Higgins Residence

Vicinity Map - NTS

Parcel Map - NTS

Abbreviations

Architectural Abbreviations

AC	Air Conditioning	HC	Hollow Core (door)
ACT	Acoustic Ceiling Tile	HM	Hollow Metal
AFF	Above Finished Floor	HVAC	Heating, Ventilation, and Air Conditioning
ALT	Alternate	ID	Inside Diameter
ALUM	Aluminum	INSUL	Insulation
ANOD	Anodized	INT	Interior
AP	Access Panel	JT	Joint
ARCH	Architect or Architectural	LAV	Lavatory
BD	Board	LL	Live Load
BLDG	Building	MAX	Maximum
BLK	Block	MECH	Mechanical
BM	Beam	MTL	Metal
BOT	Bottom	MIN	Minimum
BRG	Bearing	MO	Masonry Opening
BSMT	Basement	NIC	Not In Contract
CAB	Cabinet	NTS	Not to Scale
CEM	Cement	OC	On Center
CIP	Cast in Place (Concrete)	OD	Outside Diameter
CJ	Control Joint	OPNG	Opening
CL	Centerline	PT	Pressure Treated (wood)
CLG	Ceiling	R	Riser or Radius
CLR	Clear	RCP	Reflected Ceiling Plan
CMU	Concrete Masonry Unit	RD	Roof Drain
COL	Column	REINF	Reinforced
CONC	Concrete	REQD	Required
CONST	Construction	RM	Room
CONT	Continuous	RO	Rough Opening
CPT	Carpet	SHT	Sheet
CT	Ceramic Tile	SIM	Similar
CTR	Center	SPEC	Specification
DET	Detail	SS	Stainless Steel
DIA	Diameter	STC	Sound Transmission Class
DIM	Dimension	STL	Steel
DN	Down	STOR	Storage
DS	Downspout	STRUCT	Structure or Structural
DW	Dishwasher	T	Tread
DWG	Drawing	T&G	Tongue and Groove
ELEV	Elevation	TOC	Top of Concrete
EQ	Equal	TOS	Top of Steel
EXP JT	Expansion Joint	TYP	Typical
EXT	Exterior	UNO	Unless Noted Otherwise
FD	Floor Drain	VCT	Vinyl Composition Tile
FDN	Foundation	VIF	Verify in Field
FIN	Finish	W	Width
FFL	Finished Floor Level	WC	Water Closet (Toilet)
FLR	Floor	WD	Wood
FP	Fireplace	WH	Water Heater
FT	Foot or Feet	W/O	Without
GA	Gauge		
GL	Glass		
GWB	Gypsum Wall Board		

Finish Abbreviations

ACT	Acoustical Ceiling Tile
BRK	Brick
CAR	Carpet
CFT	Ceramic Floor Tile
CPT	Carpet Tile
CMU	Concrete Masonry Unit
CONC	Concrete
CT	Ceramic Tile
EIFS	Exterior Insulation and Finish System
EPDM	Ethylene Propylene Diene Monomer
FRP	Fiberglass Reinforced Plastic
GWB	Gypsum Wall Board
HM	Hollow Metal
LVT	Luxury Vinyl Tile
MDF	Medium Density Fiberboard
MET	Metal
PNT	Paint
PLAM	Plastic Laminate
PLAS	Plaster
PTD	Painted
RB	Rubber Base
SSM	Stainless Steel Metal
STN	Stone
SVT	Solid Vinyl Tile
TB	Tack Board
TPO	Thermoplastic Polyolefin (Roofing)
VCT	Vinyl Composition Tile
VWC	Vinyl Wall Covering
WD	Wood
WDP	Wood Paneling
WSF	Wood Soffit
WDW	Wood Window
ZNC	Zinc

Project Information

Project Info:

Project Name: Higgins Residence

Project Address: 3956 Aspen RD Fallbrook CA 92028

Description: Construction of Single Family Dwelling w living, kitchen, utility, 3 bedrooms, 2 bathrooms, entry porch , screened porch & attached 2- car garage

Permitting & Approvals:

Authority Having Jurisdiction (AHJ): City of Fallbrook, San Diego County , California

Building & Safety City of Fallbrook Department of Building and Safety

City Planning: Community Development Department

Deferred Submittals:

Applicable Building Codes

ALL WORK TO CONFORM TO THE FOLLOWING CODES AS AMENDED BY LOCAL JURISDICTION:

2025 CALIFORNIA RESIDENTIAL CODE (CRC)
2025 CALIFORNIA PLUMBING CODE (CPC)
2025 CALIFORNIA MECHANICAL CODE (CMC)
2025 CALIFORNIA ELECTRICAL CODE (CEC)
2025 CALIFORNIA FIRE CODE (CFC)
2025 CALIFORNIA GREEN BUILDING STANDARDS CODE
2025 CALIFORNIA ENERGY CODE
2025 CALIFORNIA WILDLAND INTERFACE CODE

General Notes:

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].

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 2025 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

Project Details

Zoning & Use:

Zoning District:

Assessor Parcel Number: 102-382-09

Legal Description: PM10162 PAR 2

Building Use: Residential

Occupancy Group: R-3 / U

Construction Type: V-B - NON SPRINKLERED

Design Criteria:

Seismic Design Category: D

Site Class / Soil Profile: Per ASCI 7

Risk Category: II

Climate Zone: 10

Snow Load: 0 PSF

Wind Speed: 100 MPH

Flood Zone: No

Fire Sprinklers: Yes

Area Measurements:

Site Area: 4.6 acres

Structure Height: SINGLE STORY DWELLING 16'-6"

New Conditioned Floor Area

Zone Name	Measured Area
SFD	1.636,9
	1.636,9 ft²

New Gross Floor Area

Zone Name	Measured Area
SFD	1.636,9
Garage	483,4
Coverd Porch	312,9
Entry Porch	34,5
	2.467,7 ft²

Drawing Symbols

Drawing Symbols Legend

Building Elevations
Drawing ID
Layout ID
(#DiblD / #LaylD)

Building Sections
Drawing ID
Layout ID
(#DiblD / #LaylD)

Detail Drawing
Drawing ID
Layout ID
(#DiblD / #LaylD)

Interior Elevations
Drawing ID
Layout ID
(#DiblD / #LaylD)

Doors
3' x 6'-8"
ID-01

Windows
W-01
2'-6" x 5'
Sill 3'

Storefront
SW-01

Zones
Hall
23
A: 130 sq ft
H: 9'
**See Code Drawings for Area Summaries and Finish Schedule for Room Finishes.*

Shear Walls
L=2'
4
Length and type - see S1 for schedule

Sill bolting & Holdowns
3
SSB16 2x6@16"
Type & holdown - see S1 for schedule

Wall Legend
New Wall
Existing Wall
Demo Wall

Project Team

Contact Directory:

Project Owner: Higgins Family
jhiggings.ghc.1987@gmail.com
760 908 7096

Contractor: TBD

Drafting: Protraction Inc
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Contact: Norm Thomas PE
Email: tkenergy@yahoo.com

Structural Engineer: Manning Engineering Inc
27574 Commerce Center Drive Suite 133 Temecula CA 92590
Contact: Bruce Manning PE
Email: bruce@manningroe.com
Phone: 951-296-1044

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PROTRACTION

Protraction Inc
31500 Grape St Ste. 3-413
951-837-3007 protraction2@me.com

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.
© Protraction Inc

RevID	ChID	Nombre del Cambio	Date

Digital Signature:

06/18/2026

Higgins Residence
3956 Aspen RD Fallbrook CA 92028

Drawing Name
Project Information

Modified by

Checked by

A001
Sheet 1 OF 23

A. General

Applicable codes. All projects will comply with the following building codes and associated County of Riverside Code
2025 California Residential Code (CRC) and/or California Building Code (CBC)
2025 California Green Building Standards Code (CalGreen)
2025 California Electrical Code (CEC)
2025 California Mechanical Code (CMC)
2025 California Plumbing Code (CPC)
2025 California Fire Code (CFC)
2025 California Building Energy Efficiency Standards (CBEES)
2025 California Wildland-Urban Interface Code (CWUIC)

B. Electrical, Plumbing, and Mechanical

1. **Exterior lighting.** All projects shall comply with the County of San Diego 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)
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 plumbing 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
   Construction & Demolition (C&D)

   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.
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

2025 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1

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

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

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

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

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

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

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

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

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

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

DIVISION 4.1 PLANNING AND DESIGN

ABBREVIATION DEFINITIONS:

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

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

SECTION 4.102 DEFINITIONS

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

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

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

4.106 SITE DEVELOPMENT

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

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

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

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

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

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

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

Exception: Additions and alterations not altering the drainage path.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Section 4.106.4.1 or 4.106.4.2. Electric vehicle supply equipment (EVSE) shall comply with the *California Electrical Code*.

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

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

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

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

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

4.106.4.2.1 Reserved.

4.106.4.2.2 Multifamily dwellings, hotels and motels

1. EV ready parking spaces with receptacles.

a. Multifamily parking facilities with assigned parking. Where dwelling units are provided with assigned parking spaces equal to or greater than the number of dwelling units, at least one low power Level 2 EV charging receptacle shall be provided at an assigned parking space for each dwelling unit.

1. Where the total number of dwelling units exceeds the number of assigned parking spaces, all assigned parking spaces shall be provided with one low power Level 2 EV charging receptacle.

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

b. Multifamily parking facilities with unassigned parking. Where dwelling units are provided with unassigned parking spaces equal to or greater than the number of dwelling units, at least one low power Level 2 EV charging receptacle shall be provided at an unassigned parking space for each dwelling unit.

1. Where the total number of dwelling units exceeds the number of unassigned parking spaces, all unassigned parking spaces shall be provided with one low power Level 2 EV charging receptacle.

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

3. Multifamily parking facilities with assigned and unassigned parking. Where multifamily buildings are provided with both assigned and unassigned parking spaces equal to or greater than the number of dwelling units, at least one low power Level 2 EV charging receptacle shall be provided for each dwelling unit at either the assigned or unassigned parking space, but not both.

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

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

e. Receptacle configurations. 208/240V EV charging receptacles shall comply with one of the following configurations:
1. For 20-ampere receptacles, NEMA 6-20R
2. For 30-ampere receptacles, NEMA 14-30R
3. For 50-ampere receptacles, NEMA 14-50R

2. EV ready parking spaces with EV chargers

a .Multifamily parking facilities with unassigned or common use parking. In addition to the low power Level 2 EV charging receptacle requirements of Section 4.106.4.2.2 (1), twenty-five (25) percent of unassigned or common use parking spaces not already provided with low power Level 2 EV charging receptacles, pursuant to Section 4.106.4.2.2 (1), shall be equipped with Level 2 EV chargers and shall be made available for use by all residents or guests.

b. EV charger connectors. EV chargers shall be equipped with J1772 or J3400 connectors.

c. An automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EV chargers shall have a capacity of not less than 30 amperes.

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

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

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

EVCS spaces shall be designed to comply with the following:

1. The minimum length of each EVCS space shall be 18 feet (5486 mm).
2. The minimum width of each EVCS space shall be 9 feet (2743 mm).
3. One in every 25 EVCS spaces, but not less than one, shall also have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EVCS space is 12 feet (3658 mm). Surface slope for this EVCS space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction. These EVCS spaces shall also comply with at least one of the following:

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

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

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

4.106.4.2.2.1.2 Accessible electric vehicle charging station spaces.
In addition to the requirements in Section 4.106.4.2.2.1.1, all EV chargers, where installed, shall comply with the accessibility provisions for EV chargers in the *California Building Code*, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with *California Building Code*, Chapter 11A, Section 1109A.

4.106.4.2.3 Reserved.

4.106.4.2.4 Reserved.

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

4.106.4.2.6 Hotels and motels.

1. EV ready parking spaces with receptacles.

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

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

b. Receptacle configurations. 208/240V EV charging receptacles shall comply with one of the following configurations:
1.For 20- ampere receptacles, NEMA 6-20R
2.For 30- ampere receptacles, NEMA 14-30R
3.For 50- ampere receptacles, NEMA 14-50R2.

2. EV Ready parking spaces with EV chargers.

a. Hotels and motels. Twenty-five (25) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers.

b. EV charger connectors. EV chargers shall be equipped with J1772 or J3400 connectors.

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

4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multi-family buildings, hotels and motels.
When existing parking facilities are altered or new parking spaces are added to existing parking facilities, and the work requires a building permit, each parking space added or altered shall have access to either a low power Level 2 EV charging receptacle or Level 2 EV charger, unless determined as infeasible by the project builder or designer and subject to concurrence of the local enforcing agency.

Exception: Where work requiring a permit is being performed for the installation of 120-volt electrical receptacle(s) for level 1 EV charging.

4.106.4.4 Bicycle parking. Bicycle parking shall comply with Sections 4.106.4.4.1 through 4.106.4.4.3.

4.106.4.4.1 Short-term bicycle parking for multifamily buildings, hotels and motels. Provide on-site bicycle parking at a ratio of one parking space for every 10,000 square feet, but not less than two spaces. Short-term bicycle parking shall be located within 200 feet of building entrances, and readily visible to passers-by. Acceptable parking facilities shall be conveniently accessed from the street and may include, but not be limited to:
1.Permanently anchored bicycle parking devices, racks, or lockers in an unsheltered, open area.
2.Covered or uncovered enclosures with permanently anchored bicycle parking devices or racks.

4.106.4.4.2 Long-term bicycle parking for multifamily buildings.
Provide on-site bicycle parking at a ratio of one parking space for every two dwelling units. Acceptable parking facilities shall be conveniently accessed from the street and may include, but not be limited to:
1. Covered, lockable enclosures with permanently anchored bicycle parking devices or racks.
2. Lockable bicycle storage rooms with permanently anchored bicycle parking devices or racks.
3. Lockable, weatherproof, permanently anchored bicycle lockers.

4.106.4.4.3 Long-term bicycle parking for hotel and motel buildings.
Provide one on-site long-term bicycle parking space for every 25,000 square feet, but not less than two. Acceptable parking facilities shall be conveniently accessed from the street and may include, but not be limited to:
1. Covered, lockable enclosures with permanently anchored bicycle parking devices or racks.
2. Lockable bicycle storage rooms with permanently anchored bicycle parking devices or racks.
3. Lockable, weatherproof, permanently anchored bicycle lockers.

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, commercial pre-rinse spray values shall meet the requirements in the California Plumbing Code, Section 420.3.

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

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

4.304 OUTDOOR WATER USE

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

NOTES:

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

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

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

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

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

Exceptions:

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

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

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

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

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

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

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

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

Notes:

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

4.410 BUILDING MAINTENANCE AND OPERATION

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

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

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, incluiding (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.

PROTRACTION
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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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RevID	ChID	Nombre del Cambio	Date

Digital Signature:

06/18/2026

Higgins Residence
3956 Aspen RD Fallbrook CA 92028

Drawing Name
Green Building Code

Modified by

Checked by

A003
Sheet 3 OF 23

2025 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 2

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

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O^3/g ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

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

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

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

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

4.503 FIREPLACES

DESING

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.

CNTRC

4.504.2 FINISH 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)

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*.

DESIG

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.

DESIG

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

DESIG

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.

CNTRC

CNTRC

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

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

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

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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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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Digital Signature:

06/18/2026

Higgins Residence
3956 Aspen RD Fallbrook CA 92028

Drawing Name
Green Building Code

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SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value	Edge Insul. Depth	Heated
Slab	Entire ZONE	1637	158	none	0	No

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08	09
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers	Non-Std Spray Foam
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	☐
GarageHouse R-21 Wall	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	2x6 @ 24 in. O. C.	R-0	None / 0	0.397	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x6	☐

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08	09
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers	Non-Std Spray Foam
R-38 Attic	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	☐

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	ECC 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 - HEAT PUMP

01	02	03	04	05	06	07	08	09	10
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source	UEF	JA13 Compliant
DHW Heater 1	1	50	Rheem	CPROPH50 T2 RH400-15 (50 gal)	Outside	Entire ZONE	Entire ZONE	n/a	☒

HVAC - HEAT PUMPS

01	02	03	04	05	06	06b	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	Backup	Cooling Efficiency Type	SEER/SEER2	EER/EER2/CEER	Airflow Target	Fan Power (Watts/CFM)	Variable Speed
Heat Pump System 1	Ducted mini-split HP	1	HSPF2	7.5	60000	30000	Electric	EER2/SEER2	14.3	11.2	0	0.45	☐

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
			Duct Ins. R-value		Duct Location	
Name	Type	Design Type	Supply/Return		Supply	Return
Air Distribution System 1	Unconditioned attic	Non-Verified	R-8		Attic	Attic

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - ASRE	Includes Fault Indicator Display?	Status
SFam IAQVentRpt 1-1	75	0.506667	Balanced	Yes	90 / 99	No	

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ENERGY USE INTENSITY

	Standard Design (kBtu/ft² - yr)	Proposed Design (kBtu/ft² - yr)	Margin (kBtu/ft² - yr)	Margin Percentage
Gross EUI[1]	12.65	11.85	0.8	6.32
Net EUI[2]	4.14	2.99	1.15	27.78

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 (%)
2.44	NA	Standard (14-17%)	Fixed	none	false	180	Degrees	22	4.85	96	100

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
HIGGINS CUSTOM	1637	1	3	1	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Status
Entire ZONE	Conditioned	HVAC1	1637	9	DHW Sys 1	New

OPAQUE SURFACES SUMMARY

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)
North Wall	Entire ZONE	R-21 Wall	0	Back	423	112	90
East Wall	Entire ZONE	R-21 Wall	90	Right	468	61	90
South Wall	Entire ZONE	R-21 Wall	180	Front	243	99	90
West Wall	Entire ZONE	R-21 Wall	270	Left	468	6	90
Garage-House Wall	Entire ZONE	GarageHouse R-21 Wall	n/a	n/a	198	0	n/a
Roof	Entire ZONE	R-38 Attic	n/a	n/a	1637	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08a
Name	Construction	Type	Roof Rise (x in 12)	CRRC Rated Roof Reflectance	CRRC Rated Roof Emittance	Radiant Barrier	Above Roof Deck Air Gap
Attic Entire ZONE	Attic RoofEntire ZONE	Ventilated	6	0.2	0.75	Yes	Yes

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft²)	U-factor	SHGC	Rating Source	Exception to 150.0 (q)*
Door w Glazing d2	Window	North Wall	Back	0	1	42	0.3	0.23	NFRC	☐
Window 4	Window	North Wall	Back	0	1	25	0.3	0.23	NFRC	☐
Window 6	Window	North Wall	Back	0	1	15	0.3	0.23	NFRC	☐
Window 5	Window	North Wall	Back	0	1	15	0.3	0.23	NFRC	☐
Window 7	Window	North Wall	Back	0	1	15	0.3	0.23	NFRC	☐

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft²)	U-factor	SHGC	Rating Source	Exception to 150.0 (q)*
Window 8	Window	East Wall	Right	90	1	25	0.3	0.23	NFRC	☐
Window 9	Window	East Wall	Right	90	1	8	0.3	0.23	NFRC	☐
Window 10	Window	East Wall	Right	90	1	20	0.3	0.23	NFRC	☐
Window 11	Window	East Wall	Right	90	1	8	0.3	0.23	NFRC	☐
Window 12	Window	South Wall	Front	180	1	15	0.3	0.23	NFRC	☐
Window 1	Window	South Wall	Front	180	1	25	0.3	0.23	NFRC	☐
Window 2	Window	South Wall	Front	180	1	25	0.3	0.23	NFRC	☐
Window 3	Window	West Wall	Left	270	1	6	0.3	0.23	NFRC	☐

**Project includes fenestration not subject to maximum U-factor requirement per Exception 1 / Exception 2 / Exception 3 to Section 150.0(q).*

Total North Facing Fenestration	112
Total East Facing Fenestration	61
Total South Facing Fenestration	65
Total West Facing Fenestration	6

OPAQUE DOORS

01	02	03	04	05
Name	Side of Building	Area (ft²)	U-factor	NFRC Rating Req.
Front Entry Door	South Wall	34	0.2	Yes

GENERAL INFORMATION

01	Project Name	HIGGINS CUSTOM			
02	Run Title	Title 24 Analysis			
03	Project Location	3956 ASPEN ROAD			
04	City	FALLBROOK	05	Standards Version	2025
06	Zip code	92028	07	Software Version	EnergyPro 10.0
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 (ft²)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft²)	1637	19	Glazing Percentage (%)	14.91%
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

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

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 0.506667 W/CFM
- IAQ Ventilation System Heat Recovery: minimum 90 SRE and 99 ASRE
- IAQ Ventilation System: supply outside air inlet, filter, and H/ERV cores accessible per RACM Reference Manual
- Cool roof
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed
- One or more heat pump water heaters have been modeled as demand response compatible

ECC FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified ECC 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 ECC Registry

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood
- Minimum Airflow
- Fan Efficacy Watts/CFM
- Verified heat pump rated heating capacity
- Duct leakage testing

Compliance Summary

	Long Term System Cost (LSC)[1]		Source Energy Use	Peak Cooling**
	Efficiency[2] ($/ft²-yr)	Total[3] ($/ft²-yr)	Total[3] (kBtu/ft²-yr)	Electricity (kWh)
Standard Design	10.75	17.93	10.62	274.891
Proposed Design	8.96	16.22	5.37	229.999
Compliance Margins	1.79	1.71	5.25	45
	Pass	Pass	Pass	Pass

RESULT*: Complies

[1]Long-term System Cost (LSC) is a 30-year present value cost to California's energy system. LSC is not a predicted utility bill.
[2]Efficiency measures include energy efficient improvements such as better building envelope and more efficient mechanical equipment
[3]Total includes the sum of efficiency measures, solar photovoltaic (PV) measures and battery storage measures
* Building complies when Proposed Design is equal to or less than Standard Design in all applicable compliance categories
** Peak cooling target represents 120% of the standard design building peak cooling energy use.

