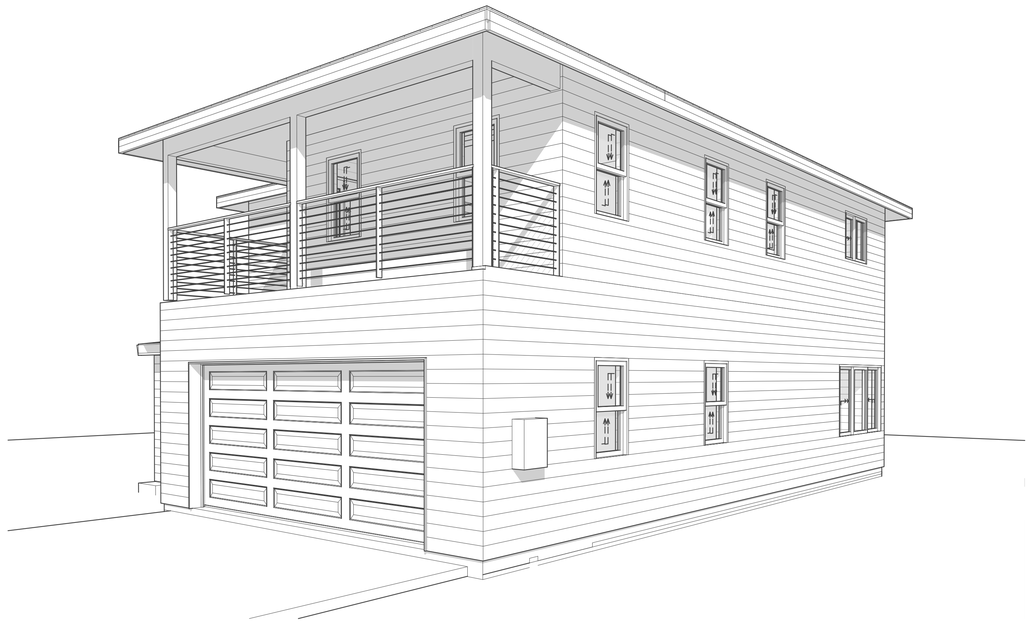

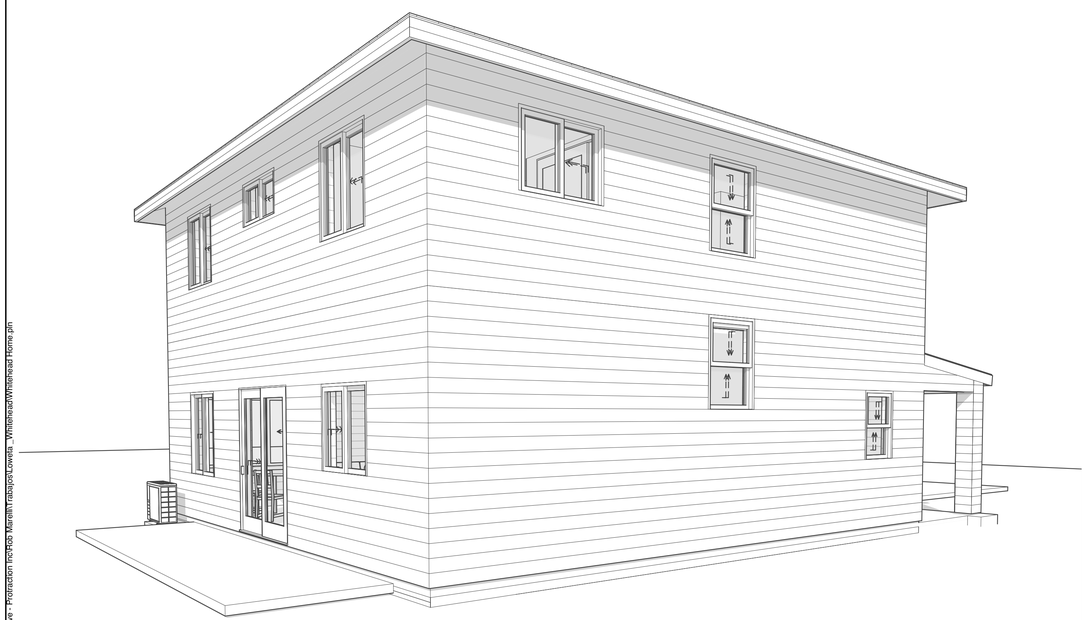

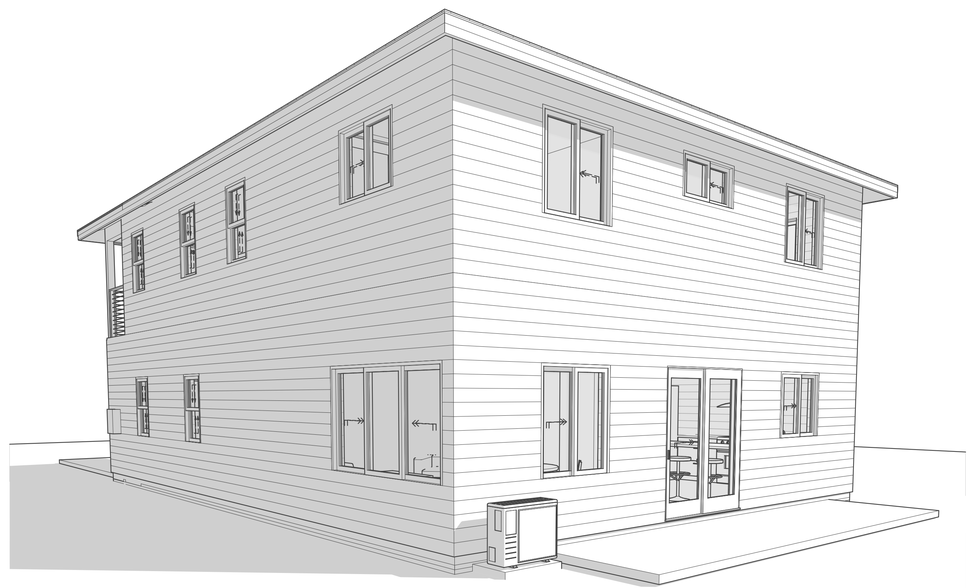

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Whitehead Residence

759 Lake Street, Lake Elsinore CA 92530

Views Exterior

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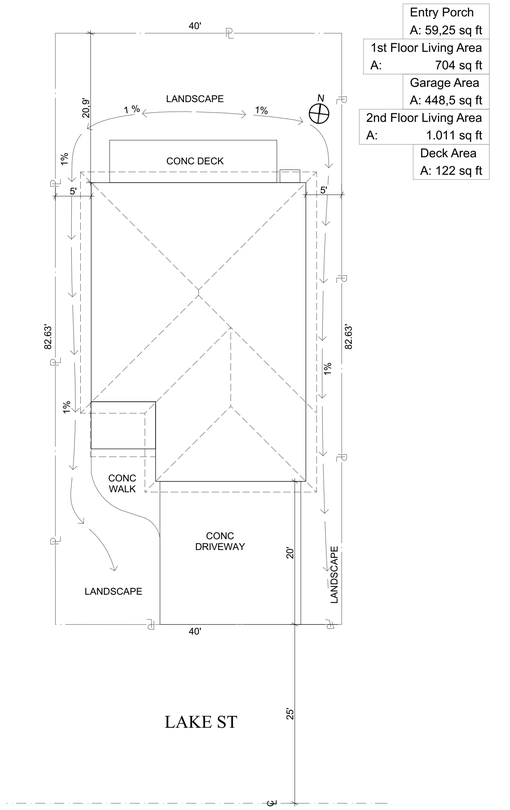


Entry Porch	
A:	59,25 sq ft
1st Floor Living Area	
A:	704 sq ft
Garage Area	
A:	448,5 sq ft
2nd Floor Living Area	
A:	1.011 sq ft
Deck Area	
A:	122 sq ft

1 / A002 Site Plan

SCALE: 1" = 10'

0 5' 10' 20'

NPDES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) NOTES

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

LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM THE FOUNDATION WALLS. THE GRADE SHALL FALL A MIN OF 6" WITHIN THE FIRST 10' (5% SLOPE). WHERE LOT LINES, WALLS, SLOPES, OR OTHER PHYSICAL BARRIER PROHIBIT 6" OF FALL WITHIN 10', DRAINS OR SWALES SHALL BE CONSTRUCTED TO ENSURE DRAINAGE AWAY FROM THE STRUCTURE [CRC R401.3 EXCEPTION, CBC 1804.4].

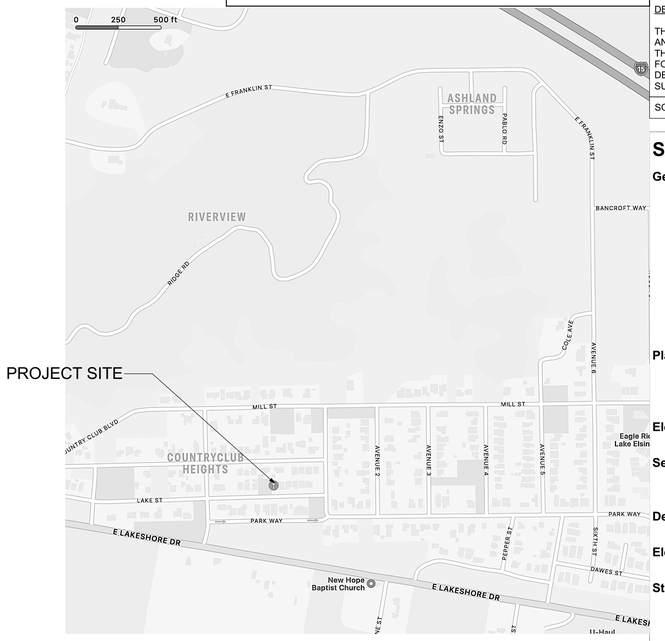
IMPERVIOUS SURFACES WITHIN 10' OF THE BUILDING FOUNDATION SHALL BE SLOPED A MIN OF 2% AWAY FROM THE BUILDING [CRC R401.3 EXCEPTION, CBC 1804.4].

BUILDING SHALL HAVE AN ADDRESS NUMBERS PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. NUMBERS SHALL CONTRAST WITH THE BACKGROUND, BE ARABIC OR ALPHABETICAL LETTERS AND SHALL BE A MIN OF 4" HIGH WITH A MIN STROKE OF ½ .[CRC R319.1].

ONSITE WASTEWATER TREATMENT SYSTEMS (OWTS) SHOWN ON THESE PLANS FOR REFERENCE ONLY-NOT FOR CONSTRUCTION. REFER TO SEPTIC MAP BY GEOTECHNICAL ENGINEER AND APPROVED BY BUILDING AUTHORITIES.

FIRE SPRINKLERS SUBMITTAL AND PERMIT ARE A DEFERRED SUBMITTAL AND ON SEPARATE PERMIT.

AUTOMATIC FIRE SPRINKLERS SHALL BE IN ACCORDANCE TO NFPA 13D/R313.3 AND SHALL BE INSTALLED IN ONE AND TWO FAMILY DWELLINGS AND TOWNHOUSES INCLUDING ATTACHED GARAGES



Vicinity Plan
not to scale

Property Information

Scope of Work:	Construction of Single Family Dwelling
Owners:	Derrick Whitehead
Site Address:	759 Lake Street, Lake Elsinore CA 92530
Legal Description:	Subdivsion: COUNTRY CLUB HEIGHTS UNIT 6-2 Lot/ Parcel: 24
Parcel Number:	373-182-024-0
Occupancy Group:	R3 & U
Construction Type:	VB - SPRINKLERED
Property Area:	1715 sq ft
Lot Area:	0.08 acres

SQUARE FOOTAGE

ZONE NAME	Conditioned	Area
1st Floor Living Area	☒	703,9
2nd Floor Living Area	☒	1.011,0
Deck Area	☐	122,1
Entry Porch	☐	59,3
Garage Area	☐	448,5

Construction Waste Management

CONTRACTOR TO PROVIDE CONSTRUCTION WASTE MANAGEMENT PLAN FOR DIVERSION OF MATERIALS, INCLUDING THE FOLLOWING:

1. IDENTIFY THE MATERIALS TO BE DIVERTED FROM DISPOSAL BY EFFICIENT USAGE, RECYCLING, REUSE ON THE PROJECT, OR SALVAGE FOR FUTURE USE OR SALE
2. DETERMINE IF MATERIALS WILL BE SORTED ON-SITE OR MIXED.
3. IDENTIFY DIVERSION FACILITIES WHERE MATERIAL COLLECTED WILL BE TAKEN
4. SPECIFY THE AMOUNT OF MATERIALS DIVERTED WHICH SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BOTH.
5. REFER TO 2019 CALIFORNIA GREEN BUILDING STANDARDS, RESIDENTIAL MANDATORY MEASURES, SHEET 1, CHAPTER 4, SECTION 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 4.4084

Applicable Codes

ALL WORK TO CONFORM TO THE FOLLOWING CODES AS AMENDED BY LOCAL JURISDICTION:
2022 CALIFORNIA RESIDENTIAL CODE (CRC)
2022 CALIFORNIA PLUMBING CODE (CPC)
2022 CALIFORNIA MECHANICAL CODE (CMC)
2022 CALIFORNIA ELECTRICAL CODE (CEC)
2022 CALIFORNIA FIRE CODE (CFC)
2022CALIFORNIA GREEN BUILDING STANDARDS CODE
2022 CALIFORNIA ENERGY CODE
CITY OF LAKE ELSINORE MUNICIPAL CODE

Project Team

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E-mail: marelli@me.com
Contact: Robert Marelli

Manning Engineering Inc
27574 Commerce Center Drive Suite 133 Temecula CA 92590
Phone: 951-296-1044
E-mail: bruce@manningrce.com
Contact: Bruce Manning PE

DEFERRED TRUSS DESIGN AND CALCULATIONS:

THE ENGINEER OF RECORD SHALL REVIEW THE TRUSS CALCULATIONS AND DESIGN AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

SOLAR PANELS PLANS AND CALCULATIONS WILL BE A DEFERRED SUBMITTAL.

Sheet Index

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Whitehead Residence
759 Lake Street, Lake Elsinore CA 92530

Project Information & Site Plan

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A002
Sheet 2 OF 23

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Windows 17-18	Window	West Wall	Left	270			1	20.75	0.3	NFRC	0.23	NFRC	Bug Screen
Windows 1-3	Window	North Wall 2	Back	0			1	40	0.3	NFRC	0.23	NFRC	Bug Screen
Windows 4-7	Window	East Wall 2	Right	90			1	42	0.3	NFRC	0.23	NFRC	Bug Screen
Windows 8-10	Window	South Wall 2	Front	180			1	32	0.3	NFRC	0.23	NFRC	Bug Screen
Windows 10-11	Window	West Wall 2	Left	270			1	24	0.3	NFRC	0.23	NFRC	Bug Screen
Sliding Glass Door 4	Window	West Wall 2	Left	270			1	40	0.3	NFRC	0.23	NFRC	Bug Screen

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	ENTIRE ZONE	696	109	none	0	0%	No

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.069	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: 3 Coat Stucco

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-21 Wall1	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Attic RoofENTIRE ZONE	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.571	Roofing: 25 PSF (Very Heavy Ballast or Pavers) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
R-19 Floor	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O. C.	R-19	None / None	0.05	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 in S-1/2 in. (R-18) / 2x6
R-38 Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

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

WATER HEATERS - NEEA HEAT PUMP

01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1	1	50	Rheem	XE50T10HS45U0 (50 gal, JA13)	Outside	ENTIRE ZONE	ENTIRE ZONE

WATER HEATING - HERS VERIFICATION

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

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
HVAC1	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	HVAC Fan 1	Air Distribution System 1	Setback

ENERGY USE INTENSITY

	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Compliance Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	15.35	13.02	2.33	15.18
Net EUI[2]	6.01	3.84	2.17	36.11

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

REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
2.6	NA	Standard (14-17%)	Fixed	none	false	180	Degrees	22	4.85	96	100

REQUIRED SPECIAL FEATURES

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

- Indoor air quality, balanced fan
- IAQ Ventilation System: as low as 0.511111 W/CFM
- IAQ Ventilation System Heat Recovery: minimum 99 SRE and 99 ASRE
- IAQ Ventilation System: supply outside air inlet, filter, and H/ERV cores accessible per RACM Reference Manual
- Exposed slab floor in conditioned zone
- 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
- Minimum Airflow
- Fan Efficacy Watts/CFM
- Verified heat pump rated heating capacity
- Duct leakage testing

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
WHITEHEAD RESIDENCE	1715	1	3	1	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
ENTIRE ZONE	Conditioned	HVAC1	1715	9	DHW Sys 1	New

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
North Wall	ENTIRE ZONE	R-21 Wall	0	Back	270	84	90
East Wall	ENTIRE ZONE	R-21 Wall	90	Right	171	36	90
South Wall	ENTIRE ZONE	R-21 Wall	180	Front	104	24	90
West Wall	ENTIRE ZONE	R-21 Wall	270	Left	270	20.75	90
North Wall 2	ENTIRE ZONE	R-21 Wall	0	Back	240	40	90
East Wall 2	ENTIRE ZONE	R-21 Wall	90	Right	296	42	90

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
South Wall 2	ENTIRE ZONE	R-21 Wall	180	Front	240	32	90
West Wall 2	ENTIRE ZONE	R-21 Wall	270	Left	296	64	90
East Interior Wall	ENTIRE ZONE>>ENTIRE ZONE	R-21 Wall1	n/a	n/a	99	0	n/a
South Interior Wall	ENTIRE ZONE>>ENTIRE ZONE	R-21 Wall1	n/a	n/a	166	0	n/a
Roof	ENTIRE ZONE	R-38 Roof	n/a	n/a	1019	n/a	n/a
SOFFIT FLOOR OVER GARAGE	ENTIRE ZONE	R-19 Floor	n/a	n/a	323	n/a	n/a

ATTIC

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

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Windows 12-13	Window	North Wall	Back	0			1	36	0.3	NFRC	0.23	NFRC	Bug Screen
Sliding Glass Door 2	Window	North Wall	Back	0			1	48	0.3	NFRC	0.23	NFRC	Bug Screen
Wincow 14	Window	East Wall	Right	90			1	36	0.3	NFRC	0.23	NFRC	Bug Screen
Entry Door w Glazing	Window	South Wall	Front	180			1	24	0.3	NFRC	0.23	NFRC	Bug Screen

GENERAL INFORMATION

01	Project Name	WHITEHEAD RESIDENCE			
02	Run Title	Title 24 Analysis			
03	Project Location	759 LAKE STREET			
04	City	LAKE ELSINORE	05	Standards Version	2022
06	Zip code	92530	07	Software Version	EnergyPro 9.2
08	Climate Zone	10	09	Front Orientation (deg/ Cardinal)	180
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	3
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	1715	19	Glazing Percentage (%)	19.99%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

COMPLIANCE RESULTS

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

ENERGY DESIGN RATINGS

	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	35.2	45.1	28.3			
Proposed Design	30.4	44.6	28.2	4.8	0.5	0.1
RESULT[3]: PASS						

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

- Standard Design PV Capacity: 2.75 kWdc

ENERGY USE SUMMARY

Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	2.9	13.19	2.1	14.89	0.8	-1.7
Space Cooling	1.08	27.08	1.14	30.67	-0.06	-3.59
IAQ Ventilation	0.74	7.77	0.66	6.87	0.08	0.9
Water Heating	1.48	15	0.88	9.93	0.6	5.07
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**6.2**	**63.04**	**4.78**	**62.36**	**1.42**	**0.68**
Photovoltaics	-1.84	-51.41	-1.79	-50.92		
Battery			0	0		
Flexibility						
Indoor Lighting	0.73	7.05	0.73	7.05		
Appl. & Cooking	1.63	13.14	1.63	13.11		
Plug Loads	3.19	32.63	3.19	32.63		
Outdoor Lighting	0.19	1.7	0.19	1.7		
TOTAL COMPLIANCE	**10.1**	**66.15**	**8.73**	**65.93**		

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Whitehead Residence

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Energy Analysis

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Sheet 3 OF 23

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RESIDENTIAL MEASURES SUMMARY with a 2600 watt solar system — RMS-1

Project Name	Building Type	Date
WHITEHEAD RESIDENCE	☑ Single Family ☐ Addition Alone ☐ Multi Family ☐ Existing+ Addition/Alteration	8/15/2024

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
759 LAKE STREET LAKE ELSINORE	CA Climate Zone 10	1,715	n/a	1

INSULATION

Construction	Type	Cavity	Area (ft^2)	Special Features	Status
Wall	Wood Framed	R 21	1,809		New
Slab	Unheated Slab-on-Grade	- no insulation	696	Perim = 109'	New
Roof	Wood Framed Attic	R 38	1,019	Radiant Barrier	New
Floor	Wood Framed w/Crawl Space	R 19	323		New

FENESTRATION

Total Area: 343 | Glazing Percentage: 20.0% | New/Altered Average U-Factor: 0.30

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Rear (N)	124.0	0.300	0.23	none	none	N/A	New
Right (E)	78.0	0.300	0.23	none	none	N/A	New
Front (S)	56.0	0.300	0.23	none	none	N/A	New
Left (W)	84.8	0.300	0.23	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	14.3 SEER2	Setback	New
1	Indoor Air Quality Fan (HRV or ERV)	90 cfm				

HVAC DISTRIBUTION

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

WATER HEATING

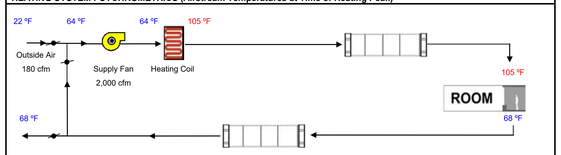
Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Heat Pump	50	3.20	Standard	New

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

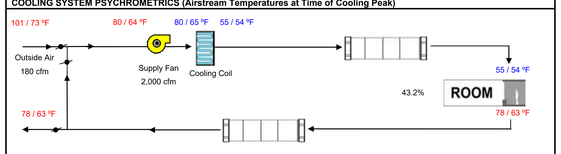
Project Name	Date
WHITEHEAD RESIDENCE	8/15/2024
System Name: HVAC	Floor Area: 1,715

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	1						
Heating System							
Output per System	60,000	Total Room Loads	972	22,607	879	543	20,544
Total Output (Btuh)	60,000	Return Vented Lighting		0			
Output (Btuh/sqft)	35.0	Return Air Ducts		945			687
Cooling System		Return Fan		0			0
Output per System	60,000	Ventilation	180	4,188	1,845	180	8,484
Total Output (Btuh)	60,000	Supply Fan		0			0
Total Output (Tons)	5.0	Supply Air Ducts		945			687
Total Output (Btuh/sqft)	35.0						
Total Output (sqft/Ton)	343.0	TOTAL SYSTEM LOAD		28,685	2,725		30,402
Air System							
CFM per System	2,000	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	2,000	MiniSplit HVAC		53,871	2,045		33,446
Airflow (cfm/sqft)	1.17						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	9.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		53,871	2,045		33,446
Outside Air (cfm/sqft)	0.10						
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)



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

Project Name: WHITEHEAD RESIDENCE — **Calculation Date/Time:** 2024-08-15T09:45:36-07:00 — **(Page 10 of 12)**

Calculation Description: Title 24 Analysis — **Input File Name:** Whitehead R.Marelli 8.15.24.ribd22x

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12	13
			Heating				Cooling					
Name	System Type	Number of Units	Heating Efficiency Type	HSPF/HSPF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SEER2	EER/EER2/CEER	Zonally Controlled	Compressor Type	HERS Verification
Heat Pump System 1	Central split HP	1	HSPF2	7.5	60000	41130	EER2SEER2	14.3	11.2	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	350	Not Required	Not Required	No	No	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
			Duct Ins. R-value		Duct Location		Surface Area				
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
Air Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist

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

Project Name: WHITEHEAD RESIDENCE — **Calculation Date/Time:** 2024-08-15T09:45:36-07:00 — **(Page 11 of 12)**

Calculation Description: Title 24 Analysis — **Input File Name:** Whitehead R.Marelli 8.15.24.ribd22x

HVAC DISTRIBUTION - HERS VERIFICATION

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

HVAC - FAN SYSTEMS

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

HVAC FAN SYSTEMS - HERS VERIFICATION

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

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE/ASRE	Includes Fault Indicator Display?	HERS Verification	Status
SFam IAQVentRpt 1-1	90	0.511111	Balanced	Yes	99 / 99	No	Yes	

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

Project Name: WHITEHEAD RESIDENCE — **Calculation Date/Time:** 2024-08-15T09:45:36-07:00 — **(Page 12 of 12)**

Calculation Description: Title 24 Analysis — **Input File Name:** Whitehead R.Marelli 8.15.24.ribd22x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Norm Thomas	Documentation Author Signature:
Company: T&K Engineering	Signature Date: 08/15/2024
Address: 30535 Avenida Buena Suerte	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Temecula, CA 92591	Phone: 951-699-0436

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: Norm Thomas	Responsible Designer Signature:
Company: T&K Engineering	Date Signed: Norman L. Thomas 08/15/2024 RCE 30927 Expires March 31 2026
Address: 30535 Avenida Buena Suerte	License: RCE30927
City/State/Zip: Temecula, CA 92591	Phone: 951-699-0436

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.

Registration Number: 424-P010174313A-000-000-0000000-0000 — Registration Date/Time: 08/15/2024 08:56 — HERS Provider: CHEERS

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protraction Inc
31500 Grape St Ste. 3-413
Lake Elsinore CA 92532
951.837.3007

Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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Whitehead Residence
759 Lake Street, Lake Elsinore CA 92530
Energy Analysis

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

ISSUED: 08/17/2024

A004
Sheet 4 OF 23

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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.

2022 Single-Family Residential Mandatory Requirements Summary

§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters. *
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment' maintenance, and wind as required by §120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.

Ducts and Fans:

§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼". If mastic or tape is used. Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed. *
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage due tosunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *

2022 Single-Family Residential Mandatory Requirements Summary

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

Building Envelope:

§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. *
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling. *
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B. *
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45. *

Fireplaces, Decorative Gas Appliances, and Gas Log:

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

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-§ 110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission. *
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating. *
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems. *
§ 150.0(k)2A:	**Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
§ 150.0(k)2B:	**Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C:	**Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D:	**Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E:	**Automatic Shutoff Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2F:	**Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2K:	**Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

§ 110.10(a)1:	**Single-family Residences.** Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e).
§110.10(b)1A:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment. *
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane. *
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."

Electric and Energy Storage Ready:

2022 Single-Family Residential Mandatory Requirements Summary

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

Ventilation and Indoor Air Quality:

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

Pool and Spa Systems and Equipment:

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

Lighting:

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

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Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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Whitehead Residence

759 Lake Street, Lake Elsinore CA 92530

Energy Analysis

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

ISSUED:
08/17/2024

A005

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2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

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

Y	N/A	RESPON. PARTY	
			CHAPTER 3 **GREEN BUILDING** **SECTION 301 GENERAL** **301.1 SCOPE.** Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7. **301.1.1 Additions and alterations. [HCD]** The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration. The mandatory provision of Section 4.106.4.2 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multifamily buildings. See Section 4.106.4.3 for application. **Note:** Repairs including, but not limited to, resurfacing, restriping and repairing or maintaining existing lighting fixtures are not considered alterations for the purpose of this section. **Note:** On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates. **301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD]** The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used. **SECTION 302 MIXED OCCUPANCY BUILDINGS** **302.1 MIXED OCCUPANCY BUILDINGS.** In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy. Exceptions: 1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable. 2. [HCD] For purposes of *CALGreen*, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable. **DIVISION 4.1 PLANNING AND DESIGN** **ABBREVIATION DEFINITIONS:** HCD Department of Housing and Community Development BSC California Building Standards Commission DSA-SS Division of the State Architect, Structural Safety OSHPD Office of Statewide Health Planning and Development LR Low Rise HR High Rise AA Additions and Alterations N New **CHAPTER 4** **RESIDENTIAL MANDATORY MEASURES** **SECTION 4.102 DEFINITIONS** **4.102.1 DEFINITIONS** The following terms are defined in Chapter 2 *(and are included here for reference)* **FRENCH DRAIN.** A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water. **WATTLES.** Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.
			4.106 SITE DEVELOPMENT **4.106.1 GENERAL.** Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.
X	□	DESIG.	
X	□	Contr.	**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)
X	□	DESIG.	**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.
□	X		**4.106.4 Electric vehicle (EV) charging for new construction.** New construction shall comply with Sections 4.106.4.1 or 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625. **Exceptions:** 1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: 1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power. 1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 4.106.4, may adversely impact the construction cost of the project. 2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.
□	X		**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".

Y	N/A	RESPON. PARTY	
□	X		**4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities.** When parking is provided, parking spaces for new multifamily dwellings, hotels and motels shall meet the requirements of Sections 4.106.4.2.1 and 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.
□	X		**4.106.4.2.1Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms.** The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section. **1.EV Capable.** Ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. Exceptions: 1.When EV chargers (Level 2 EVSE) are installed in a number equal to or greater than the required number of EV capable spaces. 2.When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed. Notes: a.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use. **2.EV Ready**. Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit. Exception: Areas of parking facilities served by parking lifts.
□	X		**4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels and motels with 20 or more sleeping units or guest rooms.** The number of dwelling units, sleeping units or guest rooms shall be based on all buildings on a project site subject to this section. **1.EV Capable**. Ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. Exception: When EV chargers (Level 2 EVSE) are installed in a number greater than five (5) percent of parking spaces required by Section 4.106.4.2.2, Item 3, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed over the five (5) percent required. Notes: a.Construction documents shall show locations of future EV spaces. b.There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use. **2.EV Ready.** Twenty-five (25) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit. Exception: Areas of parking facilities served by parking lifts. **3.EV Chargers.** Five (5) percent of the total number of parking spaces shall be equipped with Level 2 EVSE. Where common use parking is provided, at least one EV charger shall be located in the common use parking area and shall be available for use by all residents or guests. When low power Level 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces. **4.106.4.2.2.1 Electric vehicle charging stations (EVCS).** Electric vehicle charging stations required by Section 4.106.4.2.2, Item 3, shall comply with Section 4.106.4.2.2.1. Exception: Electric vehicle charging stations serving public accommodations, public housing, motels and hotels shall not be required to comply with this section. See California Building Code, Chapter 11B, for applicable requirements. **4.106.4.2.2.1.1 Location.** EVCS shall comply with at least one of the following options: 1.The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2.The charging space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building. Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1 and Section 4.106.4.2.2.1.2, Item 3. **4.106.4.2.2.1.2 Electric vehicle charging stations (EVCS) dimensions.** The charging spaces shall be designed to comply with the following: 1.The minimum length of each EV space shall be 18 feet (5486 mm). 2.The minimum width of each EV space shall be 9 feet (2743 mm). 3.One in every 25 charging spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). a.Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction. **4.106.4.2.2.1.3 Accessible EV spaces.** In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A. **4.106.4.2.3 EV space requirements.** 1.Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the location or the proposed location of the EV space. Construction documents shall identify the raceway termination point, receptacle or charger location, as applicable. The service panel and/ or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective device installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device. Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space, at the time of original construction in accordance with the California Electrical Code. 2.Multiple EV spaces required. Construction documents shall indicate the raceway termination point and the location of installed or future EV spaces, receptacles or EV chargers. Construction documents shall also provide information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics and electrical load calculations. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

Y	N/A	RESPON. PARTY	
			Exception: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location or the proposed location of the EV space at the time of original construction in accordance with the California Electrical Code. **4.106.4.2.4 Identification.** The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. **4.106.4.2.5 Electric Vehicle Ready Space Signage**. Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).
□	X		**4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings.** When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Notes: 1.Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. 2.There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.
X	□	CONTR	**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)]

□	X		**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*.
X	□	CONTR	**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

Y	N/A	RESPON. PARTY	
X	□	CNTRC.	**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.
X	□	CNTRC	
X	□	CNTRC.	**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.
X	□	CNTRC.	**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.
X	□	CNTRC.	**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.
X	□	CNTRC.	**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
X	□	CNTRC.	**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).
X	□	CNTRC.	**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.
□	X		**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.

