LENGTH TO PRIMARY FRAMING MEMBER
STRAP	M4 _	MST48 (3210#)	12"
	M6 _	MST60 (4605#)	15"
	T4 _	CMSTC16 (4690#)	20"
	T6 _	CMST14 (6475#)	30"
	T9 _	CMST12 (9215#)	39"
	B4 _	MSTC48B3 (3975#)	21" ON POST AND 9 1/4" MIN. ON BEAM
	B6 _	MSTC66B3Z (4490#)	21" ON POST AND 11 1/4" MIN. ON BEAM

NOTES:
1. USE MINIMUM NUMBER OF FASTENERS AS SPECIFIED IN SIMPSON CATALOG.
2. OTHER THAN 1/2" WALL SHEATHING (MAX), DO NOT INSTALL SHIMS OR SPACERS BETWEEN STRAP AND POST.

POST SCHEDULE		
	SYMBOL	POST
POST	_ o	(2) 2x STITCH NAILED w/ (20) 10d NAILS EACH
	_ p	(3) 2x STITCH NAILED w/ (20) 10d NAILS EACH
	_ a	4x4
	_ b	4x6
	_ c	4x8
	_ d	6x6

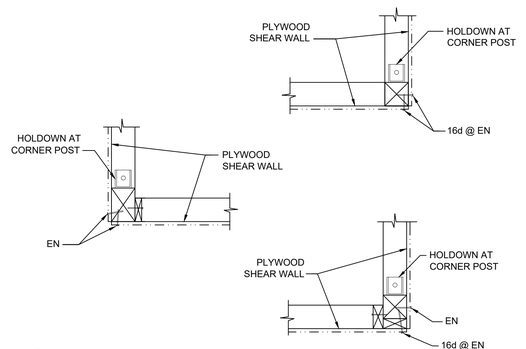
EXAMPLES:
T4 a = CMSTC16 STRAP TO 4x4 POST
T9 c = CMST12 STRAP TO 4x8 POST

HDU HOLDOWN SCHEDULE			
	SYMBOL	TYPE	MINIMUM POST SIZE
HDU	2 _	HDU2-SDS2.5 (3075#)	(2) 2x
	5 _	HDU5-SDS2.5 (5645#)	(2) 2x
	8 _	HDU8-SDS2.5 (6970#)	4x4
	11 _	HDU11-SDS2.5 (9535#)	4x6

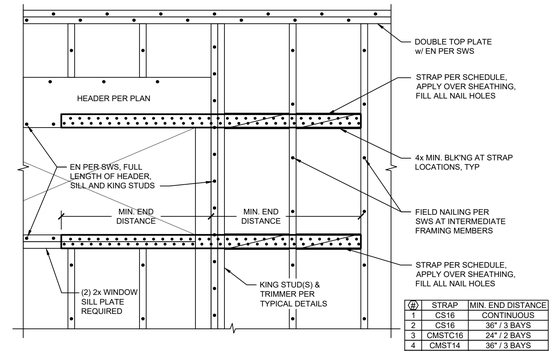
NOTES:
1. DO NOT INSTALL SHIMS OR SPACERS BETWEEN HOLDOWN AND POST.
2. WHERE HOLDOWN DOES NOT ALIGN WITH POST, ANGLE THREADED ROD A MAXIMUM OF 5° AND INSTALL BOTTOM OF HOLDOWN A MAXIMUM OF 18" ABOVE THE SILL PLATE.

EXAMPLES:
2 o = HDU2 TO (2) 2x POST
8 b = HDU8 TO 4x6 POST

5 HOLDOWN AT WOOD SHEAR WALLS POST ABOVE TO BEAM

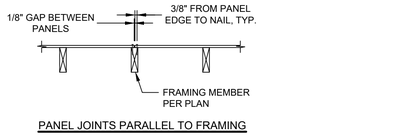


6 INTERIOR PARTITION WALL ABOVE FLOOR FRAMING

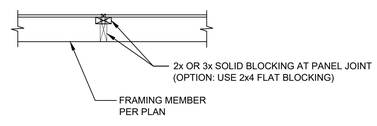


Ⓦ	STRAP	MIN. END DISTANCE
1	CS16	CONTINUOUS
2	CS16	36" / 3 BAYS
3	CMSTC16	24" / 2 BAYS
4	CMST14	36" / 3 BAYS
5	CMST12	39" / 3 BAYS