PV System resized to 2.44 kWdc (a factor of 2.436) to achieve 'Standard Design PV' PV scaling
Standard Design PV Capacity: 2.44 kWdc

LSC AND SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS

Energy Use	Standard Design Source Energy (kBtu/ft² -yr)	Standard Design LSC[1] ($/ft² -yr)	Proposed Design Source Energy (kBtu/ft² -yr)	Proposed Design LSC[1] ($/ft² -yr)	Compliance Margin Source (kBtu/ft² -yr)	Compliance Margin LSC[1] ($/ft² -yr)
Space Heating	1.11	2.37	1.03	2.47	0.08	-0.1
Space Cooling	0.37	2.5	0.34	2.33	0.03	0.17
IAQ Ventilation	0.53	1.89	0.38	1.5	0.15	0.39
Water Heating	5.63	3.99	0.69	2.66	4.94	1.33
Self Utilization/Flexibility Credit	n/a	n/a	0	0	0	0
Efficiency Compliance Total	**7.64**	**10.75**	**2.44**	**8.96**	**5.2**	**1.79**
Photovoltaics And Battery	-1.31	-7.13	-1.36	-7.06	0.05	-0.07
Flexibility	n/a	n/a	0	n/a	0	n/a
Indoor Lighting	0.49	1.71	0.49	1.71	0	0
Appl. & Cooking	1.41	3.66	1.41	3.67	0	-0.01
Plug Loads	2.26	8.51	2.26	8.51	0	0
Outdoor Lighting	0.13	0.43	0.13	0.43	0	0
TOTAL COMPLIANCE	**10.62**	**17.93**	**5.37**	**16.22**	**5.25**	**1.71**

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Higgins Residence

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Title 24 Reports

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A005
Sheet 5 OF 23

2025 Single-Family Residential Mandatory Requirements Summary

§ 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."

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. *

Pool and Spa Systems and Equipment:

§ 110.4(a):	**Certification by Manufacturers.** Pool/spa heating equipment must be certified as compliant with Appliance Efficiency Regulations; have an externally mounted, readily accessible on-off switch that allows shutting off the heater without adjusting the thermostat; permanent, easily readable weatherproof plate or card with energy efficiency rating and operating instructions.
§ 110.4(b)1:	**Heating Equipment.** Pool/spa heating equipment must meet applicable standards, by fuel type.
§ 110.4(b)2:	**Piping.** At least 18 inches of horizontal or vertical pipe installed between the filter and the heater; or dedicated suction and return lines; or built-in or built-up connections installed to allow for the future addition of solar heating equipment.
§ 110.4(b)3:	**Covers.** Outdoor pools or spas with electric or gas heater must have a cover.
§ 110.4(b)4:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a permanently installed time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.4(c):	**Heat Source Sizing.** Pool/spa heating systems must be solar heating system with collector area of at least 60% of pool/spa surface area; heat pump sized per JA16.3; combination of solar and heat pump; or use 60% or more on-site renewable/recoverable energy. *
§ 110.4(d):	**Heat Pump Pool Heaters with Supplementary Heating.** Controls for such systems must limit supplementary heating when the heating load can be met by the heat pump alone.
§ 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.** Single-family pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.

*Exceptions may apply.

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	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 feet 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."

Lighting:

§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, light sources, and luminaires must meet the applicable requirements of §110.9. *
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires and light sources must meet the requirements of Reference Joint Appendix JA8, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt; and ceiling fan kits subject to DOE's Appliance and Equipment Standards. *
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain screw-based sockets, be airtight with air leakage rate < 2.0 cfm at 75 Pascals, and leak paths be sealed with a gasket or caulk. California Electrical Code Article 410.116 must also be met. *
§ 150.0(k)1D:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources installed in enclosed or recessed luminaires must meet the JA8 elevated temperature requirements, including marking requirements.
§ 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)2A:	**Indoor Lighting Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.
§ 150.0(k)2D:	**Controls Permitted.** 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. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function installed to comply with §150.0(k)2.
§ 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, bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down, except lighting integral to kitchen range hoods and bathroom exhaust fans, navigation lighting less than 5 watts, lighting internal to drawers, cabinetry with opaque fronts or doors and controlled by automatic-off controls, luminaires in a circuit with controlled lighting power less than 20 watts or controlled by an occupancy or vacancy sensor. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A. Lighting integrated with ceiling fan may be controlled by a remote control.
§ 150.0(k)2G:	**Independent Controls.** Lighting integral to 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)3:	**Residential Outdoor Lighting.** Outdoor lighting permanently mounted to a single-family residential building or other buildings on the same lot must meet luminaire efficacy requirements of §150.0(k)1A, have a manual on/off switch and either a photocell and motion sensor, a photocell and automatic time switch, or an astronomical time clock. Controls that override to ON are not allowed, unless that override automatically returns the automatic control to its normal operation within 6 hours. An EMCS or other controls that provides the specified control functionality may be used but must meet all applicable requirements.
§ 150.0(k)4:	**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.

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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)2-4:	**U-factor, Solar heat gain coefficient, Visible transmittance.** The fenestration product and exterior door's U-factor and solar heat gain coefficient (SHGC) shall be rated in accordance with NFRC 100 and NFRC 200, or use the applicable defaults in Table 110.6-A and TABLE 110.6-B. The visible transmittance (VT) shall be rated in accordance with NFRC 200 or ASTM E972, for tubular daylighting devices VT shall be rated using NFRC 203. *
§ 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 from Table 110.6-A and solar heat gain coefficient (SHGC) values from Table 110.6-B. 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 above conditioned space 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 that 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-15 insulation in 2x4 inch wood framing wall or have a U-factor of 0.095 or less, or R-21 in 2x6 inch wood framing or have a U-factor of 0.069 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. *
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in wood framed raised-floor or 0.037 maximum U-factor. *
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet the following: water absorption rate no greater than 0.3 percent for insulation material alone without facings; water vapor permeance no greater than 2.0 perm per inch; 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 area-weighted average U-factor of 0.40. *

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 comply with access, pathway, smoke ventilation, and spacing requirements per Title 24, Part 9, or other parts of Title 24, or any requirements adopted by a local jurisdiction. 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. The solar zone total area must be comprised of areas with no dimension less than 5 feet and no less than 80 square feet each for buildings with roof areas up to 10,000 square feet; or no less than 160 square feet each for buildings with roof areas greater than 10,000 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.** No obstructions in solar zone, 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.

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NOTE: Single-family residential buildings subject to the Energy Code must comply with all applicable mandatory measures, regardless of the compliance approach us Review the respective sections for more information.

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, 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 Tables 110.2-A through -L. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Heaters.** Heat pumps with supplementary heaters must have control requirements as specified in § 150.0(h)7 and § 150.0)j2. *
§ 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.
§110.3(c)7:	**Backup Heat and Ventilation.** Air-source heat pump water heaters must have backup heat (internal or external) if inlet air is unconditioned, unless compressor cut-off temperature is below Heating Winter Median of Extremes from Reference Appendix JA2. Heat pump water heater installation space and/or communicating space(s) must meet minimum volume, ducting, and/or grille net free area by kBtu/h of compressor capacity.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without electrical supply voltage connection with pilot lights that consume less than 150 Btu/h); 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 any dryer outlet or vent.
§ 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(h)5:	**System Selection.** Equipment sizing and selection must meet the cooling and heating loads of § 150.0(h)1 & 2, and systems must be sized per ACCA Manual S-2023 with no minimum cooling capacity. Furnace heating capacity must meet ACCA Manual S. Heat pump heating capacity must meet minimum CBC requirements without including supplementary heat with no limit on maximum heating capaci
§ 150.0(h)6:	**Defrost.** Installer-adjustable defrost delay timers must be set to greater than or equal to 90 minutes. CF2R certification required. *
§ 150.0(h)7:	**Supplementary Heating Control Configuration:** Heat pumps with supplementary heating must have controls to lock supplementary heating above outside air temperature no greater than 35°F, allowed during defrost or emergency operation. CF2R certification required
§ 150.0(h)8:	**Sizing of Electric Resistance Supplementary Heat:** When heat pumps have electric resistance heat, the capacity of electric resistanc heat must not exceed the heat pump nominal cooling capacity (at 95°F ambient conditions) multiplied by 2.7 kW per ton, rounded up to the closest kW.
§ 150.0(h)9:	**Capacity Variation with Third-party Thermostats:** For variable or multi-speed systems, the space conditioning system and thermostat must be capable of responding to heating and cooling loads by modulating system compressor speed and must meet thermostat requirements of § 150.0(j)2. CF2R certification required.
§ 150.0(i):	**Thermostat.** All heating or cooling systems including heat pumps which are not controlled by energy management control system (EMC must have setback thermostat. Additional requirements for thermostats that control heat pumps with supplemental heating include thermostat must display outdoor air temperature, must lock out supplementary heat when outdoor air temperature is above 35°F, and must notify when supplemental heat is in use. *
§ 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 § 609.12 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including from sunlight, moisture, equipment maintenance, an 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 protecte by, a Class I or II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleev
§ 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 plumbin requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more thar 2" higher than the base of the water heater
§ 150.0(n)2:	**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- and return-air ducts and plenums must be insulated to R-6.0 or higher. Ducts located entirely in conditioned space as confirmed via field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation; in dwelling units with attics, the ducts must be below the ceiling separating occupiable space from the attic. 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 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

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	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** must comply with applicable requirements of UL 181 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** 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 conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Flex ducts with porous inner cores 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 and prevents air from bypassing the filter. *
§ 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 shall 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 used in CFI systems is not a permissible method to provide whole-dwelling unit ventilation airflow required per §150.0(o)1C. A motorized damper(s) shall be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per §150.0(o)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 dwellings.** Single-family dwellings shall have mechanical ventilation specified in §150.0(o)1Ci and 150.0(o)1Civ.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 may reduce their required mechanical ventilation rates in accordance with §150.0(o)1Ci-iii.* Vertically attached dwelling units shall not reduce their minimum ventilation rates in accordance with §150.0(o)1Ci-iii.
§ 150.0(o)1G:	**Local Mechanical Exhaust.** Kitchens and bathrooms shall have local mechanical exhaust; nonenclosed kitchens shall have demand-controlled exhaust system meeting requirements of §150.0(o)1Gii, enclosed kitchens and bathrooms shall either use demand-controlled as specified in §150.0(o)1Gii or continuous exhaust as specified in §150.0(o)1Giv. Airflow shall be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H-J:	**Airflow Measurement, Sound Ratings, Label of Whole-Dwelling Unit Ventilation Systems.** The airflow required per §150.0(o)1C shall 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 shall be rated for sound per ASHRAE 62.2 §7.3 at no less than the minimum airflow rate required by §150.0(o)1C. Manual on-off switches must be labeled per §150.0(o)1J.
§ 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 shall be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods shall 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

Electric and Battery Energy Storage Ready:

§ 150.0(s):	**Battery Energy Storage System (BESS) Ready.** All single-family residences that include one or two dwelling units, which a load serving entity provides with electrical service for the dwelling unit that is greater than 125 amps, shall meet at least one of the following: Either BESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more BESS supplied branch circuits in §150.0(s)2. *or* a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s)2; at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the BESS.

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

Project Name: HIGGINS CUSTOM — **Calculation Date/Time:** 2026-06-18T10:18:57-07:00 — **(Page 10 of 10)**

Calculation Description: Title 24 Analysis — **Input File Name:** Higgins R.Marelli 6.18.26.ribd25x

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: 06/18/2026
Address: 30535 Avenida Buena Suerte	CEA/AEA/ECC 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. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. 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.
5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building and shall be made available to the enforcement agency for all applicable inspections. I will take the necessary steps to fulfill this requirement.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy. I will take the necessary steps to fulfill this requirement.

Responsible Designer Name: Norm Thomas	Responsible Designer Signature:
Company: T&K Engineering	Date Signed: 06/18/2026
Address: 30535 Avenida Buena Suerte	License: RCE30927 & Comm 6/30/2027
City/State/Zip: Temecula, CA 92591	Phone: 951-699-0436

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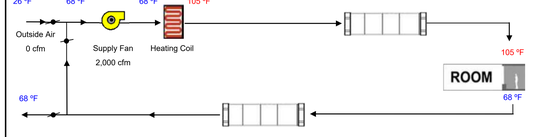
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: HIGGINS CUSTOM HOME — Date: 6/18/2026

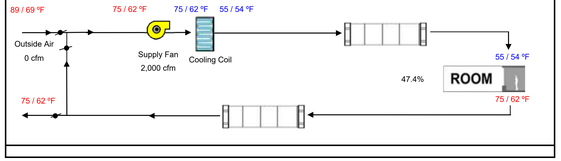
System Name: HVAC — Floor Area: 1,637

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
Number of Systems	1		CFM	Sensible	Latent	CFM	Sensible
Heating System							
Output per System	60,000	**Total Room Loads**	490	10,227	1,077	407	15,761
Total Output (Btuh)	60,000	**Return Vented Lighting**					
Output (Btuh/sqft)	36.7	**Return Air Ducts**		459			583
Cooling System		**Return Fan**		0			0
Output per System	60,000	**Ventilation**	0	0	0	0	0
Total Output (Btuh)	60,000	**Supply Fan**		0			0
Total Output (Tons)	5.0	**Supply Air Ducts**		459			583
Total Output (Btuh/sqft)	36.7						
Total Output (sqft/Ton)	327.4	**TOTAL SYSTEM LOAD**		11,145	1,077		16,926
Air System							
CFM per System	2,000	**HVAC EQUIPMENT SELECTION**					
Airflow (cfm)	2,000	5 Ton HP		47,061	10,055		37,474
Airflow (cfm/sqft)	1.22						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	0.0%	**Total Adjusted System Output** (Adjusted for Peak Design conditions)		47,061	10,055		37,474
Outside Air (cfm/sqft)	0.00						
Note: values above given at ARI conditions		**TIME OF SYSTEM PEAK**		Aug 3 PM			Jan 1 AM

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



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



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Higgins Residence

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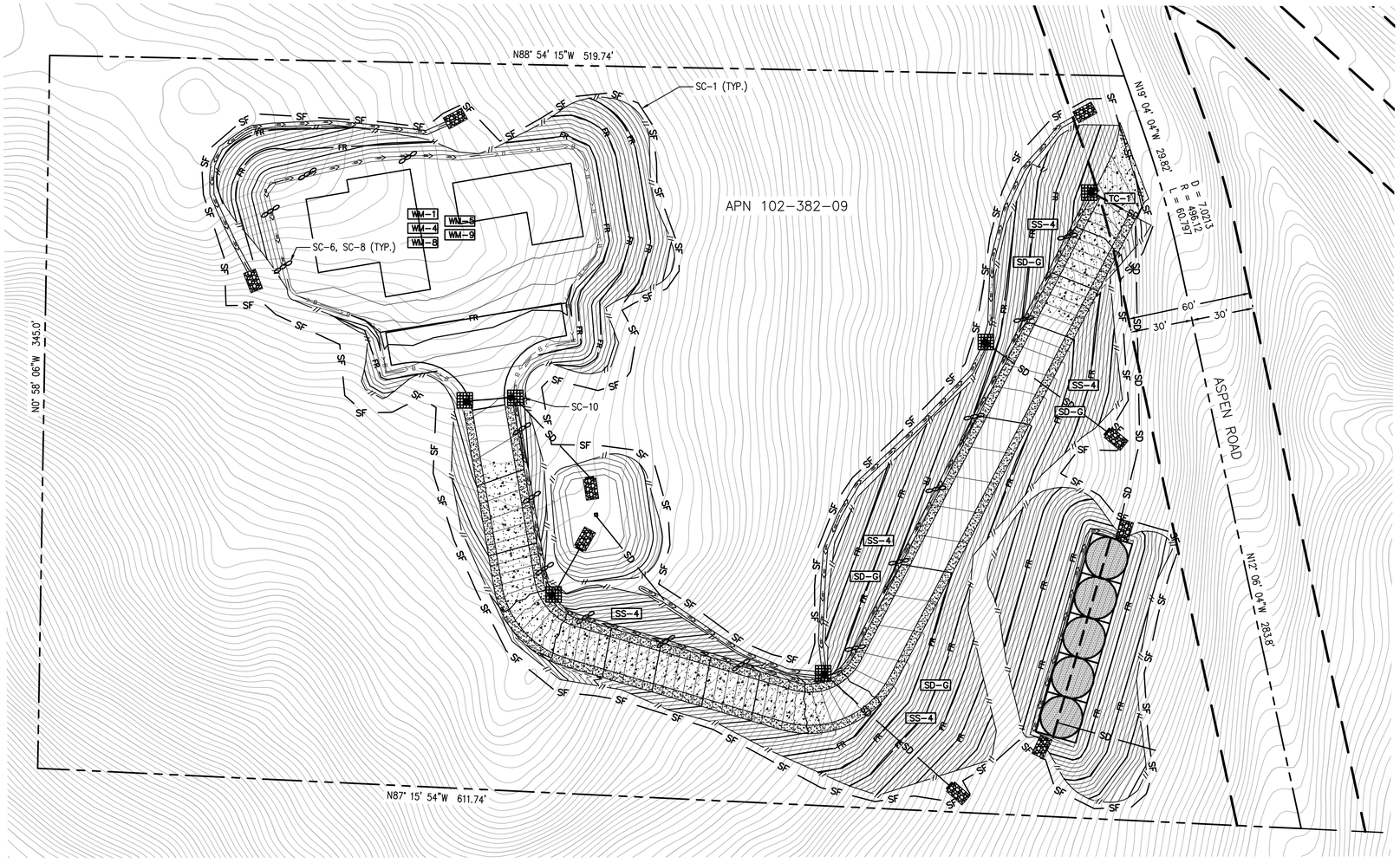
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Title 24 Reports

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Sheet 6 OF 23

By using these standard plans, the user agrees to release the County of San Diego from any and all claims, liabilities, suits, and demands on account of any injury, damage, or loss to persons or property, including injury or death, or economic losses, arising out of the use of these construction documents. The use of these plans does not eliminate or reduce the [illegible]ify any and all information.