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Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O³/g ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

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

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

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

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

4.503 FIREPLACES

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

4.504 POLLUTANT CONTROL

☒ ☐ CNTRC **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 FINAL MATERIAL POLLUTANT CONTROL.** Finish materials shall comply with this section.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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)

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **4.504.3.2 Carpet adhesive.** All carpet adhesive shall meet the requirements of Table 4.504.1.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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

☒ ☐ CNTRC **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*.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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

☒ ☐ CNTRC **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

☒ ☐ DESIGN **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

☒ ☐ CNTRC **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.

☒ ☐ CNTRC **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

☒ ☐ CNTRC **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.

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Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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ISSUED:
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A007
Sheet 7 OF 23

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A. General

Applicable codes. All projects will comply with the following building codes and associated

2022 California Building Code (CBC) and/or California Residential Code (CRC)
2022 California Green Building Standards Code (CalGreen)
2022 California Electrical Code (CEC)
2022 California Mechanical Code (CMC)
2022 California Plumbing Code (CPC)
2022 California Fire Code (CFC)
2022 California Building Energy Efficiency Standards (CBEES)

B. Electrical, Plumbing, and Mechanical

1. **Exterior lighting.** All projects shall comply with the Riverside County lighting ordinance.
2. **GFCI outlets.** Ground Fault Circuit Interrupter (GFCI) outlets are required in bathrooms, at kitchen countertops, at laundry and wet bar sinks, in garages, in crawlspaces, in unfinished basements, and outdoors. (CEC 210.8)
3. **AFCI outlets.** Electrical circuits in bedrooms, living rooms, dining rooms, dens, closets, hallways, or similar rooms must be protected by Arc Fault Circuit Interrupters (AFCI). (CEC 210.12)
4. **Luminaire requirements.** Installed luminaires shall meet the efficacy and fixture requirements of CBEES 150.0(k).
5. **Smoke detectors in building remodels.** Smoke detectors are required in each existing sleeping room, outside each separate sleeping area in the immediate vicinity of sleeping rooms, and on each story of a dwelling including basements. Battery-operated detectors are acceptable in existing areas with no construction taking place and in alterations not resulting in removal of interior wall or ceiling finishes and without access via an attic, crawl space, or basement. (CRC R314.3)
6. **Carbon monoxide detectors in building remodels.** Carbon monoxide detectors are required outside each separate sleeping area in the immediate vicinity of sleeping rooms and on each story of a dwelling including basements. Battery-operated detectors are acceptable in existing areas with no construction taking place and in alterations not resulting in removal of interior wall or ceiling finishes and without access via an attic, crawl space, or basement. (CRC R315.3)
7. **Water heater seismic strapping.** Minimum two 3/4-inch-by-24-gauge straps required around water heaters, with 1/4-inch-by-3-inch lag bolts attached directly to framing. Straps shall be at points within upper third and lower third of water heater vertical dimension. Lower connection shall occur minimum 4 inches above controls. (CPC 507.2)
8. **Gas appliances in garages.** Water heaters and heating/cooling equipment capable of igniting flammable vapors shall be placed on minimum 18-inch-high platform unless listing report number provided showing ignition-resistant appliance. (CPC 507.13 and CMC 305.1)
9. **Impact protection of appliances.** Water heaters and heating/cooling equipment subject to vehicular impact shall be protected by bollards or an equivalent measure. (CPC 507.13.1 and CMC 305.11)
10. **Water closet clearance.** Minimum 30-inch-wide by 24-inch-deep clearance required at front of water closets. (CPC 402.5)
11. **Shower size.** Shower compartments shall have minimum area of 1024 square inches and be able to encompass a 30-inch-diameter circle. Shower doors shall have a minimum 22-inch unobstructed width. (CPC 408.5 and CPC 408.6)
12. **Fireplace appliances.** Fireplaces with gas appliances are required to have the flue damper permanently fixed in the open position and fireplaces with LPG appliances are to have no 'pit' or 'sump' configurations. (CMC 303.7.1)
13. **Chimney clearance.** Minimum 2-foot chimney clearance required above building within 10-foot horizontally of chimney. The chimney shall extend minimum 3 feet above highest point where chimney passes through roof. (CRC R1003.9)

C. Mechanical Ventilation and Indoor Air Quality (ASHRAE 62.2-2010)

1. **Transfer air.** Ventilation air shall be provided directly from the outdoors and not as transfer air from adjacent dwelling units or other spaces, such as garages, unconditioned crawlspaces, or unconditioned attics. (CBEES 150.0(o))
2. **Instructions and labeling.** Ventilation system controls shall be labeled, and the homeowner shall be provided with instructions on how to operate the system. (CBEES 150.0(o))
3. **Combustion and solid-fuel burning appliances.** Combustion appliances shall be properly vented and air systems shall be designed to prevent back drafting. (CBEES 150.0(o))
4. **Garages.** The wall and openings between occupiable spaces and the garage shall be sealed. HVAC systems that include air handlers or return ducts located in garages shall have total air leakage of no more than 6% of total fan flow when measured at 0.1 in. w.c. using California Title 24 or equivalents. (CBEES 150.0(o))
5. **Minimum filtration.** Mechanical systems supplying air to occupiable space through ductwork shall be provided with a filter having a minimum efficiency of MERV 6 or better. (CBEES 150.0(o))
6. **Air inlets.** Air inlets (not exhaust) shall be located away from known contaminants. (CBEES 150.0(o))
7. **Air moving equipment.** Air moving equipment used to meet either the whole-building ventilation requirement or the local ventilation exhaust requirement shall be rated in terms of airflow and sound. (CBEES 150.0(o))
   - **a.** All continuously operating fans shall be rated at a maximum of 1.0 sone.
   - **b.** Intermittently operated whole-building ventilation fans shall be rated at a maximum of 1.0 sone.
   - **c.** Intermittently operated local exhaust fans shall be rated at maximum of 3.0 sone.
   - **d.** Remotely located air-moving equipment (mounted outside of habitable spaces) need not meet sound requirements if at least 4 feet of ductwork between fan and intake grill.

D. Foundation and Underfloor

1. **Foundation reinforcement.** Continuous footings and stem walls shall be provided with a minimum two longitudinal No. 4 bars, one at the top and one at the bottom of the footing. (CRC R403.1.3.3)
2. **Shear wall foundation support.** Shear walls shall be supported by continuous foundations. (CRC 403.1.2)
3. **Concrete slabs-on-grade.** Slabs-on-grade shall be minimum 3-1/2-inches thick. (CRC R506.1)
4. **Vapor retarder.** A 10-mil polyethylene or approved vapor retarder with joints lapped minimum 6 inches shall be placed between a concrete slab-on-grade and the base course or subgrade. (CRC 506.2.3)
5. **Anchor bolts and sills.** Foundation plates or sills shall be bolted or anchored to the foundation or foundation wall per the following (CRC R403.1.6 and CRC R602.11.1):
   - **a.** Minimum 1/2-inch-diameter steel bolts
   - **b.** Bolts embedded at least 7 inches into concrete or masonry
   - **c.** Bolts spaced maximum 6 feet on center
   - **d.** Minimum two bolts per plate/sill piece with one bolt located maximum 12 inches and minimum 7 bolt diameters from each end of each sill plate/piece
   - **e.** Minimum 3-inch by 3-inch by 0.299-inch steel plate washer between sill and nut on each bolt
6. Hold-**downs**. All hold-downs must be tied in place prior to foundation inspection.
7. **Protection of wood against decay.** Naturally durable or preservative-treated wood shall be provided in the following locations (CRC R317.1):
   - **a.** All wood in contact with ground, embedded in concrete in direct contact with ground, or embedded in concrete exposed to weather
   - **b.** Wood joists within 18 inches and wood girders within 12 inches of the exposed ground in crawl spaces shall be of naturally durable or preservative-treated wood
   - **c.** Wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches from exposed earth shall be of naturally durable or preservative-treated wood
   - **d.** Wood framing, sheathing, and siding on the exterior of the building and having clearance less than 6 inches from the exposed ground or less than 2 inches vertically from concrete steps, porch slabs, patio slabs, and similar horizontal surface exposed to weather
   - **e.** Sills and sleepers on concrete or masonry slab in direct contact with ground unless separated from such slab by impervious moisture barrier
   - **f.** Ends of wood girders entering masonry or concrete walls with clearances less than 1/2 inch on tops, sides, and ends
   - **g.** Wood structural members supporting moisture-permeable floors or roofs exposed to weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier
   - **h.** Wood furring strips or other wood framing members attached directly to interior of exterior concrete or masonry walls below grade except where vapor retarder applied between wall and furring strips or framing members
8. **Underfloor ventilation.** Underfloor areas shall have ventilation openings through foundation walls or exterior walls, with minimum net area of ventilation openings of 1 square foot for each 150 square feet of underfloor area. On such ventilating opening shall be within 3 feet of each corner of the building. (CRC R408.1)
9. **Underfloor access.** Underfloor areas shall be provided with a minimum 18-inch by 24-inch access opening. (CRC R408.4)

E. Wood Framing

1. **Fastener requirements.** The number, size, and spacing of fasteners connecting wood members/elements shall not be less than that set forth in CRC Table R602.3(1). (CRC R502.9, CRC R602.3, and CRC R802.2)
2. **Stud size, height, and spacing.** The size, height, and spacing of studs shall be in accordance with CRC Table R602.3(5). (CRC R602.3.1)

E. Wood Framing (Continued)

3. **Sill plate**. Studs shall have full bearing on nominal 2-inch thick or larger sill plate with width at least equal to stud width. (CRC R602.3.4)
4. **Bearing studs.** Where joists, trusses, or rafters are spaced more than 16 inches on center and the bearing studs below are spaced 24 inches on center, such members shall bear within 5 inches of the studs beneath. (CRC R602.3.3)
5. **Drilling and notching of studs.** Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25% of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40% of a single stud width. Any stud may be bored or drilled, provided the diameter of the resulting hole is no more than 60% of the stud width, the edge of the hole is no more than 5/8 inch to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior wall or bearing partitions drilled over 40% and up to 60% shall also be doubled with no more than two successive studs bored. (CRC R602.6)
6. **Top plate.** Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset at least 24 inches. Joints in plates need not occur over studs. Plates shall be minimum nominal 2 inches thick and have width at least equal to width of studs. (CRC R602.3.2)
7. **Top plate splices.** Top plate lap splices shall be face-nailed with minimum 8 16d nails on each side of splice. (CRC R602.10.8.1)
8. **Drilling and notching of top plate.** When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall, necessitating cutting, drilling, or notching of the top plate by more than 50% of its width, a galvanized metal tie not less than 0.054-inch thick and 1-1/2-inches wide shall be fastened across and to the plate at each side of the opening with not less than 8 10d nails having a minimum length of 1-1/2 inches at each side or equivalent. The metal tie must extend minimum 6 inches past the opening. (CRC R602.6.1)
9. **Cripple walls.** Foundation cripple walls shall be framed of studs not less in size than the studding above. Cripple walls more than 4 feet in height shall have studs sized as required for an additional story. Cripple walls with stud height less than 14 inches shall be sheathed on at least one side with a wood structural panel fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking. Cripple walls shall be supported on continuous foundations. (CRC R602.9)
10. **Wall bracing.** Buildings shall be braced in accordance with the methods allowed per CRC R602.10.2, CRC R602.10.4, and/or CRC R602.10.5.
11. **Braced wall line spacing.** Spacing between braced wall lines shall not exceed 20 feet or alternate provisions of CRC R602.10.1.3.
12. **Shear wall cumulative length.** The cumulative length of shear walls within each braced wall line shall meet the provisions of CRC Table R602.10.3(1) for wind loads and CRC Table R602.10.3(2) for seismic loads. (CRC R602.10.1.1)
13. **Shear wall spacing.** Shear walls shall be located not more than 25 feet on center. (CRC R602.10.2.2)
14. **Shear wall offset.** Shear walls may be offset out-of-plan not more than 4 feet from the designated braced wall line and not more than 8 feet from any other offset wall considered part of the same braced wall line. (CRC R602.10.1.2)
15. **Shear wall location.** Shear walls shall be located at the ends of each braced wall line or meet the alternate provisions of CRC R602.10.2.2.
16. **Individual shear wall length.** Shear walls shall meet minimum length requirements of CRC R602.10.6.5.1.
17. **Cripple wall bracing**. Cripple walls shall be braced per CRC R602.10.11.
18. **Shear wall and diaphragm nailing**. All shear walls, roof diaphragms, and floor diaphragms shall be nailed to supporting construction per CRC Table R602.3(1). (CRC R604.3)
19. **Shear wall joints.** All vertical joints in shear wall sheathing shall occur over, and be fastened to, common studs. Horizontal joints in shear walls shall occur over, and be fastened to, minimum 1-1/2-inch-thick blocking. (CRC R602.10.10)
20. **Framing over openings.** Headers, double joists, or trusses of adequate size to transfer loads to vertical members shall be provided over window and door openings in load-bearing walls and partitions. (CBC 2304.3.2)
21. **Joists under bearing partitions.** Joists under parallel bearing partitions shall be of adequate size to support the load. Double joists, sized to adequately support the load, that are separated to permit the installation of piping or vents shall be full-depth solid-blocked with minimum 2-inch nominal lumber spaced at maximum 4 feet on center. Bearing partitions perpendicular to joists shall not be offset from supporting girders, walls, or partitions more than the joist depth unless such joists are of sufficient size to carry the additional load. (CRC R502.4)
22. **Joists above or below shear walls.** Where joists are perpendicular to a shear wall above or below, a rim joist, band joist, or blocking shall be provided along the entire length of the shear wall. Where joists are parallel to a shear wall above or below, a rim joist, end joist, or other parallel framing shall be provided directly above and/or below the shear wall. Where a parallel framing member cannot be located directly above and/or below the shear wall, full-depth blocking at 16-inch spacing shall be provided between the parallel framing members to each side of the shear wall. (CRC R602.10.8)
23. **Floor member bearing.** The ends of each floor joist, beam, or girder shall have minimum 1-1/2 inches of bearing on wood or metal and minimum 3 inches of bearing on masonry or concrete except where supported on a 1-inch-by-4-inch ribbon strip and nailed to the adjoining stud or by the use of approved joist hangers. (CRC R502.6)
24. **Floor joist lap.** Floor joists framing opposite sides over a bearing support shall lap minimum 3 inches and shall be nailed together within minimum 3 10d face nails. A wood or metal splice with strength equal to or greater than that provided by the lap is permitted. (CRC R502.6.1)
25. **Floor joist-to-girder support.** Floor joists framing into the side of a wood girder shall be supported by approved framing anchors or on ledger strips minimum nominal 2 inches by 2 inches. (CRC R502.6.2)
26. **Floor joist lateral restraint.** Floor joists shall be supported laterally at ends and each intermediate support by minimum 2-inch full-depth blocking, by attachment to full-depth header, band joist, or rim joist, to an adjoining stud, or shall be otherwise provided with lateral support to prevent rotation. (CRC R502.7)
27. **Floor joist bridging.** Floor joists exceeding nominal 2 inches by 12 inches shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1-inch-by-3-inch strip nailed across the bottom of joists perpendicular to joists at maximum 8-foot intervals. (CRC R502.7.1)
28. **Framing of floor openings.** Openings in floor framing shall be framed with a header and trimmer joists. When the header joist span does not exceed 4 feet, the header joist may be a single member the same size as the floor joist. Single trimmer joists may be used to carry a single header joist located within 3 feet of the trimmer joist bearing. When the header joist span exceeds 4 feet, the trimmer joists and header joist shall be doubled and of sufficient cross section to support the floor joists framing into the header. Approved hangers shall be used for the header-joist-to-trimmer-joist connections when the header joist span exceeds 6 feet. Tail joists over 12 feet long shall be supported at the header by framing anchors or on ledger strips minimum 2 inches by 2 inches. (CRC R502.10)
29. **Girders**. Girders for single-story construction or girders supporting loads from a single floor shall not be less than 4 inches by 6 inches for spans 6 feet or less, provided that girders are spaced not more than 8 feet on center. Other girders shall be designed to support the loads specified in the CBC. Girder end joints shall occur over supports. When a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches of bearing. (CBC 2308.7)
30. **Ridges, hips, and valleys**. Rafters shall be framed to a ridge board or to each other with a gusset plate as a tie. Ridge boards shall be minimum 1-inch nominal thickness and not less in depth than the cut end of the rafter. At all valley and hips, there shall be a valley or hip rafter not less than 2-inch nominal thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition or be designed to carry and distribute the specific load at that point. Where the roof pitch is less than 3:12 slope (25% gradient), structural members that support rafters and ceilings joists, such as ridges, hips, and valleys, shall be designed as beams. (CRC R802.3)
31. **Ceiling joist and rafter connections.** Ceiling joists and rafters shall be nailed to each other per CRC Table R802.5.1(9), and the rafter shall be nailed to the wall top plate per CRC Table R602.3(1). Ceiling joists shall be continuous or securely joined per CRC Table R802.5.1(9) where they meet over interior partitions and are nailed to adjacent rafters to provide a continuous tie across the building when such joists are parallel to rafters. Where ceiling joists are not connected to the rafters at the wall top plate, joists connected higher in the attic shall be installed as rafter ties, or rafter ties shall be installed to provide a continuous tie. Where ceiling joists are not parallel to rafters, rafter ties shall be installed. Rafter ties shall be minimum 2 inches by 4 inches nominal, installed per CRC Table R802.5.1(9), or connections of equivalent capacities shall be provided. Where ceilings joists or rafter ties are not provided, the ridge formed by these rafters shall be supported by a wall or engineer-designed girder. (CRC R802.3.1)
32. **Ceiling joists lapped.** Ends of ceiling joists shall be lapped minimum 3 inches or butted overbearing partitions or beams and toenailed to the bearing element. Where ceiling joists provide resistance to rafter thrust, lapped joists shall be nailed together per CRC Table R602.3(1) and butted joists shall be tied together in a manner to resist such thrust. (CRC R802.3.2)
33. **Collar ties.** Collar ties or ridge straps to resist wind uplift shall be connected in the upper third of the attic space. Collar ties shall be a minimum 1 inch by 4 inches nominal and spaced at maximum 4 feet on center. (CRC R802.3.1)
34. **Purlins.** Purlins installed to reduce the span of rafters shall be sized not less than the required size of the rafters they support. Purlins shall be continuous and shall be supported by 2-inch-by-4-inch nominal braces installed to bearing walls at a minimum 45-degree slope from horizontal. The braces shall be spaced maximum 4 feet on center with a maximum 8-foot unbraced length. (CRC R802.5.1)
35. **Roof/ceiling member bearing.** The ends of each rafter or ceiling joist shall have not less than 1-1/2 inches of bearing on wood or metal and not less than 3 inches of bearing on masonry or concrete. (CRC R802.6)
36. **Roof/ceiling member lateral support.** Roof framing members and ceiling joists with a nominal depth-to-thickness ratio exceeding 5:1 shall be provided with lateral support at points of bearing to prevent rotation. (CRC R802.8)
37. **Roof/ceiling bridging.** Rafters and ceiling joists with a nominal depth-to-thickness ratio exceeding 6:1 shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1-inch-by-3-inch wood strip nailed across the rafters or ceiling joists at maximum 8-foot intervals. (CRC R802.8.1)

E. Wood Framing (Continued)

38. **Framing of roof/ceiling openings.** Openings in roof and ceiling framing shall be framed with a header and trimmer joists. When the header joist span does not exceed 4 feet, the header joist may be a single member the same size as the ceiling joist or rafter. Single trimmer joists may be used to carry a single header joist located within 3 feet of the trimmer joist bearing. When the header joist span exceeds 4 feet, the trimmer joists and header joist shall be doubled and of sufficient cross section to support the ceiling joists or rafters framing into the header. Approved hangers shall be used for the header-joist-to-trimmer-joist connections when the header joist span exceeds 6 feet. Tail joists over 12 feet long shall be supported at the header by framing anchors or on ledger strips minimum 2 inches by 2 inches. (CRC R502.10)
39. **Roof framing above shear walls.** Rafters or roof trusses shall be connected to top plates of shear walls with blocking between the rafters or trusses. (CRC R602.10.8)
40. **Roof diaphragm under fill framing.** Roof plywood shall be continuous under California fill framing.
41. **Roof diaphragm at ridges.** Minimum 2-inch nominal blocking required for roof diaphragm nailing at ridges.
42. **Blocking of roof trusses.** Minimum 2-inch nominal blocking required between trusses at ridge lines and at points of bearing at exterior walls.
43. **Truss clearance.** Minimum 1/2-inch clearance required between top plates of interior non-bearing partitions and bottom chords of trusses.
44. **Drilling, cutting, and notching of roof/floor framing.** Notches in solid lumber joists, rafters, blocking, and beams shall not exceed one-sixth the member depth, shall be not longer than one-third the member depth, and shall not be located in the middle one-third of the span. Notches at member ends shall not exceed one-fourth the member depth. The tension side of members 4 inches or greater in nominal thickness shall not be notched except at member ends. The diameter of holes bored or cut into members shall not exceed one-third the member depth. Holes shall not be closer than 2 inches to the top or bottom of the member or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches to the notch. (CRC R502.8.1)
45. **Exterior landings, decks, balconies, and stairs.** Such elements shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal. (CRC R311.3)
46. **Fireblocking.** Fireblocking shall be provided in the following locations (CRC R302.11 and CRC R1003.19):
   - **a.** In concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, as follows:
     - **I.** Vertically at the ceiling and floor levels
     - **II.** Horizontally at intervals not exceeding 10 feet
   - **b.** At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, and cove ceilings
   - **c.** In concealed spaces between stair stringers at the top and bottom of the run
   - **d.** At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion
   - **e.** At chimneys and fireplaces per item E.49
   - **f.** Cornices of a two-family dwelling at the line of dwelling-unit separation
47. **Fireblocking materials.** Except as otherwise specified in items E.48 and E.49, fireblocking shall consist of the following materials with the integrity maintained (CRC R302.11.1):
   - **a.** Two-inch nominal lumber
   - **b.** Two thicknesses of one-inch nominal lumber with broken lap joints
   - **c.** One thickness of 23/32-inch wood structural panel with joints backed by 23/32-inch wood structural panel
   - **d.** One thickness of 3/4-inch particleboard with joints backed by 3/4-inch particleboard
   - **e.** 1/2-inch gypsum board
   - **f.** 1/4-inch cement-based millboard
   - **g.** Batts or blankets of mineral or glass fiber of other approved materials installed in such a manner as to be securely retained in place. Batts or blankets of mineral or glass fiber or other approved non-rigid materials shall be permitted for compliance with the 10-foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross-section of the wall cavity to a minimum height of 16 inches measured vertically. When piping, conduit, or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction. Loose-fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.
48. **Fireblocking at openings around vents, pipes, ducts, cables, and wires at ceiling and floor level**. Such openings shall be fireblocked with an approved material to resist the free passage of flame and products of combustion. (CRC R302.11)
49. **Fireblocking of chimneys and fireplaces.** All spaces between chimneys and floors and ceilings through which chimneys pass shall be fireblocked with noncombustible material securely fastened in place. The fireblocking of spaces between chimneys and wood joists, beams, or headers shall be self-supporting or be placed on strips of metal or metal lath laid across the spaces between combustible material and the chimney. (CRC R1003.19)
50. **Draftstopping**. In combustible construction where there is usable space both above and below the concealed space of a floor/ceiling assembly, draftstops shall be installed so that the area of the concealed space does not exceed 1000 square feet. Draftstopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below, draftstopping shall be provided in floor/ceiling assemblies under the following circumstances (CRC R302.12):
   - **a.** Ceiling is suspended under the floor framing
   - **b.** Floor framing is constructed of truss-type open-web or perforated members
51. **Draftstopping materials.** Draftstopping shall not be less than 1/2-inch gypsum board, 3/8-inch wood structural panels, or other approved materials adequately supported. Draftstopping shall be installed parallel to the floor framing members unless otherwise approved by the building official. The integrity of draftstops shall be maintained. (CRC R302.12.1)
52. **Combustible insulation clearance.** Combustible insulation shall be separated minimum 3 inches from recessed luminaires, fan motors, and other heat-producing devices. (CRC R302.14)

F. General Material Specifications

1. **Lumber.** All joists, rafters, beams, and posts 2-inches to 4-inches thick shall be No. 2 grade Douglas Fir-Larch or better. All posts and beams 5 inches and thicker shall be No. 1 grade Douglas Fir-Larch or better. Studs not more than 8 feet long shall be stud-grade Douglas Fir-Larch or better when supporting not more than one floor, roof, and ceiling. Studs longer than 8 feet shall be No. 2 grade Douglas Fir-Larch or better.
2. **Concrete.** Concrete shall have a minimum compressive strength of 2,500 psi at 28 days and shall consist of 1 part cement, 3 parts sand, 4 parts 1-inch maximum size rock, and not more than 7-1/2 gallons of water per sack of cement. (CRC R402.2)
3. **Mortar.** Mortar used in construction of masonry walls, foundation walls, and retaining walls shall conform to ASTM C 270 and shall consist of 1 part portland cement, 2-1/4 to 3 parts sand, and 1/4 to 1/2 part hydrated lime. (CBC 2103.2)
4. **Grout.** Grout shall conform to ASTM C 476 and shall consist of 1 part portland cement, 1/10 part hydrated lime, 2-1/4 to 3 parts sand, and 1 to 2 parts gravel. Grout shall attain a minimum compressive strength of 2,000 psi at 28 days. (CBC 2103.3)
5. **Masonry.** Masonry units shall comply with ASTM C 90 for load-bearing concrete masonry units. (CBC 2103.1)
6. **Reinforcing steel.** Reinforcing steel used in construction of reinforced masonry or concrete structures shall be deformed and comply with ASTM A 615. (CBC 2103.4)
7. **Structural steel.** Steel used as structural shapes such as wide-flange sections, channels, plates, and angles shall comply with ASTM A36. Pipe columns shall comply with ASTM A53. Structural tubes shall comply with ASTM A500, Grade B.
8. **Fasteners for preservative-treated wood.** Fasteners for preservative-treated and fire-retardant-treated wood - including nuts and washers -- shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (CRC R317.3.1)

   Exception: 1/2-inch diameter or greater steel bolts

   Exception: Fasteners other than nails and timber rivets may be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum

   Exception: Plain carbon steel fasteners acceptable in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment
9. **Fasteners for fire-retardant-treated wood.** Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (CRC R317.3.3)

G. Roofing and Weatherproofing

1. **Roof covering.** All roof covering shall be installed per applicable requirements of CBC 1507. Roof coverings shall be at least Class A rated in accordance with ASTM E 108 or UL 790. (County Building Code 92.1.1505.1)
2. **Roof flashing.** Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction, and around roof openings. Where flashing is of metal, the metal shall be corrosion-resistant with a thickness of not less than 0.019 inch (No. 26 galvanized sheet). (CRC R903.2.1)
3. Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration more than 30 inches wide as measured perpendicular to the slope. Cricket or saddle covering shall be sheet metal or the same material as the roof covering. (CRC R903.2.2)

G. Roofing and Weatherproofing (Continued)

4. **Water-resistive barrier.** A minimum of one layer of No. 15 asphalt felt shall be attached to studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer minimum 2 inches. Where joints occur, felt shall be lapped minimum 6 inches. The felt shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to maintain a weather-resistant exterior wall envelope. (CRC R703.2)
5. **Wall flashing.** Approved corrosion-resistant flashing shall be applied shingle fashion at the following locations to prevent entry of water into the wall cavity or penetration of water to the building structural framing components (CRC R703.8):
   - **a.** Exterior door and window openings, extending to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage
   - **b.** At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings
   - **c.** Under and at the ends of masonry, wood, or metal copings and sills
   - **d.** Continuously above all projecting wood trim
   - **e.** Where exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction
   - **f.** At wall and roof intersections
   - **g.** At built-in gutters
6. **Damp proofing.** Damp proofing materials for foundation walls enclosing usable space below grade shall be installed on the exterior surface of the wall and shall extend from the top of the footing to finished grade. (CRC R406.1)
7. **Weep screed.** A minimum 0.019-inch (No. 26 galvanized sheet gage), corrosion-resistant weep screed or plastic weep screed with a minimum vertical attachment flange of 3-1/2 inches shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C 92. The weep screed shall be placed a minimum 4 inches above the earth or 2 inches above paved areas and shall be of a type allowing trapped water to drain to the exterior of the building. (CRC R703.7.2.1)

H. Grading and soils

1. **Grading permit.** Grading permit required if volume of earth moved exceeds 200 cubic yards or if any cuts or fills exceed 8 feet in height/depth. (County Grading Ordinance 202)
2. **Compaction report.** Compaction report required for fill material 12 inches or more in depth. (CBC 1803.5.8)

I. Green Building Standards Code (CALGreen) Requirements

1. Applicability. CalGreen residential mandatory measures shall apply to every newly constructed building or structure and within any addition or alteration increasing a building's conditioned area, volume, or size. (CalGreen 101.3, CalGreen 301.1.1)

   Exception: All residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures per CalGreen 301.1.1 and CalGreen 4.303.1
2. Water conserving plumbing fixtures and fittings. Plumbing fixtures and fittings shall comply with the following per CalGreen 4.303.1:
   - **a.** Water closets: Maximum 1.28 gallons per flush
   - **b.** Urinals: Maximum 0.5 gallons per flush
   - **c.** Single showerheads: Maximum flow rate of 1.8 gallons per minute at 80 psi
   - **d.** Multiple showerheads serving one shower: Maximum combined flow rate of 1.8 gallons per minute at 80 psi
   - **e.** Lavatory faucets: Maximum flow rate of 1.2 gallons per minute at 60 psi, minimum flow rate of 0.8 gallons per minute at 20 psi
   - **f.** Kitchen faucets: Maximum flow rate of 1.5 gallons per minute at 60 psi (County Green Building Code 97.1.4.303.1.4.4)

     Exception: Temporary increase allowed to maximum 2.2 gallons per minute at 60 psi if faucet defaults back to maximum 1.5 gallons per minute at 60 psi
   - **g.** Appliances: At least one qualified ENERGY STAR dishwasher or clothes washer shall be installed in each dwelling unit. (County Green Building Code 97.1.4.303.3)
3. **Outdoor potable water uses in landscape areas.** Residential developments shall comply with local water efficient landscape ordinance or the current California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. (CalGreen 4.304.1)
4. **Joints and openings.** Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate utility and other penetrations must be sealed in compliance with the California Energy Code. (CALGreen 4.406.1)

   Exception: Annular spaces around pipes, electric cables, conduits or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such opening with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.
5. **Construction waste reduction, disposal, and recycling.** Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous 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. (CalGreen 4.408.1)

   Exception: Excavated soil and land-clearing debris.

