



Residential / New Single-Family Dwelling Or Duplex (Building) Permit
Permit Set 2101 GILMAN RANCH RD P# BP24-261 R# 144-110-021

PERMIT INFORMATION

Address	Permit number	Date issued
2101 GILMAN RANCH RD	BP24-261	01/16/2025

REVIEWED BY

If you have any questions regarding the review of these drawings please contact:

Application in general
Carla Duncan
cduncan@cotaticity.org

INSTRUCTION AND ATTENTION

It is the responsibility of the applicant to print a full size copy of the entire approved permit package and provide it at the time of inspection.

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CITY OF COTATI
Community Development Department
 201 W Sierra Avenue, Cotati, CA 94931
 (707) 665-3636 | permits@cotaticity.org



Residential / New Single-Family Dwelling Or Duplex (Building) Permit
 Permit Set 2101 GILMAN RANCH RD P# BP24-261 R# 144-110-021

LOCATION OF WORK

Address	Zoning	Legal description
2101 GILMAN RANCH RD	RR	

PERMIT INFORMATION

Permit number BP24-261	Date applied 09/20/2024	Date issued 01/16/2025
Status Issued		

Issuer Carla Duncan	Completion date -
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Reviewed by
Carla Duncan

GRANTED TO

Applicant, Payer GARY TATMAN 959 GOLF COURSE DR ROHNERT PARK, CA 94928	General contractor CUSTOM HOUSING SYSTEMS INC CUSTOM HOUSING SYSTEMS INC	Property owner PITTELKOW DANIEL JOSEPH TR & PITTELKOW KORY SHAWNA 15 STIRRUP LANE NOVATO CA 94947
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(N) 2041 SQFT SFH W/ 1260 SQFT GARAGE.

THIS PERMIT MUST BE POSTED ONSITE. THE PLANS AND SPECIFICATIONS REVIEWED AND ISSUED BY THE BUILDING AND DEVELOPMENT DEPARTMENT MUST ALSO BE KEPT ONSITE AND MADE AVAILABLE TO INSPECTORS AS REQUIRED BY LAW.



INSTRUCTIONS

Scan the QR code below or call (707) 665-3632 to schedule an inspection. Inspections are available on Mondays and Wednesdays from 9:00 AM to 12:00 PM and Thursdays from 1:00 PM to 4:00 PM.

The permit holder and/or property owner is responsible for ensuring that all required/applicable inspections are scheduled and that the permit is complete.

For all new builds, occupancy cannot be granted until all departments have finalized.



REQUIRED INSPECTIONS

Name	Description
Footing and rebar	Placement of all footing forms prior to pouring concrete. Geotechnical review may be required to confirm soil suitability.
Foundation wall	Construction of foundation wall including all external elements and perimeter drainage system. (Prior to Backfill)
Electrical underground/floor/slab	Coordinate conduit and wire size per plan.
Plumbing underground/floor/slab	Installation of all plumbing that will be covered by the concrete floor. A test for this portion of the plumbing system is required.
Mechanical underground/floor/slab	Coordinate duct size with plans.
Framing	Construction of all structural framing (floors, walls, roofs) and stairs. (Rough Plumbing and Heating passed and doors, windows & roofing installed.) Engineered drawings must be provided for roof trusses.
Rough plumbing (DWV/Water test)	Test drain waste and vent system with 10-foot water column or air test.
Rough mechanical	Installation of all mechanical supply air and return air duct work. Seal all joints in ducts. A HERS test for this system is required.
Rough electrical	Installation of electrical runs to switches, outlets, and appliance locations.
Insulation and energy requirements	Installation of the insulating material for floor, wall, and ceiling.
Interior shearwall	Inspect shearwall nailing and hardware placement.
Vapor barrier	Installation of a continuous vapor barrier. There are several options for providing an effective Vapor Barrier. Confirmation may require an inspection during several inspection stages.
Showerpan	Fill with water to top of curb (test 15 minutes).
Ufer ground	Verify Ufer ground is installed.
Gas test	Pressure test system (10 psi).

Water service installation of the 201 W Sierra Avenue Water must be available and a test is required if the water service is polyethylene.

Name	Description
Siding	Exterior covering installed per code.
Sanitary/Storm sewer	Installation of sanitary sewer from the property line to the interior of the building, and of the storm sewer from the property line and around the building. A test for this portion of the plumbing system is required.
Exterior Shearwall	Verify shearwall nailing and hold down placement.
Roof nail	Verify plywood thickness and nailing requirements (FOR RESIDENTIAL ONLY: NOT REQUIRED IF SELF-CERTIFICATION RE-ROOF FORM IS COMPLETED)
Firewall	Verify gypsum wall board thickness and type nailing according to approved assembly.
Gas meter release	Inspect gas appliance and confirm gas test completed.
Electric meter release	Ensure electrical equipment is labeled, grounded, and otherwise ready for meter release. Ufer ground is installed.
Final fire	Outstanding requirements of Rancho Adobe Fire Protection District are satisfied.
Final inspection	All work completed per approved plans. Smoke and CO detector form signed off.
Occupancy	Completion of ALL health and safety, Heating and Plumbing components. There must be no outstanding Building Code Orders.



Building Permit Application Form

CITY OF COTATI
Community Development Department
201 W Sierra Avenue, Cotati, CA 94931
(707) 665-3636 | permits@cotaticity.org

Property Information

Project Address 2101 GILMAN RANCH RD	Acreage of project site
Existing Occupancy	Existing Use
Proposed Occupancy	Proposed Use

Project Description

Please provide a description of all proposed work (N) 2041 SQFT SFH W/ 1260 SQFT GARAGE.	
Estimated Project Costs/Valuation 800000 USD	
Will you be constructing a new building or adding square footage? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Will you be modifying the existing or adding a new water meter? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Will you be modifying the existing or adding a new sewer meter? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

DECLARATION REGARDING CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Section 3097, Civil Code).

Lender's Name and Address

PITTELKOW RESIDENCE

2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021



FRONT ELEVATION
SCALE: 3/16"=1'-0"

JOBSITE COPY ISSUED
01/16/2025

CITY OF COTATI APPROVAL

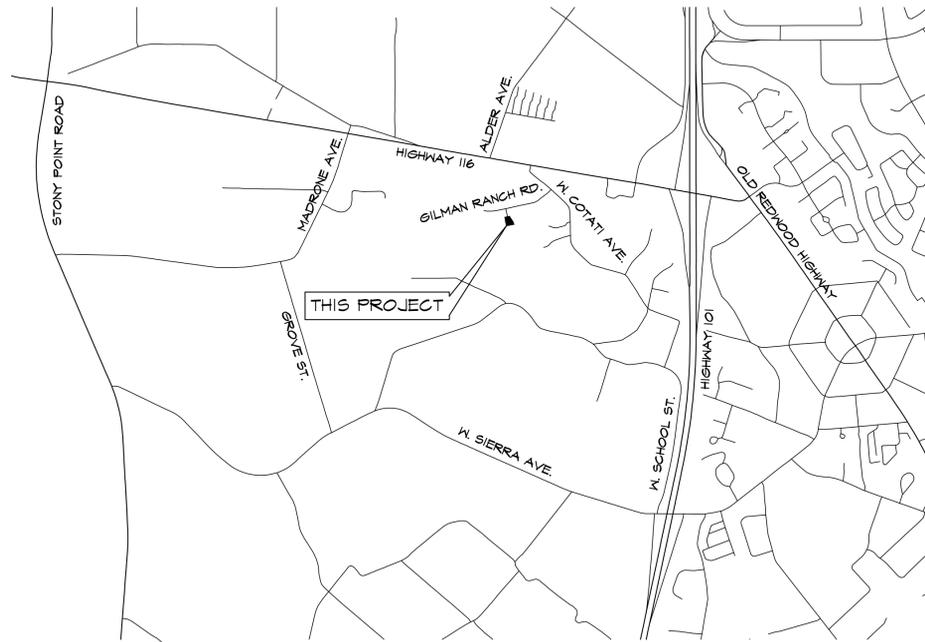


Building: C.Duncan for CBO 11/18/2024
Planning: C.Duncan for N.Housh 10/16/2024
Public Works: C.Duncan for C.Scott 12/19/2024
Fire: C.Duncan for G.Petersen 10/1/2024

RANCHO ADOBE Approved
 With Conditions- Fire Sprinklers are required
Permit #



gina.petersen



VICINITY MAP
N.T.S.

DRAWING INDEX

- ARCHITECTURAL DRAWINGS**
- SHEET A0 - FRONT ELEVATION, DRAWING INDEX, PROJECT INFO & SITE PLAN
 - SHEET A1.0 - NORTH & EAST ELEVATIONS, ROOF PLAN & ELEVATION MATERIALS LIST
 - SHEET A1.1 - EAST & WEST ELEVATIONS
 - SHEET A2 - FLOOR PLAN
 - SHEET A3 - GENERAL & FLOOR PLAN NOTES, SYMBOL LEGEND & DUCT CHART
 - SHEET A4.0 - SECTION 'AA', DETAILS
 - SHEET A4.1 - SECTION 'BB'
 - SHEET A4.2 - SECTION 'CC'
 - SHEET GD1 - GRADING & DRAINAGE PLAN
 - SHEET GD2 - GRADING & DRAINAGE DETAILS AND NOTES
 - SHEET GD3 - SEWER LINE PROFILE & NOTES

- SURVEY**
- SHEET I OF I - AS-BUILT SURVEY

- STRUCTURAL DRAWINGS**
- SHEET SN - STANDARD STRUCTURAL NOTES
 - SHEET S1.1 - FOUNDATION & FLOOR FRAMING PLAN
 - SHEET S1.2 - ROOF FRAMING PLAN
 - SHEET S1 - STANDARD STRUCTURAL DETAILS & NOTES
 - SHEET S2 - STRUCTURAL DETAILS
 - SHEET S3 - STRUCTURAL DETAILS

- TITLE 24**
- SHEET CFIR-1 - HEAT LOSS CALCULATIONS
 - SHEET CFIR-2 - HEAT LOSS CALCULATIONS
 - SHEET CFIR-3 - HEAT LOSS CALCULATIONS

- CALGREEN REQUIREMENTS**
- SHEET CG1 - CALGREEN REQUIREMENTS
 - SHEET CG2 - CALGREEN REQUIREMENTS
 - SHEET CG3 - CALGREEN REQUIREMENTS
 - SHEET CG4 - CALGREEN REQUIREMENTS
 - SHEET CWM - CONSTRUCTION WASTE MANAGEMENT PLAN

- PHOTOVOLTAIC**
- SHEET PV1 - COVER, NOTES, SITE PLAN
 - SHEET PV2 - ROOF PLAN, SECTIONS, DETAILS
 - SHEET PV3 - ELECTRICAL DIAGRAM, SIGNAGE
 - SHEET PV4 - CUT SHEETS
 - SHEET PV5 - CUT SHEETS

- BEST MANAGEMENT PRACTICES**
- SHEET 1 - BEST MANAGEMENT PRACTICES (ENGLISH)
 - SHEET 2 - BEST MANAGEMENT PRACTICES (SPANISH)

APPLICABLE CODES

COMPLY WITH ALL PROVISIONS OF THE CALIFORNIA CODE OF REGULATIONS TITLE 24, THE CALIFORNIA BUILDING CODE (2022), THE CALIFORNIA RESIDENTIAL CODE (2022), THE CALIFORNIA PLUMBING CODE (2022), THE CALIFORNIA MECHANICAL CODE (2022), THE CALIFORNIA ELECTRICAL CODE (2022), THE CALIFORNIA ENERGY EFFICIENCY STANDARDS CODE (2022), THE CALIFORNIA GREEN BUILDING STANDARDS CODE (2022), THE CALIFORNIA FIRE CODE (2022), ALL LOCAL CODES & ORDINANCES.

PROJECT INFO & AREAS

- HOUSE** 2,041 SQ. FT. LIVING AREA PROPOSED, 600 SQ. FT. PORCH
- OCCUPANCY CLASSIFICATION:** R-3
- GARAGE** = 1,254 SQ. FT. PROPOSED
- OCCUPANCY CLASSIFICATION:** U PRIVATE GARAGE
- SINGLE FAMILY RESIDENCE CONSTRUCTION TYPE=** V-B
- SINGLE STORY**
- AP#** 144-110-021 **ZONING** RVL
- PROPERTY** = 40,090± SQ. FT. (0.92± ACRES)
- GENERAL PLAN** LDR
- BUILDING HEIGHT**
PROPOSED = 21'-0"± ALLOWABLE = 35'-0"

SPECIAL INSPECTION

SEE STRUCTURAL DETAIL SHEET SNI FOR ALL SPECIAL INSPECTIONS & PROVIDED SHEET SSI.