7 WOOD FRAMING HOLDOWN SCHEDULE



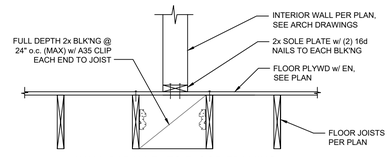
PANEL JOINTS PARALLEL TO FRAMING



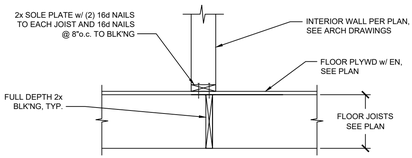
PANEL JOINTS PERPENDICULAR TO FRAMING

8 CORNER FRAMING OPTIONS AT END OF SHEARWALLS

9 OPENING IN SHEARWALL (FTAO)



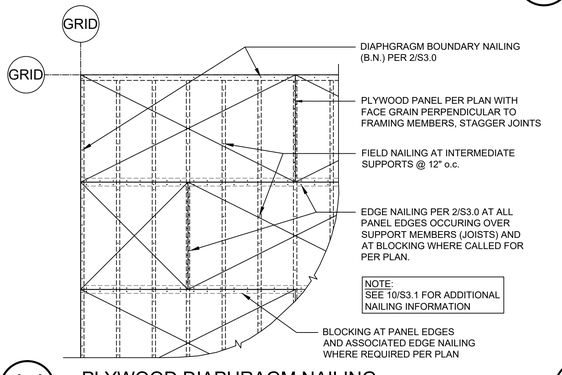
WALL PARALLEL TO FLOOR FRAMING



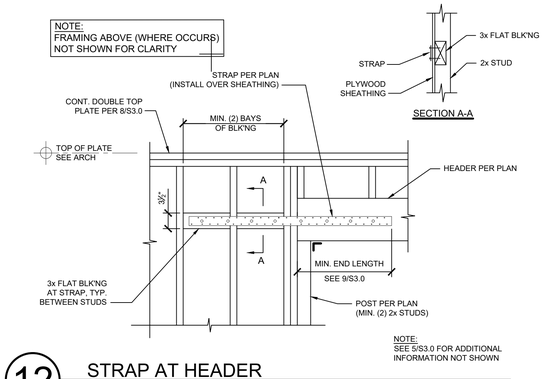
WALL PERPENDICULAR TO FLOOR FRAMING

10 HORIZONTAL DIAPHRAGM NAILING

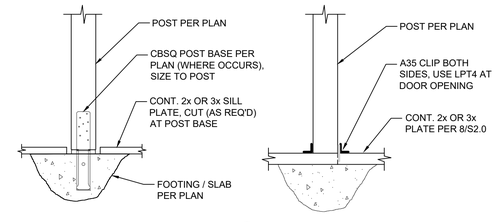
11 PLYWOOD DIAPHRAGM NAILING



12 STRAP AT HEADER



13 TYPICAL POST BASES



A CBSQ POST BASE

B POST AT SILL / SOLE PLATE

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
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DETACHED GARAGE AND ADU

WOOD GENERAL DETAILS

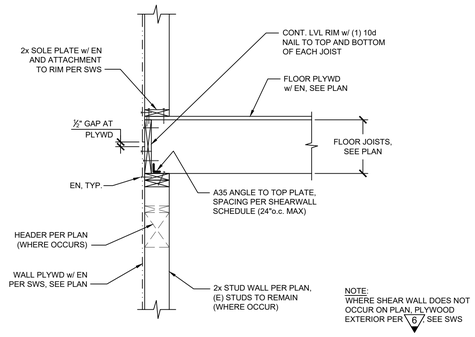
79 MONTE VISTA AVENUE
WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER ROBERT H. SHAFFER C 45322 CIVIL STATE OF CALIFORNIA