   Exception: 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 of Riverside County Diego, Department of Public Works, Construction & Demolition (C&D) Facilities Guide is online at Riverside County

   Exception: 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.
6. **Construction waste management plan.** A construction waste management plan in conformance with Items 1-5 shall be completed and available on the job site. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency. (CalGreen 4.408.2)
   - **a.** 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.
   - **b.** Specify if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
   - **c.** Identify diversion facilities where the construction and demolition waste materials will be taken.
   - **d.** Identify construction methods employed to reduce the amount of construction and demolition waste generated.
   - **e.** Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.
7. **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. (CalGreen 4.408.3)

   Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste company.
8. **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 pounds per square foot of the building area shall meet the 65 percent construction waste reduction requirement in Section 4.408.1. (CalGreen 4.408.4)

   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 65 percent construction waste reduction requirement in Section 4.408.1.
9. **Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1-5, Section 4.408.3, or Section 4.408.4.
10. **Operation and maintenance manual.** Prior to final inspection, a manual, compact disc, web-based reference, or other acceptable media which includes all of the following shall be placed in the building (CALGreen 4.410.1):
   - **a.** Directions to owner or occupant that manual shall remain with the building throughout the life cycle of the structure.
   - **b.** Operation and maintenance instructions for the following:
     - **I.** Equipment and appliances, including water-saving devices and systems, HVAC system, photovoltaic systems, water-heating systems and other major appliances and equipment.
     - **II.** Roof and yard drainage, including gutters and downspouts.
     - **III.** Space conditioning systems, including condensers and air filters.
     - **IV.** Landscape irrigation systems.
     - **V.** Water reuse systems.
   - **c.** Information from local utility, water, and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
   - **d.** Public transportation and/or carpool options available in the area.
   - **e.** 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.
   - **f.** Information about water-conserving landscape and irrigation design and controllers which conserve water.
   - **g.** Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.

I. (CalGreen) Requirements (Continued)

   - **h.** Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
   - **i.** Information about state solar energy and incentive programs available.
   - **j.** A copy of all special inspection verifications required by the enforcing agency or code.
   - **k.** Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.
   - **l.** Information and/or drawings identifying the location of grab bar reinforcements.
11. **Covering of duct openings and protection of mechanical equipment during construction.** At the time of rough installation or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, Sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system. (CALGreen 4.504.1)
12. **Adhesives, sealants, caulks, paints, and coatings pollutant control.** Adhesives (including carpet adhesives), sealants, caulks, paints, and coatings shall comply with VOC limits per CALGreen 4.504.2. Verification of compliance shall be provided at the request of the enforcing agency. (CALGreen 4.504.2.1)
13. **Carpet systems.** All carpet installed in the building interior shall meet the testing and product requirements of one of the following (CALGreen 4.504.3):
   - **a.** Carpet and Rug Institute's Green Label Plus Program (all carpet cushions must meet the requirements of this program).
   - **b.** California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).
   - **c.** NSF/ANSI 140 at the Gold level.
   - **d.** Scientific Certifications Systems Indoor Advantage™ Gold.
14. **Resilient flooring systems.** At least 80 percent of the floor area receiving resilient flooring shall comply with one of or more of the following (CALGreen 4.504.4):
   - **a.** VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database
   - **b.** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program.
   - **c.** Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
   - **d.** Meet the currently adopted version of California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," (also known as Specification 01350)
15. **Composite wood products.** Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building 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 CalGreen Table 4.504.5. The following limits are in parts per million (CALGreen 4.504.5):

a. Hardwood plywood veneer core	0.05
b. Hardwood plywood composite core	0.05
c. Particle board	0.09
d. Medium-density fiberboard (MDF)	0.11
e. Thin MDF (5/16 inch or less)	0.13

16. **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 (CALGreen 4.505.3):
   - **a.** Moisture content shall be determined with either a probe-type or contact-type moisture meter.
   - **b.** Moisture readings shall be taken at a point 2 feet to 4 feet from the grade stamped end of each piece to be verified.
   - **c.** 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 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.
17. **Bathrooms with a bathtub and/or shower** shall be mechanically ventilated per the following (CalGreen 4.506.1):
   - **a.** Fans shall be ENERGY STAR compliant and ducted to terminate outside building
   - **b.** Unless functioning as a component of a whole-house ventilation system, fans shall have humidity controls capable of adjustment - manually or automatically -- between a relative humidity range of 50% to 80%.
18. **Heating and air-conditioning system design.** Heating and air-conditioning systems shall be sized, designed, and have their equipment selected using the following methods (CALGreen 4.507.2):
   - **a.** The heat loss and heat gain are established according to the currently adopted version of ANSI/ACCA 2 Manual J, ASHRAE handbooks, or other equivalent design software or methods.
   - **b.** Duct systems are sized according to the currently adopted version of ANSI/ACCA 1 Manual D, ASHRAE handbooks, or other equivalent design software or methods.
   - **c.** Select heating and cooling equipment according to the currently adopted version of ACCA 36-S Manual S or other equivalent design software or methods.

J. General Requirements

1 - Purpose
The client has requested, contracted with and is compensating Protraction Inc for the limited services of providing the minimum construction drawings required,when combined with the other consultants drawings, to obtain a building permit for this project. These drawings are not intended to, nor do they detail all conditions, identify all materials, or define or limit the scope of work required to complete the project. The client has requested, accepted, and represented that s/he will select all materials and manufacturers, qualify and select all installers, direct all ways and means of construction, and provide all contractors and subcontractors additional information, above and beyond these drawings, required to complete the project in conformance with all applicable (current edition) codes, rules, regulations, standards, ordinances, laws and/or amendments, having jurisdiction and that the work will meet or exceed accepted industry standards.

2 - Code Requirements

The client,general contractor, and/or subcontractors shall verify all code requirements prior to commencement of construction, and shall notify the designer in writing of any discrepancies discovered between the code requirements and the construction documents. Unless indicated otherwise, by the code requirements, the client, general contractor, and/or subcontractors shall take all measures to mitigate, shield, or protect the project from defective and/or hazardous conditions.

3 - Drawings and General Notes

The project drawings and general notes are intended to show and describe the general scope of work for the project, and are provided for general information mation only. Specifications, parts and details not fully described or shown on the drawings or general notes, shall be provided, detailed and executed by the client in accordance with industry standard, first class practices. If any drawings or general notes are found to be unclear, unsound, unsafe, or not moist-ture-protected, it is the responsibility of the client, contractor or subcontractor to notify the designer in writing of such fact. If work is performed as described or shown in the drawings and/or general notes, it shall be assumed that there is no objection to the work by the client, general contractor, and/or subcontractor. The client shall maintain a complete and current set of contract documents at the project site, and such documentation shall include all approved change orders, revision memorandum, modifications, and/or addenda to such writings.

4 - Dimensions

The client, general contractor, and/or subcontractors, shall check the accuracy of all dimensions and required material and finish clearances, in the field prior to the commencement of work or fabrication of materials or products ordered for the project. If any discrepancies or conflicts arise regarding dimensional information pertaining to the contract documents, it is the responsibility of the client, general contractor, and/or subcontractors to notify the designer in writing of such fact.

5 - Errors and Omissions

It is the responsibility of the client, general contractor and or subcontractors to notify the designer in writing, prior to the commencement of construction or fabrication of materials or products of any discovery of error or omission which may occur in the contract documents. Upon notification, the designer shall prepare written response instructions which shall be provided to the client prior to the re-commencement of work affected by the error and/or omission. Failure to notify the designer in writing shall result in the client, general contractor, and/or subcontractors, being held responsible for the results of any errors and/or omissions, and shall have waived such errors and/or omissions and the costs of rectifying them. The drawings and general notes shall be considered as complimentary to each other. Consequently, any information called out in one but not the other shall be provided as though set forth in both, and shall not constitute as omission.

6 - Engineering

It is the responsibility of the client, general contractor, and/or subcontractor to refer to the current structural drawings (including, post-tension slab design and roof and/or floor truss design) and associated calculations, regarding any questions concerning lumber grades, beam and header sizes, footing and foundation information, and shear requirements, as well as any and all additional structural information. Prior to the commencement of work or fabrication of materials or products ordered for the project,the client shall notify the designer in writing of any discrepancies or conflicts between the structural drawings/calculations, and the drawings and general notes. Failure to notify the designer in writing shall result in the client, general contractor, and/or subcontractors, being held responsible for the results of any such discrepancies or conflicts.

7 - Civil Engineering

It is the responsibility of the client, general contractor, and/or subcontractors to refer to the current civil drawings regarding any questions concerning site issues, including grading and positioning of structure in relationship to property lines, setbacks, easements, etc. the client shall notify the designer in writing of any discrepancies or conflicts between the civil drawings, and the construction documents. Failure to notify the designer in writing shall result in the client, general contractor and/or subcontractors, being held responsible for the results of any such discrepancies or conflicts.

8 - Product Requirements (Scope of Work)
All materials shall be installed in strict accordance with the manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance of their product. All Items not specifically mentioned that are required to make the work complete and operational shall be included.
Installation and Storage - All materials, supplies and equipment shall be installed per manufacturer's recommendations and per applicable codes and requirements. Material stored on site shall be protected from damage by moisture, wind, sun, abuse or any other harmful affects.

9 - Product Substitution Procedures
Contractor to investigate proposed products and determine that they are equal or superior in all respects to products specified. Coordinate installation of accepted substitutions into the Work, making such changes as may be required for the Work to be complete in all respects. Meet with clients and get change order request signed.

10 - Execution Requirements
The execution of all work shall be in strict accordance with these specifications and manufacturer's written specifications or Material's Institute Standards. Where the manufacturer's recommended details are used, the manufacturer shall be responsible for the performance of their product. All work not specifically mentioned that is required to make the work complete and operational shall be included.

Codes - Construction shall comply with all applicable national, state and local building codes. It is the responsibility of the Contractors and Client to insure compliance with said codes and modify the specifications as needed to comply with such codes.

Measurements - The Contractor shall check and verify all dimensions and conditions before proceeding with construction. Do not scale drawings. Noted dimensions take precedence.

Workmanship - Workmanship shall conform to the best and highest standards of quality in each trade and shall include all items of fabrication, construction and installation. All work shall be completed by skilled tradesmen and mechanics. Installation of all equipment and materials shall be in strict accordance with manufacturers recommendations.

THESE ARE MINIMUM REQUIREMENTS AND SHALL NOT SUPERSEDE MORE RESTRICTIVE SPECIFICATIONS ON THE PLANS OR AS REQUIRED BY APPLICABLE CODE

protra
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Inc

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Lake Elsinore CA 92532
951.837.3007

Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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Whitehead Residence

759 Lake Street, Lake Elsinore CA 92530

General Notes

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

ISSUED:
08/17/2024

A008

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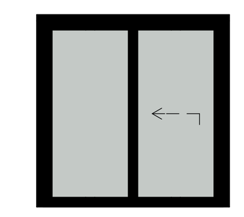
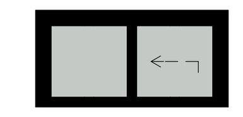
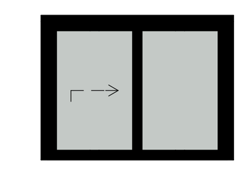
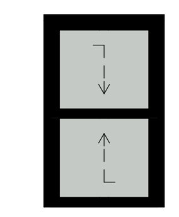
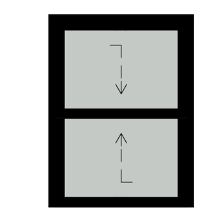
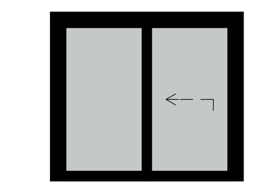
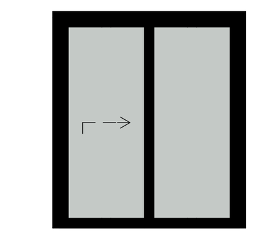
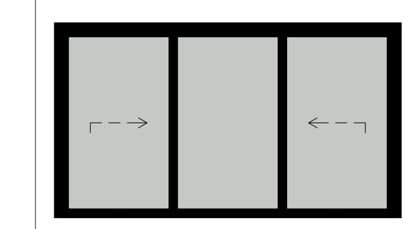
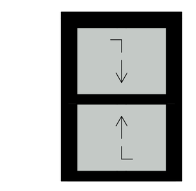
Window Schedule

Type	Sliding Window	Sliding Window	Sliding Window	Single Hung	Single Hung	Sliding Window	Sliding Window	Sliding Window	Single Hung
View									
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Element ID	W01, W03	W02	W04, W11	W05, W06, W07, W08,...	W10, W18	W12	W13	W14	W17
Quantity	2	1	2	7	3	1	1	1	1
U-Factor	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30
SHGC	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23
Tempered	No	No	No	No	No	No	No	No	No
Egress	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
Note									

Door Schedule

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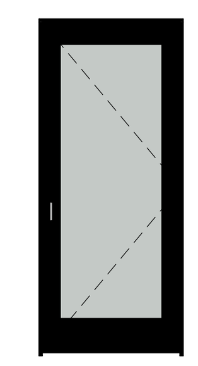
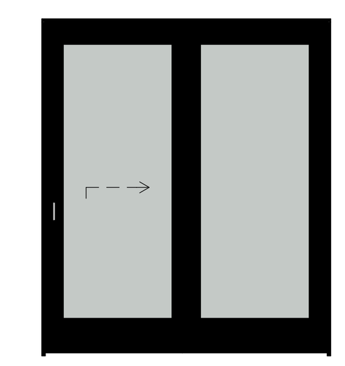
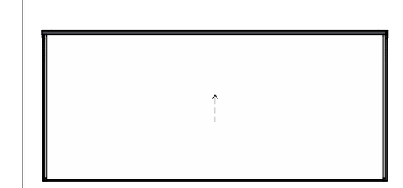
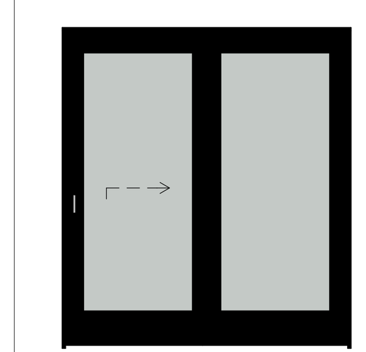
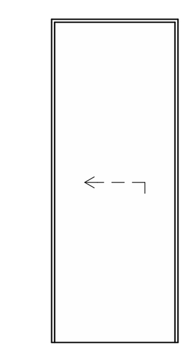
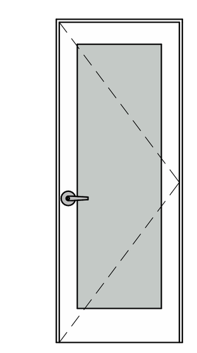
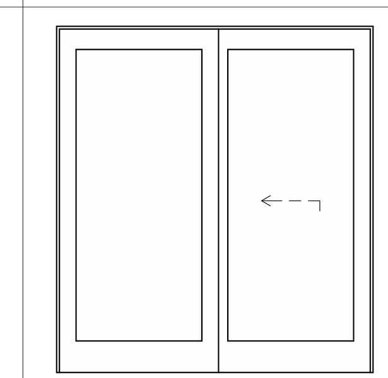
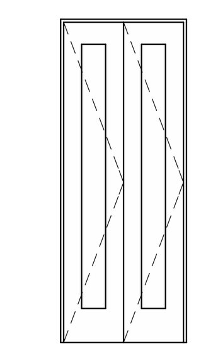
View								
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Operation ...	Inswing Door	Sliding Door	Garage Door	Sliding Door	Pocket Door	Inswing Door	Sliding Door	Bifold
Element ID	D01	D02	D03	D04	ID01, ID12	ID02, ID03, ID05, ID08...	ID04	ID06
Quantity	1	1	1	1	2	6	1	1
U-Factor	0,30	0,30	0,30	0,30	0,30	0,00	0,00	0,30
SHGC	0,23	0,23	0,23	0,23	0,23	0,00	0,00	0,23
Tempered	Yes	Yes	No	Yes	No	No	No	No
Egress	Yes	Yes	No	Yes	No	No	No	No
Note								

Door Schedule

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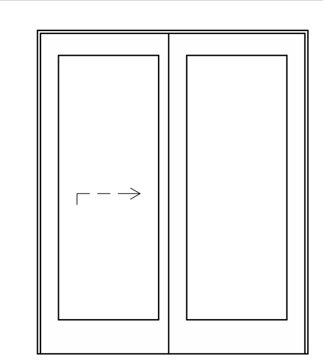
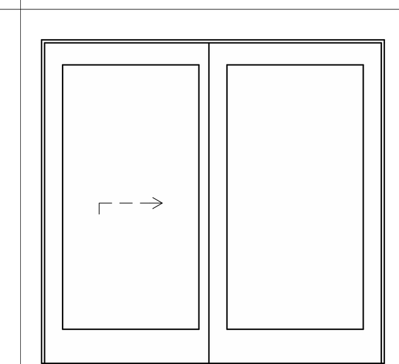
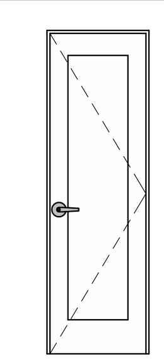
View			
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Operation ...	Sliding Door	Sliding Door	Inswing Door
Element ID	ID07	ID09	ID13
Quantity	1	1	1
U-Factor	0,00	0,00	0,00
SHGC	0,00	0,00	0,00
Tempered	No	No	No
Egress	No	No	No
Note			

DOOR & WINDOW NOTES:

Means of Egress

At least one egress door shall be provided at each dwelling unit. Egress door shall comply with the following per CRC R311.2:

i) Door shall have a minimum clear width of 32" when measured between the face of the door and the stop, with the door open at 90 degree.
ii) Door shall have a minimum clear height of 78", measured from the top of the threshold to the bottom of the stop
iii) Door shall be readily openable from the inside the dwelling without the use of a key or special knowledge or effort.
iv) A 36-inch landing shall be provided at each side of the door. The slope of the exterior landing shall not exceed 2% slope. CRC R311.3.

Every sleeping room shall have at least one operable window or door for emergency escape or rescue that opens directly into a public way or to a yard or court that opens to a public way, The emergency door or window shall be operable from the inside without the use of tools and shall have a minimum net clear openable area of 5, 7 square feet, 5, 0 square feet for ground floor openings. The minimum net clear opening height shall be 24" and the minimum net clear width shall be 20", The bottom of the clear opening shell be no more than 44" measured from the floor.

Safety Glazing Shall be provided in the following locations:

Glazing in doors
Glazing in fixed and operable panels of swinging, sliding and bifold doors .
Glazing in an indvidual fixed or operable panel adjacent to a door where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the floor or walking surface and it meets either of the following conditions:
1. Where the glazing is within 24 inches (610 mm) of either side of the door in the plane of the door in a closed position.
2. Where the glazing is on a wall less than 180 degrees (3.14 rad) from the plane of the door in a closed position and within 24 inches (610 mm) of the hinge side of an in-swinging door.

Glazing in windows
Glazing in an individual fixed or operable panel that meets all of the following conditions:
1. The exposed area of an individual pane is larger than 9 square feet (0.836 m2).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor.
3. The top edge of the glazing is more than 36 inches (914 mm) above the floor.
4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the glazing.

Glazing and wet surfaces
Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall beconsidered to be a hazardous location. This shall apply to single glazing and each pane in multiple glazing.

All windows and doors to be installed and weather-proofed in strict accordance with manufacturer's installation instructions, refer to manufacturers installation manual or reference aama 2400 for new installations and AAMA 2410 for retrofit installations, for details follow the link: https://www.milgard.eom/sites/default/files/u/u351 /2400-10_milgard.pdf

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Schedules

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A009

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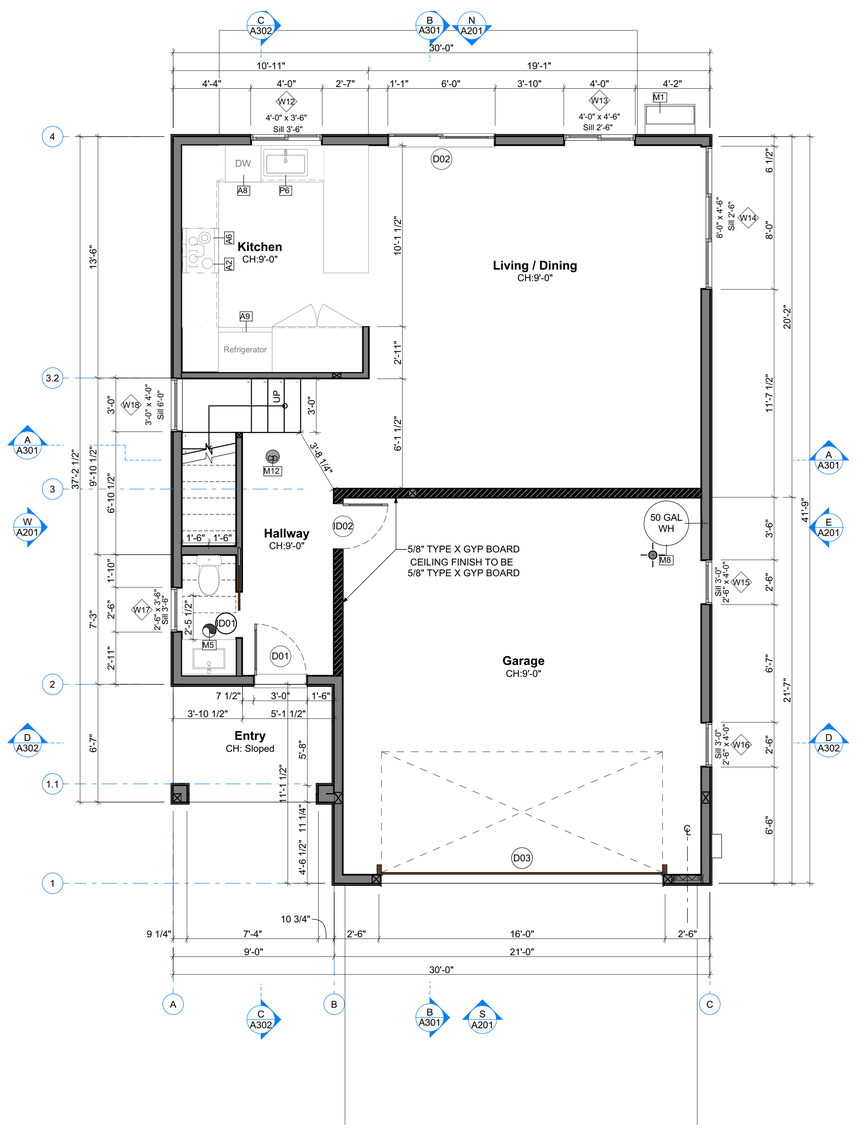
NOTE:

Newly constructed dwellings subject to the requirements of this code shall be designed and constructed in accordance with [R327.1.1 though R327.1.4] for "Aging in place design and fall prevention".

A.-At least one bathroom on the lowest entry level shall be provided with reinforcement, provide detail with method of reinforcement on the structural plans [CRC R327.1.1].

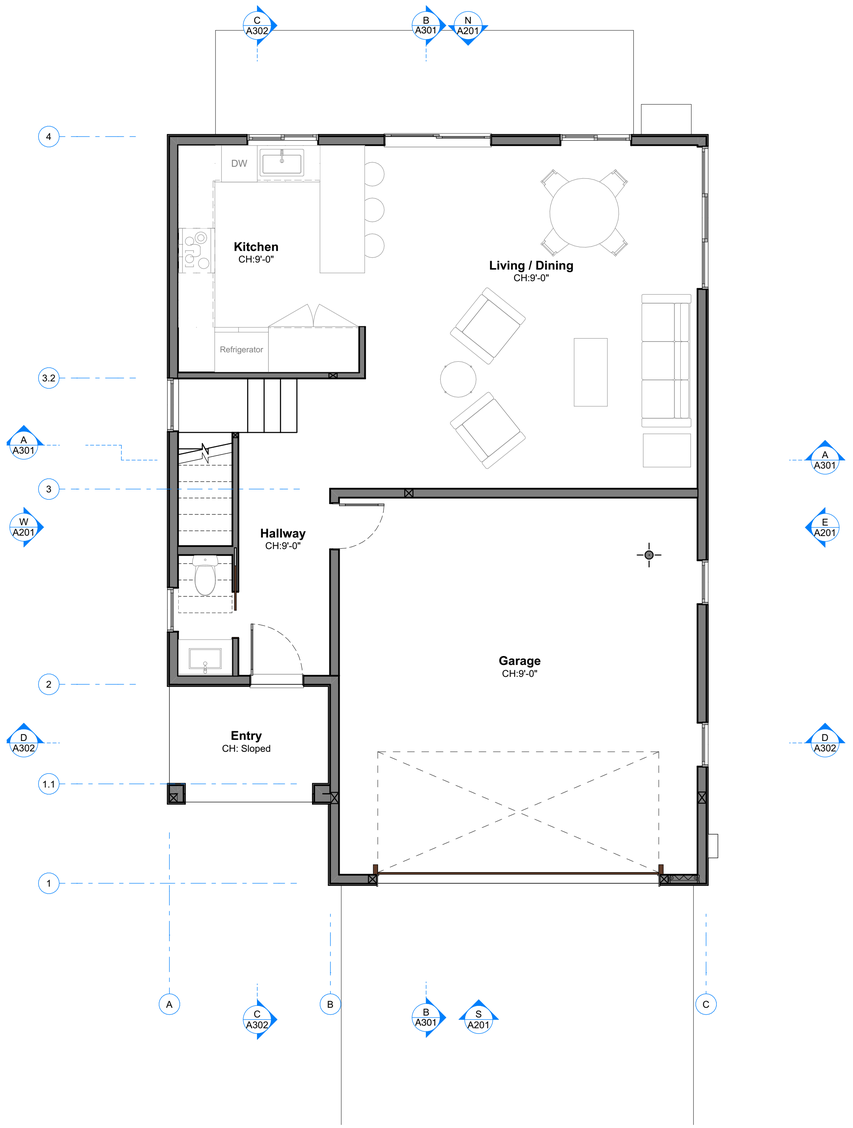
B.-Electrical receptacle outlets, switches, and controls shall be located no more than 48" measured form the top of the outlet box and not less than 15" from the bottom of the outlet box above the finished floor [CRC R327.1.2].

C.-Doorbell buttons or controls, when installed, shall not exceed 48" above exterior floor or landing, measured from the top of the doorbell button assembly [R327.1.4].