DEFERRED SUBMITTALS

FIRE SPRINKLER SYSTEM:
FIRE SPRINKLER SYSTEMS DESIGNED & INSTALLED IN ACCORDANCE WITH NFPA 13-D ARE REQUIRED IN RESIDENTIAL STRUCTURES, INCLUDING EXTENSIONS OF SPRINKLERS INTO THE ATTIC, GARAGE, ATTACHED PORCHES AND CARPORTS, BATHROOMS VER 55 SQUARE FEET, CLOSETS OVER 24 SQUARE FEET, OR 3 FEET DEEP, AND OTHER ATTACHED STRUCTURES. THESE SYSTEMS SHALL BE CALCULATED FOR TWO-HEAD ACTIVATION FOR THE MOST REMOTE TWO HEADS. ACTIVATION OF THE FIRE SPRINKLERS IS TO SOUND AN ALARM AT THE INTERIOR THAT WILL NOTIFY NORMALLY OCCUPIED SPACES. THE SYSTEM IS TO PROVIDE A MINIMUM FLOW OF 1000 GPM AT 20 POUNDS PER SQ. INCH. DESIGN, SPECIFICATION & INSTALLATION OF THIS IS TO BE DONE BY OTHERS.

NOTE:
FIRE SPRINKLER PLANS & SPECIFICATIONS TO BE SUBMITTED & APPROVED PRIOR TO INSTALLATION OF SPRINKLER SYSTEM, & PRIOR TO FINAL INSPECTION.

MANUFACTURED TRUSSES
DESIGN DOCUMENTS (PLANS, DETAILS, CALCULATIONS, ETC.) FOR ALL DEFERRED ITEMS SHALL BE SUBMITTED TO & APPROVED BY THE BUILDING OFFICIAL PRIOR TO FABRICATION & ERECTION OF THE ITEMS. IN ADDITION, THE PROJECT DESIGNER, ARCHITECT OR ENGINEER OF RECORD SHALL PROVIDE A SIGNED CONFIRMATION THAT HE HAS REVIEWED & APPROVED THE DOCUMENTS FOR THE DEFERRED ITEMS AS BEING IN CONFORMANCE WITH THE PROJECT DESIGN INTENT.

MANDATORY HERS

- THE FOLLOWING HERS FEATURES APPLY & REQUIRE 3rd PARTY HERS INSPECTION & VERIFICATION:
- VENTILATION MINIMUM 83 cfm
 - KITCHEN RANGE HOOD
 - VERIFIED HEATPUMP RATED HEATING CAPACITY

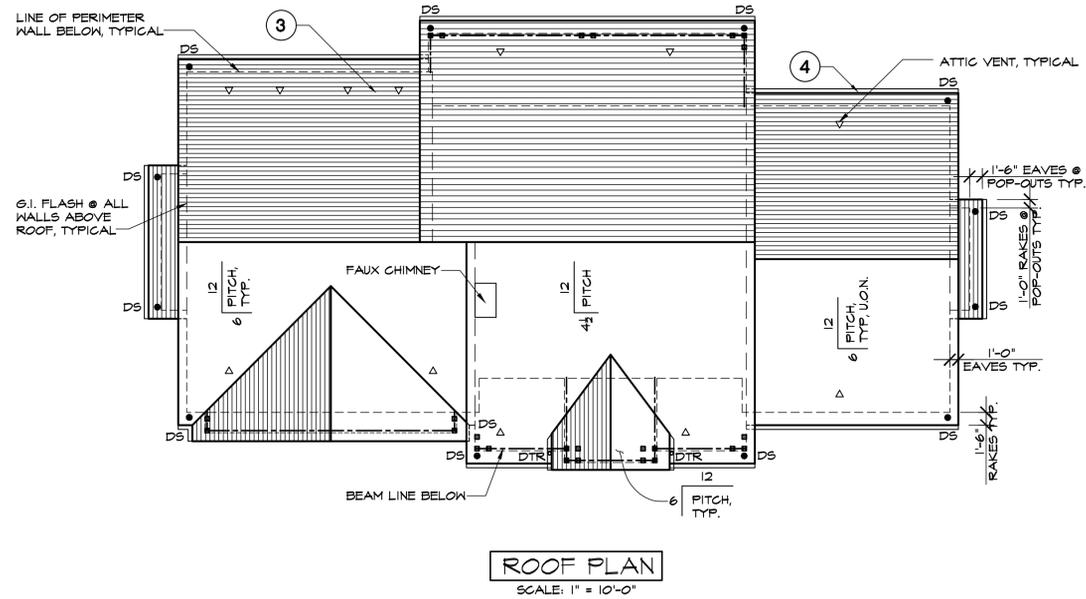
PROJECT CONSULTANTS

ARCHITECT:	AVILA-BUNCH ARCHITECTS, INC. 5850 COMMERCE BLVD., SUITE 100 ROHNERT PARK, CA, 94928 (707) 585-3711
LAND SURVEYOR:	JOEL RIGHETTI LAND SURVEYING P.O. BOX 912 SEBASTOPOL, CA 95473 (707) 843-1656
STRUCTURAL ENGINEER:	JDF STRUCTURAL ENGINEERING 405 WEST COLLEGE AVENUE, SUITE E SANTA ROSA, CA 95401 (707) 575-0911
TITLE 24:	SKEER SOLAR TEC/24 1180 BURNSIDE ROAD SEBASTOPOL, CA, 95472 (707) 585-3743
SOIL ENGINEER:	REESE & ASSOCIATES 134 LYSTRA COURT, SUITE C SANTA ROSA, CA, 95403 (707) 528-3078
SOLAR:	SOLARDIGM 365 8820 LUND HILL LANE COTATI, CA 94931 SOLARDIGM365@GMAIL.COM
BUILDER:	CUSTOM HOUSING SYSTEMS 454 GOLF COURSE DRIVE - UNIT 274 ROHNERT PARK, CA 94928 (707)484-0444 GARY TATMAN
OWNER:	JOE & PAT PITTELKOW 2101 GILMAN RANCH ROAD COTATI, CA 94931 (707)484-0444



SHEET NO: **A0** OF 25
 JOB NO: **24021**
 DESIGN FOR: **PITTELKOW RESIDENCE**
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS**
 ROHNERT PARK, CALIFORNIA (707)484-0444
 DATE PRINTED: **12.21.24**
 DATE CHECKED: _____
 DATE REVISED PER CITY OF COTATI LETTER 10.21.24: _____
 NOTES: _____
 DATE: **12.24**

avila-bunch architects, inc.
 Merle Avila · architect
 Russell W. Bunch · architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
 (707) 585-3711



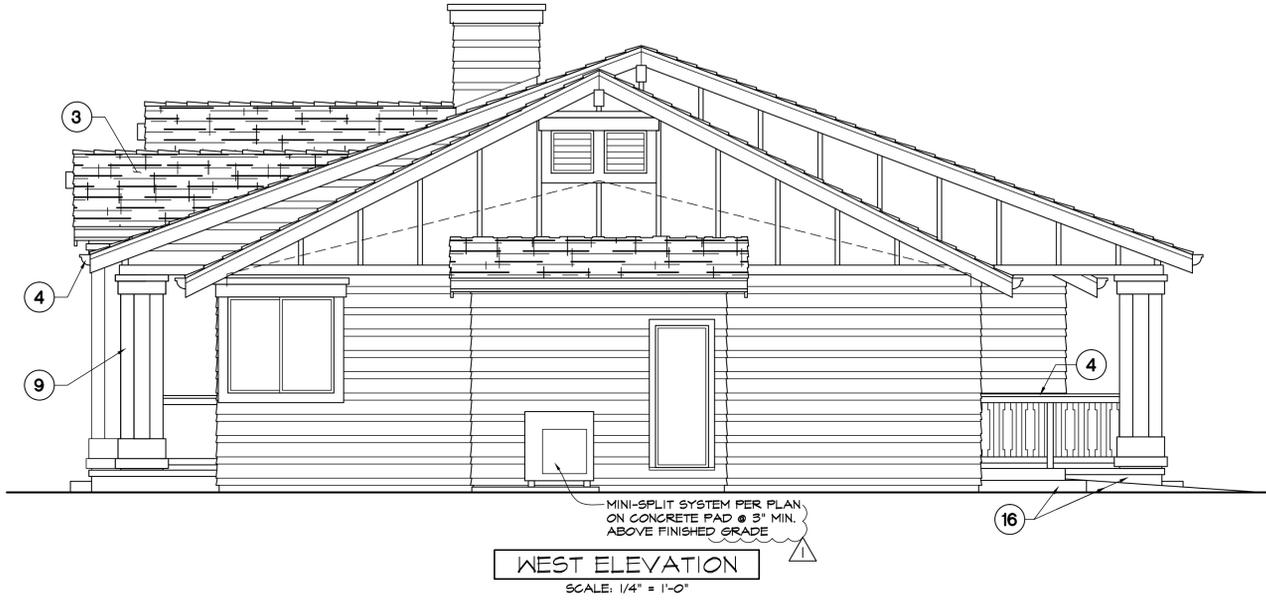
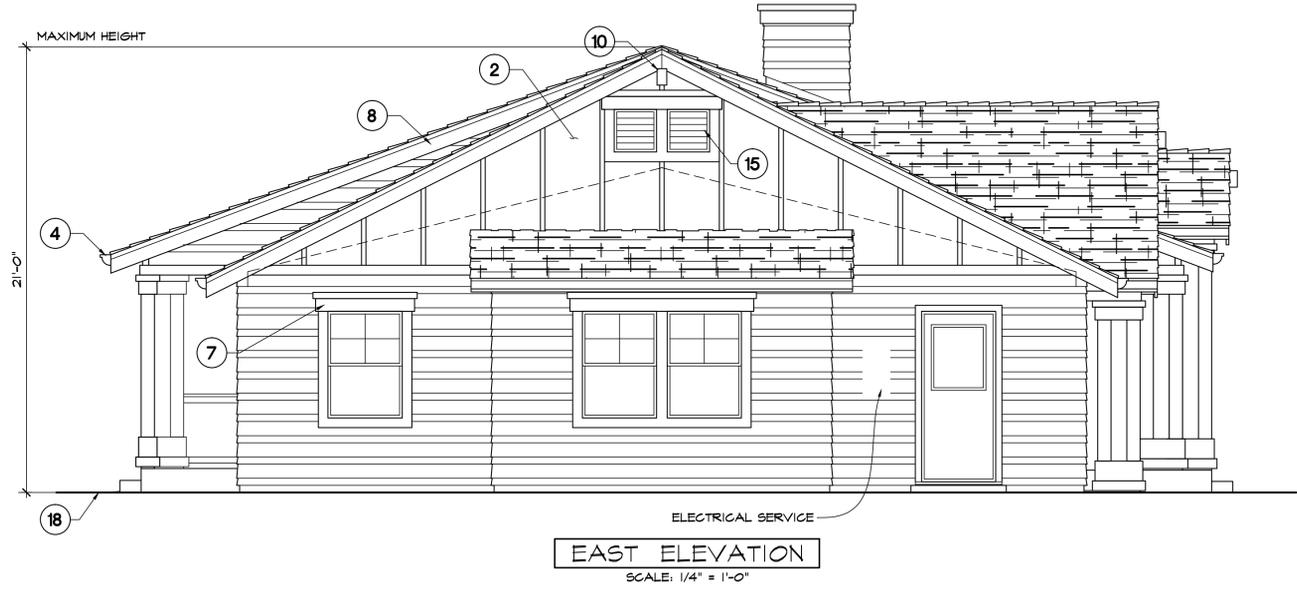
ELEVATION MATERIALS