ENGINEERING SCALE: 1" =

BMP LEGEND

PDS 659 BROW DITCH

PDS 659 BERM

DIRECTION OF LOT DRAINAGE

MATERIALS & WASTE MANAGEMENT BMPs:

- WM-1 MATERIAL DELIVERY & STORAGE
- WM-4 SPILL PREVENTION AND CONTROL
- WM-8 CONCRETE WASTE MANAGEMENT
- WM-5 SOLID WASTE MANAGEMENT
- WM-9 SANITARY WASTE MANAGEMENT
- WM-6 HAZARDOUS WASTE MANAGEMENT

TEMPORARY RUNOFF CONTROL BMPs:

- SS-2 PRESERVATION OF EXISTING VEGETATION
- SS-3 BONDED OR STABILIZED FIBER MATRIX (WINTER)
- SS-4 HYDROSEEDING (SUMMER)
- SS-6 / SS-8 STRAW OR WOOD MULCH
- SS-7 PHYSICAL STABILIZATION (WINTER)
- SS-10 ENERGY DISSIPATOR
- SC-1 SILT FENCE
- SC-2 / PDS 659 SEDIMENT / DESILTING BASIN
- SC-5 FIBER ROLLS
- SC-6 / SC-8 GRAVEL OR SAND BAGS
- SC-7 STREET SWEEPING AND VACUUMING
- SC-10 STORM DRAIN INLET PROTECTION
- NS-2 DEWATERING FILTRATION
- TC-1 STABILIZED CONSTRUCTION ENTRANCE
- TC-2 CONSTRUCTION ROAD STABILIZATION
- TC-3 ENTRANCE / EXIT TIRE WASH

BASELINE BMPs FOR EXISTING AND PROPOSED SITE FEATURES

- SD-B DIRECT RUNOFF TO PERVIOUS AREAS
- SD-C INSTALL GREEN ROOF
- SD-E INSTALL RAIN BARRELS
- SD-G CONSERVE NATURAL FEATURES
- SD-H PROVIDE BUFFERS AROUND WATER BODIES
- SD-I CONSTRUCT SURFACES FROM PERMEABLE MATERIALS
- SD-K SUSTAINABLE LANDSCAPING

BASELINE BMPs FOR POLLUTANT-GENERATING SOURCES

- SC-A OVERHEAD COVERING
- SC-B SEPARATION OF FLOWS FROM ADJACENT AREAS
- SC-C WIND PROTECTION
- SC-D SANITARY SEWER
- SC-E CONTAINMENT SYSTEM

POTENTIAL RUNOFF POLLUTANTS:

- A TRASH & REFUSE STORAGE
- B MATERIALS & EQUIPMENT STORAGE
- C LOADING & UNLOADING
- D FUELING
- E MAINTENANCE & REPAIR
- F VEHICLE & EQUIPMENT CLEANING
- G OTHER

SHEET INDEX

Sheet No.	SHEET NAME
SP-1	SITE PLAN
A1	FLOOR PLAN
A2	ELECTRICAL PLAN
A3	ELEVATIONS - FRONT & BACK
A4	ELEVATIONS - RIGHT & LEFT
A5	ROOF PLAN / TRUSS LAYOUT
A6	SECTIONS
S1	FOUNDATION PLAN
S2	ROOF FRAMING
CS-1	MIN. CONSTRUCTION SPECIFICATIONS

GENERAL CODES

THIS PROJECT SHALL COMPLY WITH THE FOLLOWING BUILDING CODES AND ASSOCIATED COUNTY OF SAN DIEGO AMENDMENTS:

- 2022 CALIFORNIA RESIDENTIAL CODE
- 2022 CALIFORNIA BUILDING CODE
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
- 2022 CALIFORNIA ELECTRICAL CODE
- 2022 CALIFORNIA MECHANICAL CODE
- 2022 CALIFORNIA PLUMBING CODE
- 2022 CALIFORNIA FIRE CODE
- 2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS

DESIGN BASIS

CONVENTIONAL LIGHT FRAME CONSTRUCTION

ROOF LIVE LOAD: 20 PSF
ULTIMATE WIND SPEED: 110 MPH
EXPOSURE CATEGORY: C
SITE CLASS: D
RISK CATEGORY: II
S_{DS}: 1.25
SEISMIC DESIGN CATEGORY: D_2
ALLOW SOIL VERTICAL BEARING PRESSURE: 1500 PSF
ALLOW SOIL LATERAL BEARING PRESSURE: 100 PSF/FT

ENERGY EFFICIENCY SPECIAL FEATURES

SPECIFY AS INDICATED IN CF1R FORM (TITLE 24):

ENERGY EFFICIENCY HERS VERIFICATION

SPECIFY AS INDICATED IN CF1R FORM (TITLE 24):

PROPERLY COMPLETED AND SIGNED CERTIFICATES OF INSTALLATION (CF2R FORMS) SHALL BE PROVIDED TO THE INSPECTOR IN THE FIELD. FOR PROJECTS REQUIRING HERS VERIFICATION, THE CF2R FORMS SHALL BE REGISTERED WITH A CALIFORNIA-APPROVED HERS PROVIDER DATA REGISTRY." CF2R FORMS ARE AVAILABLE AT HTTP://WWW.SDCOUNTY.CA.GOV/PDS/BLDG/ENERGY-STDS.HTML (CBEES 10-103)

PROPERLY COMPLETED CERTIFICATES OF VERIFICATION (CF3R FORMS) SHALL BE PROVIDED TO THE INSPECTOR IN THE FIELD FOR ITEMS REQUIRING HERS VERIFICATION. CF3R FORMS SHALL BE REGISTERED WITH A CALIFORNIA-APPROVED HERS PROVIDER DATA REGISTRY." CF3R FORMS ARE AVAILABLE AT HTTP://WWW.SDCOUNTY.CA.GOV/PDS/BLDG/ENERGY-STDS.HTML (CBEES 10-103)

PROVIDE SOLAR PV SYSTEM UNDER SEPARATE PERMIT. SYSTEM SIZE TO COMPLY WITH ENERGY COMPLIANCE DOCUMENTATION

VICINITY MAP

OWNER INFORMATION

NAME: Higgins

ADDRESS:
3956 Aspen Rd
Fallbrook,CA 92028

PHONE:
760 908 7069

EMAIL:
jhiggins.ghc.1987@gmail.com

CONTACT INFORMATION

NAME: Justin Higgins

ADDRESS:
3956 Aspen RD
Fallbrook,Ca

PHONE:
760 908 7069

EMAIL:
JHIGGINS.GHC.1987@GMAIL.COM

PROJECT INFORMATION

PROJECT SCOPE: PROPOSED 1200 SF DETACHED DWELLING UNIT ADU ☒ SFD ☐

APN: 102-382-09

SITE ADDRESS: Aspen Road

PROPERTY CONNECTED TO THE ELECTRICAL GRID (Y or N)

PROPERTY SERVICED BY PROPANE (Y or N) IF YES, SHOW TANK ON PLOT PLAN

PROPERTY SERVICED BY NATURAL GAS (Y or N)

ENTIRE LOT IS FUEL MODIFIED (Y or N) IF NO, DIMENSION 100' FUEL MODIFICATION ZONE

All proposed buildings, structures, additions, modifications to buildings/structures must comply with the approved location, as shown on the County approved Plot Plan. At the discretion of the County, the property owner may be required to provide proof of current placement of each on the parcel. This may include a stamped and signed setback certificate prepared by a California licensed surveyor or civil engineer. (County Building Code 91.1.107.2)

PERVIOUS AREA INFORMATION

PERVIOUS SURFACE AREA TABLE

SITE ID	PERVIOUS ITEM	DIMENSIONS	AREA (SF)	NOTES

PERVIOUS ELEMENT MANUFACTURER: _____

PERVIOUS ELEMENT SLOPE AND DIRECTION OF SLOPE: _____

MAINTENANCE PROGRAM: _____

PERVIOUS ELEMENT CROSS SECTION LOCATED ON SHEET: _____

CONSTRUCTED PERVIOUS SURFACES SHALL NOT BE SEALED.

IMPERVIOUS AREA INFORMATION

IMPERVIOUS SURFACE AREA TABLE

SITE ID	IMPERVIOUS ITEM	DIMENSIONS	NEW or REPLACED AREA (SF)	EXISTING AREA (SF)
1	PROPOSED DWELLING UNIT ADU ☐ SFD ☒	43'-0" x 34'-0"	1462	
2				
3				
4				
TOTAL (SF)				

LAND DISTURBANCE: _____SF

SHEET TITLE

PLOT PLAN

SHEET NUMBER

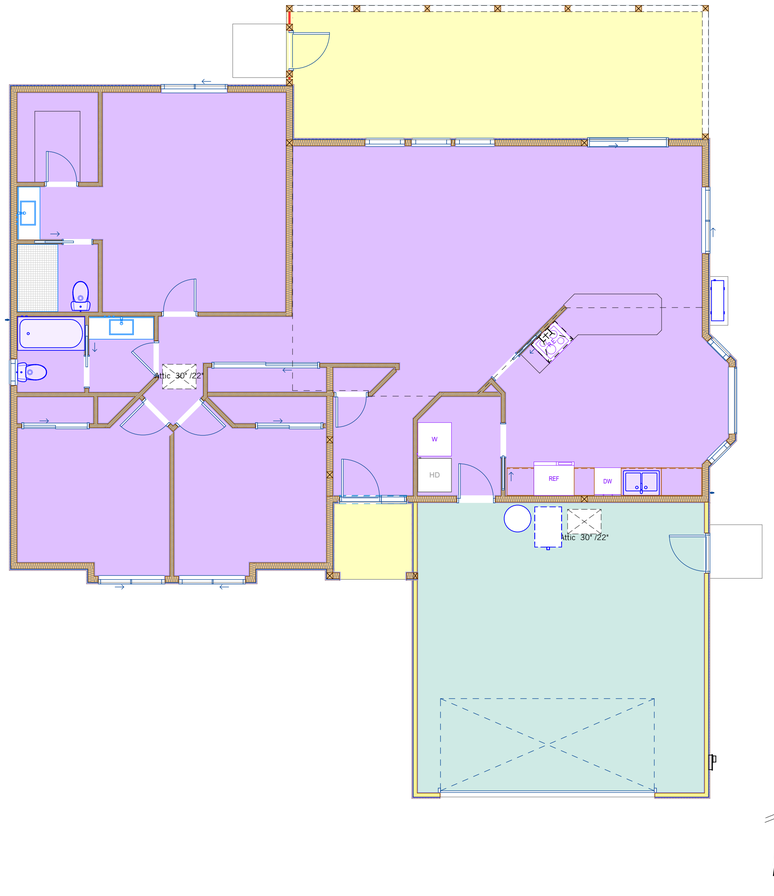
SP-1

SFD
A: 1,636,9 sq ft

Garage
A: 483,4 sq ft

Screened Porch
A: 312,9 sq ft

Entry Porch
A: 34,5 sq ft



Code Plan 3/16" = 1'-0"

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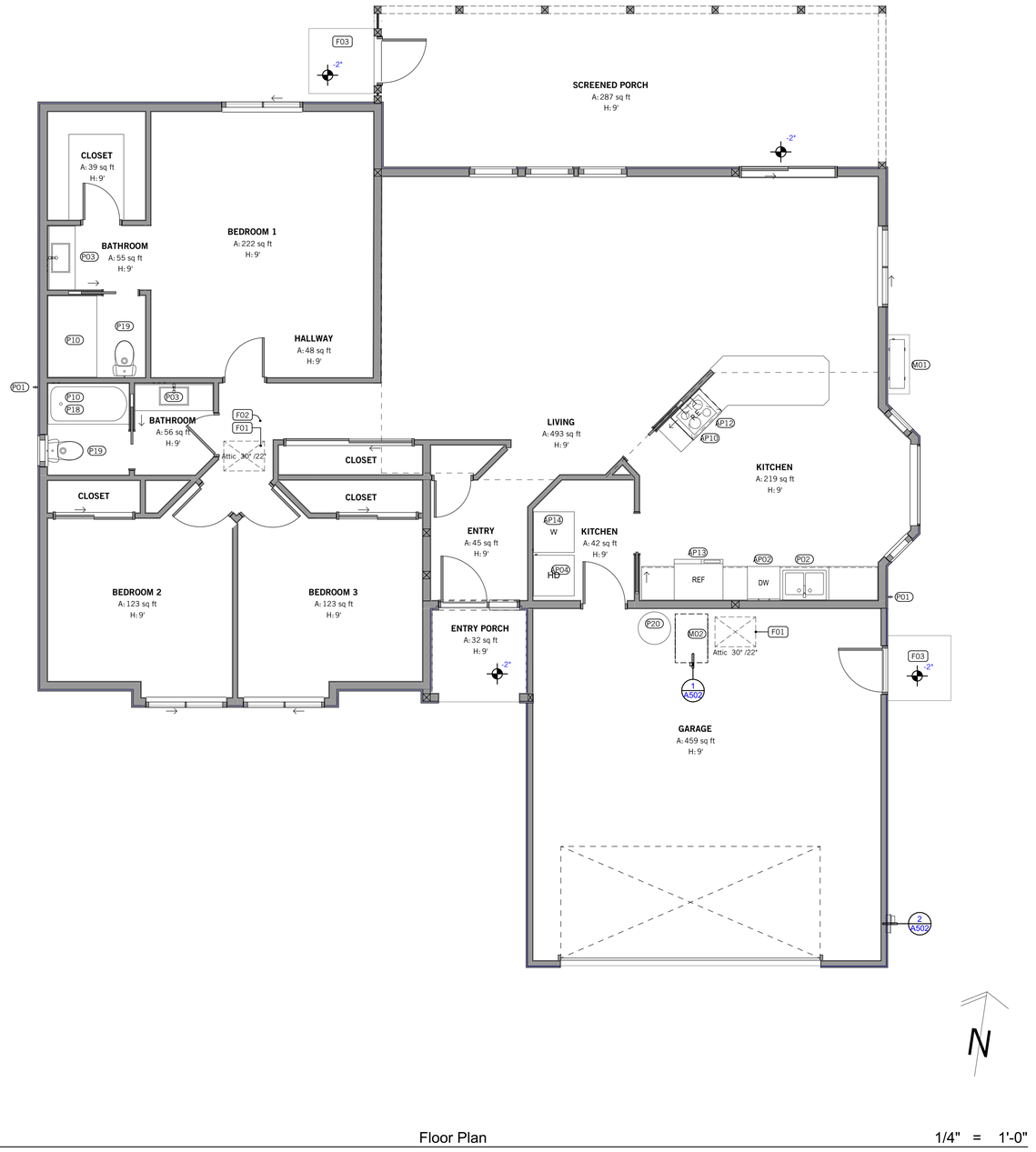
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Sheet 8 OF 23



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

Kitchen Requirements

ELECTRICAL
• All kitchen countertop outlets shall be GFCI protected. [CEC 210.8(A)(6)]
• Receptacles shall be listed as tamper resistant.
• 12" or wider countertops require an outlet. [CEC 210.52(C)(1)]
• Outlets are required within 24" of any location along the countertop. [CEC 210.52(C)(2)]
• Kitchen outlets positioned a maximum 20" above countertop. [CEC 210.52(C)(3)]
• Appliance garage outlets are not counted as a required countertop outlet. [CEC 210.52(C)(5)]
• Appliances and sinks break up the countertop run, requirement each side to comply individually. [CEC 210.52 (C)(4)]
• The electrical outlet requirements include islands, peninsulas, kitchen desktops, wet bars, and serving bars. A large window across the back of a sink or lack of a backsplash does not exempt the countertop from the outlet requirements. These outlets may be in a drop front cabinet face, under cabinet plug strip, pop up or tombstone- type receptacle. [CEC 210.52(C)(2), (3)]
• Two small appliance outlet circuits, 20 amps each, are required for kitchens. Circuits shall be balanced and have no other outlets.(CEC 210.52(B)(1), (2))
• Individual dedicated circuits are required for all major appliances. The rating of an individual branch circuit shall not be less than the marked rating of the appliance or the marked rating of an appliance having combined loads as provided in 422.62. [210.11 (C) & 422.10 (A)]
• Garbage disposal cord and plug connected 18" to 36" long. [CEC 422.16(B)(1)]
• Dishwasher cord 36" to 78" long. Romex installed with a plug is not an approved flexible cord. [CEC 422.16(B)(2)]
• Minimum 15-amp circuit for the dishwasher and a 15 amp circuit for the disposal [CEC 210.23(A)]
• If using a split outlet (two circuits on the same yoke) for dishwasher/disposal, provide a listed handle tie at the two circuit breakers at the panel. [CEC 210.7]
• Residential Kitchen Lighting is required to meet the energy efficiency standards. [CEnC 150(K)(1)]
• IC (direct contact) and AT (air tight) rated cans are required for recessed lighting if installed in an insulated ceiling. [CEnC 150(K)(C)]
• Fluorescent recessed lighting, when used to comply with the lighting requirements, must be of a pin base type design. Incandescent screw type base is not approved.
• AFCI Protection is required to kitchen by any of the means described in 210.12(A)(1) – through (6). [CEC 210.12 (A)].
• GFI protection for Laundry Area. [CEC 210.8 (A)(10)]
• GFI protection for Dishwasher. [CEC 210.8(D)].
• All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting JA8

MECHANICAL
• A ducted residential exhaust hood is required. A metal, smooth interior surface duct required on vent hood or down draft exhaust vent. Aluminum flex duct not approved. Provide back draft damper [504.3]
• Minimum 30" vertical clearance to combustibles from cook top surface.
• Kitchen local exhaust ventilation requires a minimum rate of 100cfm meeting the requirements of ASHRA 62.2.
This includes a maximum sound rating of 3 sones @ 100cfm.
• Kitchen local exhaust ventilation shall terminate a minimum 3ft from an opening [CMC 502.2.1]

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

Equipment, Appliance & Fixture Legend

Key	Description	Qty
AP02	Dishwasher with air-gap fitting - provide H&C & GFCI elec outlet	1
AP04	Heatpump Dryer - Provide 240 AMP electrical outlet. No exhaust vent required.	1
AP10	Induction Range - provide 240v 50 AMP elec outlet or per OEM	1
AP12	Range Hood with exhaust fan 110 cfm min 3 sones max with metal duct to outside provide elec outlet	1
AP13	Refrigerator - Provide elec outlet & cold water	1
AP14	Washing Machine - provide H & C , waste & elec outlet.	1
F01	Attic access. Shall have permanently attached insulation using adhesive or mechanical fasteners. The attic access shall be gasketed to prevent air leakage	2
M01	Split system Heat Pump Compressor Unit - provide disconnect & GFCI water protected power outlet, working space of 30" min width and 36" min depth in front of disconnect. Provide concrete or other approved base 3" above adjoining ground level.	1
P01	Hose Bibb with Vacuum breaker	2
P02	Kitchen Sink - 1.8 GPM @ 60 PSI per 2025 CGBSC sec 4.303.1	1
P03	Lavatory - Max 1.2 GPM @ 60 PSI 0.8 GPM @ 20 PSI per 2025 CGBSC sec 4.303.1	2
P10	Shower head 1.8 GPM @ 80 PSI per 2025 CGBSC sec 4.303.1 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.2025 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
P18	Bathtub per owner	1
P19	Water Closet - 1.28 GAL/Flush per CGBSC sec 4.303.1	2
P20	Northwest Energy Efficiency Alliance (NEEA) rated heat pump Water heater 50 gal provide electrical outlet - special required feature per t-24- provide earthquake bracing per detail. Rheem CPROPH50T2RH40015, or equivalent, must be installed	1

FLOOR PLAN KEYNOTES

F01	22"X30" ATTIC ACCESS	SHALL HAVE PERMANENTLY ATTACHED INSULATION USING ADHESIVE OR MECHANICAL FASTENERS. THE ATTIC ACCESS SHALL BE GASKETED TO PREVENT AIR LEAKAGE
F02	CEILING	ALL CEILING TO BE 1/2" GYP. BOARD TAPED & PAINTED
F03	LANDING	TO BE AT LEAST SAME WIDE AS OPENING, 3' DEPTH MIN.