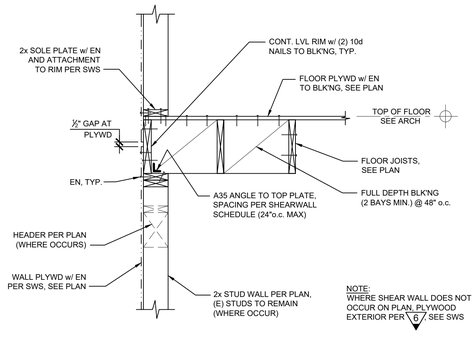
SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
JOB:	24031
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

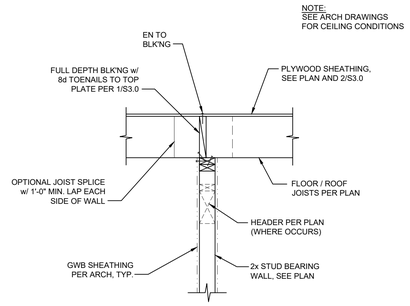
S3.1



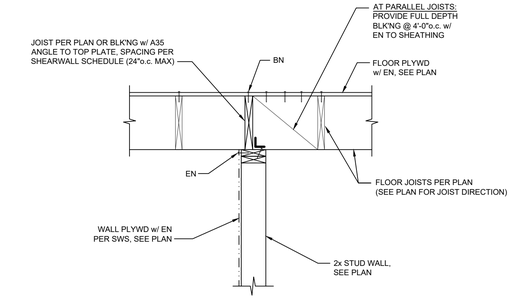
1 STACKED EXTERIOR WALLS
JOIST PERPENDICULAR



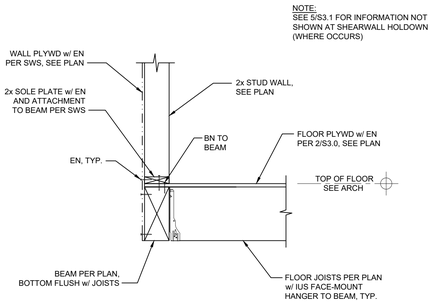
2 STACKED EXTERIOR WALLS
JOIST PARALLEL



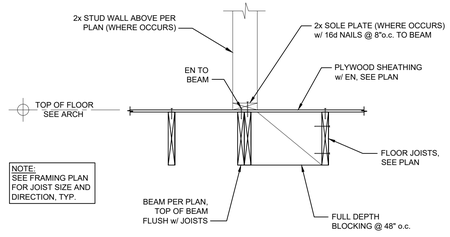
3 INTERIOR BEARING WALL BELOW
(NON-SHEAR WALL)