1. JAMES HARDIE® HARDIEPLANK® SIDING OVER TYVEK® BUILDING WRAP OVER STRUCTURAL SHEATHING PER (A6) (B) TYPICAL U.O.N. (B) REVEAL & 4" REVEAL ALTERNATING BOARDS W/ METAL CORNER (A6) (B) (SD1) TRIM
2. JAMES HARDIE® HARDIEPANEL® SIDING OVER TYVEK® BUILDING WRAP OVER STRUCTURAL SHEATHING PER (A6) (B) TYPICAL U.O.N. - W/ 2 1/2" x 3/4" HARDIETRIM® BATTEN STRIPS (AS SHOWN)
3. COMPOSITION SHINGLE ROOFING (CLASS 'A' MIN.), TYPICAL
4. 6" G.I. OEGEE GUTTER W/ 2"x3" G.I. DOWNSPOUTS CONNECTED TO CLOSED CONDUIT DRAINAGE SYSTEM, TYPICAL
5. 2x6 WOOD TRIM DOORS & WINDOWS, TYPICAL
6. 2x6 WOOD GABLE SOFFIT BASE TRIM @ GARAGE W/ 2x4 WOOD VERTICAL TRIM
7. 2x8 WOOD HEADER TRIM @ DOORS & WINDOWS W/ 3x4 WOOD CAP, TYPICAL & FAUX CHIMNEY CAP
8. 2x10 WOOD BARGE BOARD W/ 1x3 WOOD EDGE TRIM, TYPICAL @ GABLE ENDS
9. 1x WOOD FACING @ 6x6 PORCH & GARAGE GABLE SOFFIT POSTS W/ 2x BUILT-UP WOOD BASE & CAP TRIM
10. 6x10 CORBEL BEAM ENDS @ GABLE PEAK
11. DECORATIVE GUARDRAIL @ 42" ABOVE FINISHED DECKING W/ 2x6 WOOD CAP, 2x4 WOOD NAILERS, 1x WOOD VERTICAL SLATS, & 4x4 WOOD POSTS, TYPICAL PER (A3)
12. WOOD PANEL SOLID CORE ENTRY DOOR W/ TEMPERED GLASS WINDOW
13. VINYL SASH, DUAL GLAZED, LOW-E WINDOWS W/ GRIDS AS SHOWN, TYPICAL.
14. WOOD CARRIAGE STYLE SECTIONAL GARAGE DOORS W/ TEMPERED GLASS PANELS
15. PAIR OF 24" SQ. G.I. LOUVERED GABLE ATTIC VENTS WHERE SHOWN
16. CONCRETE PORCH, LANDINGS, RAMPS & STEPS, TYPICAL
17. APPROVED ILLUMINATED ADDRESS SIGN (NUMBERS SHALL BE A MINIMUM OF 4" TALL WITH A STROKE OF 0.5 INCH OF A CONTRASTING COLOR TO THE BACKGROUND ITSELF) PER CRC R314.1.
18. SLOPE GRADE 5% FOR 10'-0" MIN. AWAY FROM BUILDING, TYPICAL



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ELEVATION MATERIALS

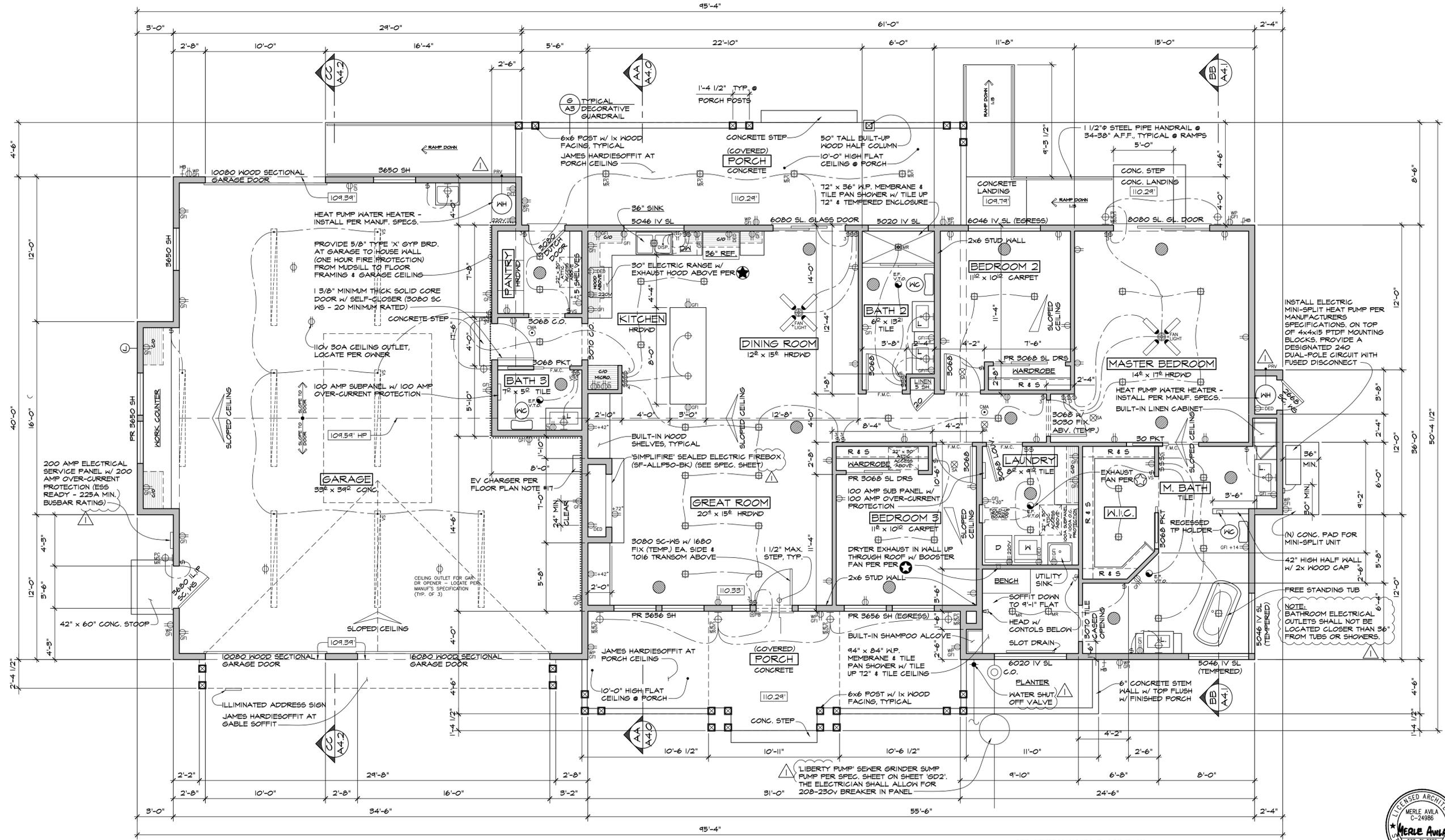
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18. SLOPE GRADE 5% FOR 10'-0" MIN. AWAY FROM BUILDING, TYPICAL

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SHEET NO: **A1.1** JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE** CONTRACTOR: **CUSTOM HOUSING SYSTEMS** DATE PRINTED: **12.2.24** DATE CHECKED: **12.2.24** DATE: **12.2.24**
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APM 144-110-021 ROHNERT PARK, CALIFORNIA (707)484-0444 REVISED PER CITY OF COTATI LETTER 10.21.24

avila · bunch architects, inc. (707) 585-3711
 Merle Avila · architect Russell W. Bunch · architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928



283 SQ. FT. FRONT PORCH
 317 SQ. FT. REAR PORCH
FLOOR PLAN
 2041 SQ. FT. TOTAL LIVING AREA
 1254 SQ. FT. GARAGE AREA
 SCALE: 1/4"=1'-0"

SEE GENERAL NOTES, FLOOR PLAN NOTES, DETAILS AND SYMBOL LEGEND ON SHEET 'AS'