1 A101 First Floor Plan

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



2 A101 Furniture First Floor Plan

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

Wall Legend		
Symbol	Reno	Description
	NEW	1 Hour Fire- Rated Wall 2X6 @ 16" OC - R21 Batt Insul, sheathing, 5/8" Gyp bd each side, See 3/A101
	NEW	2X4 @ 16" OC - ½" Gyp bd ea/ side
	NEW	2X6 @ 16" OC - ½" Gyp bd ea/ side
	NEW	2X6 @ 16" OC - R21 Batt Insul, sheathing, WRB, 3/4" Fiber Cement Siding, ½" Gyp bd

Appliance Keynote

#	Description	Qt.
A11	WASHER provide H & C water, waste & elec outlet	1
A13	HEAT PUMP CLOTHES DRYER provide elec outlet & exhaust duct with back draft damper -max length 14' with two 90° elbows max. 2022 CMC section 504.4	1
A2	RANGE Electric - provide elec outlets per OEM	1
A6	RANGE HOOD with exhaust fan 100 cfm min 3 sones max with metal duct to outside provide elec outlet	1
A8	DISHWASHER with air gap fitting - provide H&C&Waste & GFCI elec outlet	1
A9	REFRIGERATOR- provide dedicated elec circuit outlet & cold water	1

Mechanical Keynote

#	Description	Quantity
M12	COMBINATION SMOKE & CARBON MONOXIDE DETECTOR TO UL217	5
M5	ENERGY STAR COMPLIANT EXHAUST FAN W/ HUMISTAT CONTROL, 50 CFM MIN, 3 SONE MAX - DUCTED TO OUTSIDE OF BUILDING	3
M6	INDOOR AIR QUALITY FAN (ERV OR HRV) 50 CFM MIN	1
M8	WATER HEATER gas 50 gal provide electrical outlet	1

Plumbing Keynote

#	Description	Qt.
P10	BATHTUB AND SHOWER FLOORS and walls above bathtubs with showers and shower compartments shall be finished with a nonabsorbent surface to a height of 6' min above the floor.2019 CRC, section R307.2.cement, fiber-cement, fiber-mat reinforced cement, glass mat gypsum or fiber-reinforced gypsum backers shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas	1
P12	SHOWER HEAD or multiple shower heads max 1.8 gpm @ 80 psi - shower control valve to be pressure balance or thermostatic mixing valve	1
P2	TUB - per owner	1
P4	Water Closet - 1.28 GAL/FLUSH	3
P6	Lavatory with base cabinet - Faucet Max 1.2 GPM @ 60 PSI Min .08 GPM @ 20 PSI	1
P6	SINK cabinet	3
P8	Multi-Basin Counter	1

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First Floor Plans

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A101
Sheet 10 OF 23

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NOTE:

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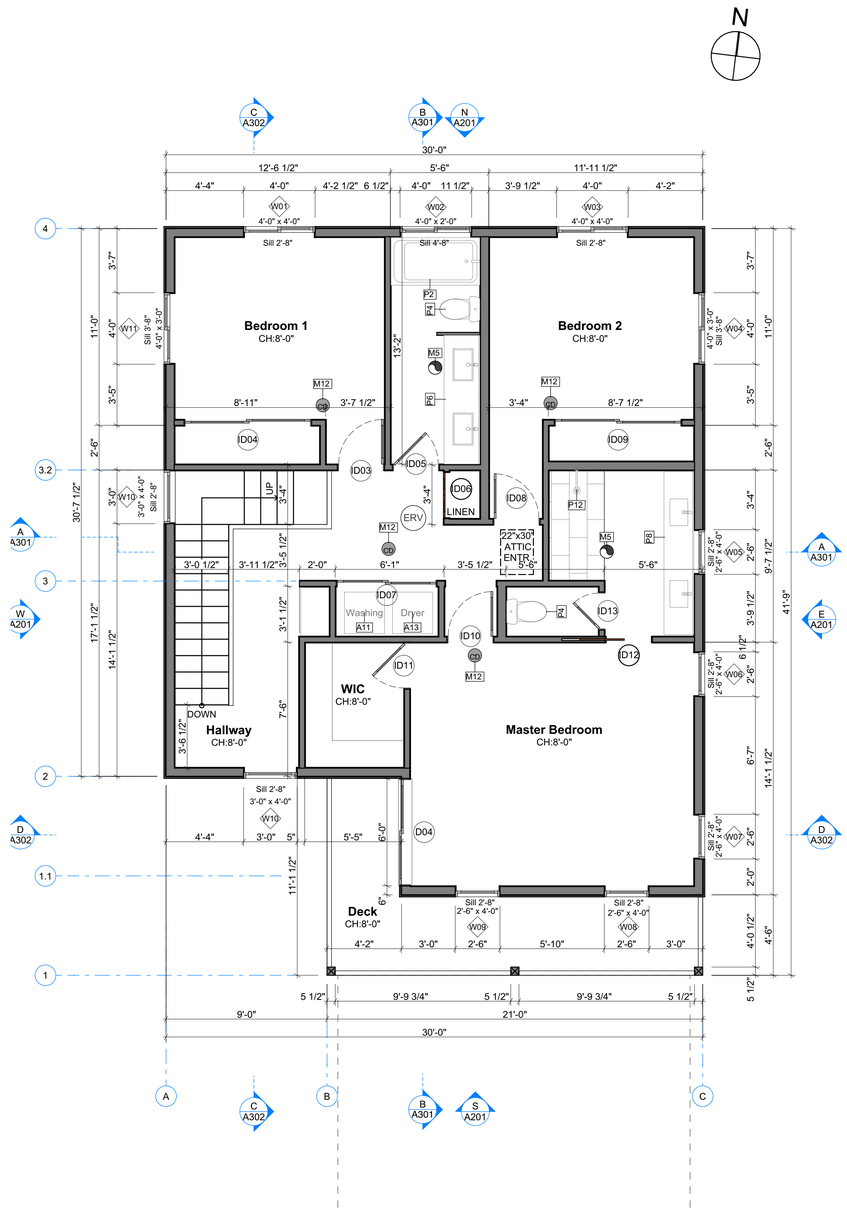
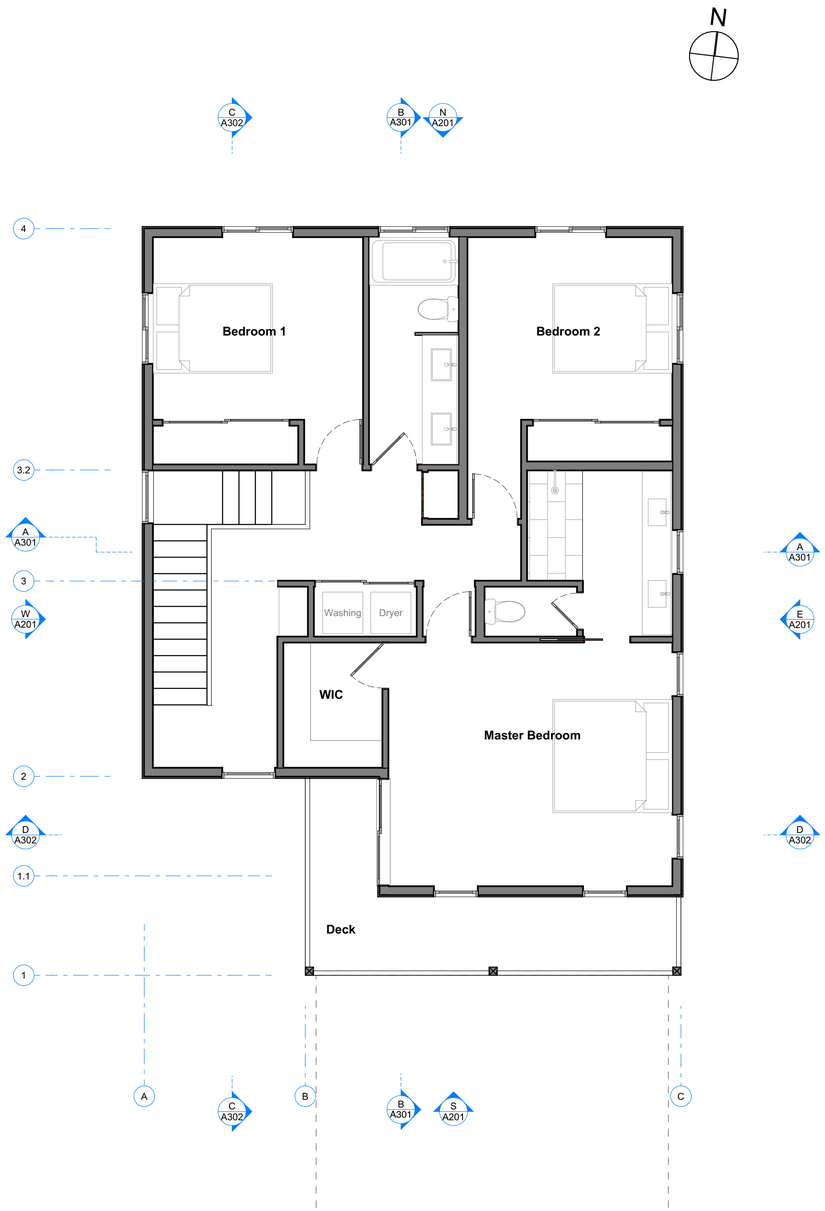


2 A102 Second Floor Plan

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



2 A102 Furniture Second Floor Plan

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

Wall Legend

Symbol	Reno	Description
	NEW	1 Hour Fire- Rated Wall 2X6 @ 16" OC - R21 Batt Insul, sheathing, 5/8" Gyp bd each side, See 3/A101
	NEW	2X4 @ 16" OC - ½" Gyp bd ea/ side
	NEW	2X6 @ 16" OC - ½" Gyp bd ea/ side
	NEW	2X6 @ 16" OC - R21 Batt Insul, sheathing, WRB, 3/4" Fiber Cement Siding, ½" Gyp bd

Appliance Keynote

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A13	HEAT PUMP CLOTHES DRYER provide elec outlet & exhaust duct with back draft damper -max length 14' with two 90° elbows max. 2022 CMC section 504.4	1
A2	RANGE Electric - provide elec outlets per OEM	1
A6	RANGE HOOD with exhaust fan 100 cfm min 3 sones max with metal duct to outside provide elec outlet	1
A8	DISHWASHER with air gap fitting - provide H&C&Waste & GFCI elec outlet	1
A9	REFRIGERATOR- provide dedicated elec circuit outlet & cold water	1

Mechanical Keynote

#	Description	Quantity
M12	COMBINATION SMOKE & CARBON MONOXIDE DETECTOR TO UL217	5
M5	ENERGY STAR COMPLIANT EXHAUST FAN W/ HUMISTAT CONTROL, 50 CFM MIN, 3 SONE MAX - DUCTED TO OUTSIDE OF BUILDING	3
M6	INDOOR AIR QUALITY FAN (ERV OR HRV) 50 CFM MIN	1
M8	WATER HEATER gas 50 gal provide electrical outlet	1

Plumbing Keynote

#	Description	Qt.
P10	BATHTUB AND SHOWER FLOORS and walls and walls above bathtubs with showers and shower compartments shall be finished with a nonabsorbent surface to a height of 6' min above the floor.2019 CRC, section R307.2.cement, fiber-cement, fiber-mat reinforced cement, glass mat gypsum or fiber-reinforced gypsum backers shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas	1
P12	SHOWER HEAD or multiple shower heads max 1.8 gpm @ 80 psi - shower control valve to be pressure balance or thermostatic mixing valve	1
P2	TUB - per owner	1
P4	Water Closet - 1.28 GAL/FLUSH	3
P6	Lavatory with base cabinet - Faucet Max 1.2 GPM @ 60 PSI Min .08 GPM @ 20 PSI	1
P6	SINK cabinet	3
P8	Multi-Basin Counter	1

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Second Floor Plans

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A102
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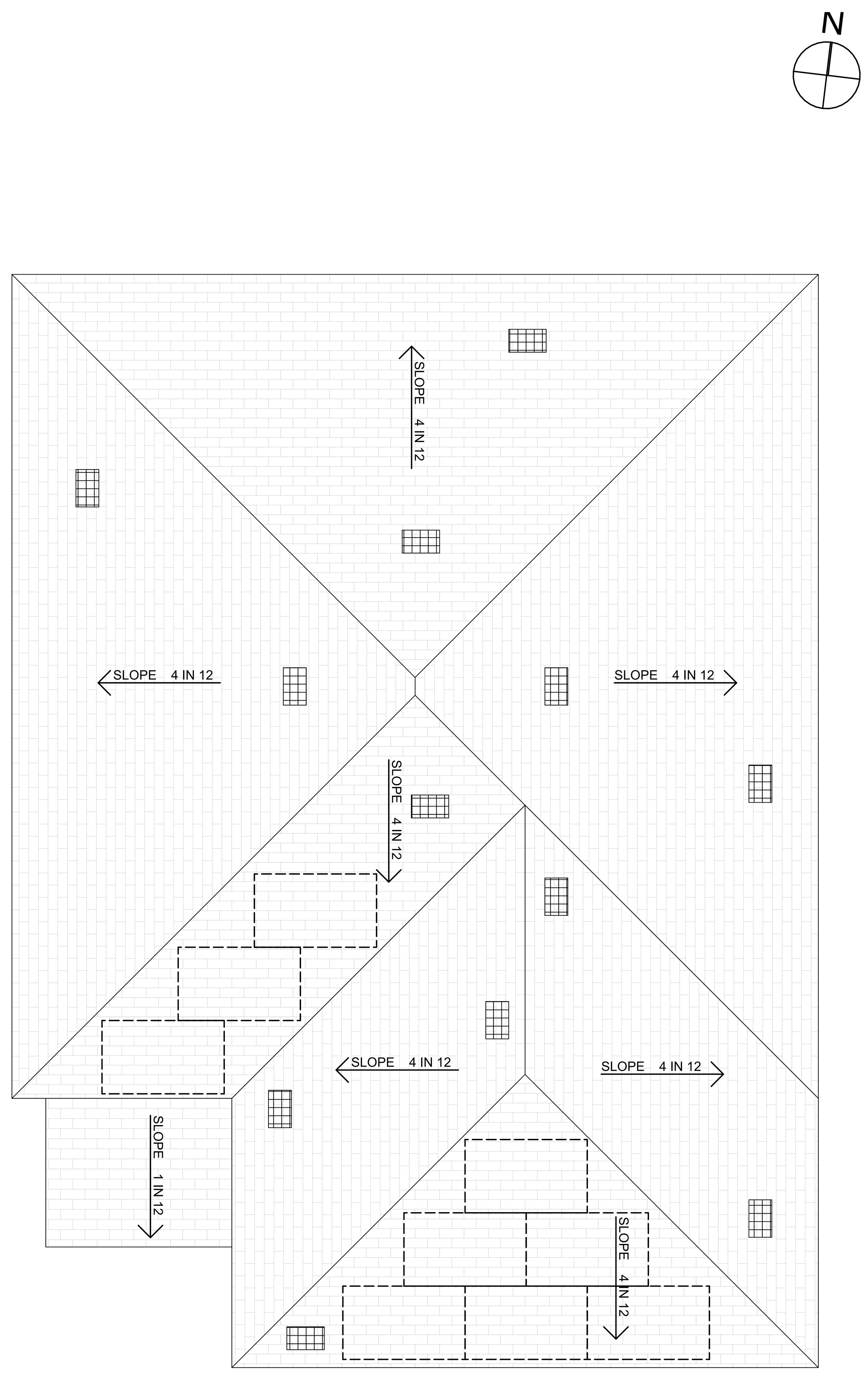

2 A103 Roof
SCALE: 1/4" = 1'-0"

ROOF PLAN GENERAL NOTES

- ASPHALT SHINGLE BY GAF ROOFING PRODUCTS CLASS A (ICC-ES-ESR-1475) TO BE INSTALLED IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS. WUI COMPLIANT.

- ROOF TILE NAILING PER MANUFACTURER'S SPECIFICATIONS-MINIMUM REQUIREMENTS SHALL BE:
  - 11 GA CORROSION RESISTANT NAILS MIN ¾" EMBEDMENT INTO SHTNG
  - NAIL HEADS OF ALL TILES
  - NOSES OF ALL EAVE COURSE TILES TO BE FASTENED W/ APPROVED CLIPS
  - ALL TILES TO BE NAILED WITH 2 NAILS
  - NOSES OF ALL RIDGE, HIP & RAKE TAILS TO BE SET IN A BEAD OF ROOFER'S MASTIC

- PROVIDE ONE LAYER OF 72-POUND MINERAL-SURFACED NONPERFORATED CAP SHEET MEETING ASTM D3909 RUNNING THE FULL LENGTH OF VALLEYS.

- PROVIDE MIN 26 GA GALV METAL FLASHING AT ALL VALLEYS, ROOF TO WALL, AND METAL SADDLES OF CHIMNEYS (AS NEEDED)

- CRICKET OR SADDLE COVERINGS SHALL BE SHEET METAL OR OF THE SAME MATERIAL AS THE ROOF COVERING.

- PROVIDE RAIN GUTTERS, DIVERTERS AND DOWN SPOUTS TO DIRECT WATER AWAY FROM HOUSE & FOUNDATION

- VENTILATION OPENINGS SHALL HAVE CORROSION RESISTANT WIRE MESH OR OTHER APPROVED MATERIAL WITH 1/16 IN MINIMUM AND ⅛ IN MAXIMUM OPENING.
- NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATION AREA IS PROVIDED BY VENTILATORS IN THE UPPER PORTION OF THE ATTIC. CRC R806.2

- THE UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE MEASURED VERTICALLY. CRC R806.2

ROOF LEGEND

O'HAGIN FIRE & ICE VENT ICC-ES 9650-A WUI COMPLAIANT NET FREE VENT AREA 86.25 sq in WITH CORROSION RESISTANT WIRE MESH OR OTHER APPROVED MATERIAL WITH 1/16" MINIMUM AND ⅛" MAXIMUM OPENING

X:12 ROOF DIRECTION AND PITCH

Roofing and Weatherproofing:

1. Roof covering. All roof covering shall be installed per applicable requirements of CBC 1507. Roof coverings shall be at least Class A rated in accordance with ASTM E 108 or UL 790, which shall include coverings of slate, clay or concrete roof tile, exposed concrete roof deck, ferrous or copper shingles or sheets. (County Building Code 92.1.1505.1)

2. Roof flashing. Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction, and around roof openings. Where flashing is of metal, the metal shall be corrosion-resistant with a thickness of not less than 0.019 inch (No. 26 galvanized sheet). (CRC R903.2.1)

3. Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration more than 30 inches wide as measured perpendicular to the slope. Cricket or saddle covering shall be sheet metal or the same material as the roof covering. (CRC R903.2.2)

4. Water-resistive barrier. A minimum of one layer of No. 15 asphalt felt shall be attached to studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer minimum 2 inches. Where joints occur, felt shall be lapped minimum 6 inches. The felt shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to maintain a weather-resistant exterior wall envelope. (CRC R703.2)

5. Wall flashing. Approved corrosion-resistant flashing shall be applied shingle fashion at the following locations to prevent entry of water into the wall cavity or penetration of water to the building structural framing components (CRC R703.8):
   a. Exterior door and window openings, extending to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage
   b. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings
   c. Under and at the ends of masonry, wood, or metal copings and sills
   d. Continuously above all projecting wood trim
   e. Where exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction
   f. At wall and roof intersections
   g. At built-in gutters

6. Dampproofing. Dampproofing materials for foundation walls enclosing usable space below grade shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to finished grade. (CRC R406.1)

7. Weep screed. A minimum 0.019-inch (No. 26 galvanized sheet gage), corrosion-resistant weep screed or plastic weep screed with a minimum vertical attachment flange of 3-1/2 inches shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C 92. The weep screed shall be placed a minimum 4 inches above the earth or 2 inches above paved areas and shall be of a type allowing trapped water to drain to the exterior of the building. (CRC R703.7.2.1)

ATTIC ROOF VENTILATION CALCULATION

ATTIC VENTILATION CALCULATION FOR 1156 SF ATTIC SPACE

1156 SF / 300 = 3.85 SF OF VENTILATION AREA
3.85 SF X 144 = 554 SI OF VENTILATION AREA
554 / 86.25 NFVA O'HAGIN "M" STYLE VENT = 8 VENTS MIN
USE 12 VENTS 6 HIGH 6 LOW

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Roof Plan

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S A201 South Elevation

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

0 2' 4' 8'

N A201 North Elevation

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

0 2' 4' 8'

W A201 West Elevation

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

0 2' 4' 8'

E A201 East Elevation

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

0 2' 4' 8'

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Elevations

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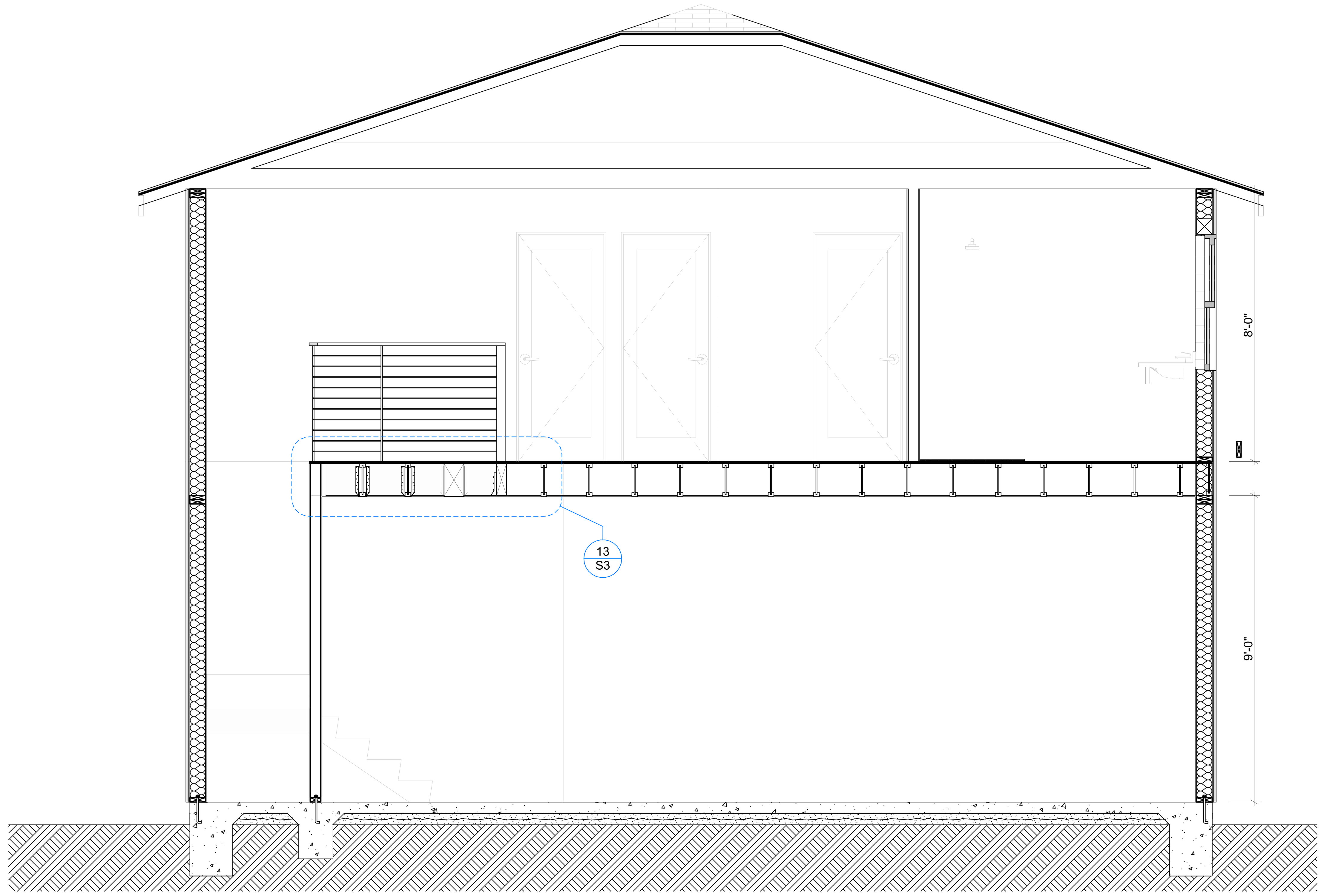
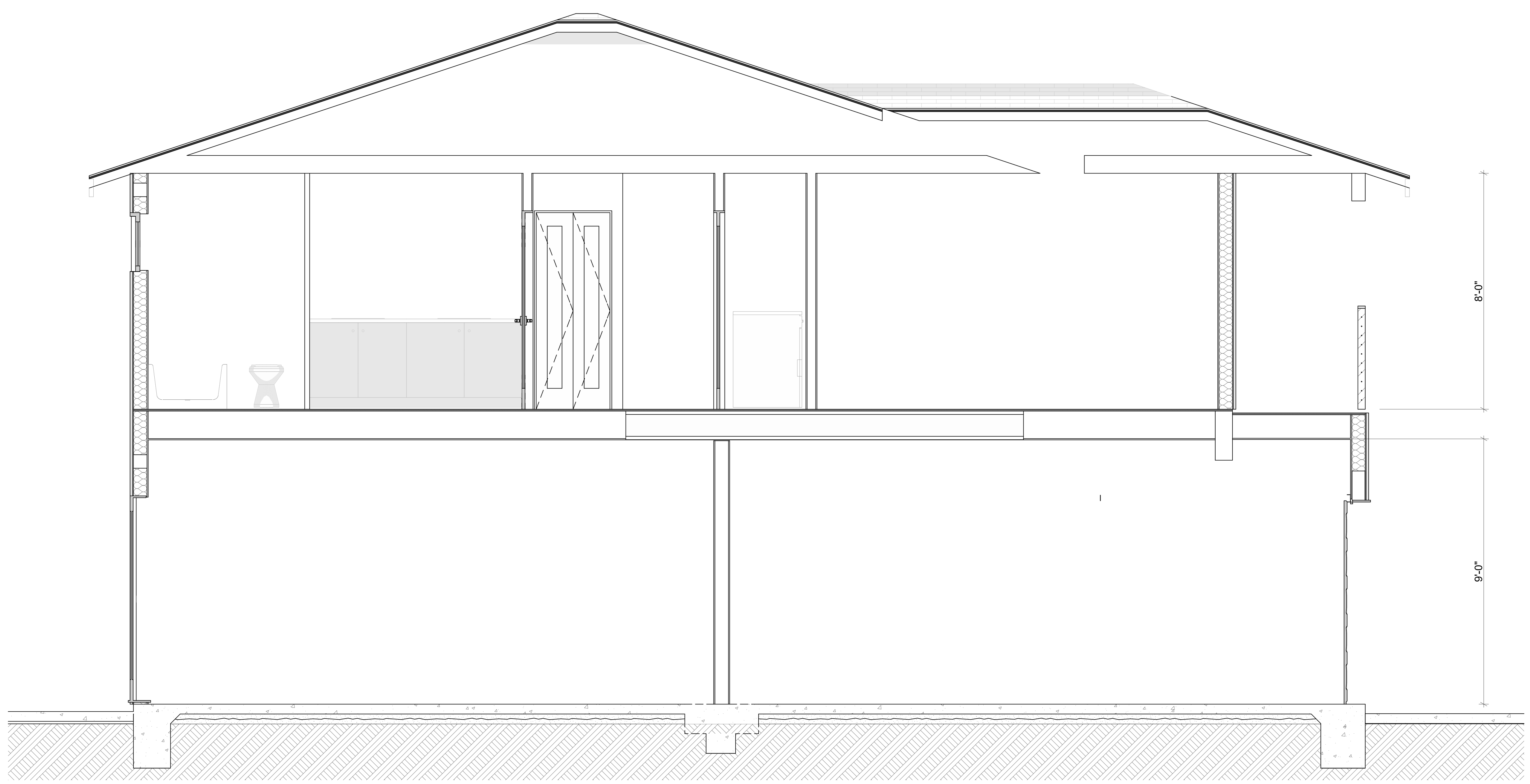


A
A301
Building Section
SCALE: 3/8" = 1'-0"



B
A301
Building Section
SCALE: 3/8" = 1'-0"

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Sections

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C
A302

Building Section

SCALE: 3/8" = 1'-0"

0 2' 4' 6'

D
A302

Building Section

SCALE: 3/8" = 1'-0"

0 2' 4' 6'

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Sections

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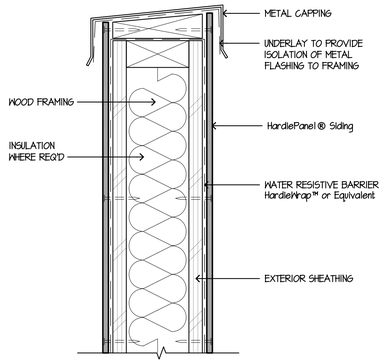
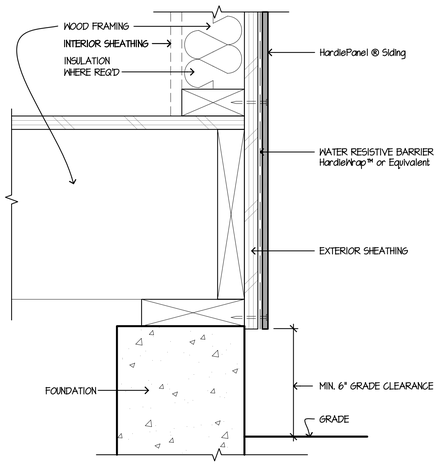


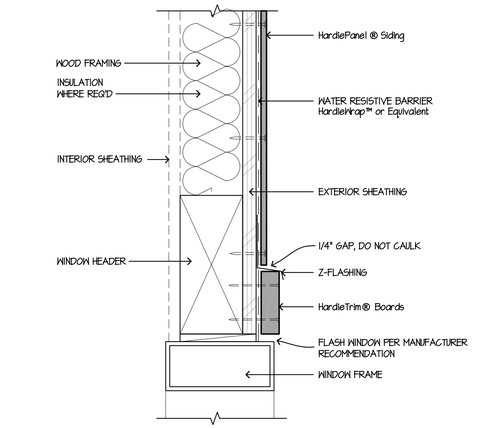
9 PARAPET

SCALE: 3"=1'-0"



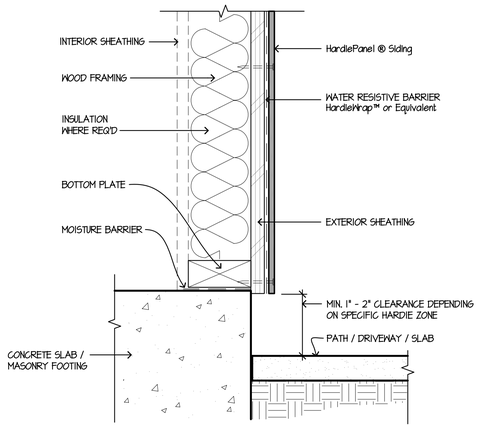
6 GRADE CLEARANCE

SCALE: 3"=1'-0"



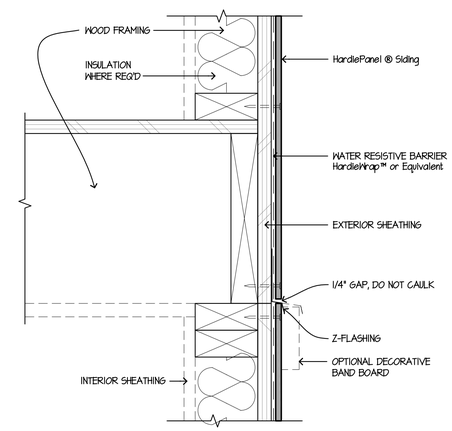
3 WINDOW/DOOR HEAD

SCALE: 3"=1'-0"



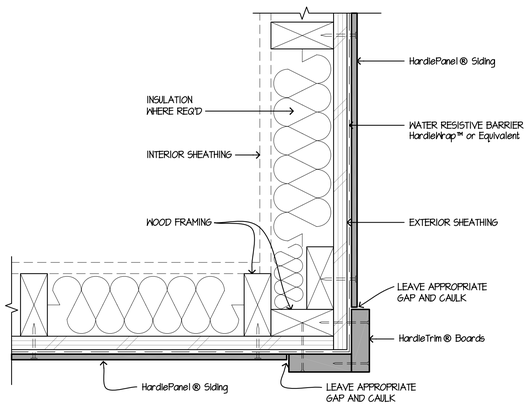
8 HARDSCAPE CLEARANCES, DECKS, PORCHES, PATIOS, WALKWAYS, ROOFS, ETC.

SCALE: 1/2"=1'-0"



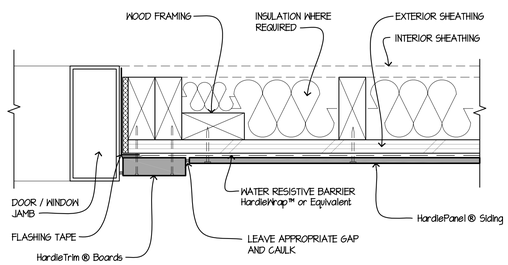
5 HORIZONTAL VIEW

SCALE: 3"=1'-0"



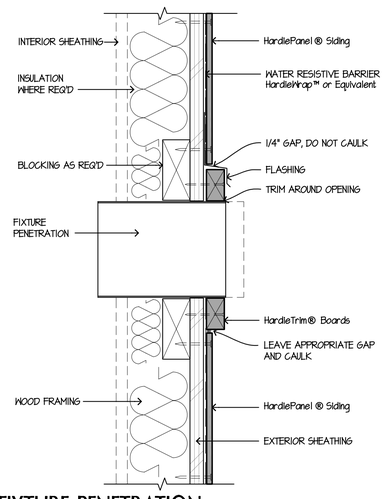
2 OUTSIDE CORNER

SCALE: 3"=1'-0"



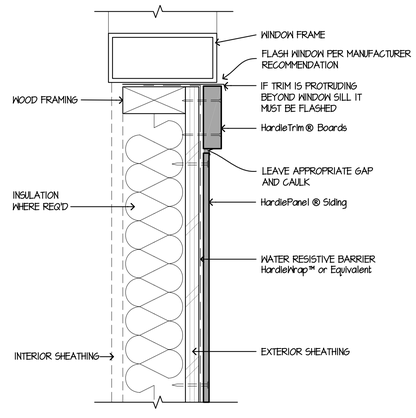
10 DOOR / WINDOW JAMB

SCALE: 3"=1'-0"



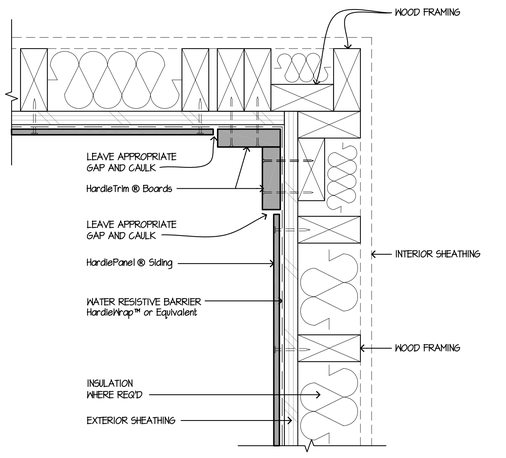
7 FIXTURE PENETRATION

SCALE: 3"=1'-0"



4 WINDOW SILL

SCALE: 3"=1'-0"



1 INSIDE CORNER

SCALE: 3"=1'-0"

These drawings are published as an information guide only. These CAD drawings are intended as templates to assist the designer. They do not contain the full details required for construction and must be read in conjunction with the installation instructions on www.jameshardie.com. You should obtain architectural, engineering or other technical advice to assess the suitability of these drawings to the requirements of your particular project. James Hardie accepts no liability in respect to the use of these drawings.