Bathroom Requirements:

ELECTRICAL
• Provide a 20 AMP GFCI protected electrical outlet within 36" of the outside edge of each bathroom sink basin. Outlet shall be located on a wall or partition that is adjacent to the basin or installed on the side or face of the basin cabinet not more than 12" below the countertop. [CEC 210.52(D)]
• Receptacles shall be listed as tamper-resistant.
• A minimum of one (1) 20-amp circuit is required for bathrooms. Such circuits shall have no other outlets. This circuit may serve more than one bathroom. [CEC 210.52(D)] & [CEC 210.11(C)(3)]
• No pendant light fixtures in zone, 3 ft. away and 8 ft. above the bathtub or shower. [CEC 410.10(D)]
• Luminaries located within the actual outside dimensions of the tub, shower, and ceiling suspended paddle fans, up to 8 feet vertically from the top of the bathtub rim or shower threshold, shall be marked as suitable for damp locations, provided with a solid lens and be GFCI protected. [CEC 410.10(D)]
• Bathroom lighting shall be high efficacy luminaries in accordance with Table 150.0-A of 2022 California Energy Code and have at least one luminaire in each space controlled by a vacancy sensor 150.0(K)2C.
• Recessed luminaries installed in an insulated ceiling shall be IC rated (zero clearance) and AT rated (air tight) and shall be sealed and/or gasket between ceiling and housing. For occupancies with a horizontal (floor/ceiling assembly) rated separation, the recessed fixtures shall be protected to the rating of the separation (1 hour) or be listed for the required protection. This generally applied to residential condominium construction where units are above or below other units.
• Hydro-massage tubs (i.e. Jacuzzi tubs) shall have access to the motor, be supplied by a GFCI protected dedicated circuit, and listed by a recognized testing agency. All piping, fitting, metal cables or other metal surfaces, within 5 feet of the inside wall of the Hydro-massage tub shall be properly bonded. Hydro-massage tubs shall be bonded with a minimum #8 AWG bare copper wire and the bonding shall be accessible. [CEC 680.60]
All recessed downlight luminaries shall be in accordance with Reference Joint Appendix JA8 and be marked as meeting JA8.

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

PLUMBING
• Provide tempered glass at tub/shower doors and at windows less than 60" from tub/shower drain.
• Shower and tub/shower control valves shall be pressure balancing set at a maximum 120 degrees F. The water-filler valve in bathtub/whirlpools shall have a temperature limiting device set a maximum of 120 degrees F regulated by either a limiting device conforming to either ASSE 1070/A112.1070/CSA B125.70 or CSA B125.3 or a water heater conforming to ASSE 1084. [CPC 408.3, 409.4]
• Fixtures shall meet the following maximum flow rates: [CPC 407.0, 408.2 & 411.0]
Water Closets = 1.28 gallons/flush — Shower Heads = 1.8 GPM — Sink Faucets = 1.2 GPM
• Minimum shower size is 1024 square inches (30" circle). [CPC 408.6]
Shower without threshold shall be considered a wet location and shall comply with California Building, Residential, and Electrical Codes.
• Site built shower stalls shall comply with CPC 408.7.
• Stall shower door to provide a min. of 22" wide unobstructed opening. [CPC 408.5].
• Toilet and/or Bidet require a total minimum 30" clear space, 15" from the center of the fixture to the wall, and a minimum of 24" clear space in front of the fixture. [CPC 402.5]
• When additional water closets (toilets) are installed, a maximum of 5 water closets are allowed on a 3" waste line. [Table 703.2, Note 4]
• The hot water valve shall be installed on the left side. [CPC 417.5]
• A minimum 12" x 12" access panel is required when a slip joint p-trap waste & overflow is provided. [402.10]
• Where plumbing features (water closets, tubs, etc.) comes into contact with the wall or floor, the joint shall be caulked and sealed to be watertight. [CPC 402.2]

Smoke & Carbon Monoxide Alarms

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

Aging in place design and fall prevention

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". **See SA502**

A.-At least one bathroom on the lowest entry level shall be provided with reinforcement in accordance with [CRC R327.1.1]. Reinforcement shall be minimum 2X8 solid lumber, located between 32" and 39-¼" above the finished floor flush with wall framing on both side walls of the fixture.

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].

D.-At least one bathroom and one bedroom on the entry level shall provide a doorway with a net clear opening of not less than 32 inches, measured with the door positioned at an angle of 90° from the close position; or, in the case of a two- or three-story single family dwelling, on the second or third floor of the dwelling if a bathroom or bedroom is not located on the entry level.

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Higgins Residence

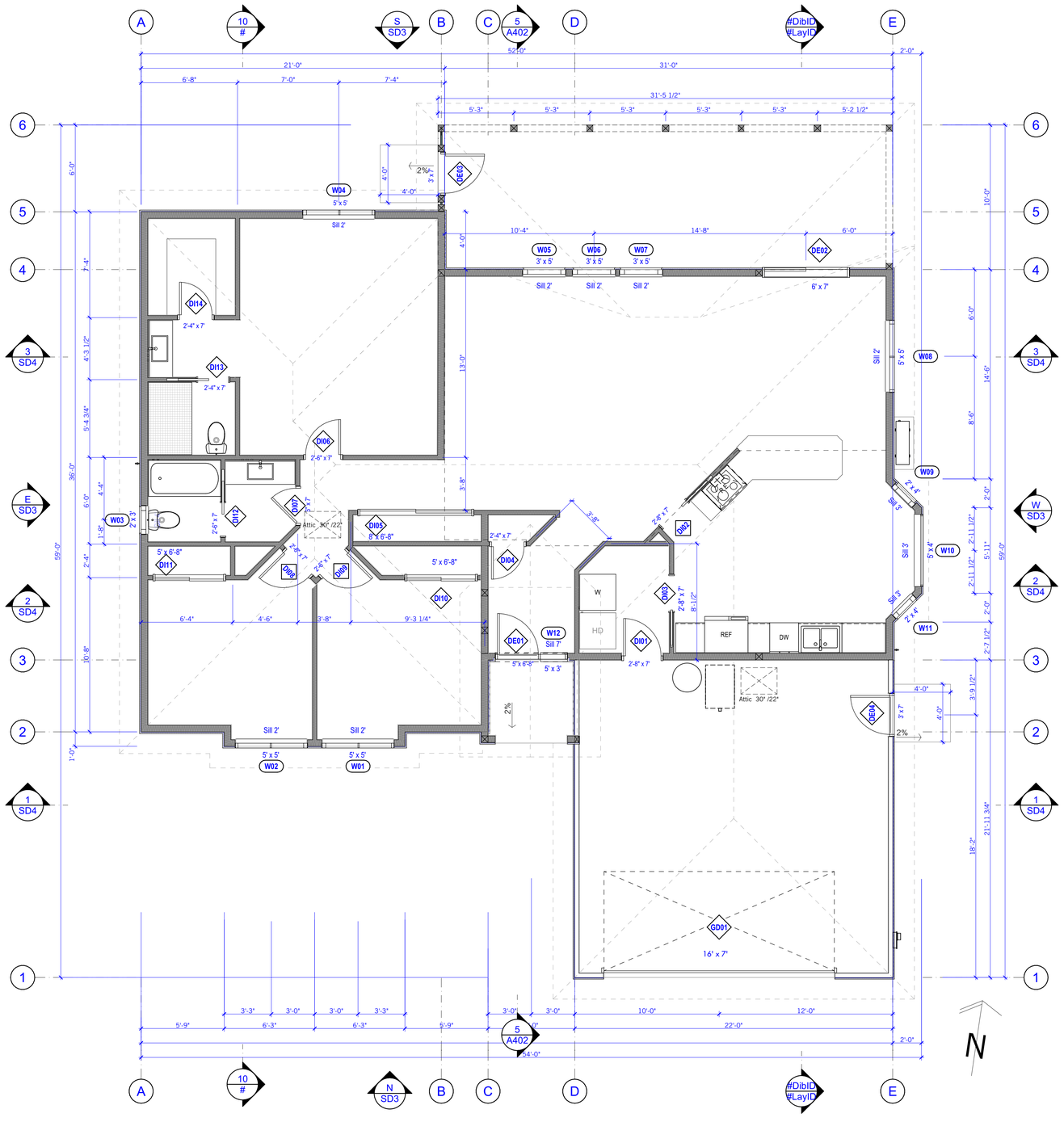
3956 Aspen RD Fallbrook CA 92028

Drawing Name
Floor Plan

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A201
Sheet 9 OF 23



Dimensional Slab & Walls

1/4" = 1'-0"

Door Schedule

Element ID	Quanti ty	W x H	Area	Tempe red	U-Factor	SHGC	Related Zone
DE01	1	5'×6'-8"	33,3	☒		0,00	LIVING
DE02	1	6'×7'	42,0	☒		0,00	SCREENED PORCH
DE03	1	3'×7'	21,0	☒		0,00	
DE04	1	3'×7'	21,0	☒		0,00	GARAGE
DI01	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI02	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI03	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI04	1	2'-4"×7'	16,3	☐		0,00	ENTRY
DI05	1	8'×6'-8"	53,3	☐		0,00	HALLWAY
DI06	1	2'-6"×7'	17,5	☐		0,00	BEDROOM 1
DI07	1	2'-6"×7'	17,5	☐		0,00	BATHROOM
DI08	1	2'-6"×7'	17,5	☐		0,00	BEDROOM 2
DI09	1	2'-6"×7'	17,5	☐		0,00	HALLWAY
DI10	1	5'×6'-8"	33,3	☐		0,00	CLOSET
DI11	1	5'×6'-8"	33,3	☐		0,00	BEDROOM 2
DI12	1	2'-6"×7'	17,5	☐		0,00	BATHROOM
DI13	1	2'-4"×7'	16,3	☐		0,00	BATHROOM
DI14	1	2'-4"×7'	16,3	☐		0,00	CLOSET
GD01	1	16'×7'	112,0	☐		0,00	GARAGE
	19						

Window Schedule

ID	Quanti ty	W x H	Surface Area	Tempe red	U-Factor	SHGC	Related Zone
W01	1	5'×5'	80,2	☒		0,00	BEDROOM 3
W02	1	5'×5'	80,2	☐		0,00	BEDROOM 2
W03	1	2'×3'	23,8	☒		0,00	BATHROOM
W04	1	5'×5'	80,2	☐		0,00	BEDROOM 1
W05	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W06	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W07	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W08	1	5'×5'	80,2	☐		0,00	LIVING
W09	1	2'×4'	29,9	☐		0,00	KITCHEN
W10	1	5'×4'	47,1	☐		0,00	KITCHEN
W11	1	2'×4'	29,9	☐		0,00	KITCHEN
W12	1	5'×3'	53,5	☐		0,00	LIVING
	12						

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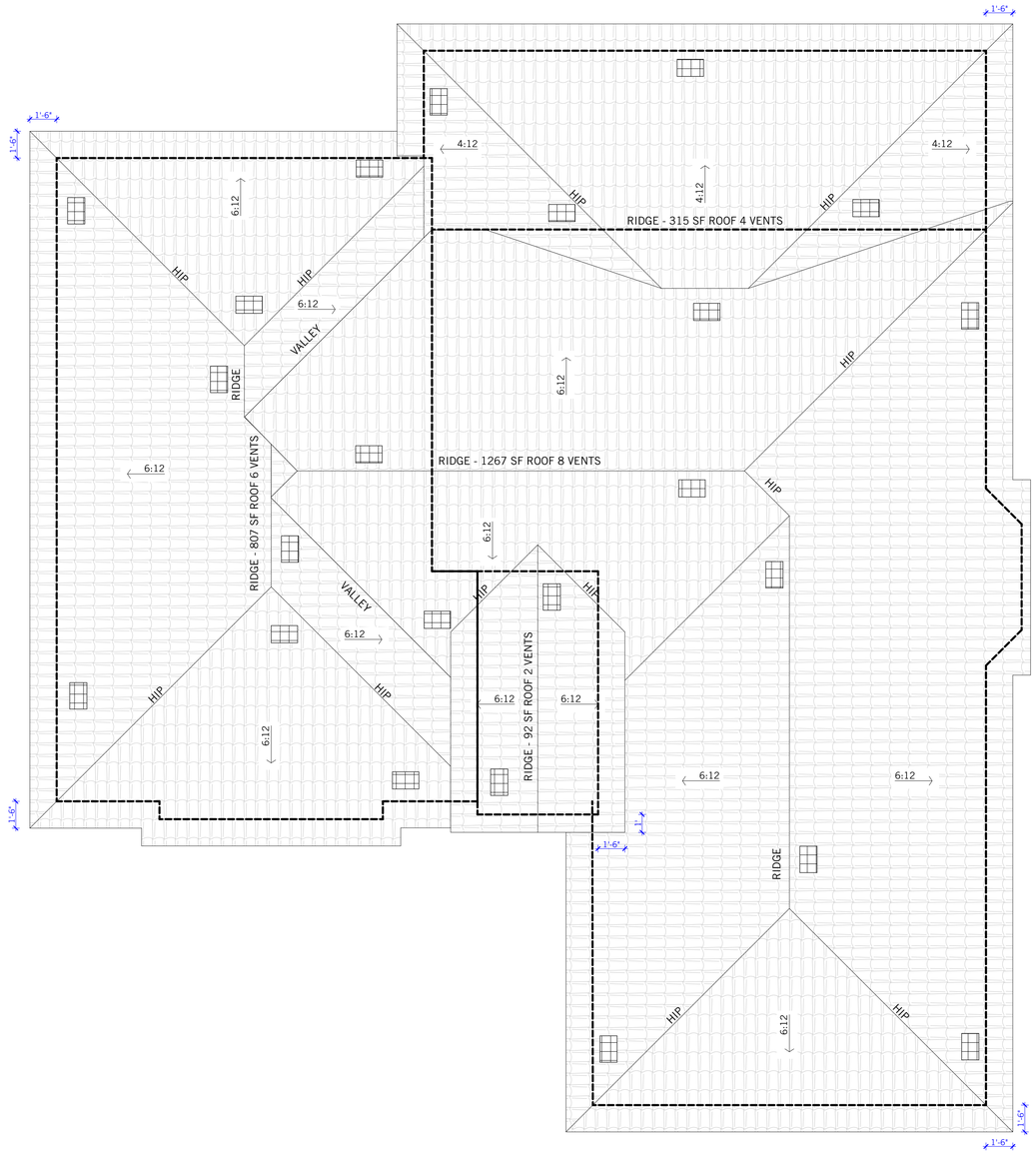
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Sheet 10 OF 23



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

ROOF PLAN GENERAL NOTES

- CONCRETE TILE BY EAGLE ROOFING PRODUCTS CLASS A (IAPMO UES-ER 1900) TO BE INSTALLED IN STRICT ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS.

- ONE LAYER OF MINIMUM ASTM D226 TYPE II (NO. 30 FELT) (ASTM D4869 TYPE IV) OR APPROVED EQUAL.