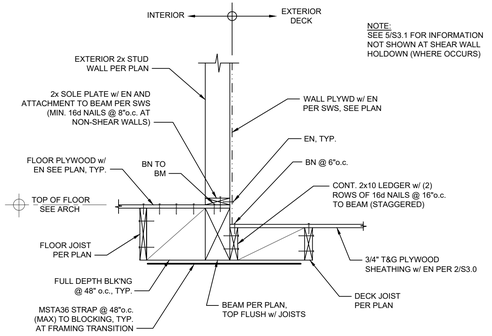
4 INTERIOR SHEARWALL BELOW



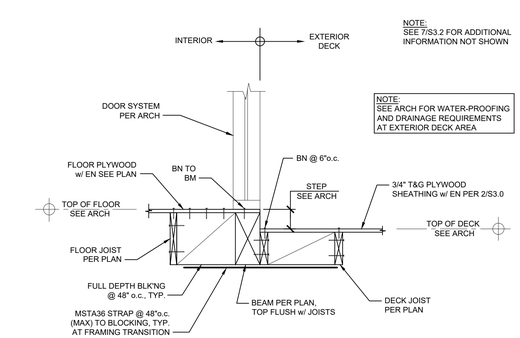
5 DISCONTINUOUS EXTERIOR SHEARWALL
JOISTS PERPENDICULAR



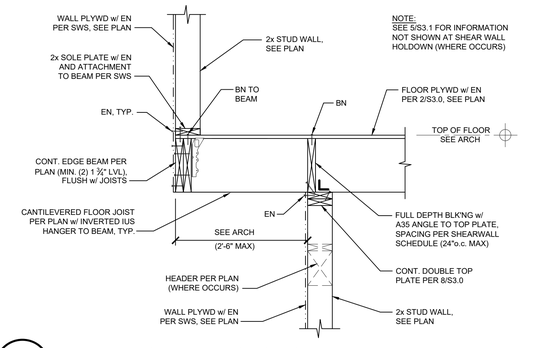
6 SECTION AT FLUSH BEAM



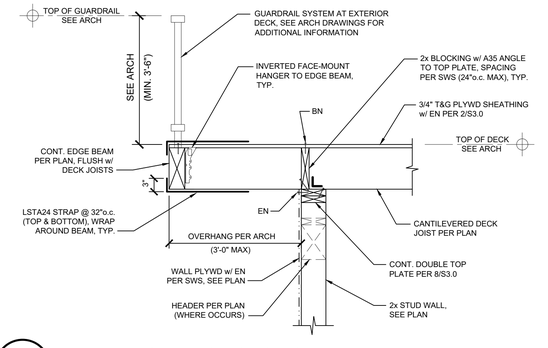
7 SECTION AT EXTERIOR DECK TRANSITION
w/ DISCONTINUOUS WALL ABOVE



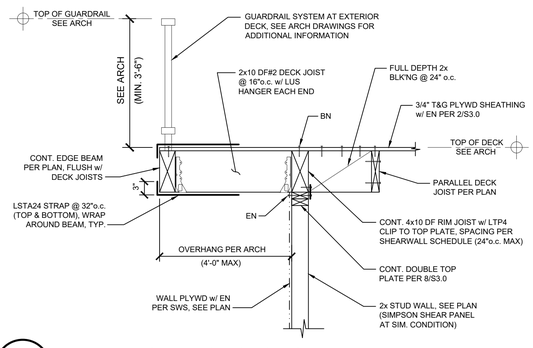
8 SECTION AT EXTERIOR DECK TRANSITION



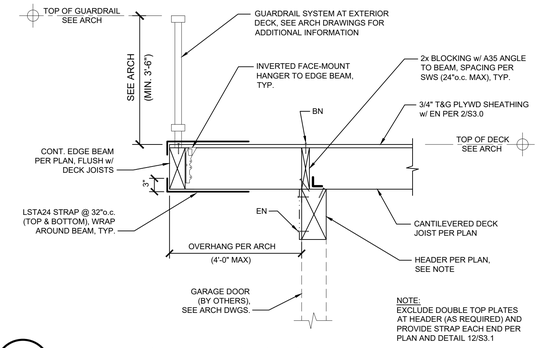
9 EXTERIOR WALL SECTION AT
CANTILEVERED FLOOR JOIST



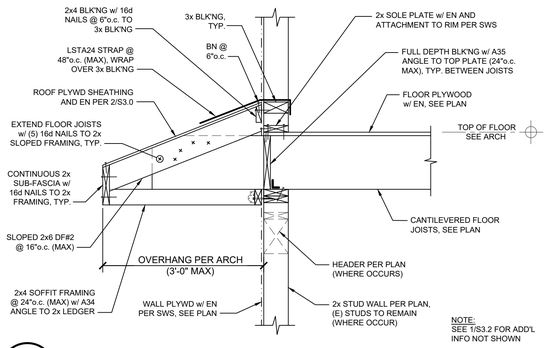
10 EXTERIOR DECK SECTION
CANTILEVERED w/ PERP. JOISTS



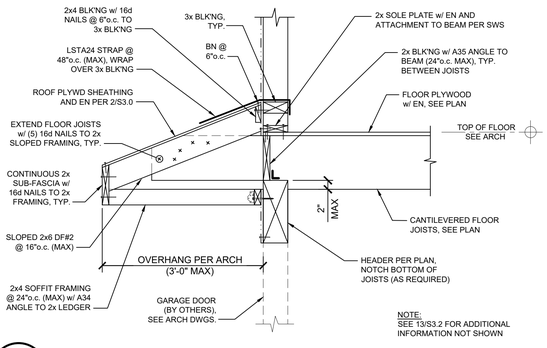
11 EXTERIOR DECK SECTION
CANTILEVERED w/ PARALLEL JOISTS