GENERAL NOTES

- 1. DO NOT SCALE DRAWINGS.
2. COMPLY WITH ALL PROVISIONS OF THE CALIFORNIA CODE OF REGULATIONS TITLE 24, THE CALIFORNIA BUILDING CODE (CBC 2022), THE CALIFORNIA RESIDENTIAL CODE (CRC 2022), CALIFORNIA PLUMBING CODE (CPC 2022), CALIFORNIA MECHANICAL CODE (CMC 2022) & CALIFORNIA ELECTRICAL CODE (CEC 2022), CALIFORNIA ENERGY CODE (CEC 2022), THE CALIFORNIA GREEN BUILDING STANDARDS CODE (CGSBC 2022), THE CALIFORNIA FIRE CODE (CFC 2022), ALL LOCAL CODES AND ORDINANCES & WILDLAND-URBAN INTERFACE REQUIREMENTS, IF APPLICABLE.
3. ALL NAILING SHALL COMPLY WITH MINIMUM C.B.C. STANDARDS AS PROVIDED IN C.B.C. TABLE 2304.10.2 'FASTENING SCHEDULE', UNLESS OTHERWISE NOTED.
4. PROVIDE R-21 INSULATION AT ALL EXTERIOR WALLS AND WALL BETWEEN RESIDENCE AND GARAGE, R-38 AT ROOF/CEILING ATTIC, R-19 INSULATION AT RAISED FLOORS & CRAWL SPACES, R-5.0 INSULATION MINIMUM IN EACH UNIT. MECHANICAL DESIGNER OR INSTALLER TO PROVIDE ACCA, J, D, AND S CALCULATIONS TO SPECIAL INSPECTOR FOR VERIFICATION. HVAC SYSTEM INSTALLERS ARE TRAINED AND CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS. DUCT OPENINGS AND OTHER RELATED AIR DISTRIBUTION COMPONENTS SHALL BE COVERED DURING CONSTRUCTION-SPECIAL INSPECTOR TO FIELD VERIFY.
5. FAJ, SHALL MAINTAIN 68 DEGREES AT 36" ABOVE FINISH FLOOR IN ALL HABITABLE ROOMS, AND SHALL BE 45% EFFICIENT OR BETTER W/ AG BEING 15.0 SEER2 & 11.7 EER OR BETTER. INSTALL A MIN. MERV 13 FILTER IN EACH UNIT. MECHANICAL DESIGNER OR INSTALLER TO PROVIDE ACCA, J, D, AND S CALCULATIONS TO SPECIAL INSPECTOR FOR VERIFICATION. HVAC SYSTEM INSTALLERS ARE TRAINED AND CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS. DUCT OPENINGS AND OTHER RELATED AIR DISTRIBUTION COMPONENTS SHALL BE COVERED DURING CONSTRUCTION-SPECIAL INSPECTOR TO FIELD VERIFY.
6. ALL WINDOWS SHALL HAVE VINYL SASH, W/ LOW E-GLASS TYPICAL U.O.N.
7. SEE HEAT LOSS CALCS FOR ACTUAL GLASS AREA. ALL GLASS IS TO BE DUAL GLAZED. SEE SHT. CF-1R FOR GLASS DESIGN CRITERIA.
8. ALL WINDOWS LISTED AS 'EGRESS' ARE TO PROVIDE A MINIMUM NET CLEAR OPENABLE AREA THAT SHALL BE 20" IN WIDTH AND 24" IN HEIGHT AND SHALL PROVIDE A 5.7 SQUARE FEET NET CLEAR MINIMUM OPENING SIZE. (EXCEPTION: GRADE FLOOR OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5 SQUARE FEET). THE CLEAR OPENING HEIGHT IS TO BE LESS THAN 44" ABOVE FINISH FLOOR (A.F.F.).
9. WEATHERSTRIP ALL EXTERIOR DOORS AND WINDOWS.
10. PROVIDE (2)-20 AMP BRANCH CIRCUITS MINIMUM AT KITCHEN, PANTRY, BREAKFAST ROOM, DINING ROOM PER C.E.C. SEC 210-11(C).
11. PROVIDE AT LEAST (1)-20 AMP BRANCH CIRCUITS TO EACH BATHROOM AND GARAGE. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS UNLESS ALLOWED BY EXCEPTIONS. C.E.C. SEC. 210-11(C).
12. WASHER AND DRYER SHALL BE ON A SEPARATE 20 AMP CIRCUIT PER C.E.C. SEC. 210-11(C).
13. PROVIDE BACKDRAFT DAMPERS AT ALL EXHAUST FANS. EXHAUST FANS SHALL PROVIDE A MINIMUM OF 5 AIR CHANGES PER HOUR & SHALL BE 'ENERGY STAR' COMPLIANT & SHALL BE CONTROLLED BY A HUMIDISTAT WHICH SHALL BE READILY ACCESSIBLE. HUMIDISTATS SHALL BE CAPABLE OF ADJUSTMENT BETWEEN A RELATIVE HUMIDITY RANGE OF 30% TO 80% PERCENT. THESE FANS SHALL BE DUCTED TO THE OUTSIDE WITH A MINIMUM OF 50 CFM. ALL BATHROOMS REQUIRE MECHANICAL VENTILATION TO THE OUTSIDE WITH A MINIMUM OF 50 CFM. IF THEY INCLUDE A LIGHT, THEY MUST BE SWITCHED SEPARATELY. ALL DUCTING SHALL BE SIZED PER ASHRAE STANDARD 62.2 TABLE 5.3. CBC 1202.5.2.1, CMC 403.7 & TABLE 403.7, C.E.C. 150.0(O). ALL EXHAUST DUCTS SHALL EXHAUST 3'-0" MIN FROM PROPERTY LINE AND 3'-0" MIN FROM OPENINGS INTO THE BUILDING.
14. PROVIDE A NON-REMOVABLE LISTED BACKFLOW PREVENTION DEVICE OR LISTED ATMOSPHERIC VACUUM BREAKER DEVICE ON ALL EXTERIOR HOSE BIBS AND LAMN/IRRIGATION SYSTEMS.
15. MAX. FLOW RATE OF NEW PLUMBING FIXTURES (GALLON PER MINUTE)
SHOWER : < 1.8 GPM @ 80 PSI
LAVATORY FAUCET : < 1.2 GPM @ 80 PSI
KITCHEN UTILITY FAUCET : < 1.8 GPM @ 60 PSI
WATER CLOSET : < 1.2 GALLONS PER FLUSH
16. PROVIDE FIBER CEMENT BACKING BOARD AT ALL TUB AND SHOWER ENCLOSURES UP 12" ABOVE DRAIN INLET.
17. FIREBLOCK AT CEILINGS, FLOORS, FURRED DOWN CEILINGS, SHOWERS, SOFFITS, IN CONCEALED SPACES BETWEEN STAIR STRINGERS, AND AT CONCEALED DRAFT OPENINGS. FIREBLOCKING NOT TO EXCEED 10 FOOT INTERVALS, BOTH VERTICAL & HORIZONTAL. SEE C.R.C. SECTION R302.11 & R302.11.I FOR ALL REQUIREMENTS.
18. ALL AIR DUCTS PENETRATING SEPARATION WALL OR CEILING BETWEEN GARAGE AND LIVING AREA SHALL BE 26 GAUGE MINIMUM AND SHALL HAVE NO OPENINGS INTO THE GARAGE. C.R.C. SECTION R302.5.2
19. WATER HEATING:
SECURE TANKED WATER HEATER 1/3RD TOP & BOTTOM @ 4" ABOVE W.H. CONTROLS TO STUDS BEYOND WITH 1 1/2" BY 16 GA. STRAPS & 5/16"x3" LAG SCREWS.
TANK-LESS WATER HEATER SHALL HAVE A MIN. 200,000 btu/yr DEDICATED GAS LINE FROM GAS METER. A 120V RECEPTACLE WITH NO OBSTRUCTIONS, A CATEGORY III OR IV VENT OR A TYPE B VENT WITH A STRAIGHT TERMINATION TO EXTERIOR AND A GRAVITY FLOW CONDENSATE DRAIN NO HIGHER THAN 2" ABOVE THE UNIT BASE.
ALL WATER HEATERS ARE TO BE 45%AFUE MINIMUM. ALL WATER HEATERS TO BE SEALED COMBUSTION. SEALED COMBUSTION EQUIPMENT DRAWS ITS COMBUSTION AIR DIRECTLY FROM OUTSIDE THE HOME AND EXHAUSTS ITS COMBUSTION PRODUCTS DIRECTLY OUT OF THE HOME. THE AIR INTAKE AND EXHAUST ARE SEALED OFF FROM THE INSIDE OF THE HOME. DUCT OPENINGS AND OTHER RELATED AIR DISTRIBUTION COMPONENTS SHALL BE COVERED DURING CONSTRUCTION-SPECIAL INSPECTOR TO FIELD VERIFY. INSTANT WATER HEATER SHALL BE RATED FOR 200,000 btu/yr OR LESS.
20. ALL SMOKE ALARMS SHALL BE HARDWIRED WITH BATTERY BACKUP AND SHALL BE INTERCONNECTED TO EACH OTHER SO THAT ALARM SOUNDS SIMULTANEOUSLY. ALL SMOKE DETECTORS SHALL BE LISTED IN ACCORDANCE WITH UL 217.
21. ALL CARBON MONOXIDE ALARMS SHALL BE HARDWIRED WITH BATTERY BACKUP AND SHALL BE INTERCONNECTED TO EACH OTHER SO THAT ALARM SOUNDS SIMULTANEOUSLY. ALL CARBON MONOXIDE DETECTORS SHALL BE LISTED IN ACCORDANCE WITH UL 2034.
22. ALL SHOWER AND/OR TUB-SHOWER COMBOS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE OR THE THERMOSTATIC MIXING VALVE TYPE. THE MAX. WATER TEMP. SETTING IS 120° F (49° C) TO PROVIDE SCALD AND THERMAL SHOCK PROTECTION. CONTROLS FOR THE SHOWERHEAD SHALL BE LOCATED ON THE SIDEWALL OF THE SHOWER COMPARTMENT SO THAT THE SHOWERHEAD DOES NOT DISCHARGE DIRECTLY AT THE ENTRANCE TO THE COMPARTMENT PER CFC 408.4.
23. ALL QUICK CLOSING VALVES REQUIRE AN ARRESTOR/AIR HAMMER. PROVIDE WATER HAMMER ARRESTOR AT WASHING MACHINE, ICE MAKERS & DISHWASHERS PER CFC 609.11 WHICH REQUIRES PRESSURE ABSORBING DEVICES OF EITHER AIR CHAMBERS OR APPROVED MECHANICAL DEVICES.
24. ALL 120-VOLT, SINGLE PHASE, 15- AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OF RECEPTACLES INSTALLED IN THE DWELLING UNIT SHALL BE PROTECTED BY A LISTED ARC-Fault CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT.
25. ALL RECESSED LED LUMINARIES AT SHOWERS AND TUBS ARE TO BE LISTED FOR NET LOCATIONS AND SHALL BE MOISTURE RESISTANT.
26. ALL RECESSED LED LUMINARIES SHALL BE 6" MIN. FROM CLOSET STORAGE IN ANY DIRECTION. CEC 410.16(C) TYPICAL.
27. ALL LIGHTING FIXTURES ASSOCIATED WITH THE CONSTRUCTION OF THIS HOUSE SHALL BE HIGH-EFFICACY FIXTURES REGARDLESS OF LOCATION OR USE.
28. ALL OUTDOOR LIGHTING SHALL BE HIGH EFFICACY, AND CONTROLLED BY A MOTION SENSOR WITH INTEGRAL CONTROL. MOTION SENSORS USED IN CONJUNCTION WITH OUTDOOR LIGHTING LUMINARIES SHOULD HAVE THE CAPABILITY OF TURNING THE LIGHTS ON AUTOMATICALLY. MOTION SENSORS AND PHOTO CONTROLS SHALL HAVE AN INDICATOR THAT VISIBLY OR AUDIBLY INFORMS THE OPERATOR THAT THE CONTROLS ARE OPERATING PROPERLY, OR THAT THEY HAVE FAILED OR MALFUNCTIONED. LIGHTING AROUND SWIMMING POOLS, WATER FEATURES, OR OTHER LOCATIONS SUBJECT TO ARTICLE 680 OF THE CALIFORNIA ELECTRIC CODE, ARE EXEMPT.
29. PROVIDE TAMPER RESISTANT RECEPTACLES FOR ALL 125-VOLT, 15- AND 20- AMPERE RECEPTACLES LESS THAN 5.5' ABOVE THE FINISHED FLOOR LEVEL. TAMPER RESISTANT RECEPTACLES ARE NOT REQUIRED WHERE THE RECEPTACLE IS DEDICATED TO A SPECIFIC APPLIANCE. (CEC 406.12)
30. AT LEAST ONE BATHROOM SHALL BE COMPLIANT WITH CRC 327 ASING IN PLACE PROVISIONS. PROVIDE BLOCKING FOR GRAB BARS WHERE REQUIRED. PROVIDE DOCUMENTATION OF GRAB BAR PLACEMENT FOR DWELLING 'OPERATION AND MAINTENANCE MANUAL'.
31. PER CRC 327 ALL ELECTRICAL OUTLET BOXES SHALL BE LOCATED FULLY BETWEEN 15" & 48" ABOVE FINISHED FLOOR FOR RECEPTACLES, SWITCHES AND CONTROLS UNLESS DEDICATED FOR APPLIANCE, FLOOR/CEILING OUTLETS, AND OTHER LIMITED EXCEPTIONS.
32. DOOR BELL PUSH BUTTON SHALL NOT EXCEED 48" ABOVE ADJACENT SURFACE.

FLOOR PLAN NOTES

- 1. SEE FRAMING PLANS FOR SHEAR WALL INFORMATION AND LOCATIONS OF POSTS IN WALLS.
2. TYPICAL HEADER HEIGHTS SHALL BE 8'-0" ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED.
3. PROVIDE 1/2" GYP. BOARD AT ALL WALLS AND CEILINGS OF RESIDENCE. TAPE ALL JOINTS AND TEXTURE.
4. PROVIDE 5/8" TYPE 'X' GYP. BOARD AT WALLS AND CEILINGS OF GARAGE TO PROVIDE A ONE HOUR FIRE PROTECTION. TAPE JOINTS ONLY.
5. ALL DOORS SHALL BE HOLLOW CORE UNLESS OTHERWISE NOTED.
6. ALL GLASS IN DOORS SHALL BE TEMPERED. ALL GLASS WITHIN 24" OF DOOR OPENINGS SHALL BE TEMPERED. ALL GLASS LESS THAN 60" ABOVE SHOWER/TUB SHALL BE TEMPERED. GLAZING WITHIN 20" ABOVE FINISHED FLOOR SHALL BE TEMPERED.
7. FOR WATER HEATERS WITH TANKS, PROVIDE AN APPROVED COMBINATION PRESSURE AND TEMPERATURE RELIEF VALVE WITH A 3/4" HARD PIPE DRAIN WHICH TERMINATES 6" TO 24" ABOVE GRADE AT BUILDING EXTERIOR AND POINTING DOWNWARD AT WATER HEATER(S).
8. PROVIDE 2'-0" MINIMUM HORIZONTAL SEPARATION BETWEEN OUTLETS OR SWITCHES AT OPPOSITE SIDES OF FIREWALLS.
9. ALL STAIRS/STEPS TO HAVE A MAXIMUM RISER HEIGHT OF 7 3/4" AND A MINIMUM TREAD DEPTH OF 10". A NOSING OF NOT LESS THAN 3/4" BUT NOT MORE THAN 1 1/4" SHALL BE PROVIDED ON STAIRWAYS/STEPS WITH SOLID RISERS. A VARIATION OF NOT MORE THAN 3/8" BETWEEN THE LARGEST AND SMALLEST RISER HEIGHTS OR THE LARGEST AND SMALLEST TREAD DEPTH WITHIN ANY FLIGHT OF STAIRS MEASURED FROM NOSE TO NOSE OF THE TREADS OR THE WIDTH OF THE STAIRWAY/STEPS SERVED. OPEN RISERS ARE PERMITTED, PROVIDED THAT THE OPENING BETWEEN TREADS DOES NOT PERMIT THE PASSAGE OF A 4-INCH DIAMETER SPHERE. ALL EXTERIOR TREADS ARE TO BE 12" WIDE AND THE LAST STEP DOWN TO GROUND SHALL BE CONSISTENT WITH THE REST OF THE RISERS AND THE MAX. VARIATION AS LISTED ABOVE. FRAME STAIRS WITH 2x12 STRINGERS @ MAX. SFAN OF 16' o.c. SECURE TOP OF STRINGER W/ LUS28 & (B) 10d NAILS. SECURE BOTTOM OF STRINGER TO 2x BLOCK W/ A34 & (B) 10d. NAIL BLOCK TO EACH JOIST W/ (2) 16d @ PERPENDICULAR JOISTS OR 16d @ 6'o.c. TO BLOCK BELOW @ PARALLEL JOISTS.
10. PROVIDE COMBUSTION AIR AT INTERIOR W.H. AND FURNACE PER C.M.C. CHAPTER 7. INSULATE WALLS PER EXTERIOR WALL REQUIREMENTS.
11. CONTRACTOR TO CHECK & VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME.
12. WHERE A PRESSURE REGULATOR IS INSTALLED, AN APPROVED, LISTED EXPANSION TANK OR OTHER DEVICE SHALL BE INSTALLED.
13. PLASTIC PIPE & FITTINGS, OTHER THAN THOSE USED FOR GAS, SHALL MEET THE REQUIREMENTS OF NATIONAL SANITATION FOUNDATION 14. CFC 301.2.3.
14. ALL PIPE, TUBE, FITTINGS, SOLVENT, CEMENT, THREAD SEALANT, SOLDER, AND/OR FLUX USED IN POTABLE WATER SYSTEMS INTENDED TO SUPPLY DRINKING WATER SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NATIONAL SANITATION FOUNDATION 61. CFC 604.1. THIS PROJECT WILL USE A COMBINATION OF PEX AND COPPER.