- 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 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 STRUCTURE & 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

X:12 ROOF DIRECTION AND PITCH

O'HAGIN FIRE & ICE VENT ICC-ES 9650 A WUI COMPAIANT NET FREE VENT AREA 86.25 SI WITH CORROSION RESISTANT WIRE MESH OR OTHER APPROVED MATERIAL WITH 1/16" MINIMUN AND 1/8" MAXIMUN OPENING

ROOFING & 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 315 SF ATTIC SPACE

315 SF / 300 = 1.05 SF OF VENTILATION AREA
1.05 SF X 144 = 151 SI OF VENTILATION REQUIRED
151 SI / 86.25 NFVA O' HAGING "M" STYLE VENT= 2 VENTS MIN
USE 4 VENTS 2 HIGH 2 LOW

ATTIC VENTILATION CALCULATION FOR 807 SF ATTIC SPACE

807 SF / 300 = 2.7 SF OF VENTILATION AREA
2.7 SF X 144 = 389 SI OF VENTILATION REQUIRED
389 SI / 86.25 NFVA O' HAGING "M" STYLE VENT= 5 VENTS MIN
USE 6 VENTS 3 HIGH 3 LOW

ATTIC VENTILATION CALCULATION FOR 1267 SF ATTIC SPACE

1267 SF / 300 = 4.2 SF OF VENTILATION AREA
4.2 SF X 144 = 604.8 SI OF VENTILATION REQUIRED
604.8 SI / 86.25 NFVA O' HAGING "M" STYLE VENT= 7 VENTS MIN
USE 8 VENTS 4 HIGH 4 LOW

ATTIC VENTILATION CALCULATION FOR 92 SF ATTIC SPACE

92 SF / 300 = 0.3 SF OF VENTILATION AREA
0.3 SF X 144 = 43.2 SI OF VENTILATION REQUIRED
43.2 SI / 86.25 NFVA O' HAGING "M" STYLE VENT= 1 VENTS MIN
USE 2 VENTS 1 HIGH 1 LOW

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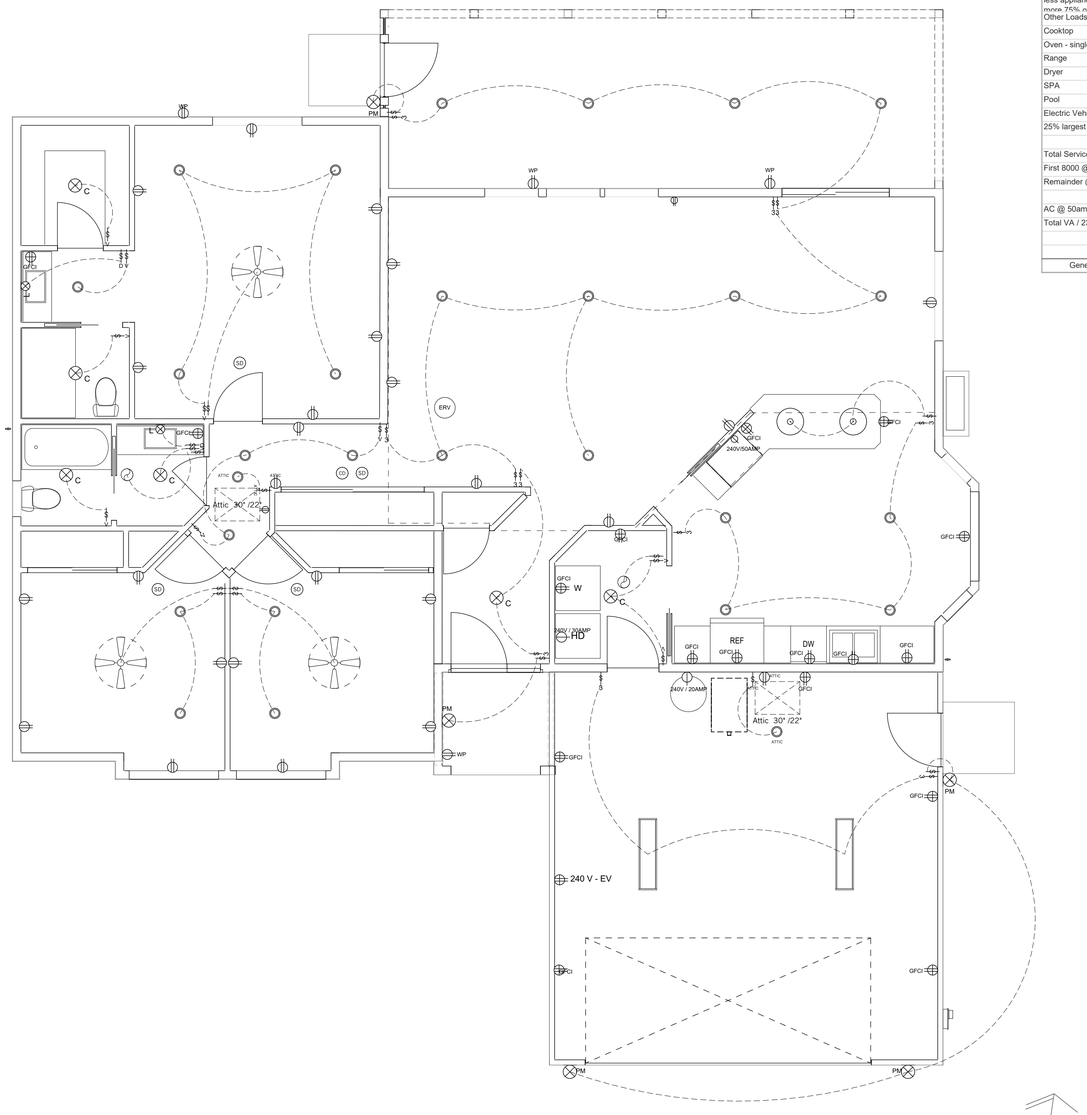
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Sheet 11 OF 23



Power & Lighting Plan 1/4" = 1'-0"

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Electrical Load Calculation for SFD- based on the 2025 CEC, Article 220 optional method - 3 Bedroom

	Quantit			Load	Results
General Lighting					
1 General Lighting	2,468	Sq. Ft.	X	3 VA/sq ft	7404
2 Small Appliance	2	each	X	1500 VA	3000
3 Laundry	1	each	X	1500 VA	1500
4 Total General Lighting					11904
5 First 3000VA @ 100%.					3000
6 Total General Lighting @ 35%=(Line 5-Line4)					3116
7 Net General Lighting (add 5&6)					6116
Fixed Appliances.					
Dishwasher	1	each	X	1200 VA	1200
Disposal	1	each	X	800 VA	800
Microwave	1	each	X	1000 VA	1000
Compactor	0	each	X	1000 VA	0
Refrigerator	1	each	X	1200 VA	1200
Total Appliances (3 or less appliances if 4 or more 75% of total)					4200
Other Loads					
Cooktop	0	each	X	4000 VA	0
Oven - single	0	each	X	8000 VA	0
Range	1	each	X	12000 VA	12000
Dryer	1	each	X	5000 VA	5000
SPA	0	each	X	25000 VA	0
Pool	0	each	X	4800 VA	0
Electric Vehicle (30)	1	each	X	7200 VA	7200
25% largest motor					
Total Service Loads (Add Lines 7, 8,9-17)					34516
First 8000 @ 100%					8000 VA
Remainder @ 40%					10607
				Total VA	18607
AC @ 50amps X 240	1				12000
Total VA / 230 volts					30607
				Total Amps	133

General Lighting is total sq ft of structure times 3 VA per foot.

ELECTRICAL CODE REQUIREMENTS

-Provide a grounding electrode as per 2025 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. 2025 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. 2025 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 2025 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. 2025 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. 2025 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 2025 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. 2025 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. 2025 CEC, Article 210.11(C)(2).
-Provide fuses or approved circuit breakers at air conditioning units and heat pumps as per 2025 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. 2025 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. 2025 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. 2025 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. 2025 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. 2025 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. 2025 CEC, Article 314.27(A).
-Armored clad cable (AC) is acceptable for branch circuits and feeders. 2025 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. 2025 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. 2025 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. 2025 CEC, Article 110.25.
-Receptacles in wet locations. 120 volt and 250 volt are required to be listed weather-resistant type. 2025 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. 2025 CEC, Article 406.12.
-All luminaires and lamp holders shall be listed. 2025 CEC, Article 410.6.
-Those luminaries allowed in clothes closets by 2025 CEC 410.16(A) shall be installed per the requirements of 2025 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. 2025 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. 2025 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. 2025 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. 2025 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. 2025 CEC, Article 680.31 & 680.32.
-Hydro massage bathtubs and their associated equipment must be supplied by at least one separate individual circuit. 2025 CEC, Article 680.71.

Power Notes

General Power Notes

•All electrical work shall comply with the California Electrical Code (CEC), latest edition adopted by local jurisdiction.
•Provide arc-fault circuit-interrupter (AFCI) protection for all 120V, 15- and 20-amp branch circuits supplying outlets in dwelling unit habitable rooms (CEC 210.12).
•All outlets in wet or damp locations shall be GFCI-protected (CEC 210.8(A)).
•Label all circuit breakers clearly in the panel schedule.
•Receptacles shall be listed tamper-resistant type in accordance with CEC 406.12.

Receptacle Placement and Requirements

•Receptacles shall be installed so that no point along the floor line in any wall space is more than 6 feet from a receptacle (CEC 210.52(A)).
•At least one receptacle shall be installed in hallways of 10 feet or more in length (CEC 210.52(H)).
•Bathrooms must have at least one 20-amp circuit for receptacles, GFCI-protected (CEC 210.11(C)(3)).
•Kitchen countertop receptacles shall be spaced a maximum of 4 feet apart, GFCI-protected, and served by at least two 20-amp small appliance branch circuits (CEC 210.52(B)).
•Garage receptacles shall be GFCI-protected and installed in readily accessible locations (CEC 210.52(G)).

Appliances and Dedicated Circuits

•Provide dedicated circuits for appliances such as dishwasher, microwave, refrigerator, and garbage disposal per manufacturers specifications.
•Electric range, dryer, and HVAC equipment shall have properly rated branch circuits and disconnects per CEC 210 and 422.
•Smoke alarms and carbon monoxide detectors shall be hardwired with battery backup and interconnected (CEC 760.41 & 760.43).

Panel and Grounding Requirements

•Main service panel shall be installed in an accessible exterior or garage location per utility company and local requirements.
•Provide a grounding electrode system using a ground rod and UFER ground as required (CEC 250.50).
•Bond gas piping and metal water piping systems per CEC 250.104.

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

Electrical Schedule

Symbol	Description	Quantity
3	3 WAY SWITCH	11
CO	CARBON MONOXIDE DETECTOR TO UL217 TO BE HARDWIRED AND INTERCONNECTED	1
	CEILING FAN WITH LUMINAIRE SWITCH SEPARATELY	3
C	CEILING MOUNTED LIGHT	6
	ELECTRICAL SERVICE - 200 AMP W/ 225 AMP BUSBAR	1
	ENERGY STAR COMPLIANT EXHAUST FAN W/ HUMISTAT CONTROL, 50 CFM MIN, 3 SONE MAX - DUCTED TO OUTSIDE OF BUILDING	2
240 V - EV	EV RECEPTACLE 240V - 50 AMP	1
	HIGH EFFICACY OR LED LUMINAIRE IN DAMP LOCATIONS TO BE DAMP PROOF	28
PM	HIGH EFFICACY OR LED LUMINAIRE W/ PHOTOCELL & MOTION SENSOR - IN EXTERIOR OR DAMP LOCATIONS TO BE DAMP PROOF	5
ERV	INDOOR AIR QUALITY FAN (ERV) 75 CFM MIN	1
	LED T5	2
	PENDANT LIGHT PER OWNER	2
240V / 20AMP	RECEPTACLE 240V - 20 AMPS	1
240V / 30AMP	RECEPTACLE 240V - 30 AMPS	1
240V/50AMP	RECEPTACLE 240V - 50 AMPS	1
	RECEPTACLE, DUPLEX, TAMPER RESISTANT, AFCI	27
GFCI	RECEPTACLE, DUPLEX, TAMPER RESISTANT, GFCI, AFCI	17
WP	RECEPTACLE, DUPLEX, TAMPER RESISTANT, GFCI, WATER PROTECTED	4
L	SCONCE	2
SD	SMOKE DETECTOR TO UL217 TO BE HARDWIRED AND INTERCONNECTED	4
	SWITCH	13
D	SWITCH WITH DIMMER	2
V	SWITCH WITH VACANCY SENSOR	10

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Higgins Residence

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Drawing Name
Power & Lighting

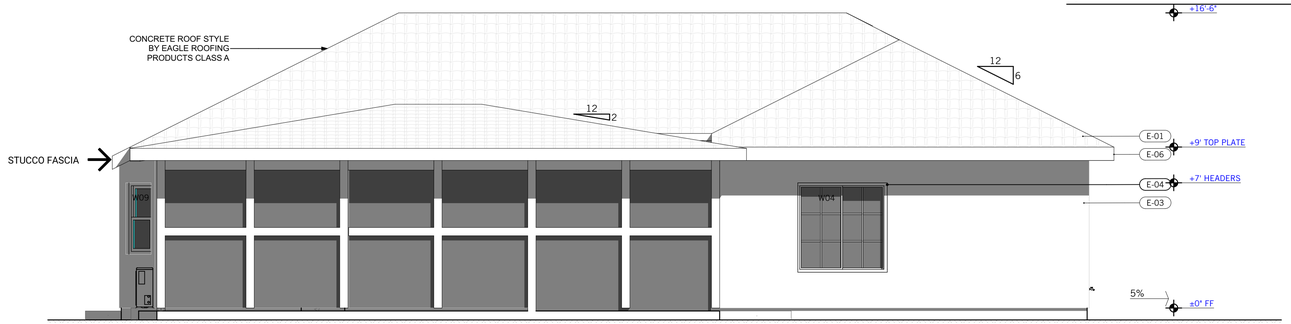
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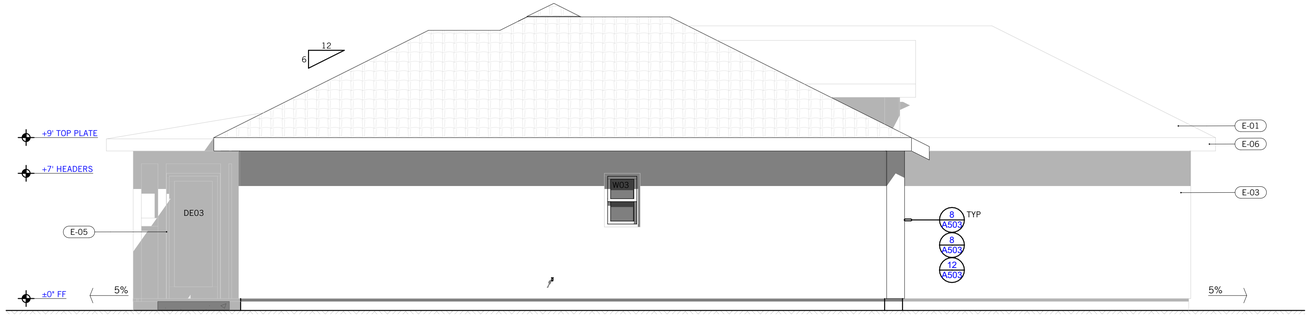
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S Elevation 1/4" = 1'-0"



W Elevation 1/4" = 1'-0"



E Elevation 1/4" = 1'-0"

ELEVATION KEYNOTES

E-01	CONCRETE ROOF TILE BY EAGLE ROOFING PRODUCTS CLASS A (IAPMO UES-ER 1900) TO MATCH (E) ROOF
E-03	STUCCO FINISH, TEXTURE & COLOR TO MATCH (E)
E-04	WINDOW PER PLAN TO BE INSTALLED STRICTLY PER MANUF SPECS
E-05	DOOR PER PLAN TO BE INSTALLED STRICTLY PER MANUF SPECS
E-06	STUCCO FASCIA MATCH (E)

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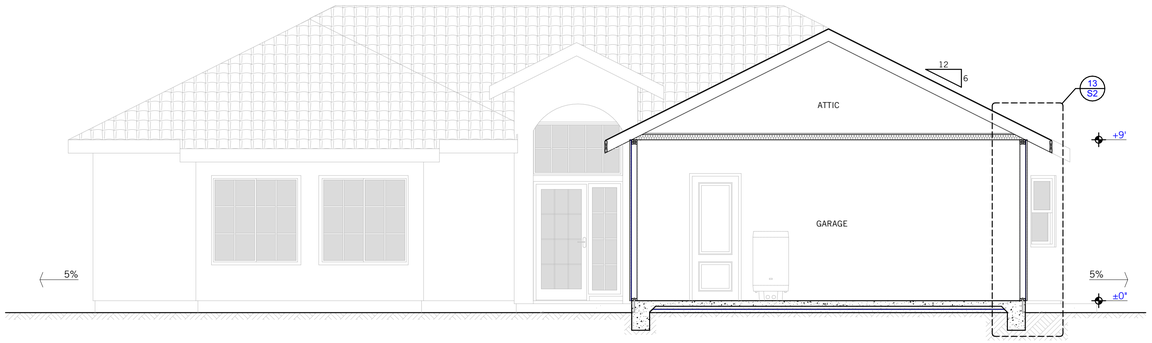
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Drawing Name
Elevations

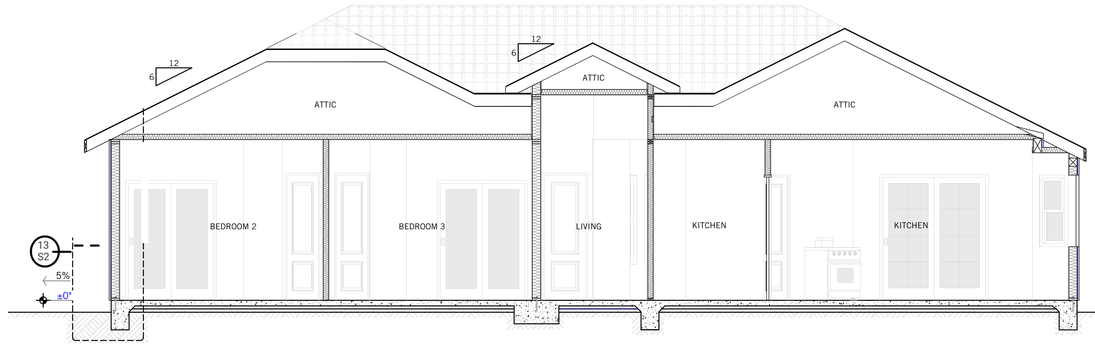
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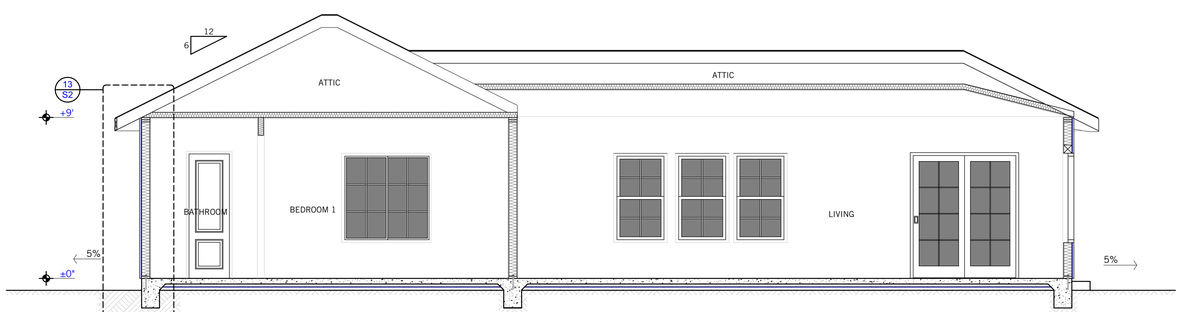
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1 Building Section 1/4" = 1'-0"



2 Building Section 1/4" = 1'-0"



3 Building Section 1/4" = 1'-0"

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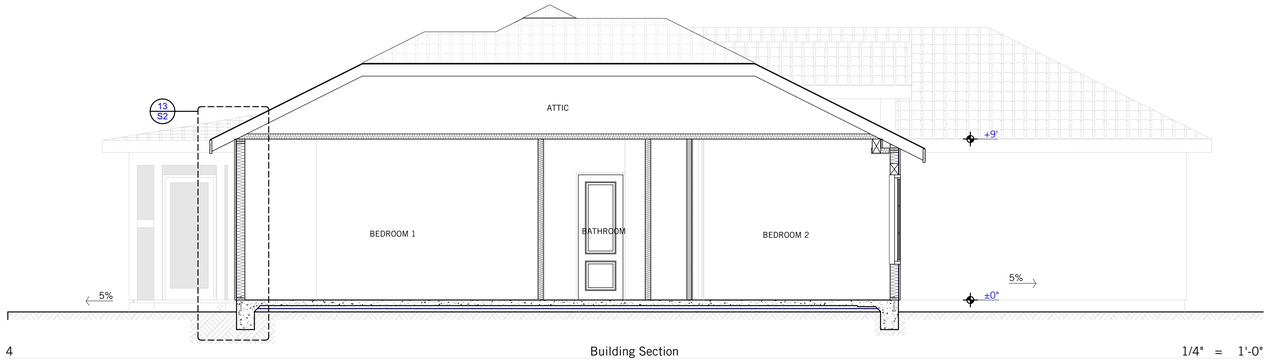
3956 Aspen RD Fallbrook CA 92028