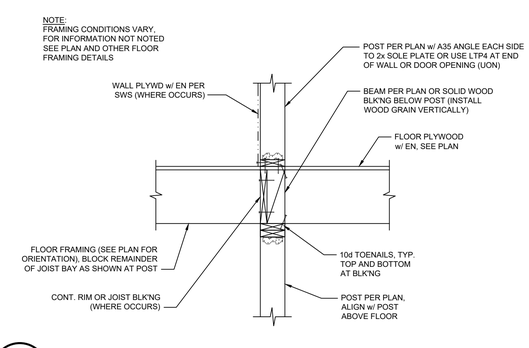
12 EXTERIOR DECK SECTION
AT GARAGE DOOR OPENING



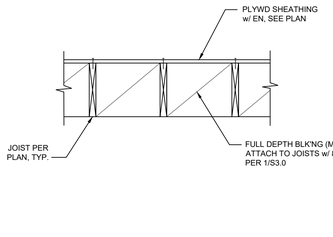
13 EXTERIOR WALL SECTION
AT LOW ROOF OVERHANG



14 EXTERIOR WALL SECTION
AT LOW ROOF OVERHANG



15 TYPICAL POST AT FLOOR



16 TYPICAL JOIST BLOCKING

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San Carlos, CA 94070
t. (650)595-2973
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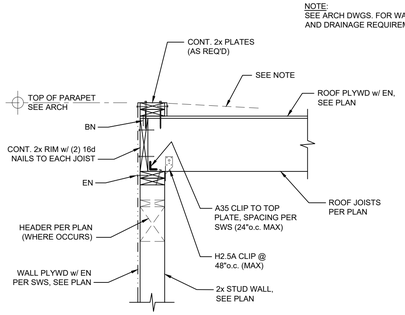
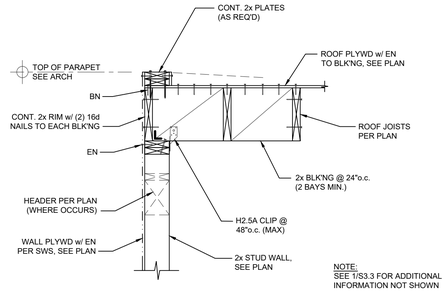
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

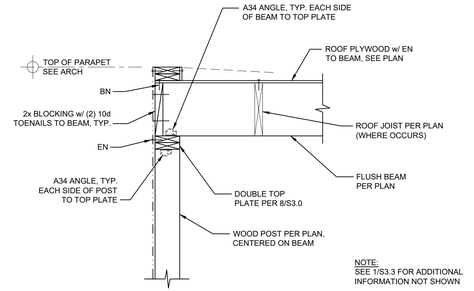
S3.2



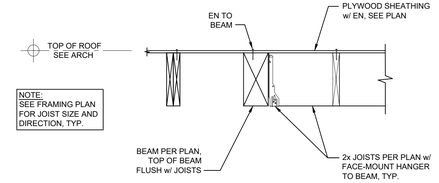
1 EXTERIOR WALL AT FLAT ROOF JOIST PERPENDICULAR



2 EXTERIOR WALL AT FLAT ROOF JOIST PARALLEL

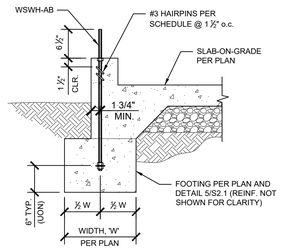


3 SECTION AT ROOF BEAM SUPPORT



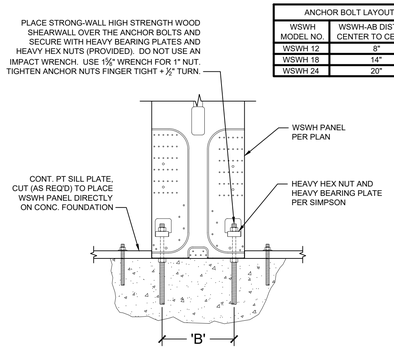
4 SECTION AT FLUSH ROOF BEAM

STRONG-WALL HIGH STRENGTH WOOD SHEARWALL SCHEDULE						
WSWH MODEL NO.	PANEL WIDTH	ANCHOR BOLT MODEL NO.	ANCHOR BOLT LENGTH	L_t (in.)	SHEAR REINF.	L_s (in.) L_t (in.)
WSWH 18x8	18"	WSWH-AB1x30	30"	21 ½"	(2) #3 HAIRPINS	15"
WSWH 24x8	24"	WSWH-AB1x30	30"	21 ½"	(2) #3 HAIRPINS	19"