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JamesHardie®

HardiePanel® Siding Details

- Wood Framing
- OSB or Plywood Sheathing
- Shown with Siding Nails into Framing

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CHECKED	JW
DATE	March 1, 2010
SCALE	AS NOTED
JOB NO.	-
SHEET	A-401

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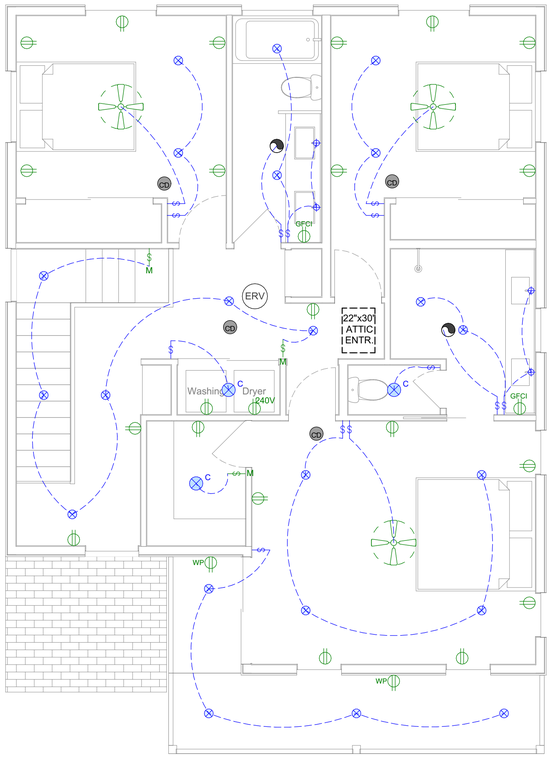
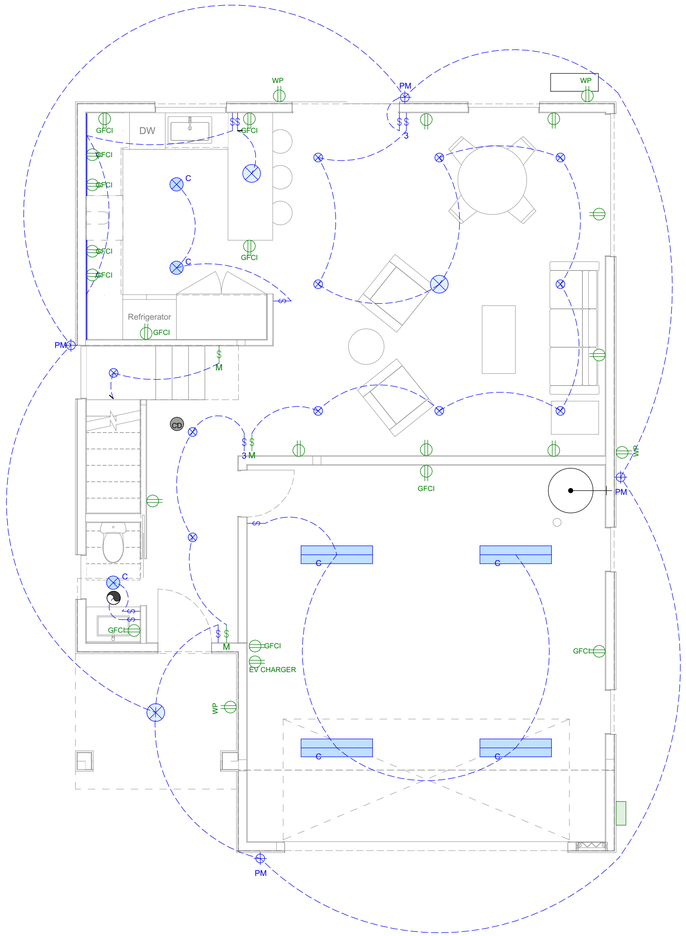


2 E001 Electrical Plan Second Floor

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

0 2' 4' 8'



1 E001 Electrical Plan First Floor

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

0 2' 4' 8'

NOTE:

Electrical receptacle outlets, switches, and controls shall be located no more than 48" measured form the top of the outlet box and not less than 15" from the bottom of the outlet box above the finished floor [CRC R327.1.2].
Doorbell buttons or controls, when installed, shall not exceed 48" above exterior floor or landing, measured from the top of the doorbell button assembly [R327.1.4].

a. For all 125-volt, single phase, 15- and 20-amp receptacles, GFCI outlets are required for all kitchen receptacles that are designed to serve countertop surfaces, bathrooms, underfloor spaces or below grade level, in exterior outlets, laundry areas, within 6' of utility/wet bar sinks, dishwashers and in all garages, including outlets dedicated to a single device or garage door opener [CEC 210.8 (A)].
b. For all 120-volt, single phase, 15- and 20-amp receptacles, AFCI outlets are required for kitchen, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, or similar rooms or areas shall be protected by any of the means described in [CEC 210.12 (A)].
c. All 125-volt, single-phase, 15- and 20-ampere receptacles installed outdoors, garages, etc. shall have ground-fault circuit-interrupter protection for personnel [CEC 210.8(A)(1)-(10)].
d. Receptacles located outdoors shall be weather resistant, tamper resistant, enclosed in an approved bubble cover [CEC 406.9, 406.12, 210.52(E)].

When determining the distance from GFCI receptacles, the distance shall be measured as the shortest path the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, or fixed barrier, or the shortest path without passing through a window [CEC 210.8].

Electrical Schedule

Symbol	Electrical Note	Quantity
C	1' x 4' LED TROFFER	4
	200 AMPS ELECTRICAL PANEL	1
S3	3 - WAY SWITCH WITH DIMMER	2
	CEILING FAN WITH LUMINAIRE SWITCH SEPARATELY	3
CO	COMBINATION SMOKE & CARBON MONOXIDE DETECTOR TO UL217	5
	ENERGY STAR COMPLIANT EXHAUST FAN W/ HUMISTAT CONTROL. 50 CFM MIN, 3 SONE MAX - DUCTED TO OUTSIDE OF BUILDING	3
	HIGH EFFICACY OR LED LUMINAIRE IN EXTERIOR OR DAMP LOCATIONS TO BE DAMP PROOF	33
PM	HIGH EFFICACY OR LED LUMINAIRE W/ PHOTOCELL & MOTION SENSOR - IN EXTERIOR OR DAMP LOCATIONS TO BE DAMP PROOF	4
ERV	INDOOR AIR QUALITY FAN ERV 90 CFM MIN	1
	LARGE PENDANT	3
	RECEPTACLE, DUPLEX, TAMPER RESISTANT, AFCI	30
GFCI	RECEPTACLE, DUPLEX, TAMPER RESISTANT, GFCI	16
WP	RECEPTACLE, DUPLEX, TAMPER RESISTANT, GFCI, WATER PROTECTED	6
	SCONCE	4
C	SURFACE MOUNTED LIGHT	6
S	SWITCH WITH DIMMER	21
S M	SWITCH WITH VACANCY SENSOR	6
	UNDER CABINET LIGHT	2

FOLLOW MANDATORY ELECTRICAL, LIGHTING, AND MECHANICAL REQUIREMENTS ON TITLE 24 SHEETS

ELECTRIC VEHICLE CHARGING ROUGH-IN REQUIRED:
a) Install a listed raceway to accommodate a dedicated 208/240V branch circuit for future electric vehicle charging station. The raceway shall not be less than 1" nominal inside diameter.
b) The service panel and/or sub-panel shall provide capacity to install a 40 AMP minimum dedicated circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.
c) The service panel or sub-panel directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE".
d) The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

LIGHTING REQUIREMENTS

1. ALL LUMINAIRES SHALL BE HIGH EFFICACY
2. LIGHTING IN BATHROOMS, GARAGE, LAUNDRY ROOMS AND UTILITY ROOMS: ALL LUMINAIRES SHALL BE HIGH EFFICACY AND SHALL BE CONTROLLED BY AN OCCUPANT SENSOR.
3. OTHER ROOMS: ALL LUMINAIRES SHALL BE HIGH EFFICACY AND CONTROLLED BY AN OCCUPANT SENSOR OR DIMMER CLOSETS THAT ARE LESS THAN 70 S. ARE EXEMPT FROM THIS REQUIREMENT
4. EXTERIOR LIGHTING: ALL LUMINAIRES SHALL BE HIGH EFFICACY LUMINAIRES AND SHALL BE CONTROLLED BY PHOTOCONTROL/MOTION SENSOR COMBINATION.
5. LUMINAIRES THAT ARE RECESSED INTO INSULATED CEILINGS ARE REQUIRED TO BE RATED FOR INSULATION CONTACT (IC-RATED) SO THAT INSULATION CAN BE PLACED OVER THEM
6. HIGH EFFICACY LUMINARIES FOR RESIDENTIAL LIGHTING SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS SHALL NOT CONTAIN A MEDIUM SCREW BASE SOCKET (E24/E26). A HIGH EFFICACY LAMP HAS A LAMP EFFICACY THAT IS NO LDWER THAN EFFICACIES CONTAINED IN TABLE 150-C. BALLASTS FOR LAMPS RATED 13 WATTS OR GREATER SHALL BE ELECTRONIC AND SHALL HAVE AN OUTPUT FREQUENCY NO LESS THAN 20 kHz.

Electrical Code Requirements

-Provide a grounding electrode as per 2022 CEC, Article 250.64(D) & 250.52.
-Grounding conductors to be provided where installing a branch circuit or feeder supplying a separate building or structure. 2022 CEC, Article 250.32(B).
-At least one wall switch-controlled lighting outlet shall be installed in every habitable room, in bathrooms, hallways, stairways, attached garages, detached garages with electrical power, Attics, under floor spaces, utility rooms, basements used for storage or having equipment that requires servicing, and at outdoor entrances or exits. 2022 CEC, Article 210.70.
-Dwellings with direct grade level access shall have at least one receptacle outlet at grade level at the front and back of the dwelling. All 125 volt, 15 and 20 amp, receptacles installed outdoors with direct grade level access shall be GFCI protected. All receptacles installed outdoors in wet or damp locations shall be in a weatherproof enclosure as per 2022 CEC, Articles 210.52(E), 210.8(A)(3), & 406.9.
-At least one receptacle outlet, in addition to any provided for laundry equipment, shall be installed in each basement, in each attached garage, and in each detached garage or accessory building with electric power. These outlets are to be GFCI protected. 2022 C EC, Article 210.52(G).
-Provide GFCI protection to all 125 volt, 15 amp and 20 amp receptacles installed in bathrooms, garages, outdoors, crawlspaces at or below grade, unfinished basements, receptacles to serve counter top surfaces installed in kitchens, and receptacles within 6 feet of a sink. 2022 CEC, Article 210.8(A).
-ARC –fault circuit interrupter protection is required in dwellings for all 120 volt single phase 15 and 20 amp branch circuits specified in 2022 CEC, Article 210.12. Receptacle outlets shall be spaced not more than 12 feet apart and a maximum of 6 feet from the ends of walls or openings. Receptacle outlets are also required in walls 2 feet or greater. 2022 CEC, Article 210.52(A).
-Provide two or more 20 amp small appliance branch circuits evenly proportioned in the kitchen, pantry, breakfast room, dining room, or similar area. Such circuits shall have no other outlets. 2022 CEC, Article 210.52(B).
Note: One additional 20 amp branch circuit shall be provided to supply the laundry receptacle outlet(s). This circuit shall have no other outlets. 2022 CEC, Article 210.11(C)(2).
-Provide fuses or approved circuit breakers at air conditioning units and heat pumps as per 2022 CEC, Article 440. (Do not exceed maximum fuse requirements or minimum on equipment specification plate).
-An equipment grounding conductor is required with all branch circuits and feeders supplying a separate building or structure. 2022 CEC, Article 250.32(B).
-Provide an intersystem bonding termination means that includes provisions for connecting three grounding or bonding conductors for communications systems using a #6 copper conductor. 2022 CEC, Article 250.94,
-Equipment grounding conductors to be provided for grounding means and effective ground-fault path by performing both grounding and bonding functions. 2022 CEC, Article 250.118
-Equipment bonding jumpers that connect grounding terminals of receptacles to a grounded metal box must be sized according to table 250.122 using the rating of the overcurrent device, fuse, or circuit breaker for the circuit. 2022 CEC, Article 250.146.
-Device or equipment fill in a junction box to be calculated using twice the wire size volume if the device is wider than 2 inches. 2022 CEC, Article 314.16(B)(4).
-Lighting junction boxes to be designed for the purpose and listed with the capacity of holding 50 pounds. It must be marked for the purpose of holding luminaries. 2022 CEC, Article 314.27(A).
-Armored clad cable (AC) is acceptable for branch circuits and feeders. 2022 CEC, Article 320.10(1).
-Metal clad cable (MC) is permitted for wet locations if meeting the conditions of 2022 CEC, Article 330.10(A)(11).
-Flexible metal conduit isn't permitted for use in wet locations, regardless of any conditions. 2022 CEC, Article 348.12(1).
-Flexible metal conduit and liquid tight flexible metal conduit may be fished within walls or concealed spaces without the need for support. 2022 CEC, Article 348.30(A).
-An equipment disconnecting means that isn't within sight of the equipment it serves is required to be capable of being locked open (off position) and have a means for adding a lock that must remain with the equipment whether the lock is installed or not. This is a special device that connects to the breaker. 2022 CEC, Article 110.25.
-Receptacles in wet locations. 120 volt and 250 volt are required to be listed weather-resistant type. 2022 CEC, Article 406.9(A) & (B).
-Tamper-resistant receptacles in dwelling to be installed in areas specified by 210.52 shall be listed tamper- resistant type. 2022 CEC, Article 406.12.
-All luminaires and lamp holders shall be listed. 2022 CEC, Article 410.6.
-Those luminaries allowed in clothes closets by 2022 CEC 410.16(A) shall be installed per the requirements of 2022 CEC 410.16(C)
-The disconnecting means for pool and spa or hot tub shall simultaneously open all ungrounded conductors. It shall be further than 5 feet from the waters edge. 2022 CEC, Article 680.12.
-Receptacles shall be greater than 6 feet from the water edge of the pool, fountain, spa or similar installation. It shall be GFCI protected. 2022 CEC, Articles 680.22, 680.34, and 680.43.
-GFCI protection is required for all pool pump motors for either 125 volt or 240 volt. 2022 CEC, Article 680.21(C).
-Equipotential bonding will be required around pool areas. A conductor sized at a minimum of #8 copper shall be used. 2022 CEC, Article 680.26.
-Pumps for portable pools shall have an integral GFCI protected cord within 12 inches of the attachment plug. All 125 volt, 15 and 20 amp receptacles within 20 feet of a pool shall be GFCI protected. 2022 CEC, Article 680.31 & 680.32.
-Hydro massage bathtubs and their associated equipment must be supplied by at least one separate individual circuit. 2022 CEC, Article 680.71.

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Drawings and Specifications as instruments of service are and shall remain the property of the Designer. They are not to be used on extensions of the project, or other projects, except by agreement in writing and appropriate compensation to the Designer.

The General Contractor is responsible for confirming and correlating dimensions at the job site. The Designer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the project.

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Whitehead Residence

759 Lake Street, Lake Elsinore CA 92530

Electrical PlanS

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

ISSUED:
08/17/2024

E001

Sheet 17 OF 23

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1.0 GENERAL NOTES

1 .1 THE CONTRACTORS SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK AND THE ENGINEER/ARCHITECT/ DESIGNER SHALL BE NOTIFIED IN WRITING IMMEDIATELY OF ANY DISCREPANCIES.
1.2 ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
1.3 NO PIPES, DUCTS, SLEEVES, CHASES, ETC. SHALL BE PLACED IN SLABS, BEAMS, OR WALLS UNLESS SPECIFICALLY SHOWN OR NOTED. NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC., UNLESS OTHERWISE NOTED.
1.4 IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS OR DETAILS ON THESE DRAWINGS.
1.5 PLANS SHALL NOT BE USED FOR CONSTRUCTION UNTIL A BUILDING PERMIT HAS BEEN ISSUED.
1.6 ALL WORK TO BE PERFORMED BY A LICENSED CONTRACTOR THE CONTRACTOR IS TO INSURE THAT THE PLANS ARE REVIEWED BY THE SOILS ENGINEER FOR COMPLIANCE WITH SOIL CONDITIONS.

2.0 FOUNDATION

2.1 BOTTOM OF FOOTINGS SHALL BE (UNLESS OTHERWISE NOTED):
ONE STORY - 12" WIDE x 12" INTO SOIL
TWO STORY - 15" WIDE x 18" INTO SOIL
ALL FOOTINGS TO HAVE A #5 REBAR TOP AND BOTTOM
2.2 SOIL PREPARATION, GRADING AND FOOTINGS TO BE IN CONFORMANCE WITH THE 2022 C.B.C. CLASS V SOIL (UNLESS OTHERWISE NOTED PER SOILS REPORT).
2.3 FINISH EXCAVATION FOR FOUNDATION SHALL BE NEAT AND TRUE TO LINE WITH ALL LOOSE MATERIAL REMOVED FROM EXCAVATIONS, THE FOOTING EXCAVATIONS SHALL BE KEPT FREE FROM LOOSE MATERIAL AND STANDING WATER, BEFORE ANY CONCRETE IS PLACED, EXCAVATION SHALL BE CHECKED AND APPROVED BY A QUALIFIED SOIL ENGINEER TO INSURE COMPLIANCE WITH REQUIREMENTS.
2.4 PROVIDE SHORING AT TOP OF ALL RETAINING EARTH PRIOR TO BACKFILLING UNLESS OTHERWISE NOTED. SHORING TO REMAIN IN PLACE UNTIL PERMANENT STRUCTURAL SUPPORTING MEMBERS ARE INSTALLED. (IF SUPPORTING MEMBERS ARE CONCRETE, SHORING IS TO REMAIN IN PLACE FOR (7) DAYS MIN. AFTER CONCRETE PLACEMENT)
2.5 BACKFILL FOR ALL RETAINING WALLS SHALL BE PER MEABLE MATERIAL.
2.6 BACKFILLING SHALL NOT BEGIN UNTIL ALL MASONRY OR CONCRETE RETAINING MEMBERS HAVE BEEN PLACE A MINIMUM OF (14) DAYS.
2.7 TESTING LAB SHALL SUBMIT COMPACTION FOR ALL FILL TO THE SOILS ENGINEER PRIOR TO REQUESTING FOUNDATION INSPECTION. ALL LOOSE SOIL AND FILL DIRT (INCLUDING BACKFILL BEHIND RETAINING WALLS) SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY. COMPACTION SHALL ALSO COMPLY WITH THE SOILS REPORT.
2.8 LOT SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM STRUCTURE FOUNDATIONS. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10 FT (5% SLOPE). WHERE LOT LINES, WALLS, SLOPES OR OTHER PHYSICAL BARRIERS PROHIBIT 6" OF FALL WITHIN 10 FT DRAINS OR SWALES SHALL BE CONSTRUCTED TO ENSURE DRAINAGE AWAY FROM STRUCTURES (CRC R401.3). IMPERVIOUS SURFACES WITHIN 10 FT OF BUILDING OR STRUCTURE FOUNDATIONS SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING OR STRUCTURE.
2.9 CONTRACTOR TO VERIFY EXISTING FOUNDATION AND SLAB AND IF POST TENSION NOTIFY ENGINEER/ARCHITECT/DESIGNER.

3.0 REINFORCED CONCRETE

3.1 CEMENT SHALL CONFORM TO ASTM C 150, TYPE I OR TYPE II.
3.2 UNLESS NOTED OTHERWISE CONCRETE DESIGN STRENGTH FOR SLABS AND FOOTINGS SHALL BE 2,500 PSI AT 28 DAYS. AREAS WITH CONCRETE EXPOSED TO FREEZING AND THAWING OR DEICING CHEMICALS SHALL HAVE A WATER TO CEMENT RATIO OF .5 AND A STRENGTH OF 4,000 PSI AT 28 DAYS.
FOR SEVERE OR VERY SEVERE SULFATE CONDITIONS THE WATER TO CEMENT RATIO IS TO BE .45 WITH 4,500 PSI AT 28 DAYS.
3.3 READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C 94.
3.4 ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER. ADMIXTURES SHALL COMPLY WITH ASTM A 494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE BUT SHALL NOT BE CONSIDERE TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. (CALCIUM CHLORIDE SHALL NOT BE USED.)
3.5 NO CONDUIT PLACED IN CONCRETE SLAB SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3" THE THICKNESS OF THE SLAB. EXCEPT FOR LOCAL OFFSETS, MINIMUM CLEARANCE BETWEEN CONDUITS SHALL BE 6".
3.6 PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS ETC., SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS NOTED OTHERWISE OR 1/2" RADIUS.
3.7 NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIONS STRENGTH AT (28) DAYS OF 7000 PSI AS MEASURED BY ASTM C 109. PREGROUTING OF BASE PLATES SHALL NOT BE PERMITTED.
3.8 CONCRETE SHALL CONFORM TO ALL REQUIREMENTS OF ACI 318-19 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, EXCEPT AS MODIFIED BY THESE NOTES.
3.9 SLABS POURED ON GRADE SHALL BE LEVEL (OR PLANAR) TO WITH 1/8" IN 8'-0" IN ANY DIRECTION EXCEPT AS NOTED OTHERWISE ON THE PLANS. MODIFIED BY THESE NOTES.

4.0 REINFORCING STEEL

4.1 BAR REINFOREMENT SHALL BE ASTM A 615, GRADE 40 FOR #5 AND SMALLER AND GRADE 60 FOR BARS LARGER THE #5
4.2 WELDED WIRE FRABRIC SHALL CONFORM TO ASTM A 185.
4.3 VERTICAL BARS IN WALLS SHALL BE ACCURATELY POSITIONED PER THE PLANS AND TIED INTO POSITION TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING (192) TIMES THE BAR DIAMETER.
4.4 REINFORCING DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
4.5 REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM COVER:
FOOTINGS ADJACENT TO EARTH — 3" CLEAR
CONCRETE SURFACE (FORMED) EXPOSED TO EARTH OR WEATHER — 2"
SLABS — 3/4"
4.6 ALL REINFORCING STEEL, ANCHORS BOLTS, DOWELS AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE OR GROUT.
4.7 DOWELS BETWEEN FOOTINGS AND MASONRY SHALL BE THE SAME GRADE, SPACING AND SIZE.
4.8 SPACER TIES #3 SHALL BE PLACED APPROX. AT 2'-6" O.C. IN ALL FOOTINGS TO SECURE REINFORCING IN PLACE.

5.0 STRUCTURAL WOOD

5.1 ALL WOOD MEMBERS SHALL BE DOUGLAS FIR (D.F.) OR LARCH GRADE PER DOC PS20-05 MARKED BY A RECOGNIZED GRADING AGENCY(W.C.I.A. AND W.W.P.
A.) 5.2 WOOD GRADES (UNLESS OTHERWISE NOTED):
A) HORIZONTAL MEMBERS:

JOISTS	= GRADE #2
4x & 6x BEAMS & STRINGERS	= GRADE #1
4x FRAMING	= GRADE #1
LEDGERS	= GRADE #2
MUDSILLS	= PRESSURE TREATED #2

B) VERTICAL MEMBERS:

2"x4" - 8'-0" TO 14"	= STUD
2"x4" STUDS 8'-0" TO 14"	= CONST.
2"x6" AND LARGER STUDS	= GRADE #2
POSTS AND TIMBERS	= GRADE #1

5.3 PLYWOOD SHEATHING SHALL BE DOUGLAS FIR CONFORMING TO COMMERCIAL PRODUCTS STANDARDS DOC PS1 OR DOC PS1-19 OR DOC PS2-18 (EXT. GLUE).
5.4 WOOD TO BE DETAILED OR APPROVED BY ENGINEER PER 2022 C.B.C. SEC 2304.
5.5 ALL SILLS OR PLATES RESTING ON CONCRETE OR MASONRY, WHICH IS IN COTACT WITH THE EARTH OR RESTING ON FOUNDATIONS, SHALL BE PRESSURE TREATED DOUGLAS FIR. BOLTS SHALL BE PLACE (9") FROM THE END OF A BOARD OR FROM A NOTCH AND SPACED AT INTERVALS AS NOTED.
5.6 ALL BOLT HEADS AND NUTS BEARING ON WOOD SHALL HAVE A STANDARD CUT WASHERS. ALL BOLT HOLES IN WOOD SHALL BE DRILLED 1/32" DIAMETER LARGER THAN THE SPECIFIED BOLT DIAMETER.
5.7 ALL FRAMING ANCHORS, POST CAPS, COLUMN BASE, STRAPS, ETC. SHALL BE MANUFACTURED BY 'SIMPSON COMPANY' OR EQUAL.
5.8 BLOCKING AND BRIDGING TO BE PER 2022 C.B.C. SEC. 2308.4.6 & 2308.5.7.
5.9 ALL HOLDDOWNS TO BE ON 4x FRAMING MINIMUM UNLESS NOTED OTHERWISE PER PLAN. 'HD' TYPE OF HOLDDOWNS MA Y BE ON (2) - 2x NAILED TOGETHER WITH 16d AND 6" O.C.
5.10 BOLTS TO BE A307 GRADE STEEL FOR MUDSILLS AND WOOD TO WOOD CONNECTIONS.
5.11 NAILS TO BE COMMONS UNLESS OTHERWISE NOTED.

6.0 GLUED LAMINATED TIMBERS

6.1 MANUFACTURE OF GLUED-LAMINATED TIMBERS SHALL BE IN CONFORMANCE WITH U.S. PRODUCT STANDARD ANSI/APA 190.1, ASTM D3737, AITC 200-09, AND FABRICATED IN A PLANT WITH AN APPROVED QUALITY CONTROL SYSTEM, LICENSED BY AITC. MANUFACTURER SHALL STAMP WITH A QUALITY MARK AND SHALL SUBMIT AN AITC INSPECTION CERTIFICATE TO THE BUILDING DEPARTMENT AND ENGINEER PRIOR TO INSTALLATION.
6.2 USING EXTERIOR GLUE, COMBINATION SYMBOL 24F-V4 SIMPLE SPANS AND 24F-V8 FOR CONTINUOUS OR CANTILEVERED MEMBERS.
6.3 PARALLAMS PER ICC-ES ESR-1387 OR EQUAL GRADE 2.2E U.N.O.
6.4 T.J.I. JOIST ICC-ES ESR-1153 OR EQUAL

7.0 MASONRY

7.1 MASONRY UNIT SHALL BE GRADE N WITH f'm = 1500 PSI
7.2 SPECIAL INSPECTION IS REQUIRED
7.3 CEMENT SHALL BE LOW ALKALI PORTLAND CEMENT AND CONFORM TO ASTM C150 TYPE I OR II
7.4 MORTAR SHALL BE TYPE "S" CONFORMING TO TMS402/602-16 TABLE 1-ASTM C270(1800 PSI)AT 28 DAYS MINIMUM CONSISTING OF:
1 PART PORTLAND CEMENT TYPE I OR II LOW ALKALI
1/4" TO 1/2" PART HYDRATED TYPE "S" LIME
AGGREGATE TO BE 2 1/4 TO 3 TIMES THE SUM OF CEMENT AND LIME
7.5 GROUT SHALL CONFORM TO TABLE 1-ASTM C476 (2000 PSI AT 28 DAYS MIMIMUM) CONSISTING OF:
1 PART PORTLAND CEMENT
2 1/4 TO 3 PARTS AGGREGATE (SAND)
1 TO 2 PARTS PEA GRAVEL
7.6 ALL WALLS SHALL BE SOLID GOUTED
7.7 WHEN GROUTING IS STOPPED FOR LONGER THAN ONE HOUR HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1 1/2" BELOW THE TOP OF THE UPPERMOST UNIT.
7.8 PROVIDE INSPECTION AND CLEANOUT HOLES AT BASE OF VERTICAL CELL FOR GROUT LIFTS IN EXCESS OF 5'-0" OF HEIGHT.

8.0 STRUCTURAL STEEL

8.1 ALL WORKMANSHIP & MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE AISC 360-16 & AISC341-16 SPECIFICATIONS THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
8.2 STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

PLATE & STRUCTURAL STEEL SECTIONS	ASTM A36
STEEL PIPES	ASTM A53, GRADE B, Fy = 36 KSI
STEEL TUBING	ASTM A500, GRADE B, Fy = 46 KSI
MACHINE & ANCHOR BOLTS	ASTM F1554 GR36
NUTS	ASTM A563, HEX GRADE A
TIE RODS	ASTM A527, GRADE 50, Fy = 50 KSI

8.3 WELDING SHALL BE SHOP WELDED AND SHALL CONFORM TO AWS D1.1/D1.1M-15, D1.2/D1.2M-15, D1.3/D1.3M-08, D1.4/D1.4M-2017, D1.8/D1.8M-2016, QC1-2016 AND SHALL BE PERFORMED BY WELDERS QUALIFIED UNDER THE PROCEDURES CONTAINED THEREIN.
8.4 ANY FIELD WELDING SHALL BE WITH SPECIAL INSPECTION.