Drawing Name
Building Sections

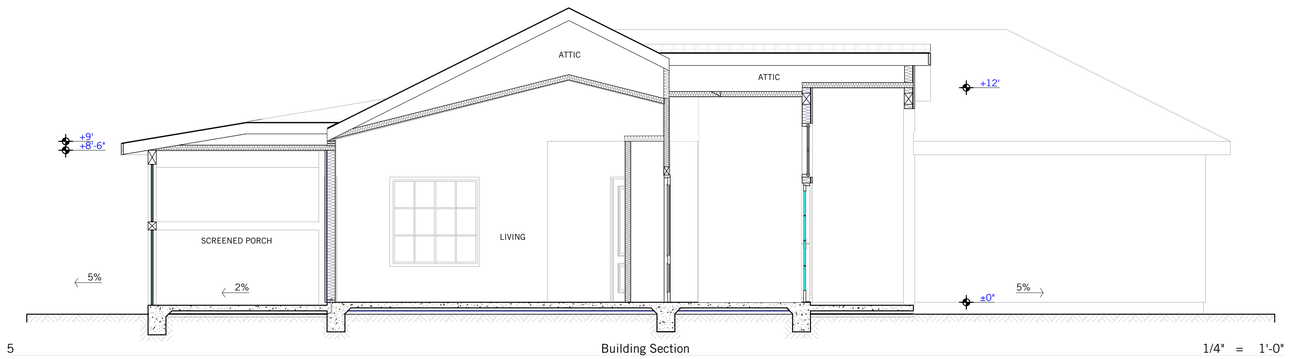
Modified by

Checked by

A401
Sheet 14 OF 23



4 Building Section 1/4" = 1'-0"



5 Building Section 1/4" = 1'-0"

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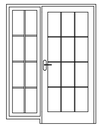
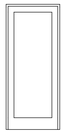
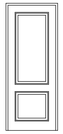
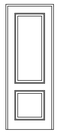
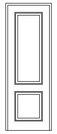
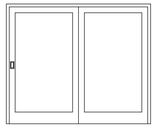
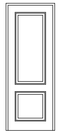
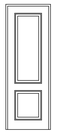
Drawing Name
Building Sections

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A402
Sheet 15 OF 23

Door Types

Element ID	DE01	DE02	DE03, DE04	DI01	DI02, DI03	DI04, DI14	DI05	DI06, DI07, DI08, DI09	DI10, DI11	DI12	DI13	GD01	
Front View													
Operation Type	Inswing Door	Sliding Door	Inswing Door	Inswing Door	Inswing Door	Inswing Door	Sliding Door	Inswing Door	Sliding Door	Pocket Door	Pocket Door	Garage Door	
Quantity	1	1	2	1	2	2	1	4	2	1	1	1	19
W x H Size	5'×6'-8"	6'×7'	3'×7'	2'-8"×7'	2'-8"×7'	2'-4"×7'	8'×6'-8"	2'-6"×7'	5'×6'-8"	2'-6"×7'	2'-4"×7'	16'×7'	19
Surface Area	33,3	42,0	21,0	18,7	18,7	16,3	53,3	17,5	33,3	17,5	16,3	112,0	
Glazing	☒	☒	☒	☒	☐	☒	☒	☒	☒	☐	☐	☒	
Tempered	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	
U-Factor													
SHGC													
Fire Resistance Rating	-	-	-	-	-	-	-	-	-	-	-	-	
Notes													

Window Types

Element ID	W01	W02, W04, W08	W03	W05, W06, W07	W09, W11	W10	W12	
3D Front View								
Quantity	1	3	1	3	2	1	1	12
W x H Size	5'×5'	5'×5'	2'×3'	3'×5'	2'×4'	5'×4'	5'×3'	
Surface Area	25,0	25,0	6,0	15,0	8,0	20,0	15,0	
U-Factor								
SHGC	0,00	0,00	0,00	0,00	0,00	0,00	0,00	
Tempered	☒	☐	☒	☐	☐	☐	☐	
Notes								

Door Schedule

Element ID	Quantity	W x H	Area	Tempered	U-Factor	SHGC	Related Zone
DE01	1	5'×6'-8"	33,3	☒		0,00	LIVING
DE02	1	6'×7'	42,0	☒		0,00	SCREENED PORCH
DE03	1	3'×7'	21,0	☒		0,00	
DE04	1	3'×7'	21,0	☒		0,00	GARAGE
DI01	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI02	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI03	1	2'-8"×7'	18,7	☐		0,00	KITCHEN
DI04	1	2'-4"×7'	16,3	☐		0,00	ENTRY
DI05	1	8'×6'-8"	53,3	☐		0,00	HALLWAY
DI06	1	2'-6"×7'	17,5	☐		0,00	BEDROOM 1
DI07	1	2'-6"×7'	17,5	☐		0,00	BATHROOM
DI08	1	2'-6"×7'	17,5	☐		0,00	BEDROOM 2
DI09	1	2'-6"×7'	17,5	☐		0,00	HALLWAY
DI10	1	5'×6'-8"	33,3	☐		0,00	CLOSET
DI11	1	5'×6'-8"	33,3	☐		0,00	BEDROOM 2
DI12	1	2'-6"×7'	17,5	☐		0,00	BATHROOM
DI13	1	2'-4"×7'	16,3	☐		0,00	BATHROOM
DI14	1	2'-4"×7'	16,3	☐		0,00	CLOSET
GD01	1	16'×7'	112,0	☐		0,00	GARAGE
	19						

Window Schedule

ID	Quantity	W x H	Surface Area	Tempered	U-Factor	SHGC	Related Zone
W01	1	5'×5'	80,2	☒		0,00	BEDROOM 3
W02	1	5'×5'	80,2	☐		0,00	BEDROOM 2
W03	1	2'×3'	23,8	☒		0,00	BATHROOM
W04	1	5'×5'	80,2	☐		0,00	BEDROOM 1
W05	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W06	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W07	1	3'×5'	51,7	☐		0,00	SCREENED PORCH
W08	1	5'×5'	80,2	☐		0,00	LIVING
W09	1	2'×4'	29,9	☐		0,00	KITCHEN
W10	1	5'×4'	47,1	☐		0,00	KITCHEN
W11	1	2'×4'	29,9	☐		0,00	KITCHEN
W12	1	5'×3'	53,5	☐		0,00	LIVING
	12						

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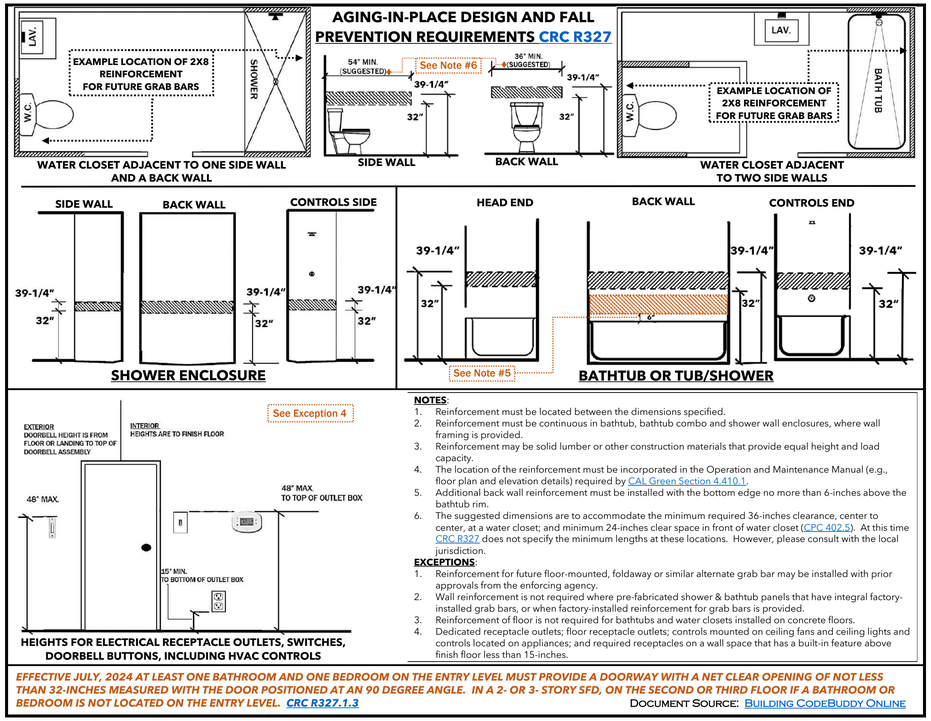
Drawing Name
Door & Window Schedules

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A501

Sheet 16 OF 23



NOTES:

1. Reinforcement must be located between the dimensions specified.
2. Reinforcement must be continuous in bathtub, bathtub combo and shower wall enclosures, where wall framing is provided.
3. Reinforcement may be solid lumber or other construction materials that provide equal height and load capacity.
4. The location of the reinforcement must be incorporated in the Operation and Maintenance Manual (e.g., floor plan and elevation details) required by CAL Green Section 4.410.1.
5. Additional back wall reinforcement must be installed with the bottom edge no more than 6-inches above the bathtub rim.
6. The suggested dimensions are to accommodate the minimum required 36-inches clearance, center to center, at a water closet; and minimum 24-inches clear space in front of water closet (CPC 402.5). At this time CRC R327 does not specify the minimum lengths at these locations. However, please consult with the local jurisdiction.

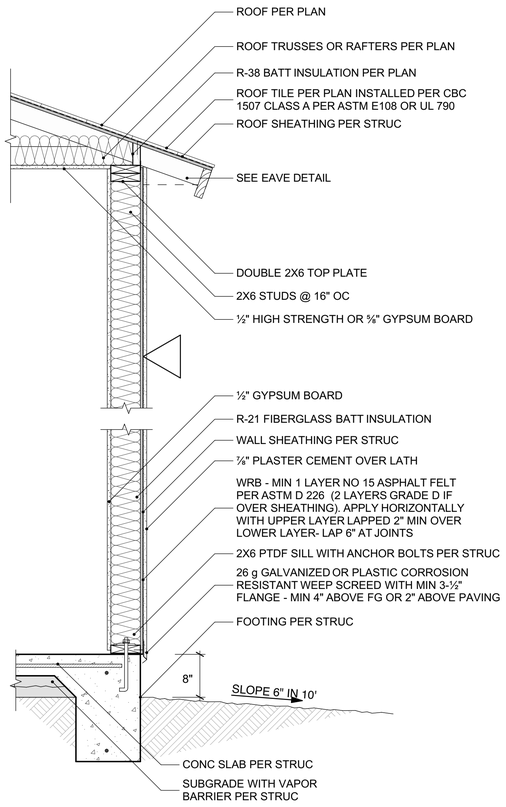
EXCEPTIONS:

1. Reinforcement for future floor-mounted, foldaway or similar alternate grab bar may be installed with prior approvals from the enforcing agency.
2. Wall reinforcement is not required where pre-fabricated shower & bathtub panels that have integral factory-installed grab bars, or when factory-installed reinforcement for grab bars is provided.
3. Reinforcement of floor is not required for bathtubs and water closets installed on concrete floors.
4. Dedicated receptacle outlets; floor receptacle outlets; controls mounted on ceiling fans and ceiling lights and controls located on appliances; and required receptacles on a wall space that has a built-in feature above finish floor less than 15-inches.

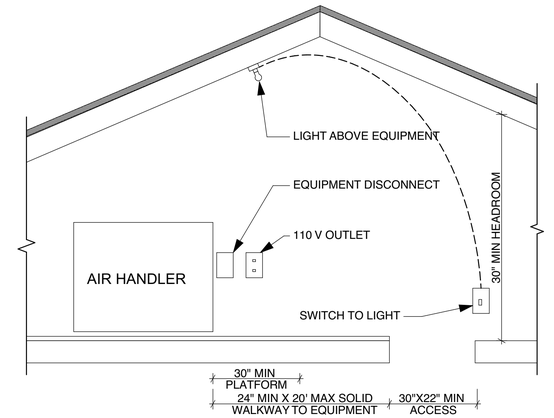
EFFECTIVE JULY, 2024 AT LEAST ONE BATHROOM AND ONE BEDROOM ON THE ENTRY LEVEL MUST PROVIDE A DOORWAY WITH A NET CLEAR OPENING OF NOT LESS THAN 32-INCHES MEASURED WITH THE DOOR POSITIONED AT AN 90 DEGREE ANGLE. IN A 2- OR 3- STORY SFD, ON THE SECOND OR THIRD FLOOR IF A BATHROOM OR BEDROOM IS NOT LOCATED ON THE ENTRY LEVEL. CRC R327.1.3

DOCUMENT SOURCE: BUILDING CODEBUDDY ONLINE

5 AGING IN PLACE
NOT TO SCALE

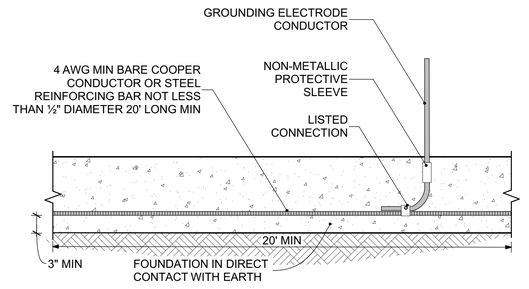


5 A WOOD WALLS
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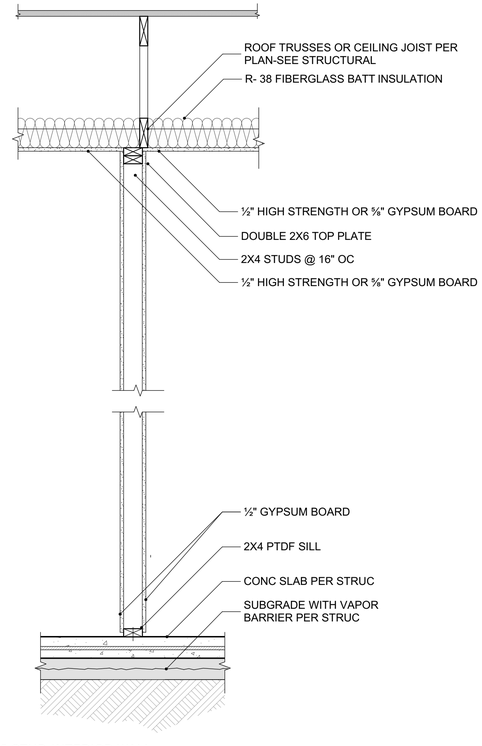


Note: An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passageway not less than the largest component of the appliance, and not less than 22 inches by 30 inches (559 mm by 762 mm)

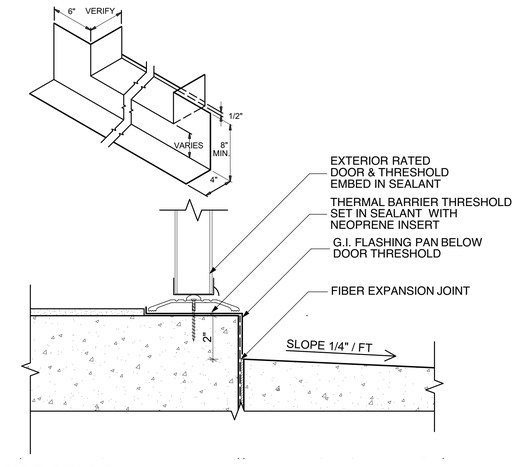
1 FAU
NOT TO SCALE



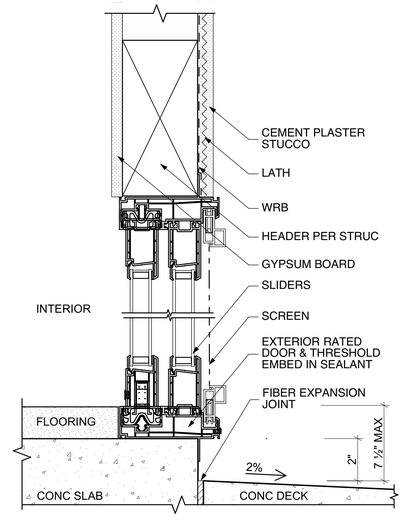
2 UFER
NOT TO SCALE



6 2X6 STUD INTERIOR WALL
NOT TO SCALE



7 DOOR THRESHOLD
NOT TO SCALE



3 DOOR THRESHOLD
NOT TO SCALE

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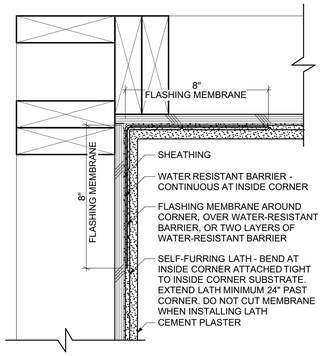
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Drawing Name
Details

Modified by

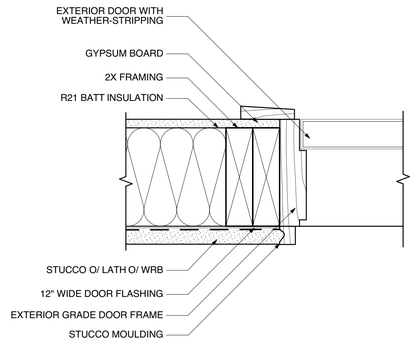
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Sheet 17 OF 23



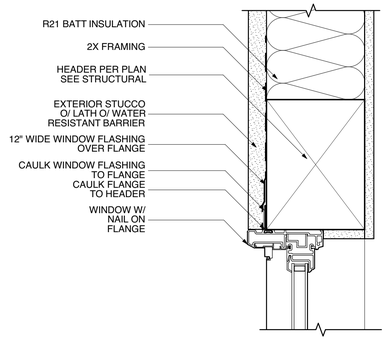
10 CORNER INTERIOR

NOT TO SCALE



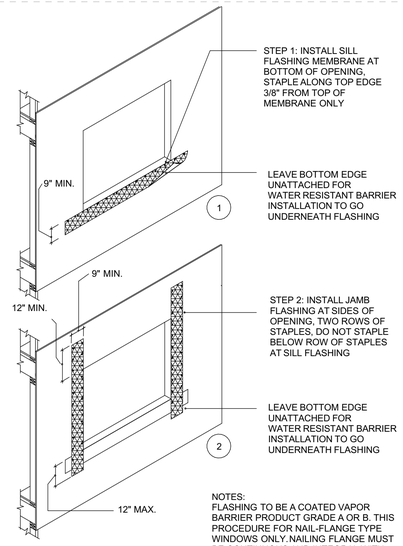
6 STUCCO MOLDING

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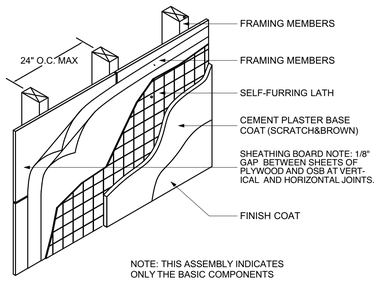
2 WINDOW HEAD

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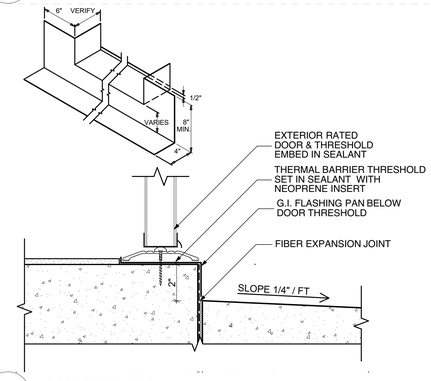
NOTES:
FLASHING TO BE A COATED VAPOR BARRIER PRODUCT GRADE A OR B. THIS PROCEDURE FOR NAIL-FLANGE TYPE WINDOWS ONLY. NAILING FLANGE MUST BE CONTINUOUS AND INTEGRAL WITH WINDOW FRAME.