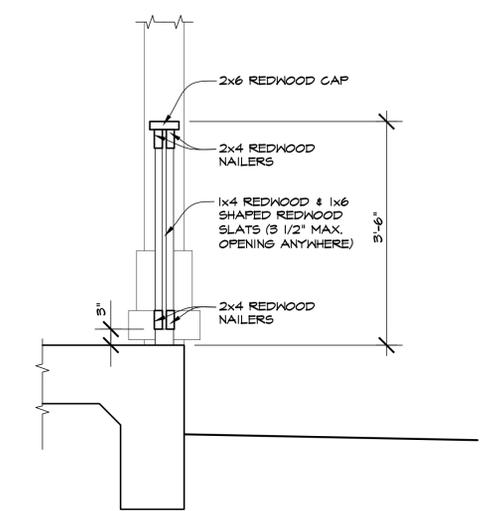
ELECTRICAL/SYMBOL NOTES

NOTE:
ALL LIGHTING FIXTURES ASSOCIATED WITH THE CONSTRUCTION OF THIS RESIDENCE SHALL BE HIGH-EFFICACY, I.E.D. BASED FIXTURES, REGARDLESS OF LOCATION OR USE.
NO SCREW BASED LUMINARIES WILL BE USED IN THE CONSTRUCTION OF THIS RESIDENCE.
DOORBELL PUSHBUTTON AND CHIMES (SEE SYMBOL LEGEND) SHALL BE WIRED THROUGH THE 12V TRANSFORMER PER MANUFACTURERS SPECIFICATION.
THE ILLUMINATED ADDRESS SIGN SHALL BE WIRED THROUGH THE 12V TRANSFORMER, PER MANUFACTURERS SPECIFICATION FOR CONTINUOUS OPERATION

SYMBOL LEGEND

- SW TWO WAY ELECTRICAL SWITCH
SW3 THREE WAY OR MORE ELECTRICAL SWITCH
DS DIMMER ELECTRICAL SWITCH
VAG VAGANCY SENSOR ELECTRICAL SWITCH
UC UNDER COUNTER DUPLEX ELECTRICAL
DUPLX DUPLEX ELECTRICAL OUTLET - WEATHER PROOF/GFCI PROTECTED
DUPLX DUPLEX ELECTRICAL OUTLET - GFCI PROTECTED
DUPLX DUPLEX ELECTRICAL OUTLET (AFCI PROTECTED, TYPICAL U.O.N)
220V 220V ELECTRICAL OUTLET
1/2 1/2 SWITCHED ELECTRICAL OUTLET
CEILING CEILING ELECTRICAL OUTLET, U.O.N.
EXHAUST EXHAUST FAN (SEE "GENERAL NOTE" #13)
SMA SMOKE ALARM (SEE "GENERAL NOTE" #20)
CMA CARBON MONOXIDE ALARM (SEE "GENERAL NOTE" #21)
OVERHEAD OVERHEAD LIGHT
RECESSED RECESSED LIGHT
THERM THERMOSTAT
WALL WALL LIGHT
CEILING CEILING REGISTER
FL FLUORESCENT
LED LIGHT EMITTING DIODE
MR MOISTURE RESISTANT
DIR DIRECTIONAL SHROUD
DED APPLIANCE DEDICATED

- 15. GAS LINE PRESSURE TESTING IS 10 PSI FOR 15 MINUTES AND WELDED PIPING IS 60 PSI FOR 30 MINUTES PER CFC 1219.3. INSULATE ALL HOT WATER PIPES USING A MINIMUM OF ONE INCH THICK FOAM ON THE ENTIRE RUN THE HOT WATER PIPING SYSTEM FOR ALL PIPES WITH A DIAMETER OF TWO INCHES OR LESS, AND A MINIMUM OF ONE AND A HALF INCH THICK FOAM FOR ALL PIPES WITH A DIAMETER GREATER THAN TWO INCHES.
16. ALL EXTERIOR WINDOWS AND SLIDING DOORS SHALL BE TESTED BY AN APPROVED INDEPENDENT LABORATORY, AND BEAR A LABEL IDENTIFYING MANUFACTURER, PERFORMANCE CHARACTERISTICS AND APPROVED INSPECTION AGENCY TO INDICATE COMPLIANCE WITH AAMA/WDMA/CSA 1011.5.2/A440.
17. ELECTRIC VEHICLE RACEWAY:
INSTALL A MIN. 1" CONTINUOUS RACEWAY TO ACCOMMODATE A DEDICATED MIN. 40 AMP/108/240 VOLT BRANCH CIRCUIT ORIGINATING AT THE SERVICE MAIN OR SUB PANEL AND TERMINATING IN A CABINET, BOX OR ENCLOSURE WITH SPACE NEXT TO IT FOR A EV CHARGER. THE PANEL SLOT SHALL BE IDENTIFIED AS 'EV CAPABLE'. LOCATION TO BE DETERMINED IN THE FIELD BY LICENSED ELECTRICAL CONTRACTOR.
18. THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 6" (5 PERCENT SLOPE) IN THE FIRST 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING SHALL BE SLOPED A MINIMUM OF 2 PERCENT AWAY FROM THE BUILDING.
19. WATER CLOSETS AND BIDETS SHALL NOT BE SET CLOSER THAN 15" FROM ITS CENTER TO A SIDE WALL OR OBSTRUCTION, OR CLOSER THAN 30" CENTER TO CENTER TO A SIMILAR FIXTURE. THE CLEAR SPACE IN FRONT OF A WATER CLOSET, LAVATORY, OR BIDET SHALL BE NOT LESS THAN 24".



DECORATIVE GUARDRAIL N.T.S.

- EXHAUST DUCT TO DIRECTLY EXHAUST TO THE EXTERIOR & TO HAVE A BACK-DRAFT DAMPER. THE DUCT SHALL BE A MAXIMUM OF 14'-0" LONG, 4" MIN SMOOTH METAL DUCT WITH TWO ELBOWS (REDUCE LENGTH BY 2' FOR EACH ADDITIONAL ELBOW BEYOND TWO). IF DUCTING EXCEEDS APPROVED LENGTH, A PRE-APPROVED DRYER BOOSTER FAN (SEE 'FANTECH' SPECIFICATION TABLE) SHALL BE PROVIDED. VENTING TO THE EXTERIOR SHALL TERMINATE A MINIMUM OF 3'-0" FROM ANY OPENING INTO THE BUILDING (CMC 504.4.2)
NOTE:
WHOLE HOUSE VENTILATION WILL BE ACCOMPLISHED BY THE UTILITY ROOM EXHAUST FAN. THE FAN SWITCH WILL BE LABELED 'FAN' SHOULD BE ON WHENEVER THE HOME IS OCCUPIED, & THE SYSTEM MUST BE DESIGNED SO THAT IT CAN OPERATE AUTOMATICALLY BASED ON A TIMER. THE INTERMITTENT MECHANICAL VENTILATION SYSTEM MUST OPERATE AT LEAST ONE HOUR PER DAY & MUST OPERATE AT LEAST 10% OF THE TIME & THE VENTILATION AIRFLOW IS INCREASED TO RESPOND TO THE FEWER HOURS OF FAN OPERATION & THE TENDENCY OF POLLUTANT CONCENTRATIONS TO BUILD UP DURING OFF CYCLES.
BROAN MODEL RB10 EXHAUST FAN W/ 4" SMOOTH METAL DUCT. SEE (ED) FOR DUCT SIZING CHART
12" cfm, 0.6 SONES, 4" SMOOTH METAL DUCT
EXHAUST HOOD FAN TO DIRECTLY EXHAUST TO THE EXTERIOR W/ MIN. 100 cfm
BROAN MODEL ALLURE GSI. SEE DUCT SIZING CHART (ED)
220cfm, 1.5 SONES

ASHRAE Standard 62.2 Table 4.1a Continuous Whole-Building Ventilation Rate in cfm. Table with columns for Floor Area (sq ft) and Number of Bedrooms (0-1, 2-3, 4-5, 6-7, >7).

ASHRAE Std. 62.2 Table 5.3: Prescriptive Duct Sizing Chart. Table with columns for Duct Diameter (inches) and Maximum Length in Feet (Fan Rating in cfm Certified @ 0.25 in. w.c.).

EXHAUST DUCT SIZING

Table 4-15: Prescriptive Duct Sizing for Single-Fan Exhaust Systems (ASHRAE 62.2, Table 5.3)

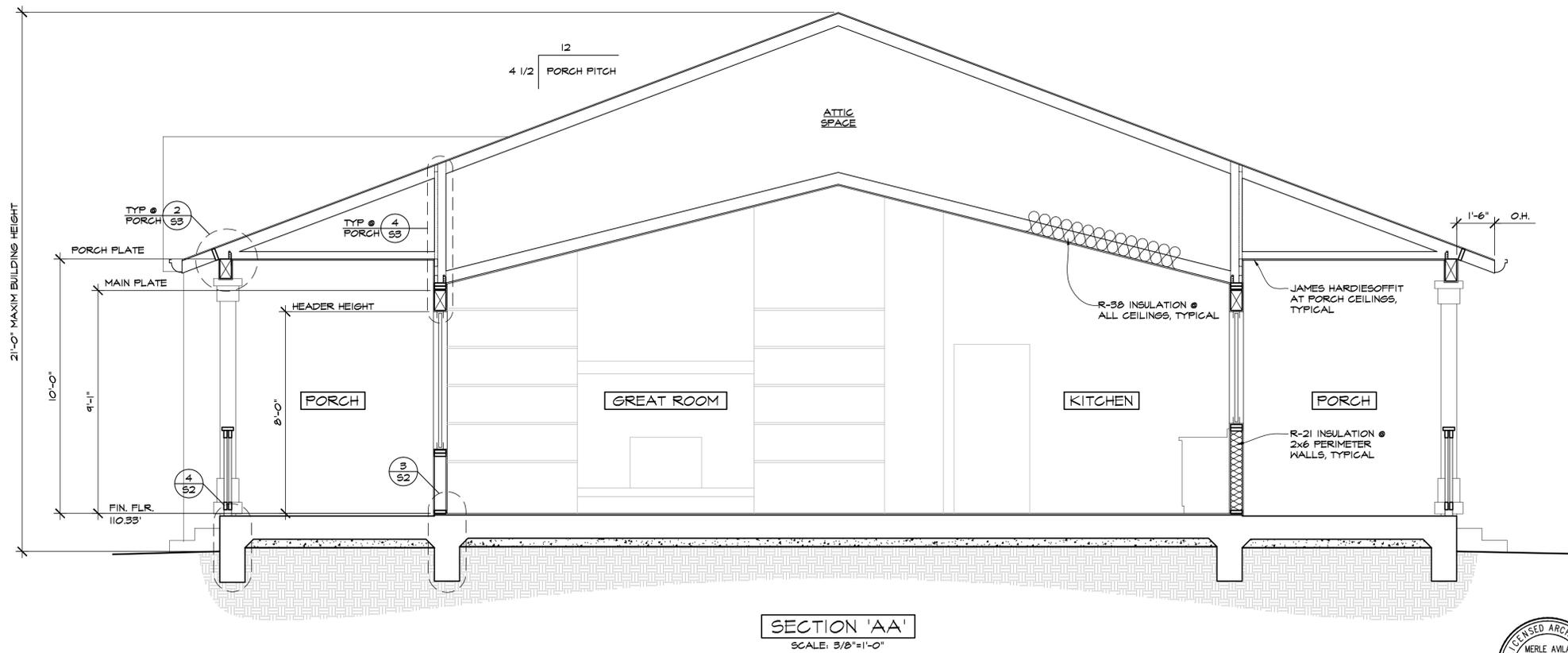
Table with columns for Duct Type (Flex Duct, Smooth Duct) and CFM @ 0.25 in. (L/s @ 62.5 Pa). Rows for diameters 3, 4, 5, 6, 7, 8, 9 inches.

a. For nonrigid ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.
b. This table assumes no elbows. Deduct 15 ft (5 m) of allowable duct length for each elbow.

Product advertisement for FANTECH Dryer Booster Fan and DB-10 Pressure Sensing Switch Kit. Includes images of the products and specification/ordering data tables.