WORK REQUIRING SPECIAL INSPECTION	ITEM DESCRIPTION AND LOCATION	DESIGN STRENGTH	NAME OF SPECIAL INSPECTOR	PHONE NUMBER OF SPECIAL INSPECTOR
SPECIAL INSPECTIONS REQUIRED BY CBC SECTION 1705				
*FOR R-3 AND U OCCUPANCIES ACCESSORY TO RESIDENTIAL OCCUPANCIES SPECIAL INSPECTION IS NOT REQUIRED FOR: ITEMS 1b, 2a (WHEN f'c ≤ 3,000 psi), 2c, 3a (WHEN f'm ≤ 1,500 psi), and 3b (WHEN WALL HEIGHT IS ≤ 10 FT.). STRUCTURAL OBSERVATION IS PERMITTED IN LIEU OF SPECIAL INSPECTION FOR: ITEMS 1d, 3a, 3b (WHEN WALL HEIGHT IS > 10 FT), 4a, AND 4b.				
1. Steel Construction				
a. Field welding				
b. Steel frame*				
c. High-strength bolts				
d. Cold-formed steel framing*				
2. Concrete Construction				
a. f'c > 2,500 psi*				
b. Post Installed Anchors				
c. Structural slabs*				
d. Pre-stressed / post-tensioned slabs				
3. Masonry Construction				
a. Masonry walls*				
b. Site walls other than County Standard plans*				
4. Wood Construction				
a. High-load diaphragms*				
b. Structural wood: Nailing, bolting, anchoring and other fastening of components within the lateral-force-resisting system where fastener spacing of sheathing is 4 inches o.c. or less*				
5. Foundations				
a. Driven deep foundations				
b. Cast-in-place deep foundations				
c. Helical pile foundations				
6. Sprayed fire-resistant materials				
7. Mastic and intumescent fire-resistant coatings				
8. Exterior insulation and finish systems (EIFS)				
9. Fire-resistant penetrations and joints in Risk Category III or IV buildings				
10. Smoke control systems				
11. Installation and anchorage of mechanical and electrical components				
a. Electrical equipment for emergency standby power systems				
b. Other electrical equipment in structures in Seismic Design Category E or F				
c. Piping systems or ductwork designed to carry hazardous materials				
d. Vibration isolation systems with 1/4 inch or less clearance required between support frame and restraint				
12. Storage racks				
13. Seismic isolation systems				

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INSPECTIONS

CONTRACTORS SHALL PROVIDE ALL INSPECTIONS DURING CONSTRUCTION AS REQUIRED BY INTERNATIONAL BUILDING CODE OR BY THE LOCAL CODES AND ORDINANCES, SPECIAL INSPECTIONS SHALL BE PROVIDED AS REQUIRED.

NAILING SCHEDULE

CONNECTION	FASTENING	LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3-8d COMMON (2 1/2" x 0.131"), OR 3-10d BOX (3"x0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	2-8d COMMON (2 1/2" x 0.131") 2-3" x 0.131" NAILS 2-3" 14 GAGE STAPLES	EACH END, TOENAIL
	2-16d COMMON (3 1/2" x 0.162") 3-3" x 0.131" NAILS 3-3" 14 GAGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON (3 1/2" x 0.162") @ 6" O.C. 3" x 0.131" NAILS @ 6" O.C. 3"x 14 GAGE STAPLES @ 6" O.C.	FACE NAIL
2. CEILING JOISTS TO TOP PLATE	3-8d COMMON (2 1/2" x 0.131"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
3. CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST) (SEE SECTIONS 2308.7.3.1 TABLE 2308.7.3.1	3-16d COMMON (3 1/2" x 0.162"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
4. CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT)(SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
5. COLLAR TIE TO RAFTER	3-10d COMMON (3" x 0.148"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
6. RAFTER OR ROOF TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.5)	3-10 COMMON (3" x 0.148"), OR 3-16 BOX (3 1/2" x 0.135"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131 NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
7. ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2 INCH RIDGE BEAM	2-16d COMMON (3 1/2" x 0.162"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN, OR	END NAIL
	3-10d COMMON (3 1/2" x 0.148"), OR 3-16d BOX (3 1/2" x 0.135"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3 1/2" x 0.162"),	24" O.C. FACE NAIL
	10d BOX (3" x 0.128"), OR 3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	16" O.C. FACE NAIL
9. STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON (3 1/2" x 0.162"), OR	16" O.C. FACE NAIL
	16d BOX (3 1/2" x 0.135"), OR	12" O.C. FACE NAIL
	3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	12" O.C. FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3 1/2" x 0.162"), OR	16" O.C. EACH EDGE, FACE NAIL
	16d BOX (3 1/2" x 0.135")	12" O.C. EACH EDGE, FACE NAIL
11. CONTINUOUS HEADER TO STUD	4-8d COMMON 2 1/2" x 0.131"), OR 4-10d BOX (3" x 0.128")	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON (3 1/2" x 0.162"), OR	16" O.C. FACE NAIL
	10d BOX (3" x 0.128"), OR 3" x 0.131" NAILS, OR 3" 14 GAGE STAPLES, 7/16" CROWN	12" O.C. FACE NAIL
13. TOP PLATE TO TOP PLATE, AT END JOINTS	8-16d COMMON (3 1/2" x 0.162"), OR 12-10d BOX (3" x 0.128"), OR 12-3" x 0.131 NAILS, OR 12-3" 14 GAGE STAPLES, 7/16" CROWN	EACH SIDE OF END JOINT, FACE NAIL (MINIMUM 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3 1/2" x 0.162"), OR	16" O.C. FACE NAIL
	16d BOX (3 1/2"x 0.135"), OR 3" x 0.131" NAILS, OR 3" 14 GAGE STAPLES, 7/16" CROWN	12" O.C. FACE NAIL
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACED WALL PANELS	2-16d COMMON (3 1/2" x 0.162"), OR 3-16d BOX (3 1/2" x 0.135"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	16" O.C. FACE NAIL
16. STUD TO TOP OR BOTTOM PLATE	4-8d COMMON (2 1/2" x 0.131"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN, OR	TOENAIL
	2-16d COMMON (3 1/2" x 0.162"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	ENDNAIL
17. TOP OR BOTTOM PLATE TO STUD	2-16d COMMON (3 1/2" x 0.162"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	END NAIL
18. TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	2-16d COMMON (3 1/2x 0.162"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
19. 1" BRACE TO EACH STUD AND PLATE	2-8d COMMON (2 1/2" x 0.131"), OR 2-10d BOX (3" x 0.128"), OR 2-3" x 0.131" NAILS, OR 2-3" 14 GAGE STAPLES, 7/16" CROWN	FACE NAIL
20. 1" x 6" SHEATHING TO EACH BEARING	2-3d COMMON (2 1/2" x 0.131"), OR 2-10d BOX (3" x 0.128")	FACE NAIL
21. 1" x 8" AND WIDER SHEATHING TO EACH BEARING	3-8d COMMON (2 1/2" x 0.131"), OR 3-10d BOX (3" x 0.128")	FACE NAIL
FLOOR		
22. JOIST TO SILL, TOP PLATE, OR GIRDER	3-8d COMMON (2 1/2" x 0.131"), OR FLOOR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
23. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	8d COMMON (2 1/2" x 0.131"), OR 10d BOX (3" x 0.128"), OR 3" x 0.131" NAILS, OR 3" 14 GAGE STAPLES, 7/16" CROWN	6" O.C., TOENAIL
24. 1" x 6" SUBFLOOR OR LESS TO EACH JOIST	2-8d COMMON (2 1/2" x 0.131"), OR 2-10d BOX (3" x 0.128")	FACE NAIL
25. 2" SUBFLOOR TO JOIST OR GRINDER	2-16d COMMON (3 1/2" x 0.162")	FACE NAIL
26. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	2-16d COMMON (3 1/2" x 0.162")	EACH BEARING, FACE NAIL
27. BUILT-UP GIRDERS AND BEAMS, 2" LUMBER LAYERS	20d COMMON (4" x 0.192"), OR	32" O.C. FACE NAIL AT TOP OF BOTTOM STAGGERED ON OPPOSITE SIDES
	10d BOX (3" x 0.128), OR 3x x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	24" O.C. FACE NAIL AT TOP OF BOTTOM STAGGERED ON OPPOSITE SIDES
	AND: 2-20d COMMON (4" x 0.192"), OR 3-10d BOX (3" x 0.128"), OR 3-3" x 0.131" NAILS, OR 3-3" 14 GAGE STAPLES, 7/16" CROWN	ENDS AND AT EACH SPLICE, FACE NAIL
28. LEDGER STRIP SUPPOERTING JOISTS OR RAFTERS	3-16d COMMON (3 1/2" x 0.162"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	EACH JOIST OR RAFTER, FACE NAIL
29. JOIST TO BAND JOIST OR RIM JOIST	3-16d COMMON (3 1/2 x 0.162"), OR 4-10d BOX (3" x 0.128"), OR 4-3" x 0.131" NAILS, OR 4-3" 14 GAGE STAPLES, 7/16" CROWN	END NAIL
30. BRIDING OR BLOCKING TO JOIST, RAFTER OR TRUSS	2-8d COMMON (2 1/2" x 0.131"), OR 2-10d BOX (3" x 0.128"), OR 2-3" x 0.131" NAILS, OR 2-3" 14 GAGE STAPLES, 7/16" CROWN	EACH END, TOENAIL

CONNECTION	FASTENING	EDGES (INCHES)	INTERMEDIATE SUPPORTS (INCHES)
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING			
31. 3/8" - 1/2"	6d COMMON OR DEFORMED (2" x 0.113") (SUBFLOOR AND WALL)	6	12
	8d BOX OR DEFORMED (2 1/2" x 0.113")(ROOF)	6	12
	2 3/8" x 0.113" NAIL (SUBFLOOR AND WALL)	6	12
	1 3/4" 16 GAGE STAPLE, 7/16" CROWN (SUBFLOOR AND WALL)	4	8
	2 3/8" x 0.113" NAIL (ROOF)	4	8
	1 3/4" 16 GAGE STAPLE, 7/16" CROWN	3	6
32. 19/32" - 3/4"	8d COMMON (2 1/2" x 0.131") OR 6d DEFORMED (2" x 0.113")	6	12
	2 3/8" x 0.113" NAIL, OR 2" 16 GAGE STAPLES, 7/16" CROWN	4	8
33. 7/8" - 1 1/4"	10d COMMON (3" x 0.148"), OR 8d DEFORMED (2 1/2" x 0.131")	6	12
OTHER EXTERIOR WALL SHEATHING			
34. 1/2" FIBERBOARD SHEATHING	1 1/2" x GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER), OR 1 1/4" 16 GAGE STAPLE WITH 7/16" OR 1" CROWN	3	6
35. 25/32" FIBERBOARD SHEATHING	1 3/4" x GALVANIZED ROOFING NAIL (7/16" DIAMETER HEAD), OR 1 1/2 16 GAGE STAPLE WITH 7/16" OR 1" CROWN	3	6
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
36. 3/4" AND LESS	8d COMMON (2 1/2" x 0.131"), OR 6d DEFORMED (2" x 0.113")	6	12
37. 7/8" - 1"	8d COMMON 2 1/2" x 0.131"), OR 8d DEFORMED (2 1/2" x 0.131")	6	12
38. 1 1/8" - 1 1/4"	10d COMMON (3" x 0.148"), OR 8d DEFORMED (2 1/2" x 0.131")	6	12
PANEL SIDING TO FRAMING			
39. 1/2" OR LESS	6d CORROSION-RESISTANT SIDING (1 7/8" x 0.106"), OR 6d CORROSION-RESISTANT CASING (2"x 0.099")	6	12
40. 5/8"	8d CORROSION-RESISTANT SIDING (2 3/8" x 0.128"), OR 8d CORROSION-RESISTANT CASING (2 1/2" x 0.113")	6	12

2022 C.B.C. TABLE 2306.3(1) SHEARWALL AND CONNECTIONS FOR STAPLES / 2021 SDPWS TABLE 4.3A FOR NAILS

SHEATHING ONE SIDE

MARK	V (Allowable)	MATERIAL (PER 2022 C.B.C. **STAPLES**)	MATERIAL (PER 2021 SDPWS TABLE 4.3A **NAILS**)	TOP PLATE CONNECTION SEE SW1 ON "S2"	FLOOR TO FLOOR CONNECTION SEE SW2 ON "S2"
2	155 PLF	3/8" STR 1 SHEATHING, BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 6" O.C. EDGES, 12" O.C. FIELD 2x FRAMING @ 16" O.C.	3/8" WOOD STRUCTURAL PANEL 8d@6" O.C. E.N. 12" O.C. F.N. STUDS 2x FRAMING 16" O.C. BLOCKED *	LTP4 - 24" O.C.	16d - 6" O.C.
3	235 PLF	3/8" STR 1 SHEATHING, BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 4" O.C. EDGES, 12" O.C. FIELD 2x FRAMING @ 16" O.C.	3/8" WOOD STRUCTURAL PANEL 8d@6" O.C. E.N. 12" O.C. F.N. STUDS 2x FRAMING 16" O.C. BLOCKED *	LTP4 - 24" O.C.	16d - 4" O.C.
4	280 PLF	3/8" STR 1 SHEATHING, BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 3" O.C. EDGES, 12" O.C. FIELD 2x FRAMING @ 16" O.C.	3/8" WOOD STRUCTURAL PANEL 8d@6" O.C. E.N. 12" O.C. F.N. STUDS 2x FRAMING 16" O.C. BLOCKED *	LTP4 - 16" O.C.	16d - 3" O.C.
5 3x	350 PLF	3/8" STR 1 SHEATHING, BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 2" O.C. EDGES, 12" O.C. FIELD 2x FRAMING @ 16" O.C. ADJOINING PANEL EDGES 3x * MUDSILL 3x P.T.	3/8" WOOD STRUCTURAL PANEL 8d@4" O.C. E.N. 12" O.C. F.N. STUDS 2x FRAMING 16" O.C. BLOCKED 3x PT SILL *	LTP4 - 16" O.C.	SDS25600 @ 9" O.C. 3x BLOCK OR RIM JOIST
6 3x	400 PLF	3/8" STR 1 SHEATHING, BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 2" O.C. EDGES, 12" O.C. FIELD 2x FRAMING @ 16" O.C. ADJOINING PANEL EDGES 3x * MUDSILL 3x P.T.	3/8" WOOD STRUCTURAL PANEL 8d@4" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 16" O.C.	SDS25800 @ 9" O.C. 3x BLOCK OR RIM JOIST
7 3x	475 PLF	15/32 STR I SHEATHING BLOCKED 16 GA, 1 1/2" LEGS STAPLES @: 2" O.C. EDGES, 12" O.C. FIELD ADJOINING PANEL EDGES 3x * MUDSILL 3x P.T.	3/8" WOOD STRUCTURAL PANEL 8d@3" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 12" O.C.	SDS25800 @ 6" O.C. 3x BLOCK OR RIM JOIST
8 3x	550 PLF	N/A	3/8" WOOD STRUCTURAL PANEL 8d@3" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 12" O.C.	SDS25800 @ 6" O.C. 3x BLOCK OR RIM JOIST
9 3x	730 PLF	N/A	3/8" WOOD STRUCTURAL 1 PANEL 8d@2" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE FAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 8" O.C.	SDS25800 @ 4" O.C. 3x BLOCK OR RIM JOIST
10 3x	870 PLF	N/A	15/32" WOOD STRUCTURAL PANEL 10d@2" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 8" O.C.	SDS25800 @ 3" O.C. 3x BLOCK OR RIM JOIST

SHEATHING TWO SIDE (DOUBLE SHEAR) — EACH SIDE

MARK	V (Allowable)	MATERIAL (PER 2022 C.B.C. **STAPLES**)	MATERIAL (PER 2021 SDPWS TABLE 4.3A **NAILS**)	TOP PLATE CONNECTION SEE SW3 EACH SIDE	SILL PLATE CONNECTION SEE SW4
11	470 PLF	3/8" STR I SHEATHING BOTH SIDES BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 4" O.C. EDGES, 12" O.C. FIELD OFFSET PANEL JOINTS FOR 2x OR USE 3x STUDS WHEN E.N. IS ON BOTH SIDES TO COMMON MEMBER MUDSILL 3X PT	3/8" WOOD STRUCTURAL PANEL 8d@6" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 24" O.C.	SDS25800 @ 6" O.C.
12	560 PLF	3/8" STR I SHEATHING BOTH SIDES BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 3" O.C. EDGES, 12" O.C. FIELD OFFSET PANEL JOINTS FOR 2x OR USE 3x STUDS WHEN E.N. IS ON BOTH SIDES TO COMMON MEMBER MUDSILL 3X PT	3/8" WOOD STRUCTURAL PANEL 8d@4" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 16" O.C.	SDS25800 @ 6" O.C.
13	800 PLF	3/8" STR I SHEATHING BOTH SIDES BLOCKED 16 GA 1 1/2" LEGS STAPLES @ 2" O.C. EDGES, 12" O.C. FIELD OFFSET PANEL JOINTS FOR 2x OR USE 3x STUDS WHEN E.N. IS ON BOTH SIDES TO COMMON MEMBER MUDSILL 3X PT	3/8" WOOD STRUCTURAL PANEL 8d@3" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 16" O.C.	SDS25800 @ 4" O.C.
14	950 PLF	N/A	3/8" WOOD STRUCTURAL PANEL 8d@3" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 12" O.C.	SDS25800 @ 4" O.C.
15	1100 PLF	N/A	3/8" WOOD STRUCTURAL PANEL 8d@2" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 8" O.C.	SDS25800 @ 3" O.C.
16	1450 PLF	N/A	3/8" WOOD STRUCTURAL 1 PANEL 8d@2" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 8" O.C.	2 ROWS SDS25800 @ 4" O.C.
17	1740 PLF	N/A	15/32" WOOD STRUCTURAL PANEL 10d@2" O.C. E.N. 12" O.C. F.N. INTERMEDIATE STUDS 2x @ EDGE NAILING TO ABUTTING PANELS 3x STUDS REQUIRED FRAMING 16" O.C. BLOCKED MUDSILL 3X PT	LTP4 - 8" O.C.	2 ROWS SDS25800 @ 4" O.C.

* VERIFY SILL SCHEDULE. SILL MAY BE 3X P.T. PER SILL SCHEDULE. ** A35 ON THE INSIDE OF BLOCK MAY BE USED AT THE SAME SPACING AS THE LTP4

NOTE: -IN LIEU OF 3x TWO 2x MAY BE USED WITH 16d @ 4" O.C. TOGETHER 2 THRU 6 AND SDS25300 @ 4" O.C. 7 THRU 17
-3x STUD REQUIRED FOR E.N. = 2" O.C. WITH STAPLES OR DOUBLE SIDED WITH E.N. ON EACH SIDE TO COMMON STUD 4" O.C. OR LESS - FOR 8d 3x STUDS AT ADJOINING PANELS FOR E.N. 3" O.C. OR LESS STAGGER SHEATHING FOR E.N. ON DIFFERENT STUDS
-SHEATHING TO BE STR1, NAILS TO BE COMMON
-FASTENERS IN CONTACT WITH PRESERVATIVE- TREATED OR FOR FIRE - RETARDANT TREATED WOOD SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.
- SPECIAL INSPECTION REQUIRED WHEN FASTENER SPACING OF SHEATHING IS EQUAL TO OR LESS THAN 4" OC
- STAPLES SHALL HAVE A MIN. CROWN WIDTH OF 7/16" & SHALL BE INSTALLED WITH THEIR CROWNS PARALLEL TO THE LONG DIMENSION OF THE FRAMING MEMBERS.

SEE SW5(A) SILL BOLTING

MARK	V (plf) (allowable)	SILL AND BOLTING SEE SW5
1	2x4 = 125 2x6 = 200 2x8 = 200	2x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 48" O.C.
2	2x4 = 175 2x6 = 280 2x8 = 280	2x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 32" O.C.
3 (SEE SILL BOLTING NOTE 6)	3x4 = 250 3x6 = 350 3x8 = 350	3x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 24" O.C.
4 3x	3x4 = 250 3x6 = 500 3x8 = 650	3x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 24" O.C.
5 3x	3x4 = 375 3x6 = 750 3x8 = 1000	3x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 16" O.C.
6 3x	3x4 = 500 3x6 = 1000 3x8 = 1350	3x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 12" O.C.
7 3x	3x4 = 550 3x6 = 1300 3x8 = 1600	3x PRESSURE TREATED 5/8" ~ 12" ANCHOR BOLTS @ 9" O.C.
8 3x	3x4 = 744 3x6 = 1800 3x8* = 2100	3x PRESSURE TREATED 3/4" ~ 12" ANCHOR BOLTS @ 9" O.C.

SEE SW5 SILL BOLTING

1.NOTE SILL SCHEDULE (4)3x THRU (8)3x REQUIRES 3x SILL CONTRACTOR TO VERIFY BOLT SIZE AND SPACING PER SILL SCHEDULE
2.BOLTS TO BE EMBEDDED A MINIMUM OF 7" INTO FIRST POUR ON TWO POUR SYSTEMS.
3.BOLTS AT CONCRETE CURBS TO BE EMBEDDED 7" MINIMUM IN POUR EXCLUDING CURBS.
4.BOLTS (1)2x AND (8)3x TO HAVE 3"x3"x.229" PLATE WASHER
5.MINIMUM BOLTING ON ALL WALLS 48" O.C. 3x3x.229 PLATE WASHER
6. VERIFY (3) IF SHEAR SCHEDULE REQUIRES 3x TO COMPLY WITH E.N.
7. ANCHOR BOLTS TO BE CENTERED IN FRAME WALL

2022 C.B.C. INTERIOR SHEARWALLS

EDGE DISTANCE 6"≥SILL BOLTING SEE (SW5) B

A	145 PLF	5/8 ~	2x P.T.	48" O.C.
B	210 PLF	5/8 ~	2x P.T.	32" O.C.
C	293 PLF	5/8 ~	2x P.T.	24" O.C.
D	350 PLF	5/8 ~	3x P.T.	16" O.C.
E	480 PLF	5/8 ~	3x P.T.	24" O.C.
F	728 PLF	5/8 ~	3x P.T.	16" O.C.
G	1170 PLF	3/4 ~	3x P.T.	12" O.C.
H	1640 PLF	3/4 ~	4x P.T.	12" O.C.

DESIGN CRITERIA

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Structural Notes & Schedules

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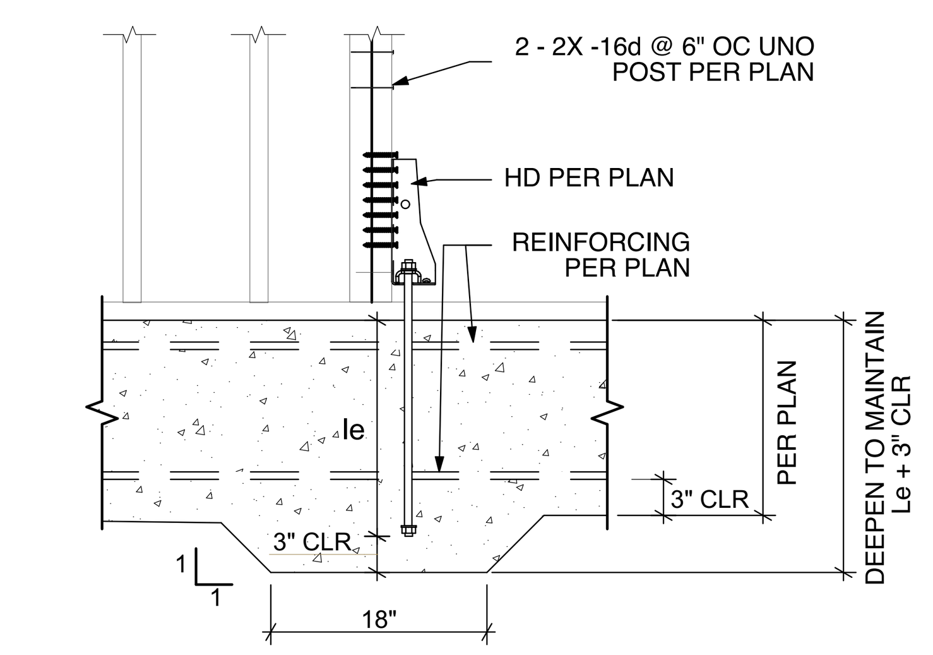
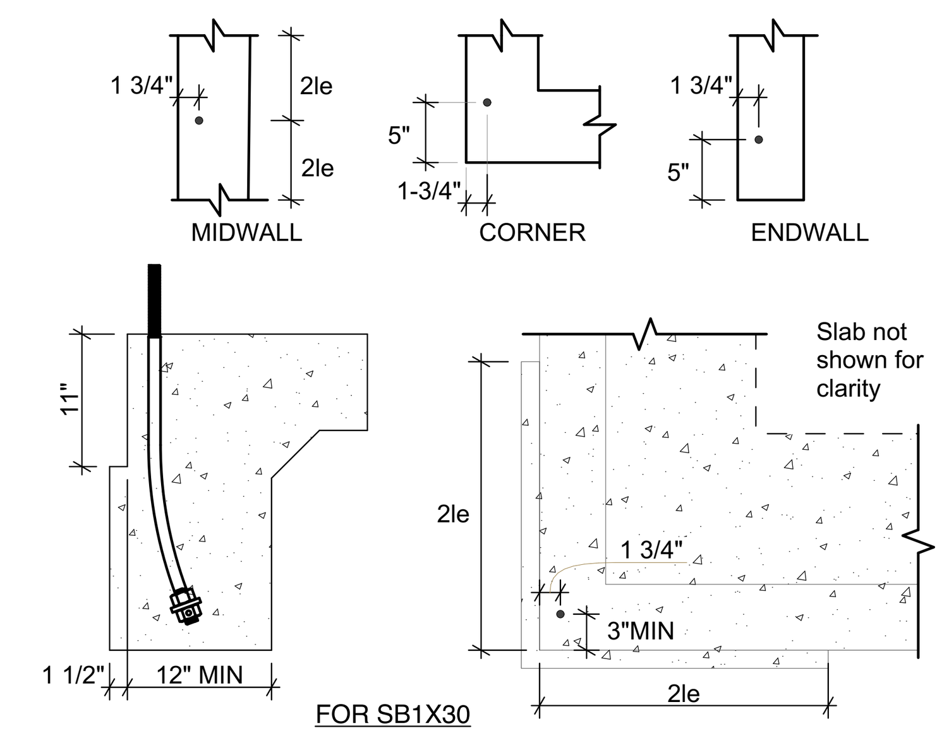
UPDATED:

S1



			ANCHOR			ALLOWABLE LOAD - WALL LOCATION		
HOLDOWN	FASTENER	POST DF-L	ONE POUR	TWO POUR*	le	MIDWALL	CORNER	ENDWALL
HDU2	6-SDS2.5	2-2X	SSTB16	SSTB20	12 5/8	2550	2550	2550
HDU4	10-SDS2.5	2-2X	SSTB20	SSTB24	16 5/8	3145	2960	2960
HDU5	14-SDS2.5	2-2X	SSTB24	**	20 5/8	3740	3325	3325
HDQ8	20-SDS3	2-2X	SSTB28	SSTB36	24 7/8	5715	5715	5715
HDQ8	20-SDS3	4X	SSTB28	SSTB36	24 7/8	7630	7315	6395
HDQ8	20-SDS3	6X6	SSTB28	SSTB36	24 7/8	8315	7315	6395
HDQ11	24-SDS2.5	6X6	SB1X30	SB1X30	24	11810	11810	11810

* Le MUST BE INTO FIRST POUR
** USE HDU8 WITH SSTB28 OR SSTB36, MIN. Le = 20 5/8"



17 HOLDOWN
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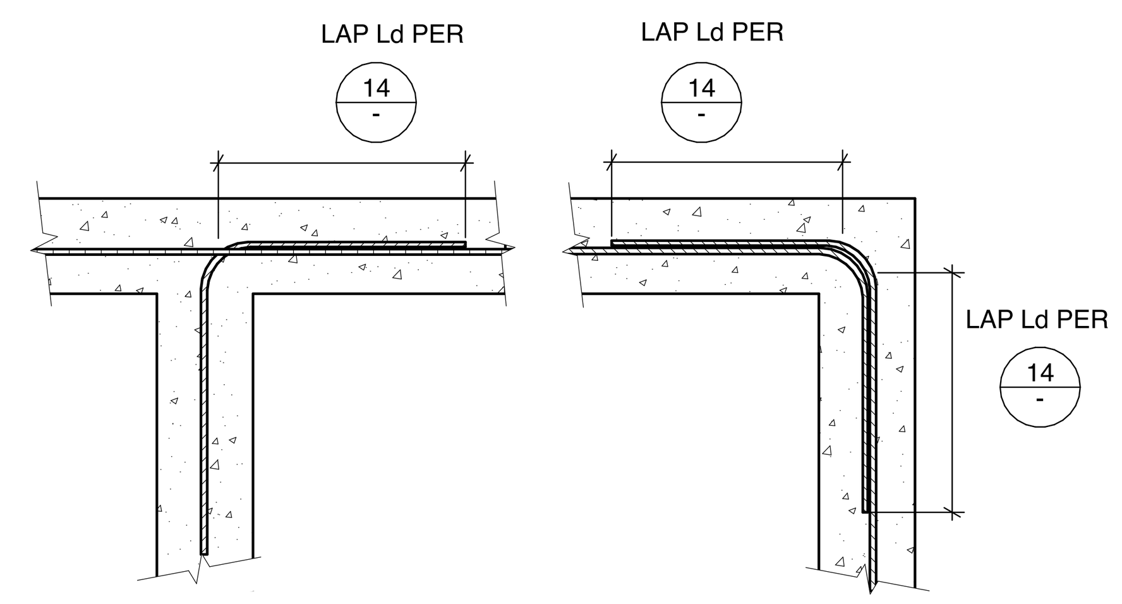
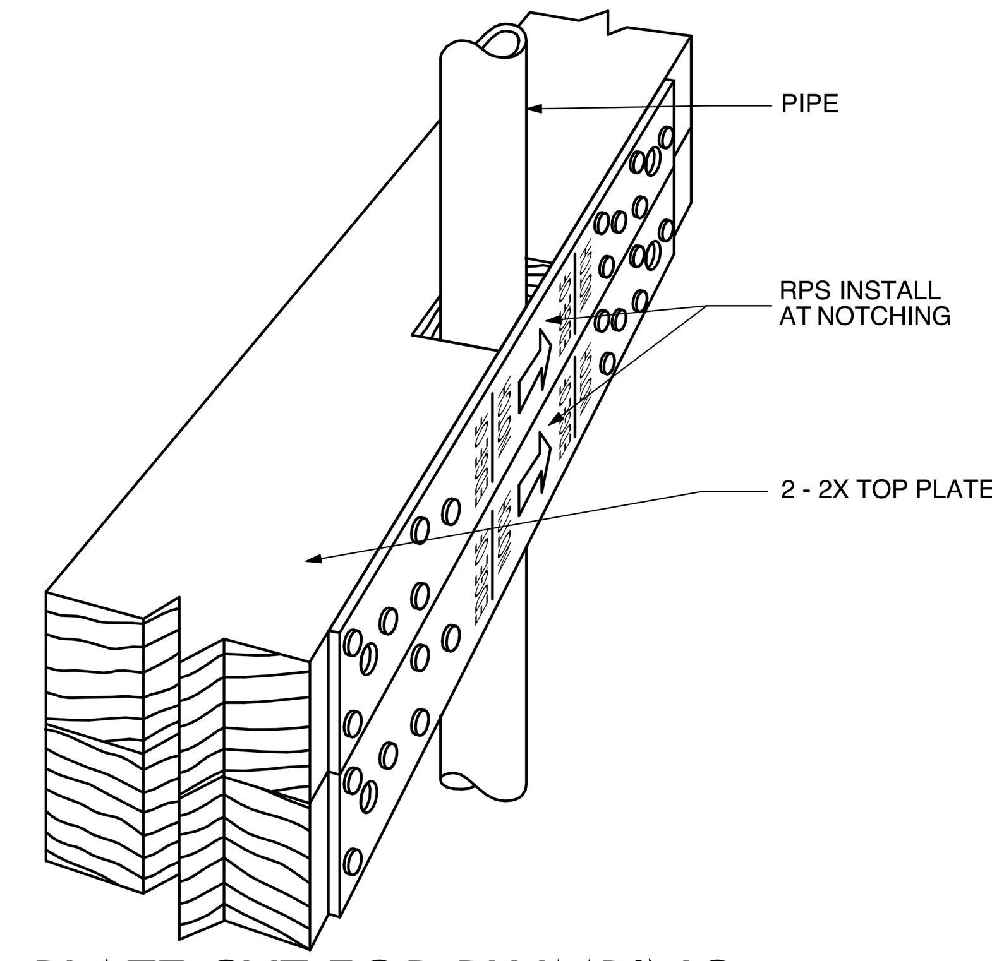
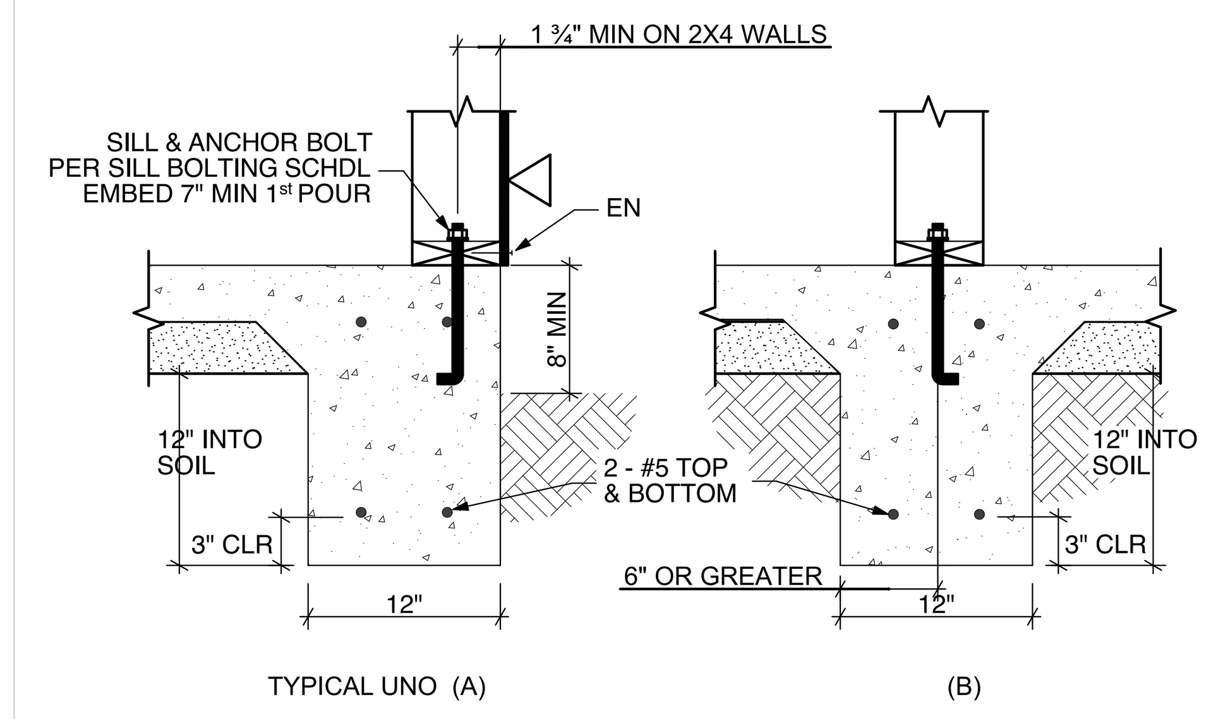