FWB1 - FLASHING MEMBRANE & WATER RESISTANT BARRIER APPLICATION SEQUENCE



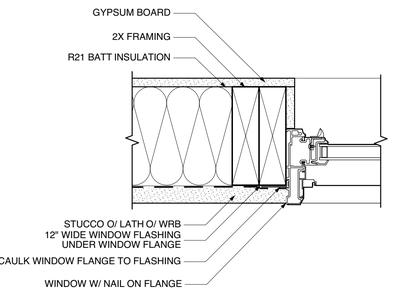
11 PLASTER WALL

NOT TO SCALE



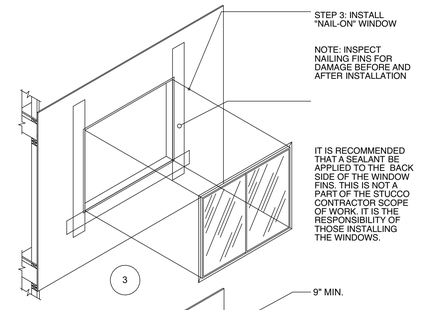
7 DOOR THRESHOLD

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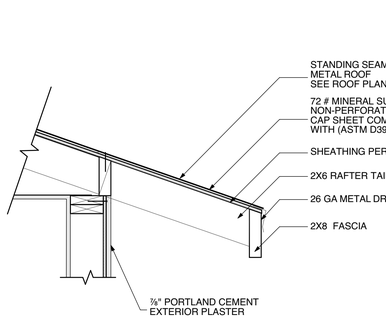


3 WINDOW JAMB

NOT TO SCALE

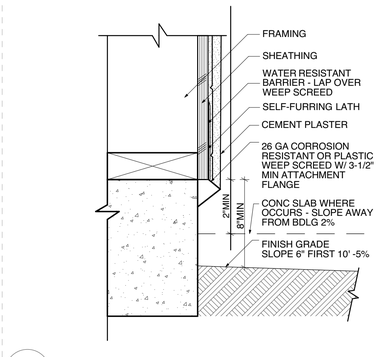


FWB2 - FLASHING MEMBRANE & WATER RESISTANT BARRIER APPLICATION SEQUENCE



12 WEEP SCREED

NOT TO SCALE

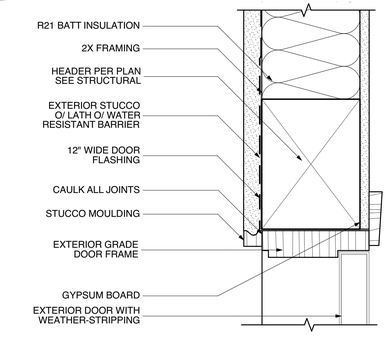


8 WEEP SCREED

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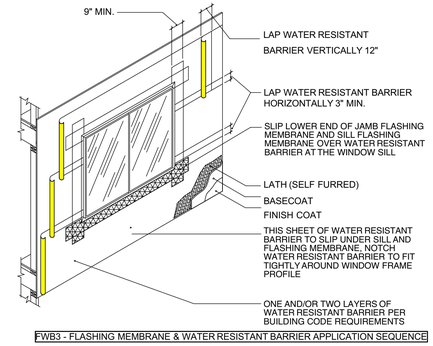
4 WINDOW SILL

NOT TO SCALE



5 DOOR HEADER

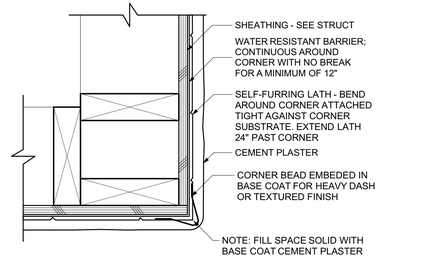
NOT TO SCALE



FWB3 - FLASHING MEMBRANE & WATER RESISTANT BARRIER APPLICATION SEQUENCE

1 WINDOWS

NOT TO SCALE



C2 - ROUNDED CORNER TRIM FOR TEXTURE FINISH

9 CORNER OUTSIDE

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Higgins Residence

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Drawing Name
Stucco Cement Plaster Details

Modified by

Checked by

A503

Sheet 18 OF 23

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 ⅓ 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 ¾" CHAMFER UNLESS NOTED OTHERWISE R ½" 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 ⅛" 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 ¾"
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
¼" TO ½" PART HYDRATED TYPE "S" LIME
AGGREGATE TO BE 2 ¼ 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 ¼ 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 ½" 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.

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 Fc ≤ 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*	ANY SHEARWALLS ABOVE 4			
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				

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 NOTES:

a. NAILS SPACED AT 6 INCHES AT INTERMEDIATE SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLE BOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.

b. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS. PANEL SUPPORTS AT 16 INCHES (2O INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).

c. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE AND THE CEILING JOIST IS FASTENED TO THE TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE, THE NUMBER OF TOENAILS IN THE RAFTER SHALL BE PERMITTED TO BE REDUCED BY ONE NAIL.

d. RSRS-01 IS A ROOF SHEATHING RING SHANK NAIL MEETING THE SPECIFICATIONS IN ASTM F1667.

e. TABULATED FASTENER REQUIREMENTS APPLY WHERE THE ULTIMATE DESIGN WIND SPEED IS LESS THAN 140 MPH. FOR WOOD STRUCTURAL PANEL ROOF SHEATHING ATTACHED TO GABLE-END ROOF FRAMING AND TO INTERMEDIATE SUPPORTS WITHIN 48 INCHES OF ROOF EDGES AND RIDGES, NAILS SHALL BE SPACED AT 4 INCHES ON CENTER WHERE THE ULTIMATE DESIGN WIND SPEED IS GREATER THAN 130 MPH IN EXPOSURE B OR GREATER THAN 110 MPH IN EXPOSURE C. SPACING EXCEEDING 6 INCHES ON CENTER AT INTERMEDIATE SUPPORTS SHALL BE PERMITTED WHERE THE FASTENING IS DESIGNED PER THE AWC NDS.

f. FASTENING IS ONLY PERMITTED WHERE THE ULTIMATE DESIGN WIND SPEED IS LESS THAN OR EQUAL TO 110 MPH.

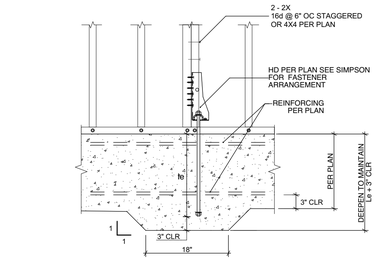
g. NAILS AND STAPLES ARE CARBON STEEL MEETING THE SPECIFICATIONS OF ASTM F1667. CONNECTIONS USING NAILS AND STAPLES OF OTHER MATERIALS, SUCH AS STAINLESS STEEL, SHALL BE DESIGNED BY ACCEPTABLE ENGINEERING PRACTICE OR APPROVED UNDER SECTION 104.11.

NAILING SCHEDULE	PER 2025 CBC TABLE 2304.10.2	
CONNECTION	FASTENING	LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	4- 8d BOX (2 1/2" x 0.131"), or 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	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	3- 8d COMMON (2 1/2" x 0.131"), or 2- 3" x 0.131" NAILS, or 2- 3" 14 GAGE STAPLES	EACH END, TOENAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	2- 16d COMMON (3 1/2" x 0.162"), or 3" x 0.131" NAILS @ 6" O.C., or 3" 14 GAGE STAPLES @ 6" O.C.	END NAIL FACE NAIL
2. CEILING JOISTS TO TOP PLATE	4- 8d BOX (2 1/2" x 0.131"), or 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	EACH JOIST, TOENAIL
3. CEILING JOISTS 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- 16D 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 JOISTS ATTACHED TO PARALLEL RAFTER, (HEEL JOINT) (SEE SECTIONS 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- 16D COMMON (3" 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	2 TOENAILS ON ONE SIDE AND 1 TOENAIL ON OPPOSITE SIDE OF RAFTER OR TRUSS (note c)
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- 16d BOX (3 1/2" x 0.135"), 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
	3- 10D COMMON (3 1/2" x 0.148"), or 4- 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"), or 10d BOX (3" x 0.128"), or 3" x 0.131" NAILS, or 3- 3" 14 GAGE STAPLES, 7/16" CROWN	24" O.C. FACE NAIL 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 16d BOX (3 1/2" x 0.135"), or 3" x 0.131" NAILS, or 3- 3" 14 GAGE STAPLES, 7/16" CROWN	16" O.C. FACE NAIL 12" O.C. FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3 1/2" x 0.162"), or 16d BOX (3 1/2" x 0.135")	16" O.C. EACH EDGE, FACE NAIL 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") 5- 8d BOX (2 1/2" x 0.113")	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON (3 1/2" x 0.162"), or 10d BOX (3" x 0.128"), or 3" x 0.131" NAILS, or 3" 14 GAGE STAPLES, 7/16" CROWN	16" O.C. FACE NAIL 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- 16d BOX (3 1/2" x 0.135"), 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 16d BOX (3 1/2" x 0.135"), or 3" x 0.131" NAILS, or 3" 14 GAGE STAPLES, 7/16" CROWN	16" O.C. FACE NAIL 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	3-16d BOX (3 1/2" x 0.135"), or 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- 8d BOX (2 1/2" x 0.113"), or 4- 3" 14 GAGE STAPLES, 7/16" CROWN	TOENAIL
	2- 16D COMMON (3 1/2" x 0.162"), or 3- 16d BOX (3 1/2" x 0.135"), 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
17. TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	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	FACE NAIL
18. 1" BRACE TO EACH STUD AND PLATE	3- 8d BOX (2 1/2" x 0.113"), or 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
19. 1" x 6" SHEATHING TO EACH BEARING	3- 8d BOX (2 1/2" x 0.113"), or 3- 8d COMMON (2 1/2" x 0.131"), or 2- 10d BOX (3" x 0.128"), or 2- 1 3/4" 16 GAGE STAPLES, 1" CROWN	FACE NAIL
20. 1" x 8" AND WIDER SHEATHING TO EACH BEARING	3- 8d COMMON (2 1/2" x 0.131"), or 3- 8d BOX (2 1/2" x 0.113"), or 3- 10d BOX (3" x 0.128"), or 3- 1 3/4" 16 GAGE STAPLES, 1" CROWN	FACE NAIL
	WIDER THAN 1" x 6" 3- 8d COMMON (2 1/2" x 0.131"), or 4- 8d BOX (2 1/2" x 0.113"), or 3- 10d BOX (3" x 0.128"), or 4- 1 3/4" 16 GAGE STAPLES, 1" CROWN	FACE NAIL
FLOOR		
21. JOIST TO SILL, TOP PLATE, OR GIRDER	4- 8d BOX (2 1/2" x 0.113"), or 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
22. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	60 BOX (2 1/2" x 0.113"), 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	4" O.C. TOENAIL 6" O.C. TOENAIL
23. 1" x 6" SUBFLOOR OR LESS TO EACH JOIST	3- 8d BOX (2 1/2" x 0.113"), or 2- 8d COMMON (2 1/2" x 0.131"), or 3- 10d BOX (3" x 0.128"), or 2- 1 3/4" 16 GAGE STAPLES, 1" CROWN	FACE NAIL
24. 2" SUBFLOOR TO JOIST OR GIRDER	3- 16d BOX (3 1/2" x 0.135") or 2- 16d COMMON (3 1/2" x 0.162")	BLIND AND FACE NAIL
25. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	3- 16d BOX (3 1/2" x 0.135") 2- 16d COMMON (3 1/2" x 0.162")	EACH BEARING, FACE NAIL
26. BUILT-UP GIRDERS AND BEAMS, 2" LUMBER LAYERS	20d COMMON (4" x 0.192")	32" O.C. FACE NAIL AT TOP OF BOTTOM STAGGERED ON OPPOSITE SIDES
	10d BOX (3" x 0.128"), or 3" x 0.131" NAILS, or 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
27. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	3- 16d COMMON (3 1/2" x 0.162"), or 4- 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	EACH JOIST OR RAFTER, FACE NAIL
28. 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
29. BRIDGING 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
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLE BOARD WALL SHEATHING TO FRAMING		
		EDGES (INCHES) / INTERMEDIATE SUPPORTS (INCHES)
30. 3/8" - 1/2"	6d COMMON or DEFORMED (2" x 0.113") or 2 3/8" x 0.113" NAIL (SUBFLOOR AND WALL)	6 / 12
	8d COMMON or DEFORMED (2 1/2" x 0.131" x 0.281" HEAD) (ROOF) or RSRS-01 (2 3/8" x 0.113") NAIL (ROOF)(note d)	6(note e) / 6(note e)
	1 3/4" 16 GAGE STAPLE w/ 7/16" CROWN (SUBFLOOR AND WALL)	4 / 8
	2 3/8" x 0.113" x 0.266" HEAD NAIL (ROOF)	3(note f) / 3(note f)
	1 3/4" 16 GAGE STAPLE w/ 7/16" CROWN (ROOF)	3(note f) / 3(note f)
31. 19/32" - 3/4"	8d COMMON (2 1/2" x 0.131") or DEFORMED (2" x 0.113") (SUBFLOOR AND WALL)	6 / 12
	8d COMMON OR DEFORMED (2 1/2" x 0.131" x 0.281" HEAD) (ROOF) or RSRS-01 (2 3/8" x 0.113") NAIL (ROOF)(note d)	6(note e) / 6(note e)
	2 3/8" x 0.113" NAIL, or 2" 16 GAGE STAPLE w/ 7/16" CROWN	4 / 8
32. 7/8" - 1 1/4"	10d COMMON (3" x 0.148") or DEFORMED (2 1/2" x 0.131" x 0.281" HEAD)	6 / 12
OTHER EXTERIOR WALL SHEATHING		
33. 1/2" FIBERBOARD SHEATHING (note b)	1 1/2" x 0.120", GALVANIZED ROOFING NAIL (7/ 6" HEAD DIAMETER), or 1 1/4" 16 GAGE STAPLE w/ 7/16" OR 1" CROWN	3 / 6
34. 25/32" FIBERBOARD SHEATHING (note b)	1 3/4" x 0.120", GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER), or 1 1/2" 16 GAGE STAPLE w/ 7/16" OR 1" CROWN	3 / 6
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING		
35. 3/4" AND LESS	8d COMMON (2 1/2" x 0.131") or DEFORMED (2" x 0.113") or DEFORMED (2 1/2" x 0.120")	6 / 12
36. 7/8" - 1"	8d COMMON (2 1/2" x 0.131") or DEFORMED (2 1/2" x 0.131") or DEFORMED (2 1/2" x 0.120")	6 / 12
37. 1 1/8" - 1 1/4"	10d COMMON (3" x 0.148") or DEFORMED (2 1/2" x 0.131") or DEFORMED (2 1/2" x 0.120")	6 / 12
PANEL SIDING TO FRAMING		
38. 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
39. 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
INTERIOR PANELING		
40. 1/4"	4d CASING (1 1/2" x 0.080"), or 4d FINISH (1 1/2" x 0.072")	6 / 12
41. 3/8"	6d CASING (2" x 0.099"), or 6d FINISH (2" x 0.092") PANEL SUPPORTS AT 24 INCHES	6 / 12

2025 C.B.C. TABLE 2306.3(1) SHEARWALL AND CONNECTIONS FOR STAPLES/ 2021 SDPWS TABLE 4.3A FOR NAILS

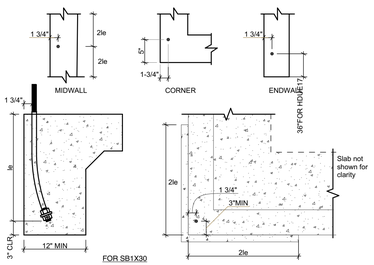
SHEATHING ONE SIDE **(LAST REVISED 01/07/2026)**

| MARK | V (Allowable) | MATERIAL (PER 2025 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" |
|---|---|---|---

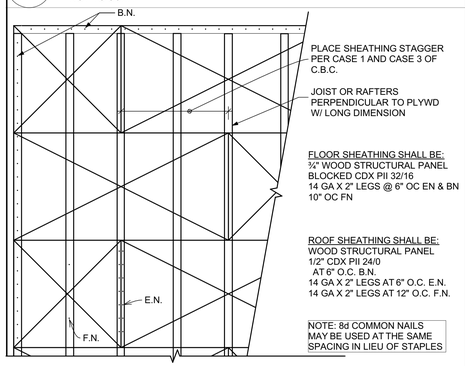


ANCHOR					ALLOWABLE LOAD - WALL LOCATION		
HOLDOWN	FASTENER	POST DF-L	ONE POUR	le	MIDWALL	CORNER	ENDWALL
HDUE3	7-SDS3	2-2X	SSTB16	18	2550	2550	2550
HDUE5	10-SDS3	2-2X	SSTB24	18	3740	3325	2960
HDQ8	20-SDS3	2-2X	SSTB28	24 7/8	5715	5715	5715
HDQ8	20-SDS3	4X	SSTB28	24 7/8	7630	7315	6395
HDQ8	20-SDS3	6X6	SSTB28	24 7/8	8315	7315	6395
HDUE17	28-SDS2.5	6X6	SABR1X30	24	16640	12415	16640
STHD10 **	20-10D **	2-2X		10	3400	2940	2175
STHD14 **	24-10D **	2-2X		14	3815	3815	3500

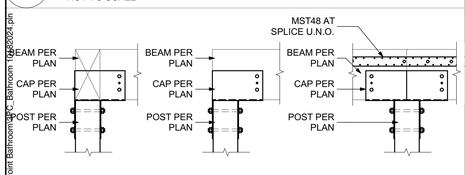
* Le MUST BE INTO FIRST POUR
* * FOR ONE POUR ONLY, HOLDDOWN ARE 2-2X WITH 2 1/2" NAILS
10d MAYBE USED IF DIRECTLY ON STUDS OR OVER 1/2" SHEATHING



17 HOLDOWN
NOT TO SCALE

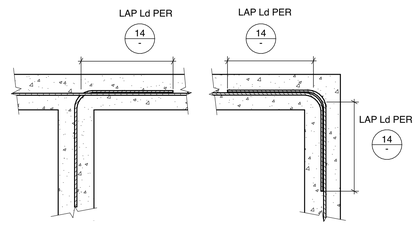


18 DIAPHRAGM SCHEDULE
NOT TO SCALE

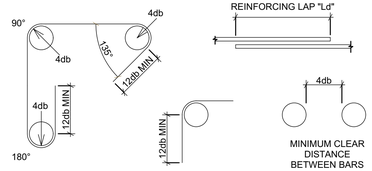


BEAM	POST	CAP (CORNER)	CAP (END)	CAP (BEAM OVER)
4X	4X4	ECCLL44	EPC44	PC44
6X	6X6	ECCLL66	EPC66	PC66
3-⅛ GLB	4X4	ECCLL44	ECC44	CC44
5-⅛ GLB	6X6	ECCLL66	ECC66	CC66
6X	6X6	ECCLL66	ECC106	CC666
7X	6X6			CC7 1/8-6
6 ¾	6X6			CC76
5 1/4X				CC 5 1/4-6
8 ¾X				CC96