DB DRYER BOOSTER FAN





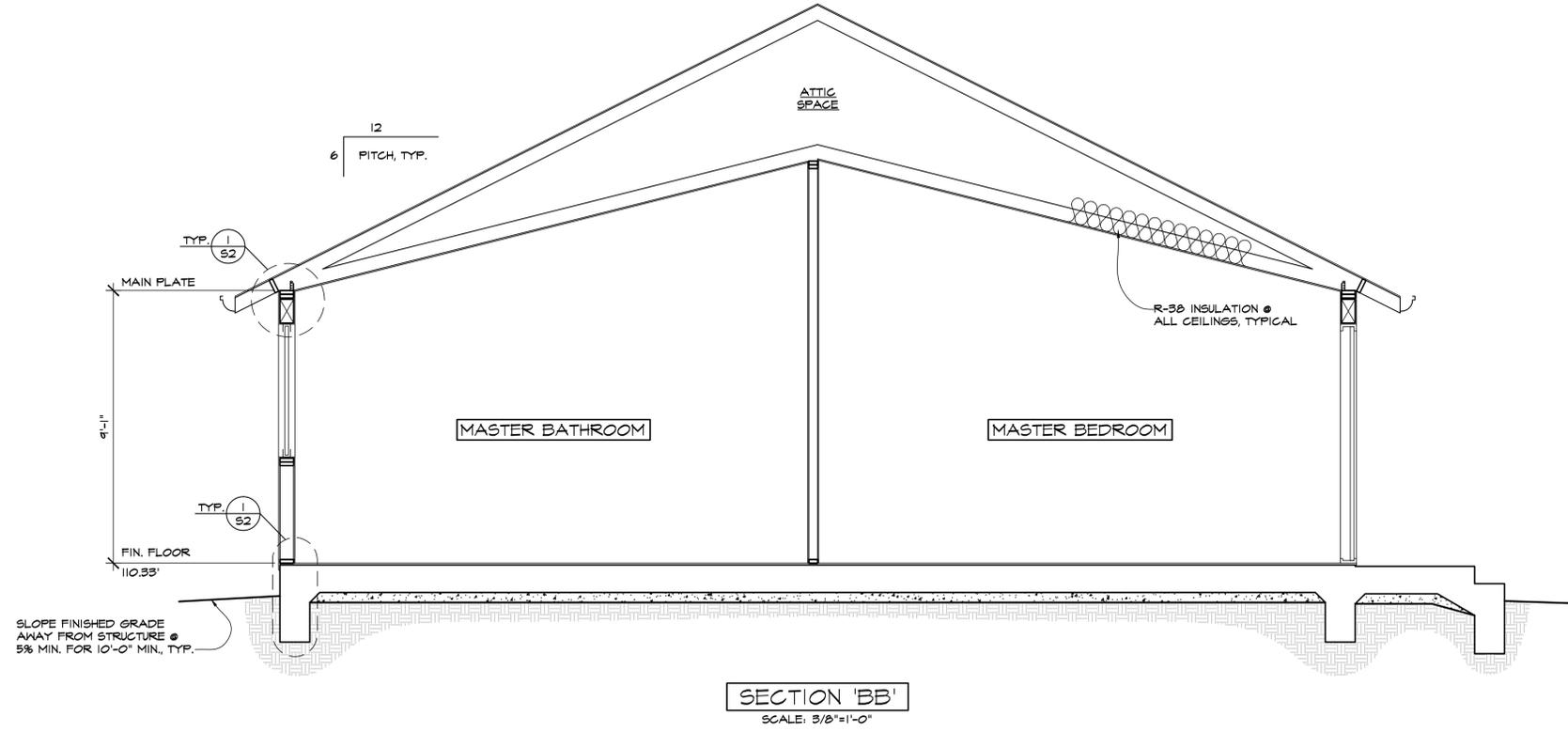
SECTION 'AA'
SCALE: 3/8"=1'-0"

SECTION NOTES

1. SEE GENERAL NOTES SHEET A3 FOR INSULATION VALUES.
2. SEE ELEVATIONS FOR SIDING AND ROOFING MATERIALS.
3. SEE FRAMING PLANS FOR FLOOR JOIST AND RAFTER INFORMATION.
4. SEE FRAMING PLANS FOR ALL SHEATHING INFORMATION.
5. ALL STUDS TO BE 2x4 @ 16" o.c. (EXTERIOR WALLS GREATER THAN 10'-0" HIGH SHALL BE 2x6 STUDS), TYPICAL, UNLESS OTHERWISE NOTED.
6. SEE DETAIL "1/SD1" FOR FRAMING @ HEADERS. SEE HDR. SCHED. SHT. SD1 FOR TYPICAL HEADER SIZE, UNLESS OTHERWISE NOTED.
7. SILL PLATES SHALL BE 2x TYPICAL, UNLESS OTHERWISE NOTED.
8. SOLE PLATES SHALL BE 2x TYPICAL, UNLESS OTHERWISE NOTED.
9. TOP PLATES SHALL BE DOUBLE TOP PLATES W/48" MIN. LAP AT SPLICES, TYPICAL, OTHERWISE NOTED.
10. PROVIDE 2x SOLID EAVE BLOCKING WITH 3/2" DIAMETER SCREENED BIRDHOLE VENTS PER ATTIC VENTILATION SCHEDULE, PROVIDE 1" INSULATION BAFFLE, TYPICAL, UNLESS OTHERWISE NOTED.
11. PROVIDE 2x CEILING JOISTS PER CEILING JOIST SPAN TABLE SHEET SD1.
12. PROVIDE 1/2" GYP. BOARD AT ALL WALLS AND CEILING. TAPE ALL JOINTS AND TEXTURE.
13. PROVIDE 1/2" GYP. BOARD AT WALLS AND CEILING OF GARAGE TO PROVIDE A ONE HOUR FIRE PROTECTION. TAPE JOINTS ONLY.
14. PROVIDE G.I. FLASHING AT ALL WALLS ABOVE ROOF, TYPICAL.
15. ROOF IS TO BE FRAMED WITH TRUSSES @ 24" o.c. U.O.N.



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SHEET NO: **A4.1** [OF 25] JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE**
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APN 144-110-021

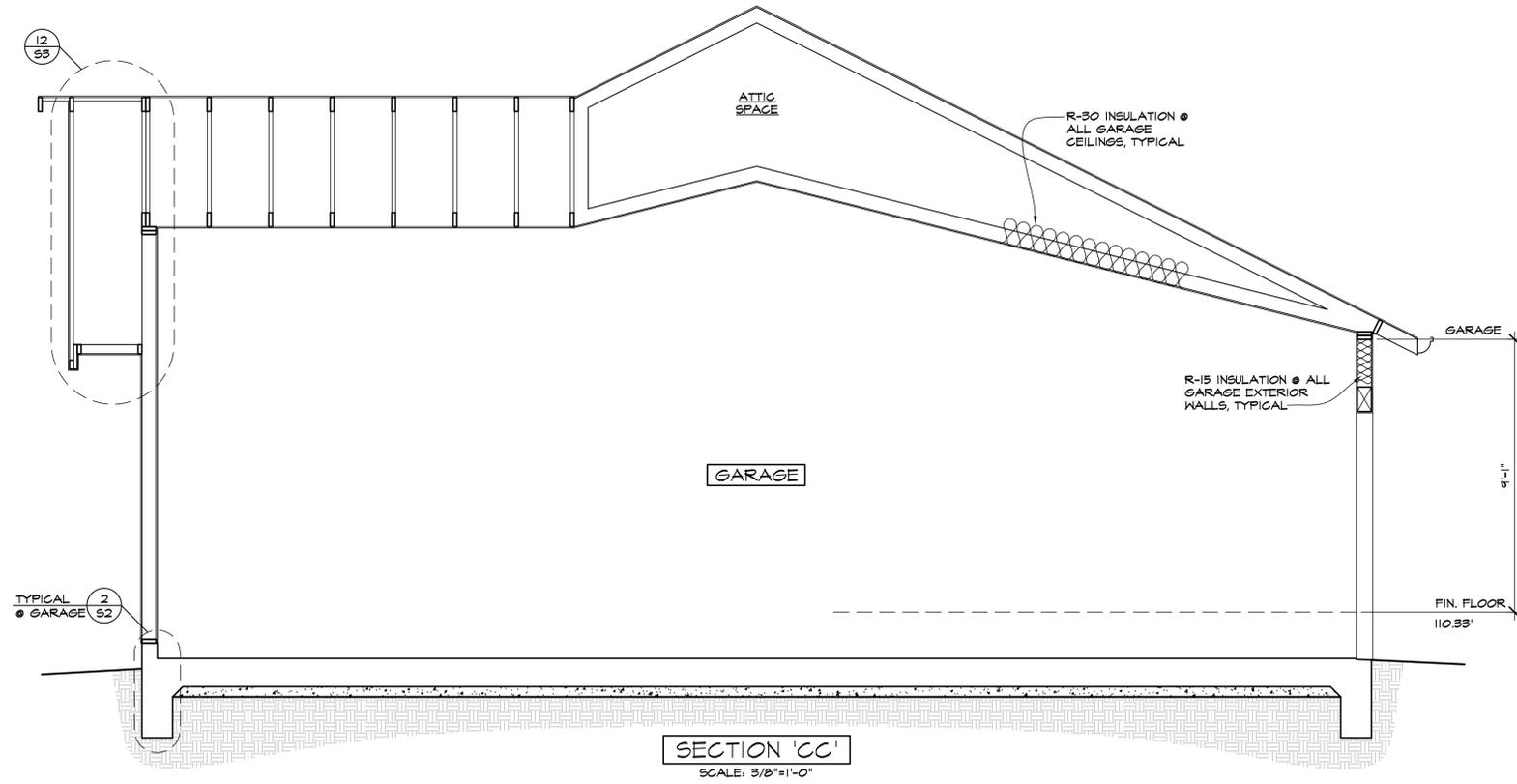
CONTRACTOR: **CUSTOM HOUSING SYSTEMS**
 ROHNERT PARK, CALIFORNIA (707)484-0444

DATE PRINTED: **12.21.24** DATE CHECKED: **12.21.24**
 NOTES: REVISED PER CITY OF COTATI LETTER 10.21.24

avila · bunch architects, inc. (707) 585-3711

Merle Avila · architect Russell W. Bunch · architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928

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SHEET NO: **A4.2** JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE** CONTRACTOR: **CUSTOM HOUSING SYSTEMS** DATE PRINTED: **12.21.24** DATE CHECKED: **12.21.24** DATE: **12.21.24**

2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021 ROHNERT PARK, CALIFORNIA (707)484-0444

avila · bunch architects, i n c. Merle Avila · architect Russell W. Bunch · architect
5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928 (707) 585-3711

IMPERVIOUS SURFACES	
COVERED CONCRETE PORCHES	600 SQ. FT.
CONCRETE WALKS, LANDINGS & RAMPS	922 SQ. FT.
AC PAVED DRIVEWAY/PARKING AREA	3,878 SQ. FT.
TOTAL	6,322 SQ. FT.

TOTAL IMPERVIOUS SURFACES IS LESS THAN 10,000 SQ. FT.

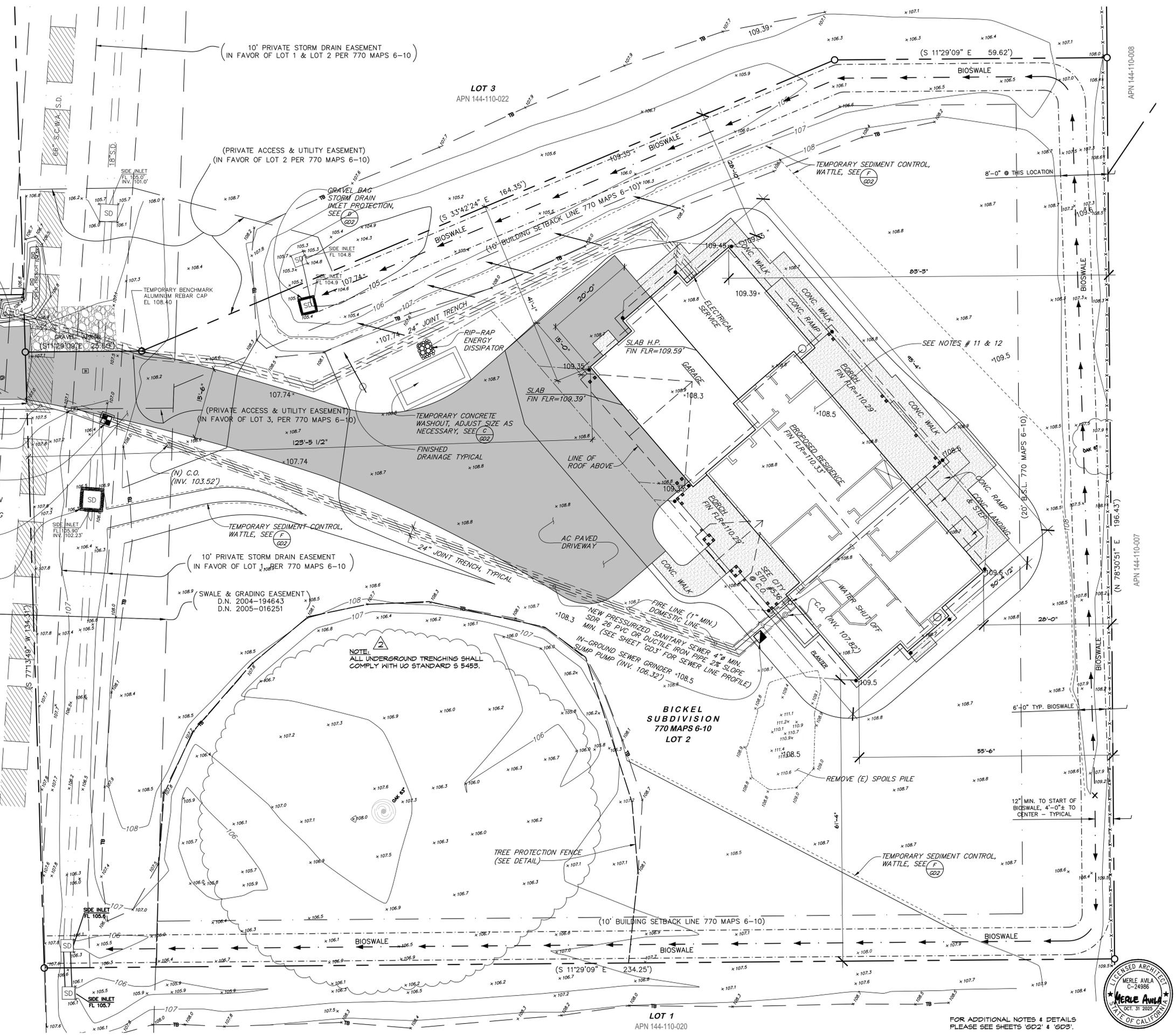
WATER NOTES:

- INSTALL NEW WATER METER WITH FIRE SYSTEM SUPPLY. SEE CITY STD. #863A. THE EXISTING WATER METER BOX IS LOCATED AT THE WEST SIDE OF THE CURB CUT OF COMMON DRIVEWAY AT GILMAN RANCH ROAD.
- SEWER AND WATER SERVICES TO BE PROVIDED BY CITY. APPLICANT TO CREATE NEW ACCOUNTS WITH THE CITY AND PAY APPLICABLE FEES PRIOR TO SERVICE CONNECTION.
- SONOMA COUNTY WATER AGENCY MUST GRANT PERMISSION AND PROOF PROVIDED TO THE CITY PRIOR TO ANY CONSTRUCTION COMMENCEMENT WITH THEIR STORM DRAIN EASEMENT.

NOTES:

- REMOVE EXCESS EARTH TO AN APPROVED SITE.
- THE DRIVEWAY APPROACH & SIDEWALKS ON GILMAN RANCH ROAD ARE EXISTING. VERIFY THAT THEY MEET CURRENT CITY OF COTATI STANDARDS OR REPLACE. REPAIR ANY DAMAGED CONCRETE FLATWORK.
- THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 6% (5 PERCENT SLOPE) IN THE FIRST 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING SHALL BE SLOPED A MINIMUM OF 2 PERCENT AWAY FROM THE BUILDING.
- PROVIDE POSITIVE DRAINAGE TO PREVENT PONDING OF WATER AT UNDER FLOOR AREA. USE 3" SCH. 40 OR SDR 35 DRAIN PIPE THROUGH FDN. FOOTING AT LOWEST CORNER W/ 1/8" MIN. SLOPE DISCHARGING TO APPROPRIATE AREA.
- CONTRACTOR TO CHECK & VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME.
- ALL DOWN SPOUTS ARE TO BE CONNECTED TO A CLOSED CONDUIT DRAIN LINE DISCHARGING INTO APPROVED AREA.
- BACKFLOW:** FIRE SPRINKLERS ARE REQUIRED, SO A BACKFLOW DEVICE WILL BE REQUIRED PER CURRENT CITY STANDARDS. AN IN-LINE CHECK BACKFLOW PER STANDARD 815F MAY BE INSTALLED WHEN ONLY PROTECTING THE FIRE SPRINKLER SYSTEM OTHERWISE A DOUBLE CHECK BACKFLOW DEVICE PER SR WATER STD. 815 WILL BE REQUIRED.
- WATER LATERAL:** MUST BE SIZED TO MEET DOMESTIC, IRRIGATION AND SPRINKLER DEMAND. IF THE (E) SERVICE MUST BE UPSIZED, THE (E) SERVICE MUST BE ABANDONED AT THE MAIN PER CURRENT CITY STANDARDS. IF THE (E) WATER SERVICE OR METER BOX HAS BEEN DAMAGED, THEY WILL NEED TO BE REPAIRED/REPLACED. ANY OF THIS WORK REQUIRES AN ENCROACHMENT PERMIT.
- WATER METER:** WATER METERS MAY NEED TO BE SIZED TO A 3/4" METER BASED UPON WHAT THE FIRE DEPARTMENT APPROVES TO MEET THE FIRE SPRINKLER REQUIREMENTS. FEES WILL BE DUE FOR A LARGER METER.
- ENCROACHMENT PERMIT:** ANY IMPROVEMENTS, PROPOSED OR REQUIRED, WITHIN THE PUBLIC RIGHT OF WAY OR ANY EXISTING PUBLIC SEWER OR WATER EASEMENTS SHALL BE REVIEWED AND APPROVED WITH AN ENCROACHMENT PERMIT APPLICATION. ONLY CONSTRUCTION PLANS SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION ARE FINAL PLANS AND WILL BE APPROVED FOR CONSTRUCTION. SUBMIT PLANS SHOWING ALL WORK IN THE PUBLIC RIGHT OF WAY, OR IN PUBLIC EASEMENTS, INCLUDING ALL WORK ON PUBLIC UTILITIES (WATER METER BOXES, SEWER LATERAL CLEANOUTS, BACKFLOW DEVICES, ETC.) TO THE CITY OF COTATI. NO WORK SHALL BE PERFORMED IN THE PUBLIC RIGHT-OF-WAY WITHOUT THE ENCROACHMENT PERMIT.
- THE FINISHED FLOOR IS REQUIRED TO BE SET AT A MINIMUM ELEVATION OF 107.0' AS LISTED PER THE BICKEL SUBDIVISION GRADING PLAN (SHEET 2 OF THE IMPROVEMENTS PLANS). THIS BENCHMARK IS BASED ON SCNA POINT 41 - FOUND 3/4" IRON PIPE, WEST FENCE, WEST SIDE, WEST COTATI AVENUE 10'± NORTH HEADWALL CREEK ELEVATION 102.90.
- JOEL RIGHETTI LAND SURVEYING TO SET, VERIFY & CERTIFY THAT THE FINISHED FLOOR MEETS THE CRITERIA OF NOTE #11.

GRADING & DRAINAGE PLAN
SCALE: 1" = 10'-0"



SHEET NO: **24021** JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE**
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APN 144-110-021
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS**
 ROHNERT PARK, CALIFORNIA 94784-0444
 DATE PRINTED: REVISED PER CITY OF COTATI LETTER 10.21.24
 DATE CHECKED: REVISED PER CITY OF COTATI LETTER 11.02.24
 DATE: **12.24**
Merle Avila - architect Russell W. Bunch - architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
 (707) 585-3711
avila · bunch architects, inc.
 APPROVED: **Merle Avila** (Professional Seal)
 GDI

FOR ADDITIONAL NOTES & DETAILS PLEASE SEE SHEETS 'GD2' & 'GD3'

EROSION AND SEDIMENT CONTROL NOTES:

- THE CONTRACTOR IS TO INFORM ALL WORKERS ON-SITE ABOUT THE MAJOR PROVISIONS OF THE EROSION & SEDIMENT CONTROL PLAN AND SEEK THEIR COOPERATION IN AVOIDING THE DISTURBANCE OF THESE CONTROL MEASURES.
- EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN ASSUMES THAT THE WORK SHALL BE PERFORMED DURING ALLOWABLE CONSTRUCTION PERIOD. OTHERWISE CONTRACTOR SHALL PREPARE INTERIM DRAINAGE AND EROSION AND SEDIMENT CONTROL PLAN FOR CITY APPROVAL PRIOR TO COMMENCING WORK. A CURRENT EROSION AND SEDIMENT CONTROL PLAN SHALL BE AND KEPT ON THE JOB SITE AT ALL TIMES.
- CONSTRUCTION EQUIPMENT ACCESS SHALL BE RESTRICTED TO DEFINED ENTRY AND EXIT POINTS. THE ACCESS POINTS SHALL BE SWEEP AS OFTEN AS NECESSARY EACH DAY TO PREVENT THE TRACKING OF SOIL, DEBRIS, ETC. ONTO THE PUBLIC STREETS. ANY SOIL, ROCK, GRAVEL, OR DEBRIS RESULTING ON ANY PUBLIC STREET AS A RESULT OF THIS PROJECT SHALL BE REMOVED IMMEDIATELY. PAVED AREAS WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE LEFT IN A CLEANED CONDITION AT THE END OF EACH WORKDAY.
- WHERE NECESSARY ADDITIONAL DEVICES AND METHODS SHALL BE EMPLOYED TO CONTROL EROSION AND PROVIDE SAFETY, INCLUDING BUT NOT LIMITED TO CHECK DAMS OR TEMPORARY SILTATION BASINS.
- THE FINISHED GRADING SHALL BE SUCH THAT NO WATER OR ERODIBLE MATERIAL IS DIVERTED INTO THE OFF-SITE PROPERTY CAUSING A NUISANCE OR DAMAGE. IF THE WORK CONTEMPLATED WILL INTERFERE WITH THE ESTABLISHED DRAINAGE CONTRACTOR SHALL ACT AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE EMPLOYED TO ASSURE THAT THE WATER ENTERING THE STORM DRAIN SYSTEM DOWN SLOPE THE CONSTRUCTION ACTIVITY IS EQUIVALENT TO THE QUALITY AND CHARACTER OF THE WATER UP SLOPE OF THE SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTANT MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIME TO THE SATISFACTION OF THE APPROVAL AGENCY. EROSION AND SEDIMENT CONTROL MEASURES AND THEIR INSTALLATION SHALL USE BEST MANAGEMENT PRACTICES.
- IF THE WORK IS NOT COMPLETE BY OCTOBER 15, ADDITIONAL MEASURES SHALL BE TAKEN SUCH AS TEMPORARY SETTLING BASINS, WHICH MEET THE SATISFACTION OF THE APPROVAL AGENCY. SILT BASINS AND/OR CATCH BASINS MUST BE CLEANED OUT ON A REGULAR BASIS AFTER STORMS TO MAINTAIN DESIGN CAPACITY.
- STORM WATER RUNOFF FROM THE CONSTRUCTION SITE SHALL BE DIRECTED TOWARD AN INLET WITH A SEDIMENT OR FILTRATION INTERCEPTOR PRIOR TO ENTERING THE STORM DRAIN SYSTEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP OF MUD AND DEBRIS CARRIED ONTO SURROUNDING STREETS AS A RESULT OF CONSTRUCTION ACTIVITY TO THE SATISFACTION OF THE APPROVAL AGENCY.
- ALL DISTURBED AREAS SHALL BE PROTECTED USING BEST MANAGEMENT PRACTICES.
- ALL PAVED AREAS SHALL BE MAINTAINED CLEAR OF SOIL AND DEBRIS. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE SITE.
- DURING THE RAINY SEASON, TYPICALLY BETWEEN OCTOBER 15 AND APRIL 15, ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT THE END OF EACH WORK DAY, AND AFTER EACH STORM. CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES AND INLETS AFTER EACH SIGNIFICANT RAINFALL AND DAILY DURING PROLONGED STORM EVENTS. CONTRACTOR SHALL REMOVE SEDIMENT WHEN THE ACCUMULATION REACHES 1/3 THE HEIGHT OF THE BARRIER AND REPLACE FILTER DEVICES AS NECESSARY TO ENSURE PROPER FUNCTION.
- THE CONTRACTOR SHALL HAVE EROSION AND SEDIMENT CONTROL MEASURES ON SITE ADEQUATE TO PROTECT THE ENTIRE SITE PRIOR TO OCTOBER 15, SUCH THAT IT IS IMMEDIATELY AVAILABLE IN PREPARATION OF THE UPCOMING WINTER SEASON OR IN THE EVENT OF AN EARLY RAIN.
- UNSTABLE AREAS SHALL BE REPAIRED, USING BEST MANAGEMENT PRACTICES, AS SOON AS POSSIBLE.
- ALL DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING IS COMPLETE. SEE PLANTING PLAN FOR ADDITIONAL INFORMATION.
- ENTRANCE TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OR FLOWING OF SEDIMENT INTO THE PUBLIC RIGHT OF WAY. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE OF THE PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED ROCK THAT FLOWS INTO A SEDIMENT TRAP.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED OR REPLACED WHEN THEY NO LONGER FUNCTIONING PER BEST MANAGEMENT PRACTICES. WHEN EROSION AND SEDIMENT CONTROL MEASURES HAVE SERVED THEIR PURPOSE THEY SHALL BE REMOVED SO AS TO NOT BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

EROSION CONTROL SEED MIX AND NOTES:

ALL DISTURBED AREAS SHALL BE SEEDED WITH THE FOLLOWING:

BOTANICAL NAME	COMMON NAME	RATE
<i>Bromus carinatus</i>	CALIFORNIA BROME GRASS	6.1
<i>Elymus glaucus</i>	BLUE WILDRYE	3.3
<i>Festuca idahoensis</i>	IDAHO FESCUE	2.3
<i>Festuca rubra 'Molate'</i>	CREEPING RED FESCUE	2.4
<i>Stipa pulchra purple</i>	NEEDLEGRASS	11.4

RATE IS GIVEN IN POUNDS OF PURE LIVE SEED PER ACRE.