13 CORNERS & INTERSECTIONS
NOT TO SCALE



9 PLATE CUT FOR PLUMBING
NOT TO SCALE



SW5 - SILL AND ANCHOR BOLTS

5 SW
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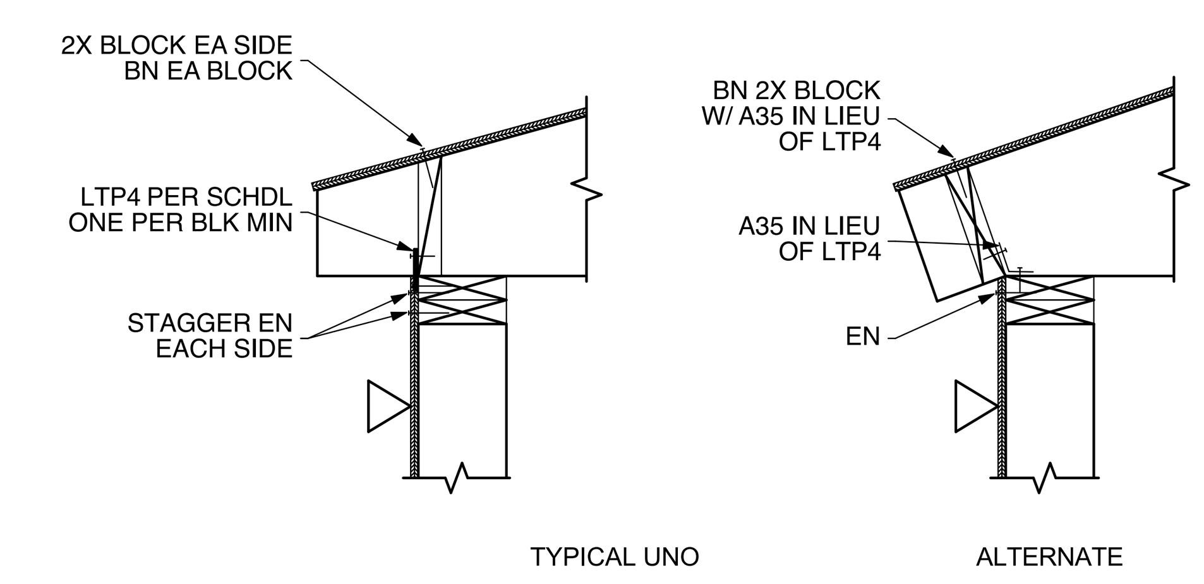

SW1 - SINGLE SHEAR

1 SW
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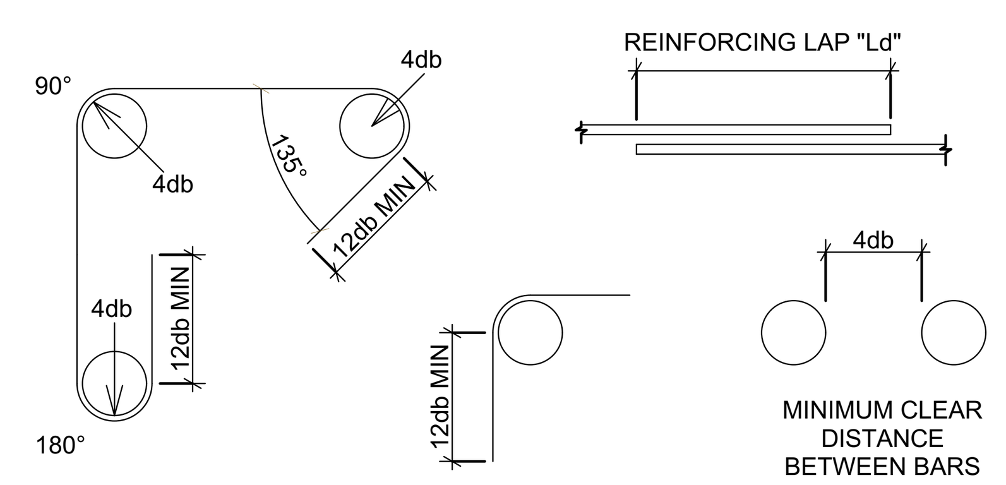
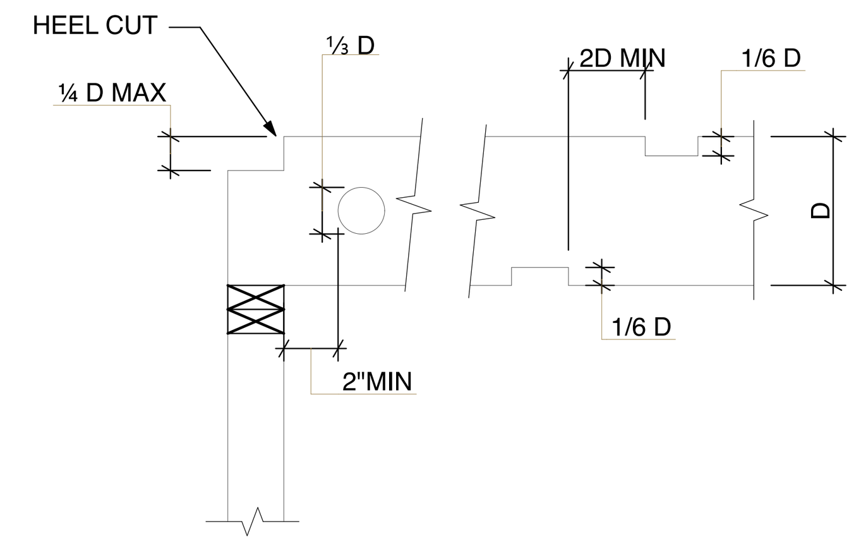


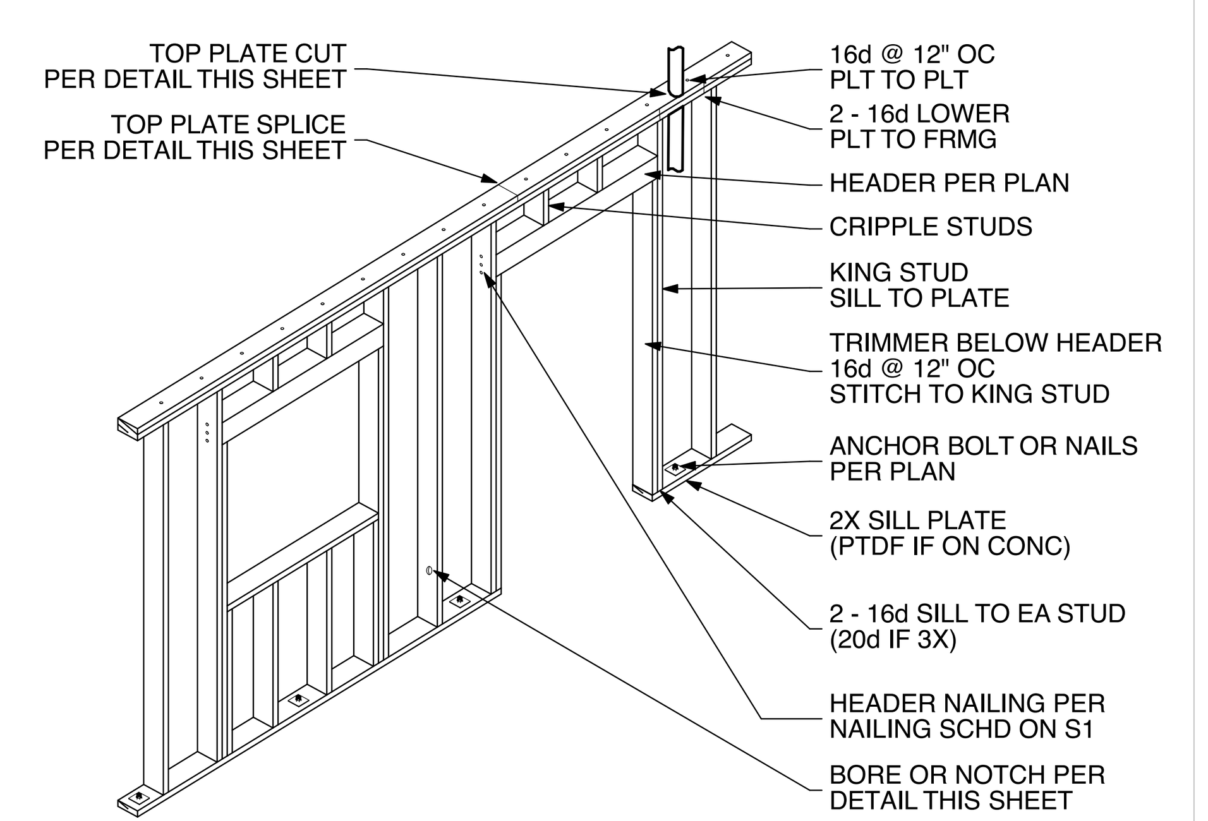
REINFORCING	GR	4db	180° EXTENSION	12db	Ld
NO. 3	40	1.5"	2.5"	4.5"	12"
NO. 4	40	2.0"	2.5"	6.0"	12"
NO. 5	40	2.5"	2.5"	7.5"	15"
NO. 6	60	3.0"	3.0"	9.0"	24"
NO. 7	60	3.5"	3.5"	10.5"	32"
NO. 8	60	4.0"	4.0"	12.0"	36"

14 BAR BENDS
NOT TO SCALE

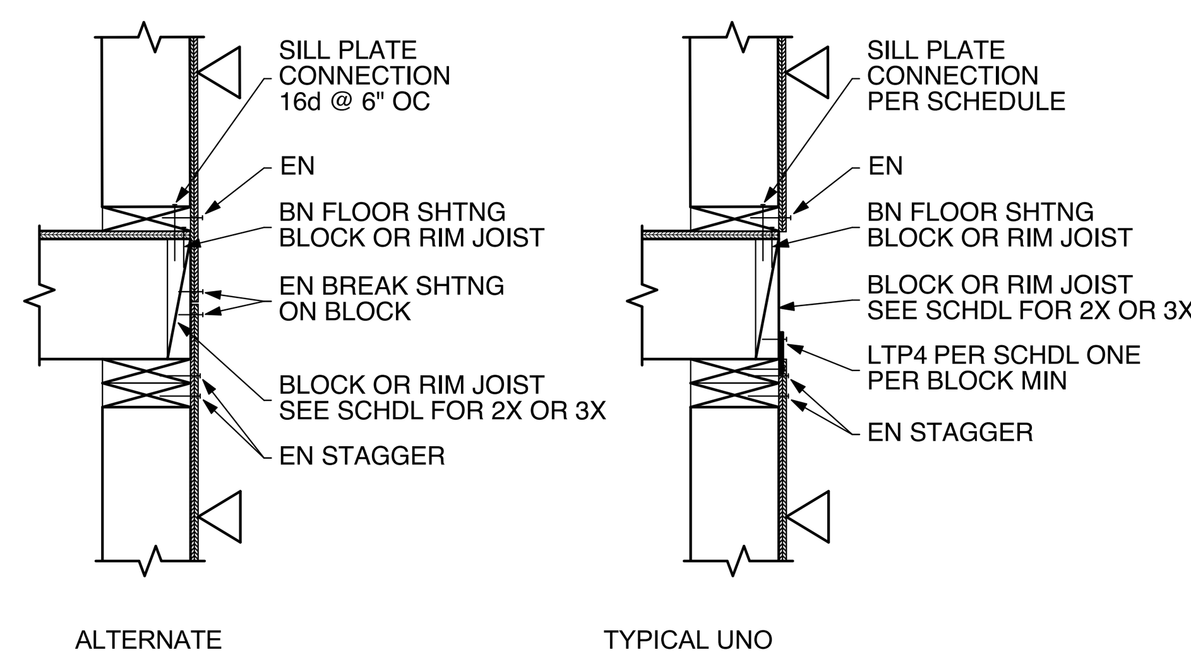


JOIST MAX NOTCHING & HOLES

10 MAXIMUM NOTCHING
NOT TO SCALE



6 WALLS
NOT TO SCALE



SW2 - RAISED FLOOR SINGLE SHEAR

2 SW
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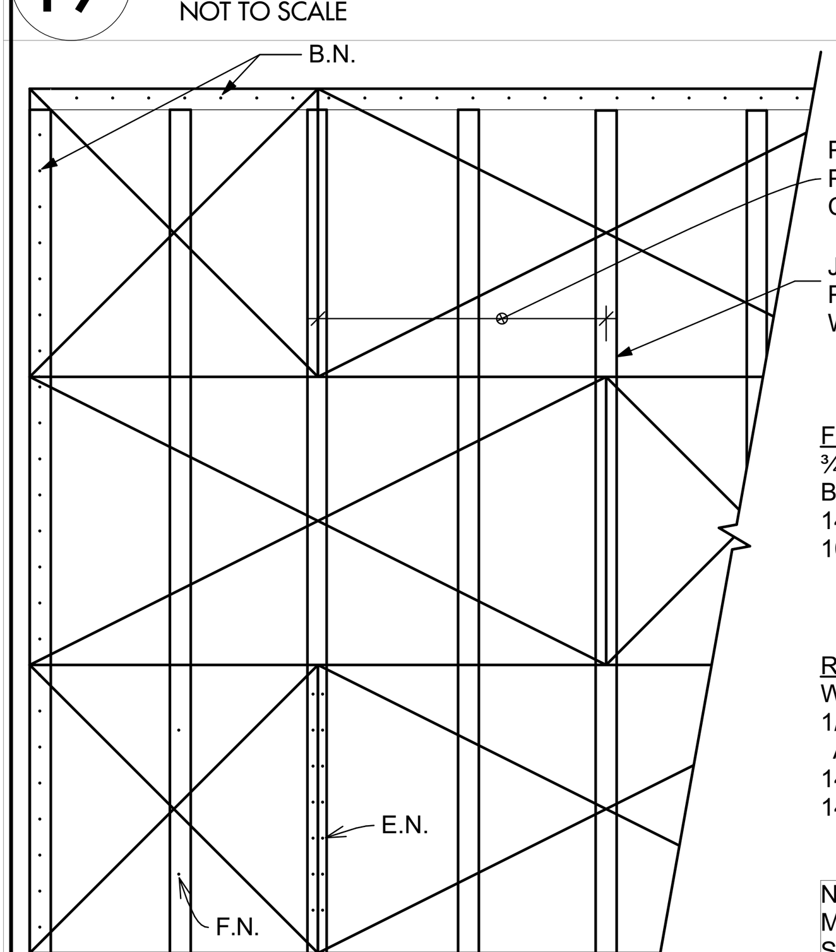


PLACE SHEATHING STAGGER PER CASE 1 AND CASE 3 OF C.B.C.

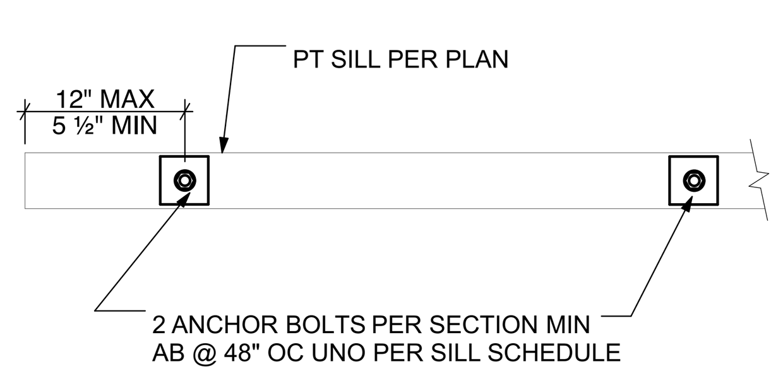
JOIST OR RAFTERS PERPENDICULAR TO PLYWD W/ LONG DIMENSION

FLOOR SHEATHING SHALL BE:
¾" WOOD STRUCTURAL PANEL
BLOCKED CDX PII 32/16
14 GA X 2" LEGS @ 6" OC EN & BN
10" OC FN

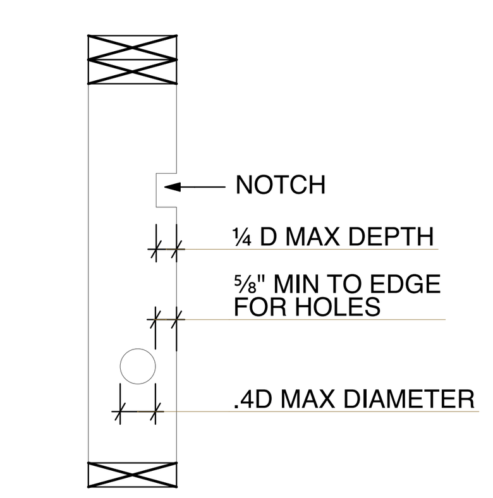
ROOF SHEATHING SHALL BE:
WOOD STRUCTURAL PANEL
1/2" CDX PII 24/0
AT 6" O.C. B.N.
14 GA X 2" LEGS AT 6" O.C. E.N.
14 GA X 2" LEGS AT 12" O.C. F.N.

NOTE: 8d COMMON NAILS MAY BE USED AT THE SAME SPACING IN LIEU OF STAPLES

18 DIAPHRAGM SCHEDULE
NOT TO SCALE



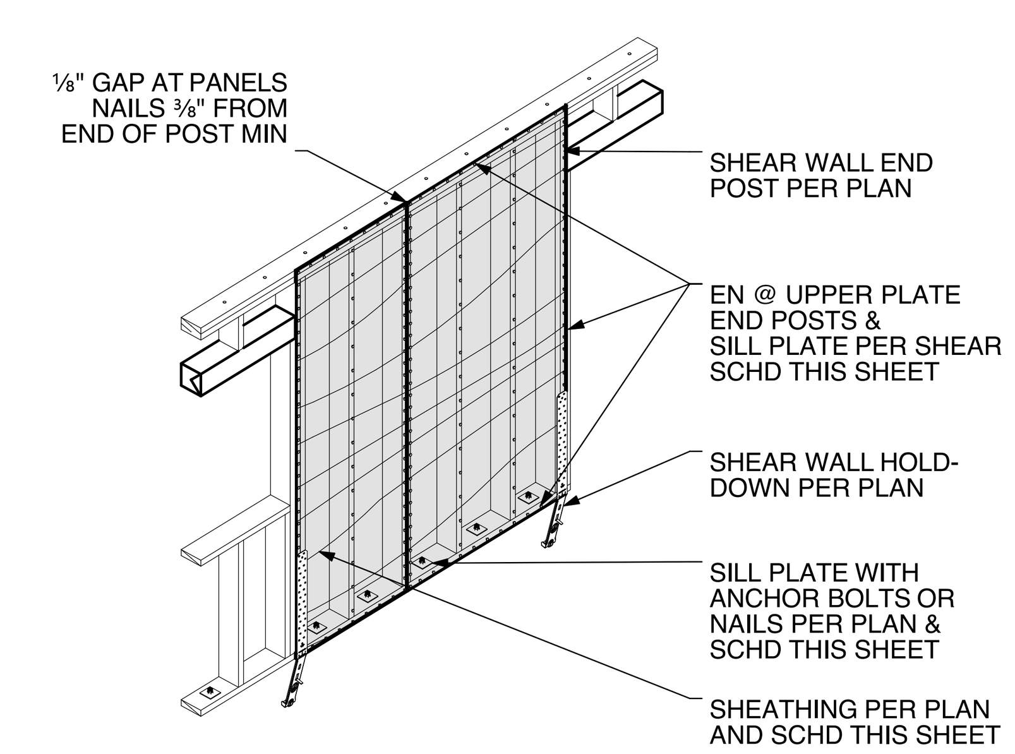
15 PT SILL
NOT TO SCALE



STUD	.4D
3 ½	1.4"
5 ½	2.2"

WOOD STUD MAX NOTCHING & HOLES

11 MAXIMUM NOTCHING
NOT TO SCALE



7 WALLS
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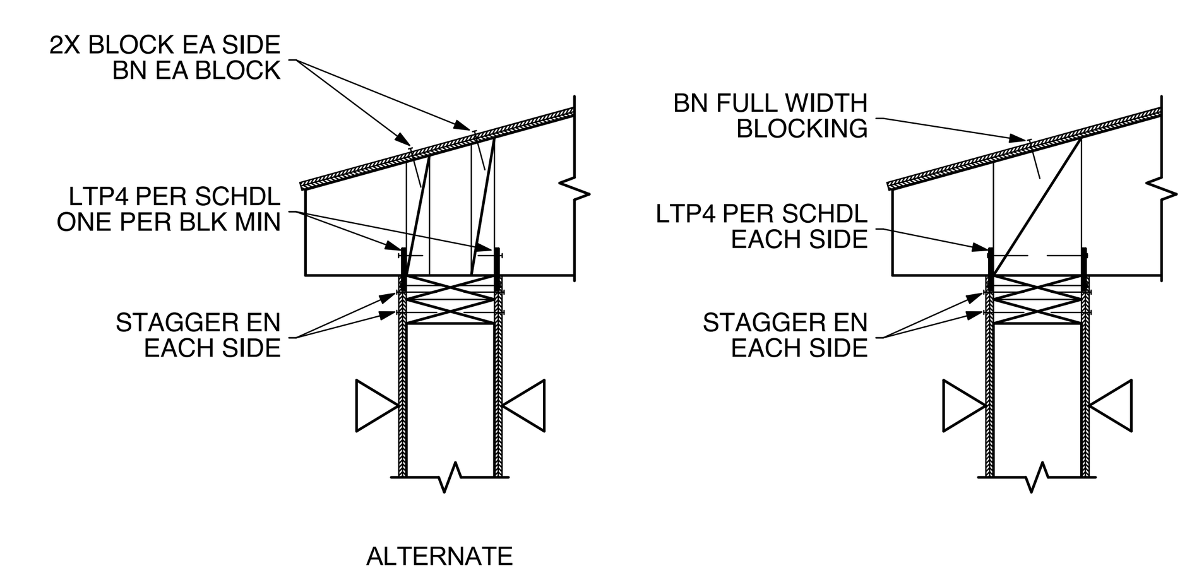

SW3 - DOUBLE SHEAR

3 SW
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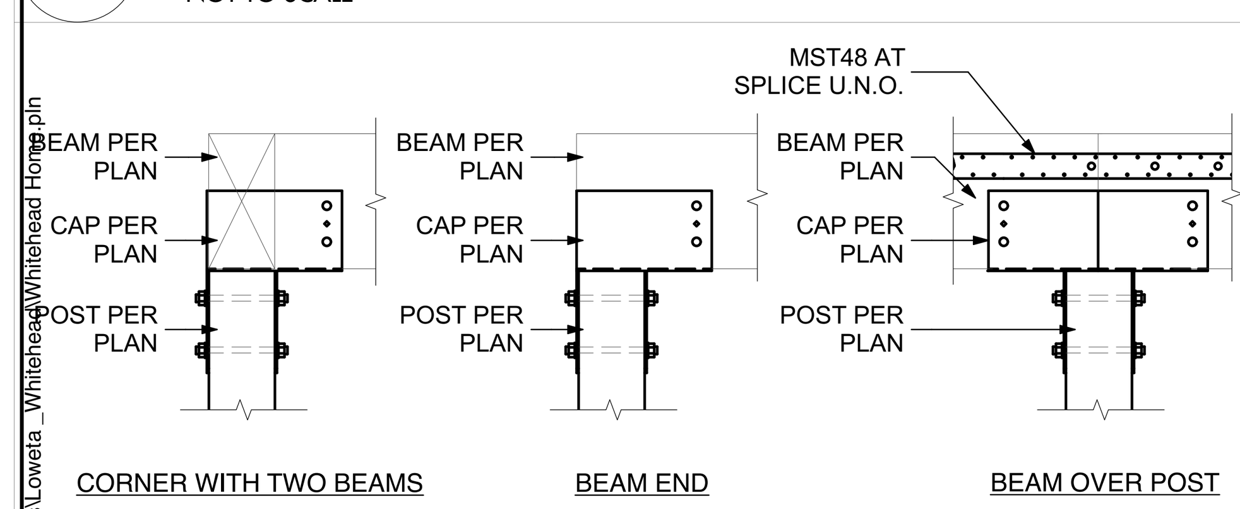
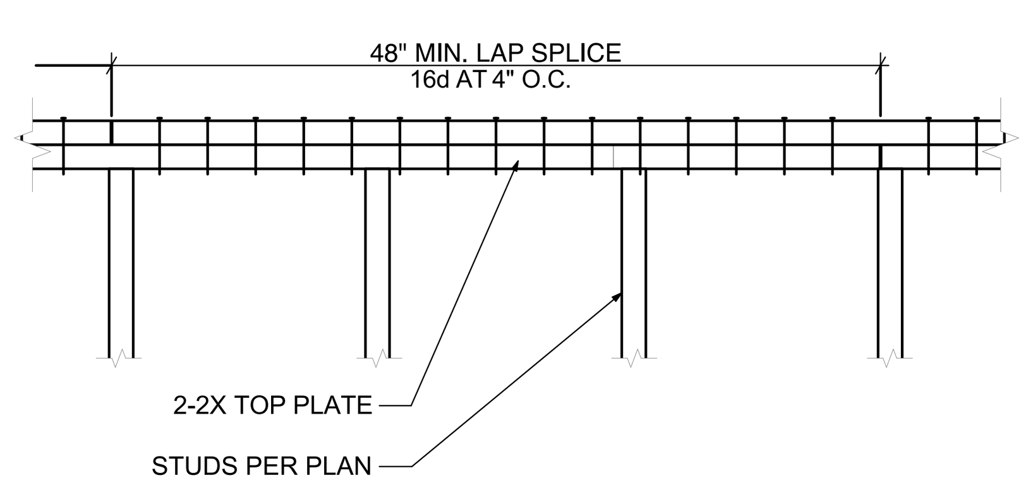
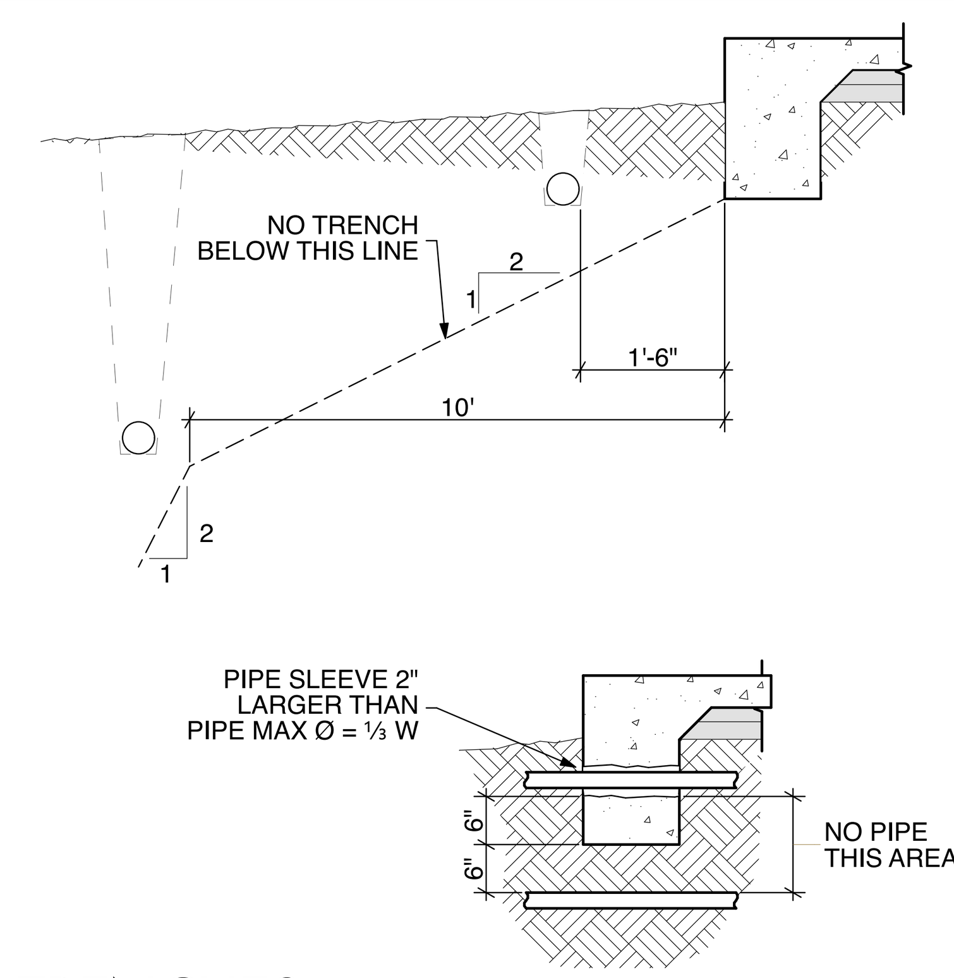