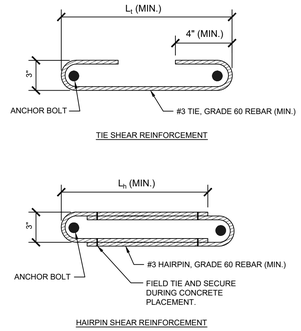


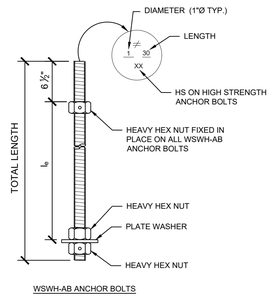
NOTE:
SEE 5/S2.1 FOR ADDITIONAL INFORMATION NOT SHOWN AT PANEL BASE ANCHORAGE

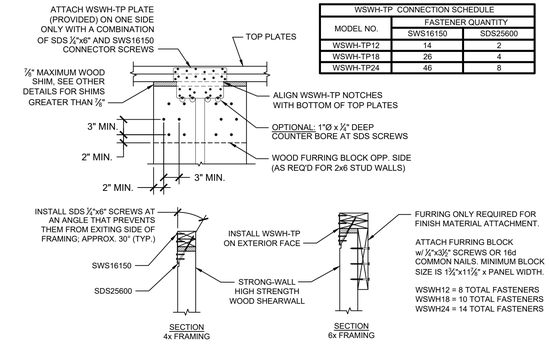
5 WSWH PANEL BASE CONNECTION TO CONCRETE



ANCHOR BOLT LAYOUT	
WSWH MODEL NO.	WSWH-AB DIST. ('B') CENTER TO CENTER
WSWH 12	8"
WSWH 18	14"
WSWH 24	20"

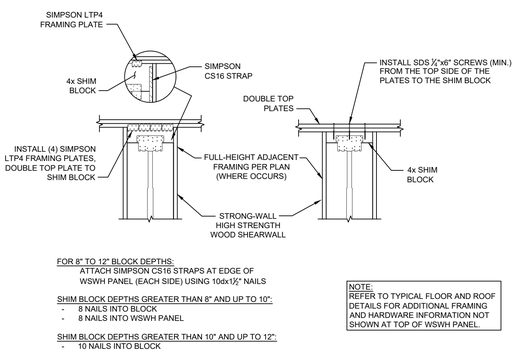






WSWH-TP CONNECTION SCHEDULE		
MODEL NO.	FASTENER QUANTITY	
	SWS16150	SDS25600
WSWH-TP12	14	2
WSWH-TP18	26	4
WSWH-TP24	46	8

9 WSWH PANEL TOP CONNECTION



FOR 8" TO 12" BLOCK DEPTHS:
ATTACH SIMPSON CS16 STRAPS AT EDGE OF WSWH PANEL (EACH SIDE) USING 10dx1½" NAILS

SHIM BLOCK DEPTHS GREATER THAN 8" AND UP TO 10":
- 8 NAILS INTO BLOCK
- 8 NAILS INTO WSWH PANEL

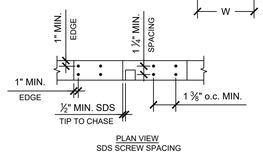
SHIM BLOCK DEPTHS GREATER THAN 10" AND UP TO 12":
- 10 NAILS INTO BLOCK
- 10 NAILS INTO WSWH PANEL

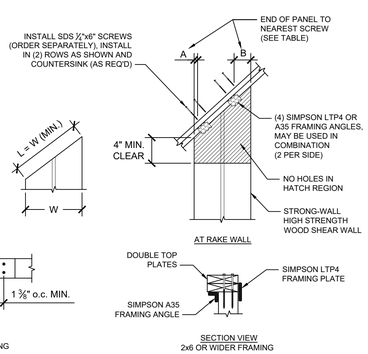
NOTE:
REFER TO TYPICAL FLOOR AND ROOF DETAILS FOR ADDITIONAL FRAMING AND HARDWARE INFORMATION NOT SHOWN AT TOP OF WSWH PANEL.