19 BEAM TO POST
NOT TO SCALE

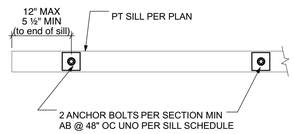


13 CORNERS & INTERSECTIONS
NOT TO SCALE

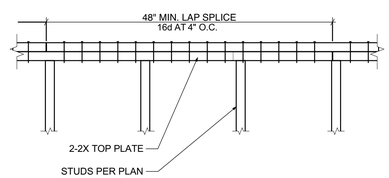


REINFORCING	GR	4db	180° EXTENSION	12db	Ld
NO. 3	40	1.5"	2.5"	4.5"	12"
NO. 4	40	2.0"	2.5"	6.0"	12"
NO. 5	40	2.5"	2.5"	7.5"	15"
NO. 6	60	3.0"	3.0"	9.0"	24"
NO. 7	60	3.5"	3.5"	10.5"	32"
NO. 8	60	4.0"	4.0"	12.0"	36"

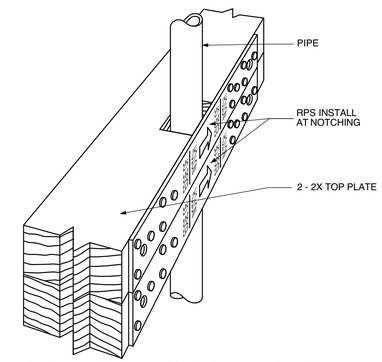
14 BAR BENDS
NOT TO SCALE



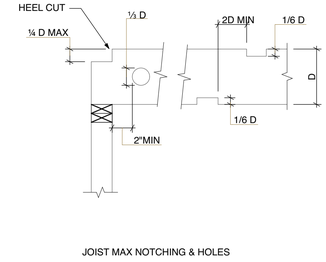
15 PT SILL
NOT TO SCALE



16 CHORD SPLICE
NOT TO SCALE

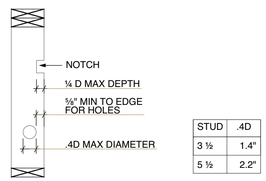


9 PLATE CUT FOR PLUMBING
NOT TO SCALE



JOIST MAX NOTCHING & HOLES

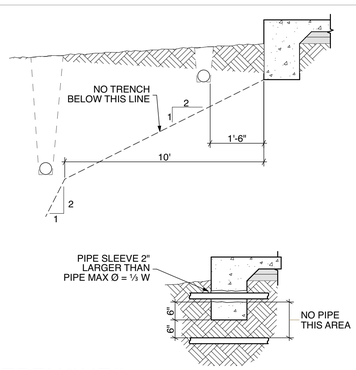
10 MAXIMUM NOTCHING
NOT TO SCALE



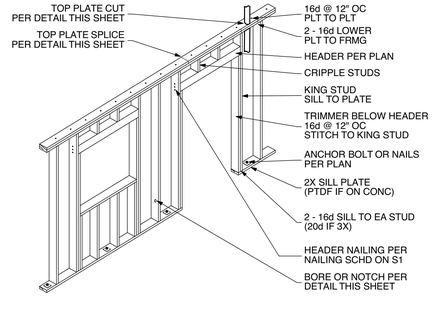
STUD	.4D
3 ½	1.4"
5 ½	2.2"

WOOD STUD MAX NOTCHING & HOLES

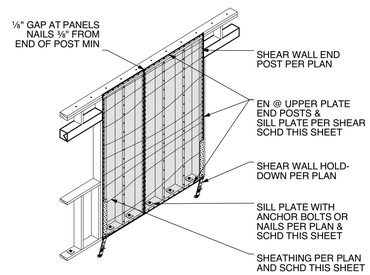
11 MAXIMUM NOTCHING
NOT TO SCALE



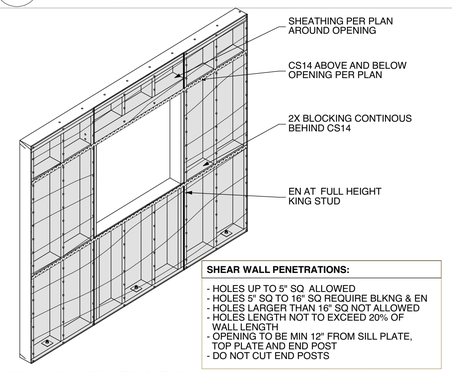
12 TRENCHES
NOT TO SCALE



6 WALLS
NOT TO SCALE



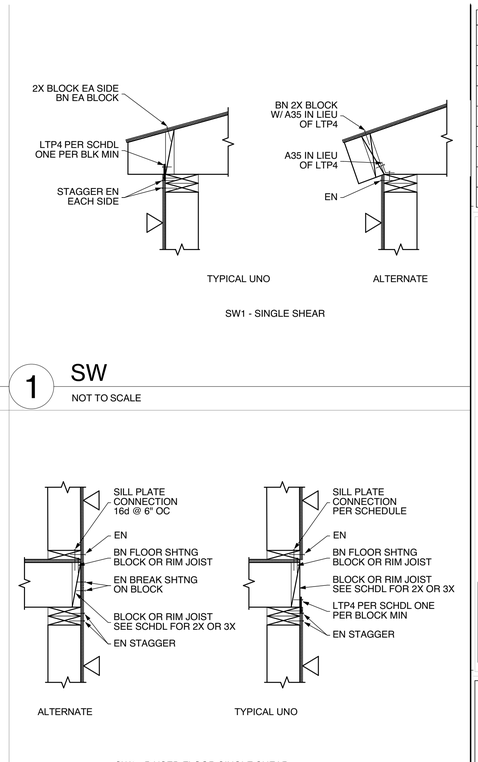
7 WALLS
NOT TO SCALE



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



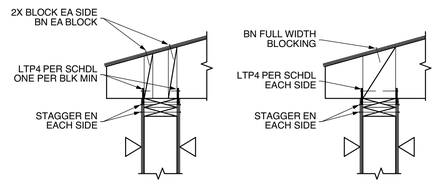
SW5 - SILL AND ANCHOR BOLTS

SW2 - RAISED FLOOR SINGLE SHEAR

5 SW
NOT TO SCALE

1 SW
NOT TO SCALE

SW1 - SINGLE SHEAR

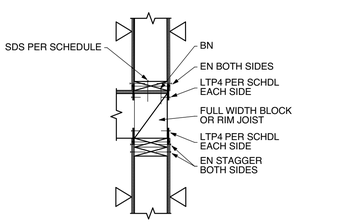


TYPICAL UNO
BLOCK LTP4 EACH SIDE
PER SHEAR SCHEDULE

SW3 - DOUBLE SHEAR

2 SW
NOT TO SCALE

3 SW
NOT TO SCALE



SW4 - RAISED FLOOR DOUBLE SHEAR

4 SW
NOT TO SCALE

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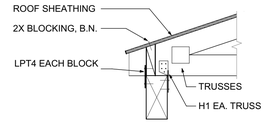
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STATE OF CALIFORNIA

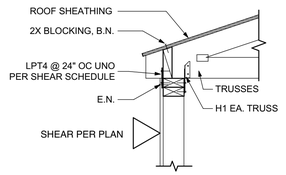
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S2
Sheet 20 OF 23

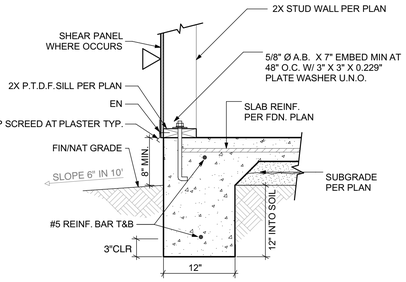
C:\Users\andre\OneDrive - Protraction Inc\Rob Marcelli\Trabajos\3 Point Bathroom\3C Bathroom - 1-08-2025.pln



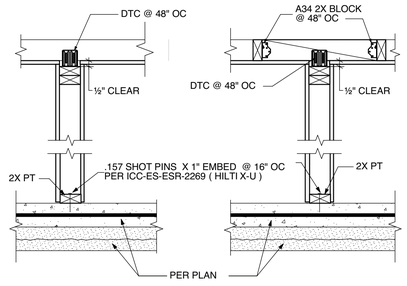
9 SHEAR TRANSFER TRUSS
NOT TO SCALE



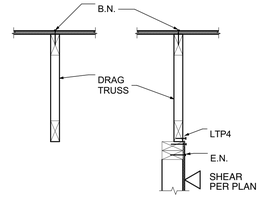
5 SHEAR TRANSFER TRUSS
NOT TO SCALE



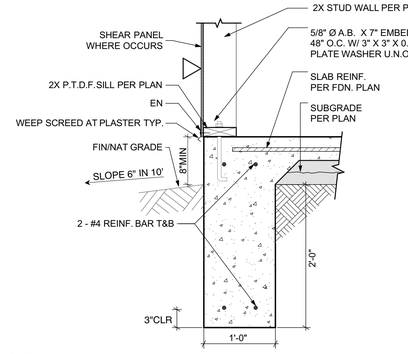
1 FOOTING EXTERIOR
NOT TO SCALE



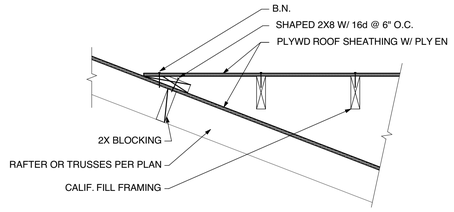
10 NON-BEARING WALL
NOT TO SCALE



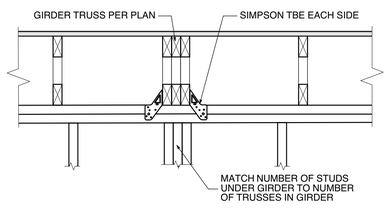
6 DRAG TRUSS
NOT TO SCALE



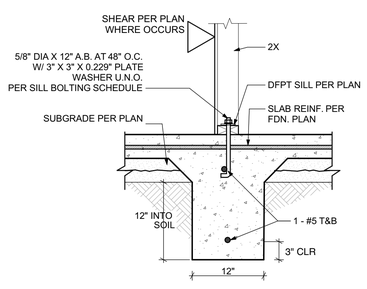
2 FOOTING EXTERIOR
NOT TO SCALE



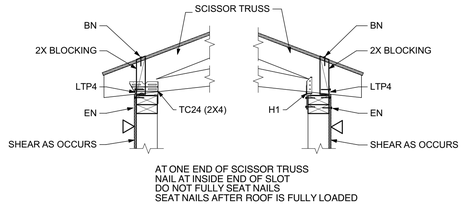
11 CALIFORNIA FILL
NOT TO SCALE



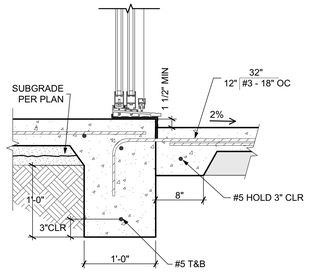
7 GIRDER TRUSS
NOT TO SCALE



3 FOOTING INTERIOR
NOT TO SCALE



8 SCISSOR TRUSS
NOT TO SCALE



4 PORCH TO RESIDENCE
NOT TO SCALE

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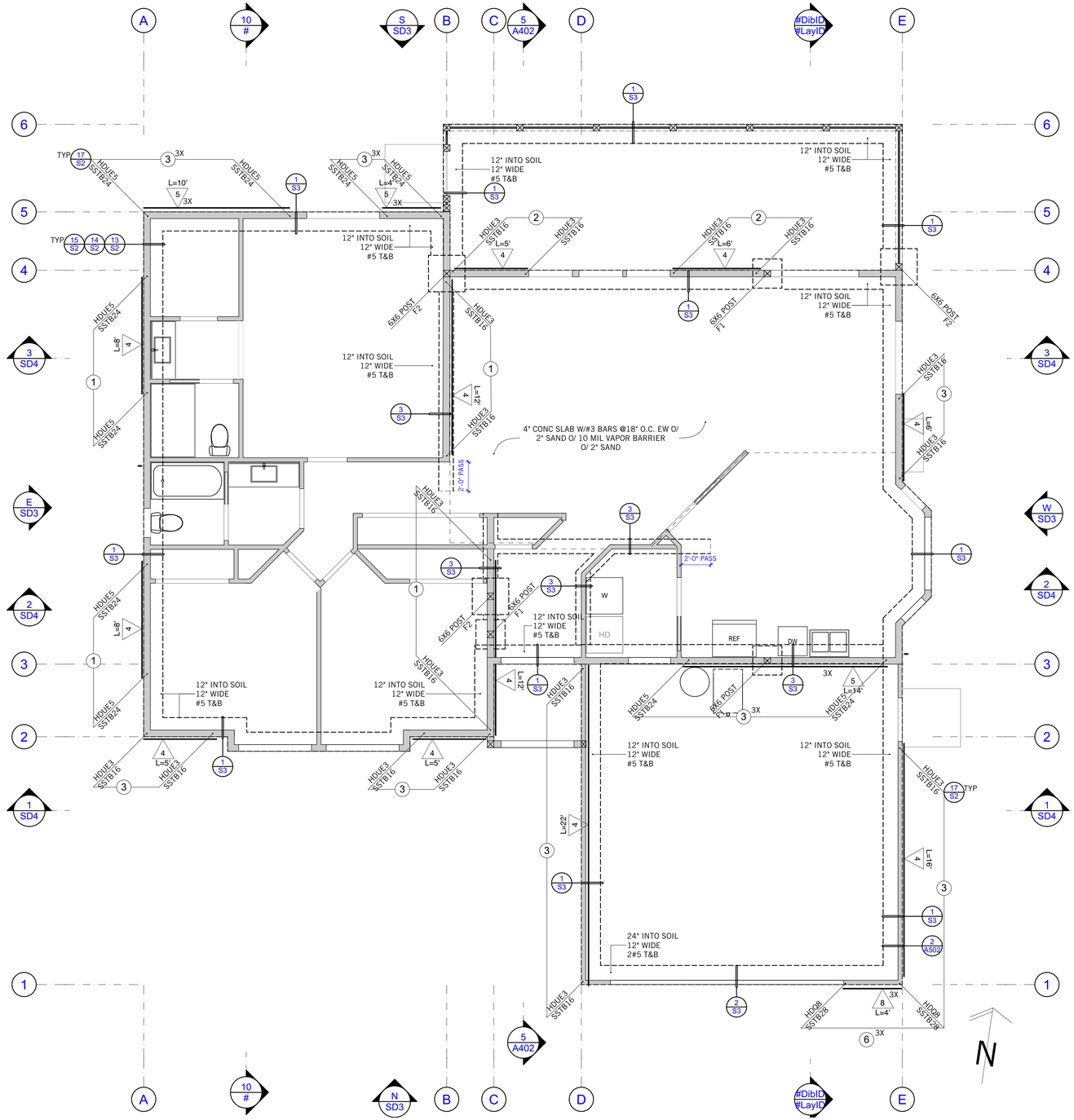
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S3



Foundation Plan

1/4" = 1'-0"

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.
- Over-ex to be 5' beyond the building footprint at a minimun depth of 2 feet below footings, with final depth to be determined by soils engineer at time of grading.
- 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
- FOR SSW see SSW detail sheets prior to constructing
- SSW footings to be centered on SSW

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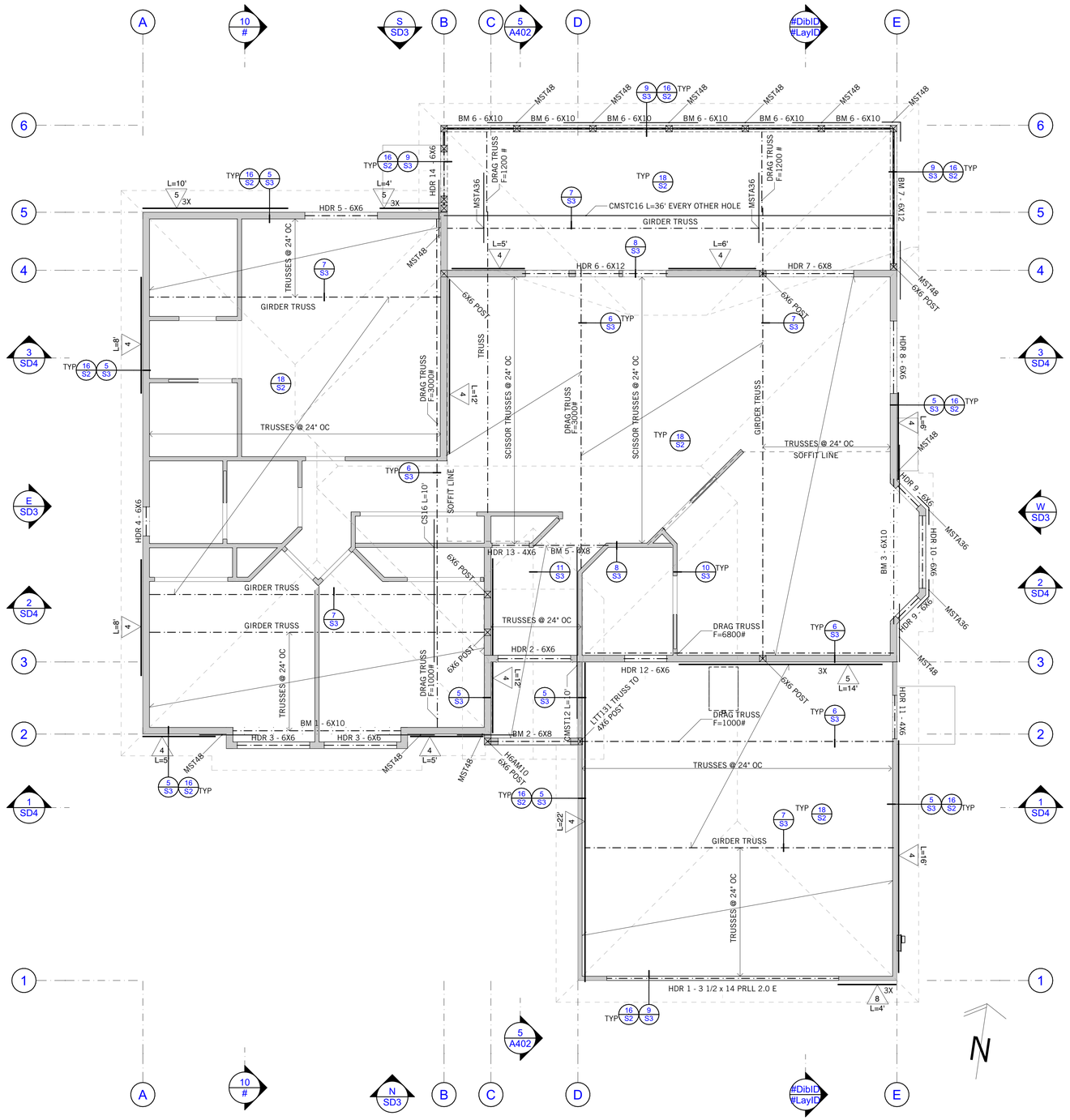
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S4



Roof Framing Plan 1/4" = 1'-0"

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.
- Structural work shall comply with CRC Chapter 6 and engineered drawings.
- Shear walls shall be constructed per structural details and nailing schedule.
- All hardware (holdowns, straps, clips) shall be installed per manufacturer specifications.
- Floor and roof framing to be as per CRC Tables or engineered calculation.
- See SSW detail sheets prior to constructing

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UPDATED:

S5
Sheet 23 OF 23