BEAM	POST	CAP (CORNER)	CAP (END)	CAP (BEAM OVER)
4X	4X4	ECCLL44	EPC44	PC44
6X	6X6	ECCLL66	EPC66	PC66
3-⅛ GLB	4X4	ECCLL44	ECC44	CC44
5-⅛ GLB	6X6	ECCLL66	ECC66	CC66
6X	6X6	ECCLL66	ECC106	CC666
7X	6X6			CC7 1/8-6
6 ¾	6X6			CC76
5 1/4X				CC 5 1/4-6
8 ¾X				CC96

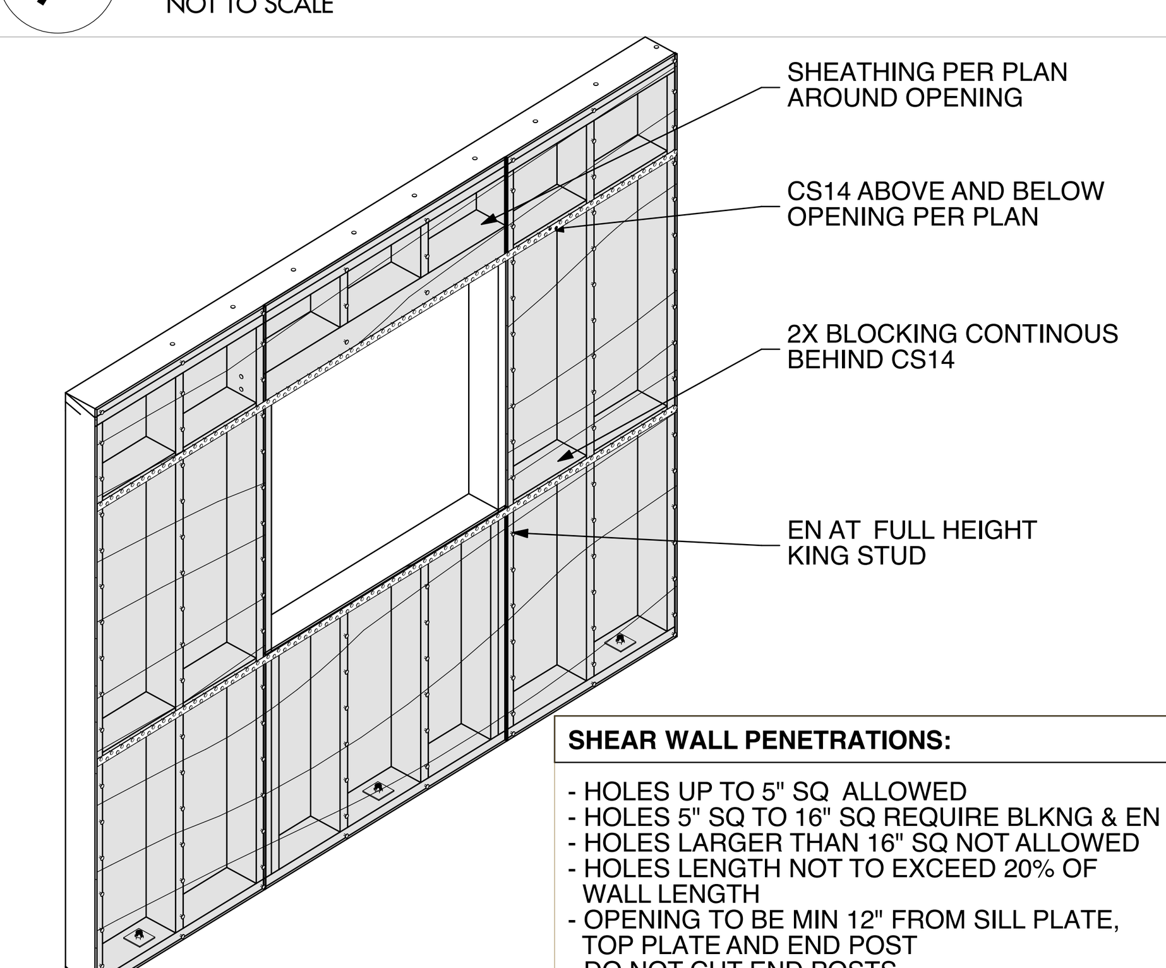
19 BEAM TO POST
NOT TO SCALE



16 CHORD SPLICE
NOT TO SCALE

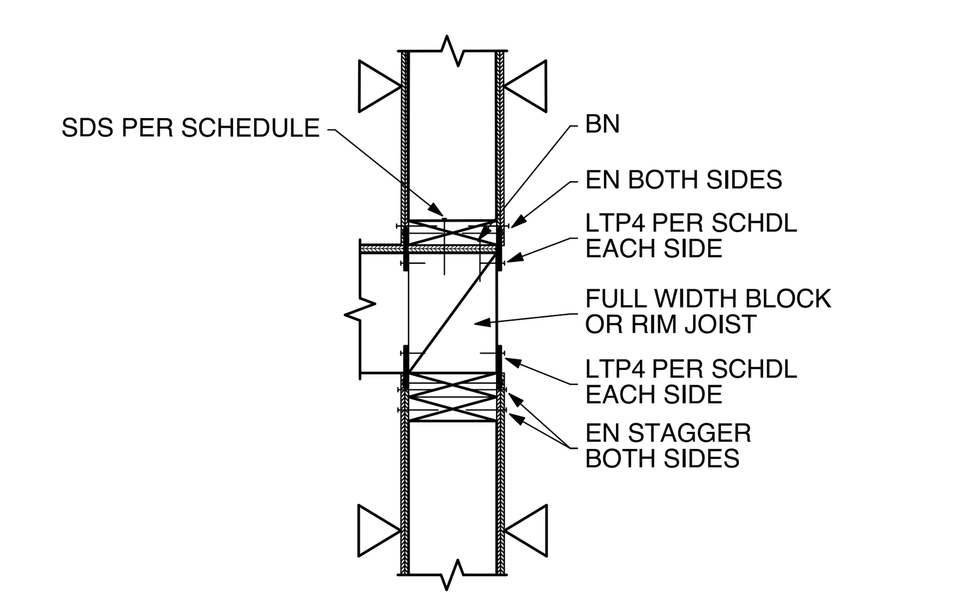


12 TRENCHES
NOT TO SCALE



SHEAR WALL PENETRATIONS:
- HOLES UP TO 5" SQ ALLOWED
- HOLES 5" SQ TO 16" SQ REQUIRE BLKNG & EN
- HOLES LARGER THAN 16" SQ NOT ALLOWED
- HOLES LENGTH NOT TO EXCEED 20% OF WALL LENGTH
- OPENING TO BE MIN 12" FROM SILL PLATE, TOP PLATE AND END POST
- DO NOT CUT END POSTS

8 SHEAR AROUND OPENINGS
NOT TO SCALE



SW4 - RAISED FLOOR DOUBLE SHEAR

4 SW
NOT TO SCALE

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Typical Details

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S2

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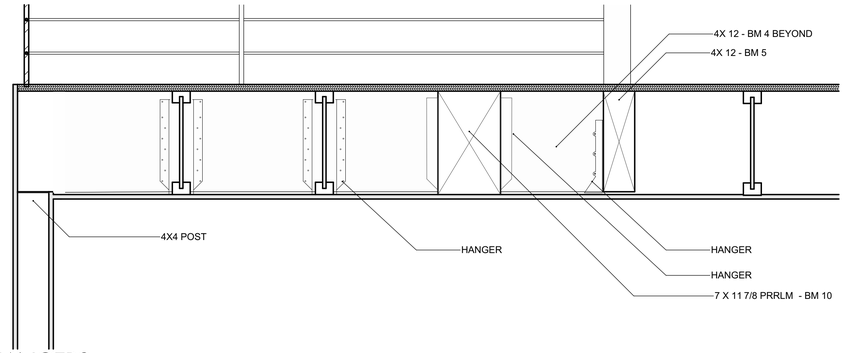
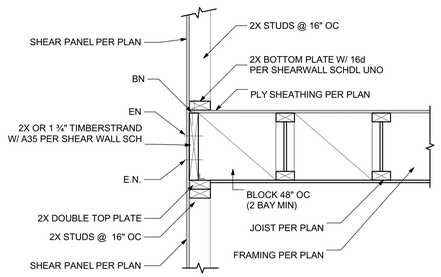


13 HANGERS
NOT TO SCALE



9 SHEAR FLOOR TRANSFER
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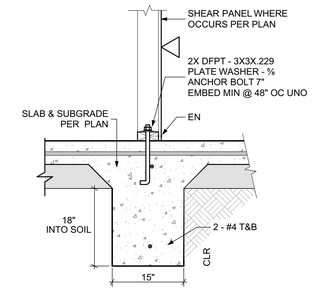

5 INTERIOR FOOTING
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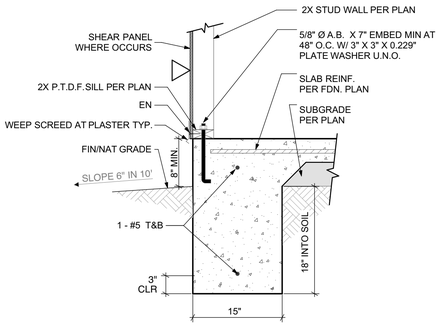

1 EXTERIOR FOOTING
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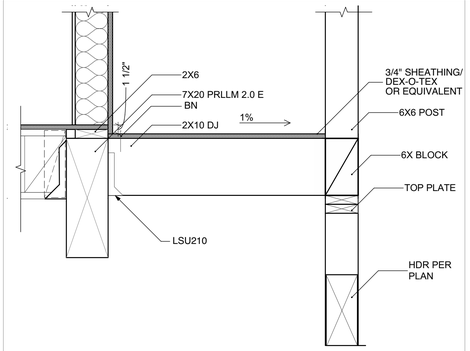

14 EXTERIOR FOOTING
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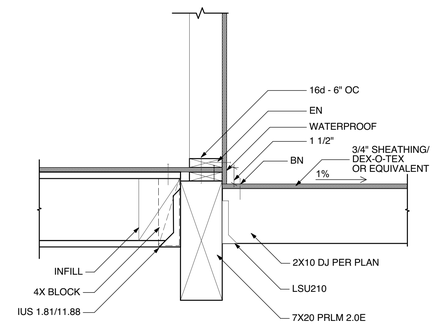
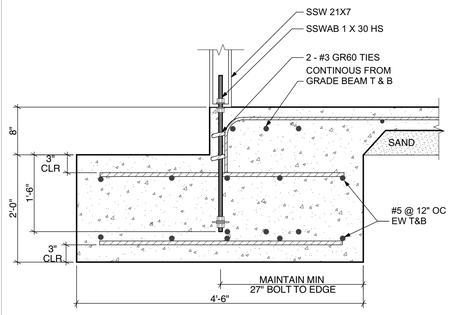


10 BEAM TO DJ
NOT TO SCALE



6 SSW FOOTING
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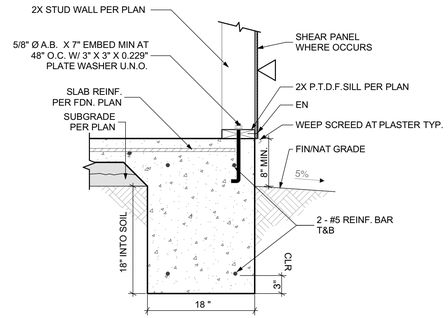

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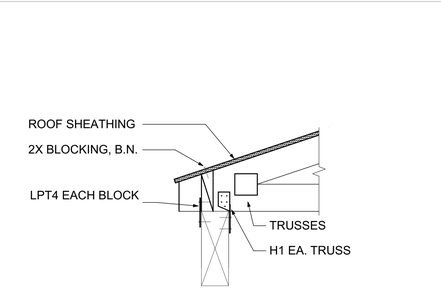

11 SHEAR TRANSFER TRUSS
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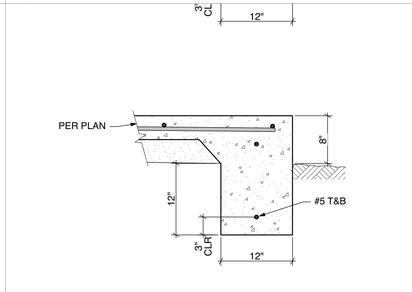

7 SLAB EDGE
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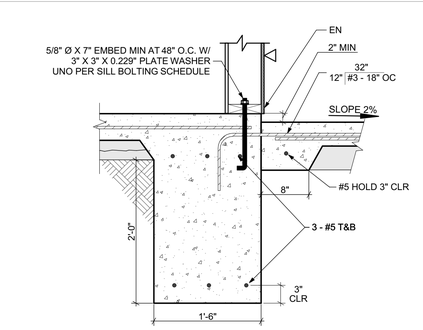

3 PORCH TO SLAB
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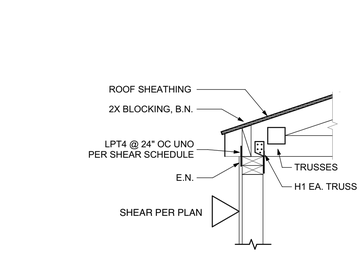

12 SHEAR TRANSFER TRUSS
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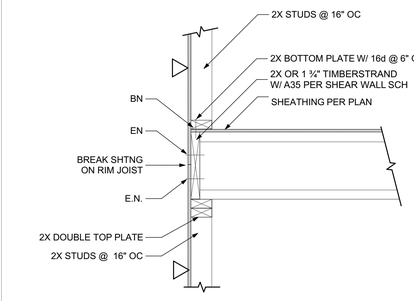

8 SHEAR FLOOR TRANSFER
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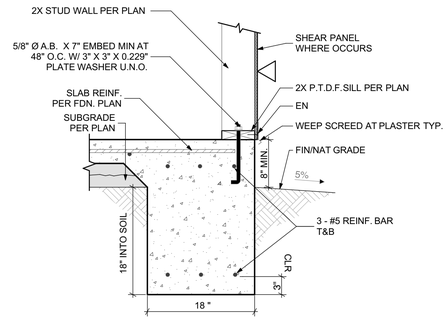

4 EXTERIOR FOOTING
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REVISIONS	BY

Whitehead Residence
759 Lake Street, Lake Elsinore CA 92530

Details

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S3
Sheet 20 OF 23

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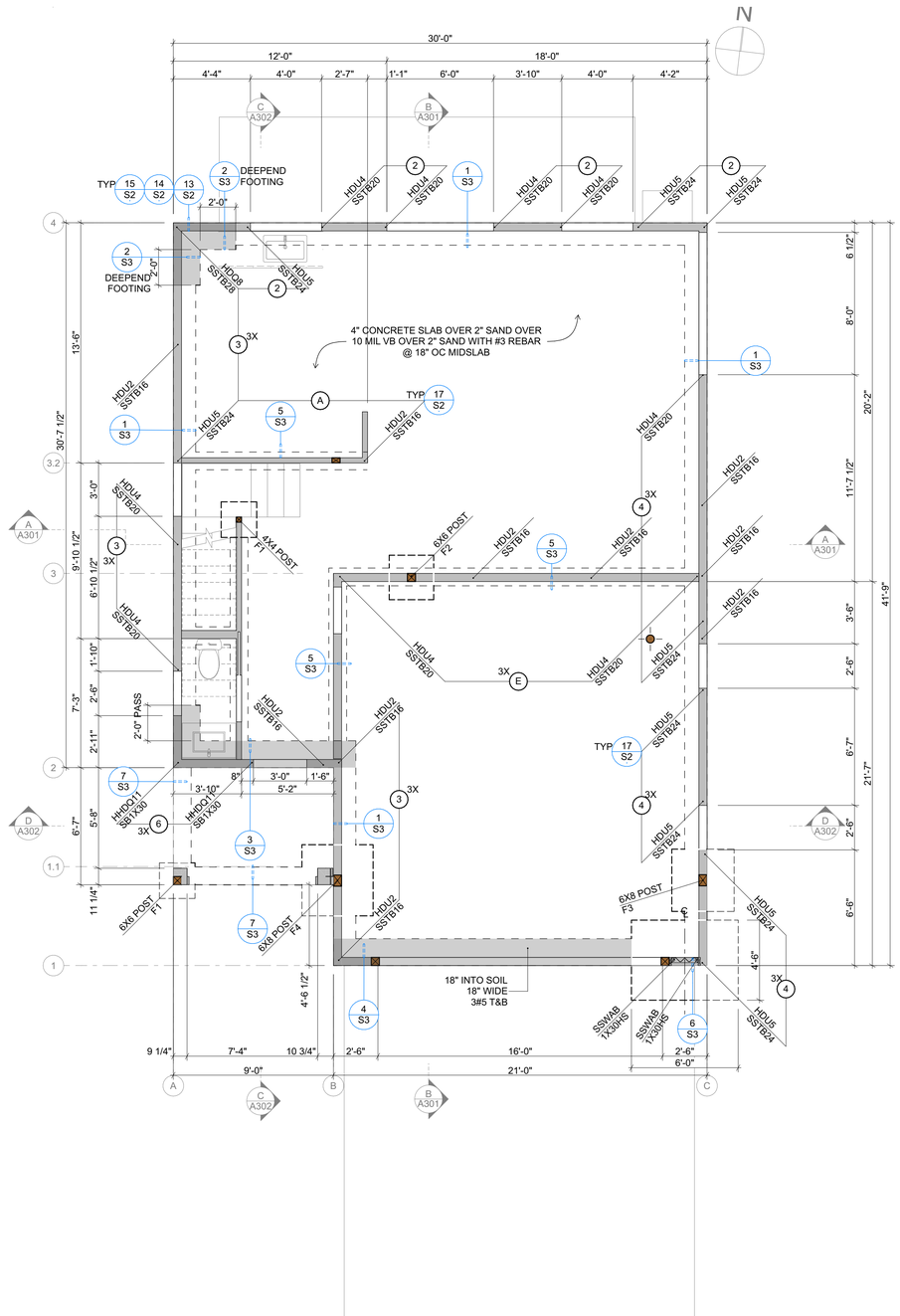


1 / S5 Foundation Plan

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

0 2" 4" 8"

FOUNDATION NOTES

- THE CONTRACTORS SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK AND THE ENGINEER/ ARCHITECT/DESIGNER SHALL BE NOTIFIED IN WRITING IMMEDIATELY OF ANY DISCREPANCIES

- SEE SHEETS S1 & S2 FOR GENERAL NOTES, SPECIFICATIONS, DETAILS AND ADDITIONAL FOUNDATION NOTES

- FINISH EXCAVATION FOR FOUNDATION SHALL BE NEAT AND TRUE TO LINE WITH ALL LOOSE MATERIAL REMOVED FROM EXCAVATIONS, THE FOOTING EXCAVATIONS SHALL BE KEPT FREE FROM LOOSE MATERIAL AND STANDING WATER, BEFORE ANY CONCRETE IS PLACED, EXCAVATION SHALL BE CHECKED AND APPROVED BY A QUALIFIED SOIL ENGINEER TO INSURE COMPLIANCE WITH REQUIREMENTS.

- SEE ARCHITECTURAL, PLUMBING, ELECTRICAL, AND MECHANICAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF OPENINGS AND ADDITIONAL INFORMATION

- ALL HOLD-DOWNS MUST BE SECURED IN PLACE PRIOR TO INSPECTION

- WALLS TO BE CENTERED ON CONTINUOUS FOOTINGS AND PAD FOOTINGS UNLESS NOTED OTHERWISE

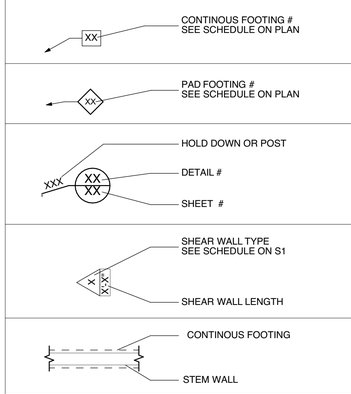
- SEE SHEETS S2 & S3 FOR TYPICAL DETAILS

- LOT SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM STRUCTURE FOUNDATIONS, THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10 FT. (5% SLOPE). WHERE LOT LINES, WALLS, SLOPES OR OTHER PHYSICAL BARRIERS PROHIBIT 6" OF FALL WITHIN 10 FT, DRAINS OR SWALES SHALL BE CONSTRUCTED TO ENSURE DRAINAGE AWAY FROM STRUCTURES.(CRC R401.3) IMPERVIOUS SURFACES WITHIN 10 FT OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING OR STRUCTURE.

- HDU2 & HDU4 TO HAVE SDS2.5
- HDQ8 TO HAVE SDS3

- SEE SSW DETAIL SHEETS PRIOR TO CONSTRUCTING
- SSW FOOTINGS TO BE CENTERED ON SSW

FOUNDATION LEGEND



PAD FOOTING SCHEDULE

MARK	DEPTH INTO SOIL	SIZE	REINFORCING
F1	18"	2'-0" X 2'-0"	3 # 5 EACH WAY
F2	18"	2'-6" X 2'-6"	4 # 5 EACH WAY
F3	18"	3'-6" X 3'-6"	5 # 5 EACH WAY
F4	18"	4'-0" X 4'-0"	6 # 5 EACH WAY

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Foundation Plan

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S5
Sheet 22 OF 23

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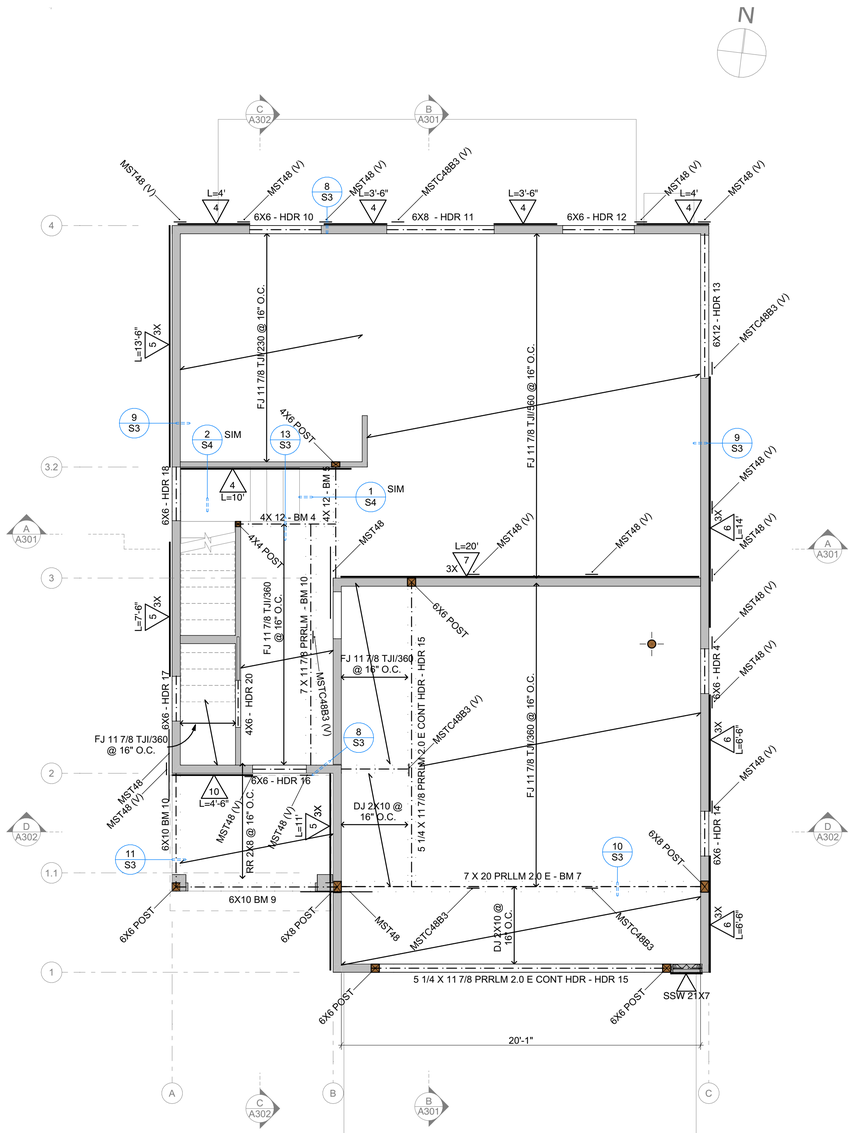
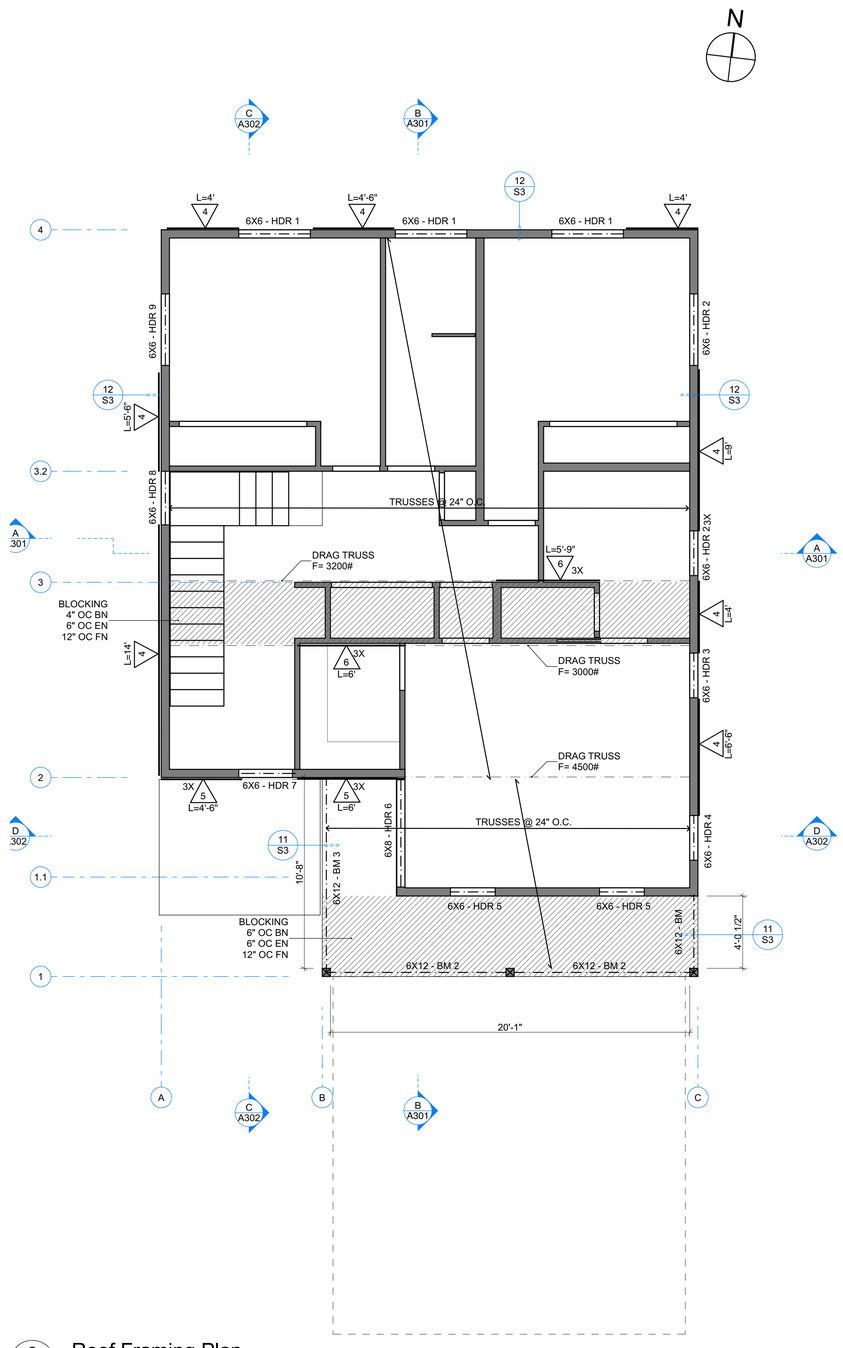


1 S6 Floor Framing Plan

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

0 2' 4' 8'



2 S6 Roof Framing Plan

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

0 2' 4' 8'

FRAMING NOTES

- THE CONTRACTORS SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK AND THE ENGINEER/ ARCHITECT/DESIGNER SHALL BE NOTIFIED IN WRITING IMMEDIATELY OF ANY DISCREPANCIES

- SEE SHEETS S1 & S2 FOR GENERAL NOTES AND SPECIFICATIONS AND ADDITIONAL FRAMING NOTES

- SEE ARCHITECTURAL, PLUMBING, ELECTRICAL, AND MECHANICAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF OPENINGS AND ADDITIONAL INFORMATION

- SEE SHEETS S2 & S3 FOR TYPICAL DETAILS

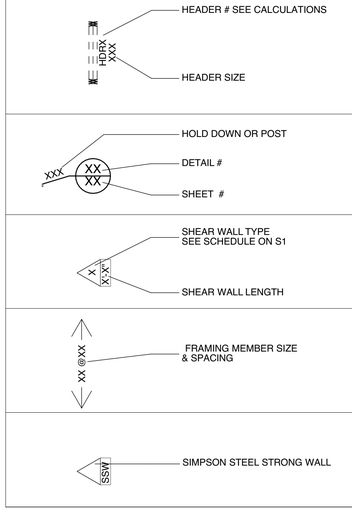
-ROOF SHEATHING SHALL INCORPORATE A RADIANT BARRIER

-TRUSS FABRICATOR TO TAKE FIELD MEASUREMENTS OF STRUCTURE PRIOR TO CONSTRUCTION OF TRUSSES.

- SEE SSW DETAIL SHEETS PRIOR TO CONSTRUCTING

- CONTRACTOR OR TRUSS COMPANY TO FIELD VERIFY DIMENSIONS PRIOR TO TRUSS FABRICATION.

FRAMING LEGEND



REVISIONS	BY

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Roof Framing Plan

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

DATE:	08/17/2024
SCALE:	AS NOTED
DRAWN BY:	
JOB:	
FILE:	
UPDATED:	

S6

Sheet 23 OF 23

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