QTY. OF SDS ¼"x6" SCREWS REQ'D.
WSWH 12	4
WSWH 18	8
WSWH 24	16

EDGE DISTANCE FOR SCREWS		
SLOPE	A (in.)	B (in.)
0:12 - 4:12	2	3
5:12 - 8:12	1 ½	4 ½

INSTALLATION NOTES:
1. ACTUAL CUT LENGTH (L) MUST BE GREATER THAN OR EQUAL TO PANEL WIDTH (W).
2. THIS DETAIL APPLICABLE FOR SLOPES UP TO 12:12.

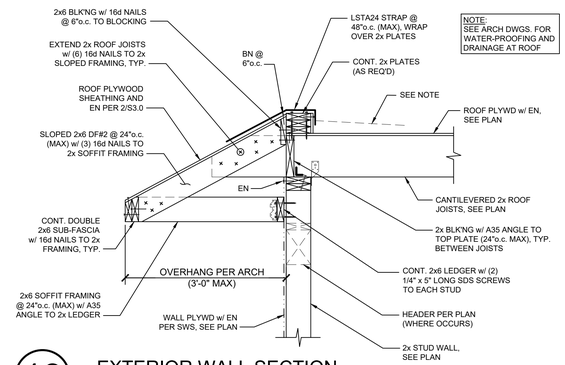




12 SIMPSON STRONG-WALL (WSWH) MODELS

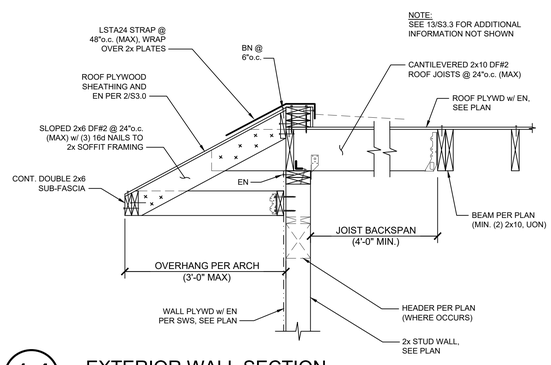
STRONG-WALL HIGH STRENGTH WOOD SHEARWALL SCHEDULE				
WSWH MODEL NO.	PANEL WIDTH (in.)	PANEL HEIGHT (in.)	ANCHOR BOLTS	
			QUANTITY	DIA. (in.)
WSWH 18x8	18	96	2	1
WSWH 24x8	24	96	2	1

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. ALL PANELS ARE 3½" THICK.



NOTE:
SEE ARCH DWGS. FOR WATER-PROOFING AND DRAINAGE AT ROOF

13 EXTERIOR WALL SECTION AT ROOF OVERHANG



NOTE:
SEE 13/S3.3 FOR ADDITIONAL INFORMATION NOT SHOWN

14 EXTERIOR WALL SECTION AT ROOF OVERHANG

MORRIS SHAFFER ENGINEERING
1300 Industrial Road, Suite 14
San Carlos, CA 94070
t. (650)595-2973
f. (650)595-2980
www.morris-shaffer.com

DETACHED GARAGE AND ADU

WOOD DETAILS

79 MONTE VISTA AVENUE
WATSONVILLE, CA 95076

REGISTERED PROFESSIONAL ENGINEER
ROBERT H. SHAFFER
C 45322
CIVIL
STATE OF CALIFORNIA

SUBMITTAL SET	
SCALE:	AS NOTED
DRAWN BY:	TS
JOB:	24031
ISSUED:	SEPT. 20, 2024
REVISIONS:	

SHEET:

S3.3