- THE SEED SHALL BE BROADCAST USING HAND HELD SEEDERS SUCH AS WHIRLYBIRD. WHILE SEEDING, CONTINUALLY MIX THE SEED TO EQUALLY DISTRIBUTE THE SEEDS THROUGHOUT THE MIX. THE SEEDS SHALL BE RAKED TO AN AVERAGE DEPTH OF 1/4 INCH.
- SEED MIX MUST BE TESTED FOR PURITY AND GERMINATION BY A SEED LABORATORY CERTIFIED BY THE ASSOCIATION OF OFFICIAL SEED ANALYSTS OR BY A SEED TECHNOLOGIST CERTIFIED BY THE SOCIETY OF COMMERCIAL SEED TECHNOLOGISTS. TESTS MUST BE PERFORMED WITHIN 12 MONTHS BEFORE APPLICATION.
- AFTER SEEDS MIX HAS BEEN BROADCAST MULCH WITH STRAW. STRAW SHALL BE DRY AND FREE OF NEED SEEDS. STRAW MUST HAVE NOT BEEN USED FOR STABLE BEDDING. STRAW MUST BE FREE OF PLASTIC, GLASS, METAL, ROCKS, AND REFUSE OR OTHER DELETERIOUS MATERIAL. SPREAD AT THE RATE OF 50 POUNDS PER 1000 SQUARE FEET. SPREAD IT UNIFORMLY BY HAND TO A DEPTH OF ONE INCH, OR USE A MECHANICAL STRAW BLOWER. MULCH SHALL NOT BE APPLIED DURING PERIODS OF HIGH WINDS OR OTHER UNFAVORABLE CONDITIONS.
- PLANTING AREAS THAT HAVE BEEN CULTIVATED AND BECOME COMPACTED FOR ANY REASON SHALL BE RECULTIVATED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

UTILITY NOTES:

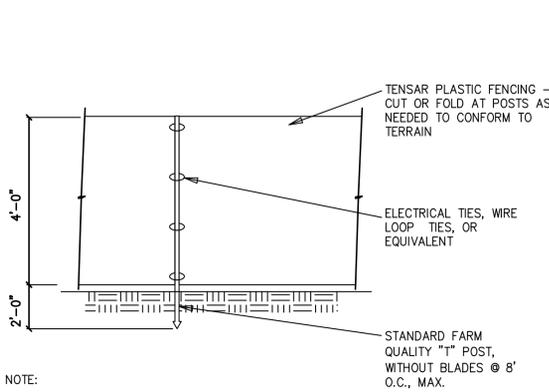
- ALL ON SITE IMPROVEMENTS SHALL REFERENCE THE CITY OF COTATI STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF SAME.
- ALL COSTS SHALL BE BORNE BY CONTRACTOR.

EARTHWORK QUANTITIES

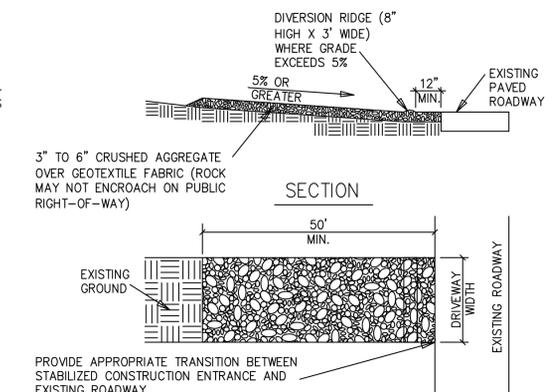
QUANTITIES SHOWN ARE ESTIMATES ONLY. SITE CONDITIONS, RECOMMENDATIONS OF THE SOILS ENGINEER, MEANS AND METHODS, ETC. CAN RESULT IN SUBSTANTIALLY DIFFERENT VALUES. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL VOLUME. EXCESS MATERIAL TO BE HAULED OFF TO AN APPROVED SITE.

CUT	86 C.Y. CUT
FILL	55 C.Y. FILL
NET	31 C.Y. CUT

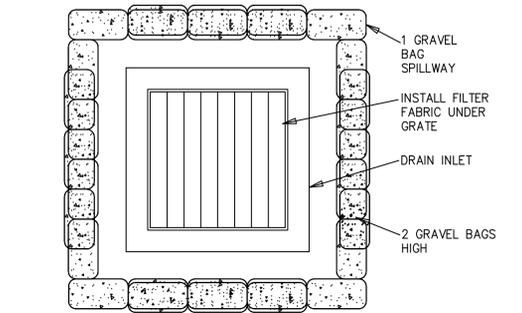
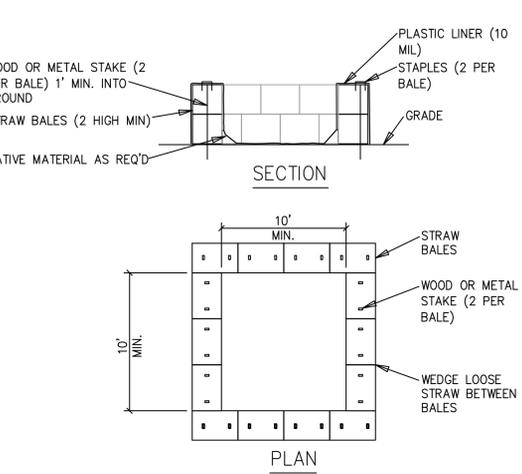
(A) TREE PROTECTION FENCE DETAIL
NOT TO SCALE



(B) STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

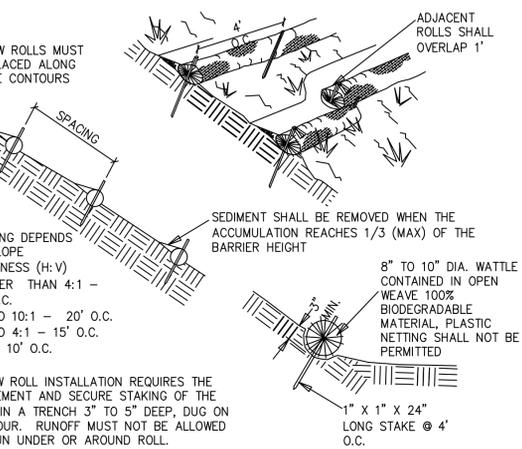


(C) TEMPORARY CONCRETE WASHOUT
NOT TO SCALE



- NOTE:
- INSTALL AT CATCH BASINS TO CONTROL SEDIMENT FROM SITE.
 - PROVIDE PROPER MAINTENANCE AND CLEANUP.
 - REMOVE BAGS AFTER ADJACENT OPERATION IS COMPLETE.

(D) GRAVEL BAG STORM DRAIN INLET PROTECTION
NOT TO SCALE



(F) WATTLE INSTALLATION DETAIL
NOT TO SCALE

Grinder Pump Packages Simplex & Duplex

Fully Assembled

2hp Grinder Pump Systems

24", 30", 36" & 42" Diameter Basin

Pump Features:

- Single or 2-stage impellers
- 2hp heavy duty motor
- V-slice cutter technology
- One piece uni-body casting
- Stainless steel impeller
- Dual seals

Package System Includes:

- Pre-plumbed SCH80 PVC
- Ball check valves PVC SCH80
- Ball valves PVC SCH80
- Discharge pipe simplex - 1-1/4", duplex - 2"
- Guide rail base
- Guide rails pipe available in GALV or SS
- Stainless steel lifting chain

Splice box for electrical components pre-mounted

- Mounted float switches
- Control panel
- Fiberglass basin with anti-floatation collar
- 4" inlet hub (unmounted)
- Fiberglass lid standard, hatch cover optional
- All stainless steel supports and brackets pre-mounted

Available heights:

48", 60", 72"

Control Panel Features

Provide reliable alternating operation with standard features that include:

- NEMA Switch
- NEMA 4X enclosure
- Circuit Breakers
- Visual and Audible alarm
- Pump run indicator lights
- Auxiliary contacts
- Three level control floats

MODEL 322	1	W	511	H		
ALARM PACKAGE						\$2,042.00
ENCLOSURE RATING						Base
PUMP FULL LOAD AMPS						Base
FLOAT SWITCH APPLICATION						Base
OPTIONS						Total Options
ENCLOSURE UPSIZE						Enclosure Upsize
TOTAL LIST PRICE						TOTAL LIST PRICE

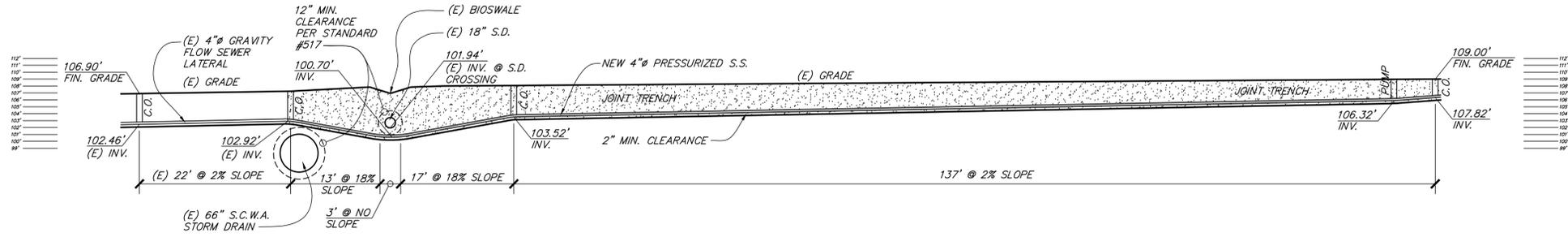
1A Red beacon only / no audio \$20.00
 1C Horn only / no visual \$20.00
 3A Alarm flasher \$35.00
 3B Manual alarm reset \$90.00
 4A Redundant off (select option 4D if floats included) \$40.00
 4B Red redundant off indicator & alarm \$60.00
 4D Redundant off float (must select 4A also) \$25.00
 5A Thermal cutout/reset sensor auto reset (for pumps with manual switch leads) \$80.00
 5E Seal failure circuit & red indicator (2 wire) \$315.00
 6A Auxiliary alarm contact, form C \$15.00
 8A Elapsed time meter \$110.00
 8C Event (cycle) counter \$90.00
 10A Clear inner swing-out door w/stand front (lights and switches mounted on inner door) \$190.00
 10E Lockable latch \$40.00
 10G Lightning arrester \$200.00
 10K Anti-condensation heater \$125.00
 11C NEMA 1 alarm panel (select option 6A) \$80.00
 11D NEMA 4X alarm panel (select option 6A) \$250.00
 14B Main disconnect (rotary style, mounted through door, non-vented, adjustable in the OFF position, door interlock in the ON position) \$285.00
 10-20 FLA (total of both pumps) \$325.00
 20-50 FLA (total of both pumps) \$680.00

LA-SERVER/SHARED/RESIDENTIAL/2024/0402/USITE/PM5 Mon, 16 Dec 2024 - 10:36AM

DATE: 12-24
 DATE PRINTED: 10/21/24
 DATE CHECKED:
 CONTRACTOR: CUSTOM HOUSING SYSTEMS
 ROBERT PARK, CALIFORNIA 90714-0444
 DESIGN FOR: PITTELKOW RESIDENCE
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APT 144-10-021
 JOB NO: 24021
 SHEET NO: GD2
 DATE: OCT. 31 2025
 MERLE AVILA C-24986
 LICENSED ARCHITECT STATE OF CALIFORNIA

Merle Avila - architect
 Russell W. Bunch - architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
 (707) 585-3711
 avila · bunch architects, inc.





SEWER LINE PROFILE
SCALE: 1" = 10'-0"

SEWER LINE PROFILE NOTES

1. THE 101.94' INVERT USED AT THE NEW SEWER LINE AND EXISTING STORM DRAIN CROSSING IS ASSUMED BY USING THE EXISTING INVERTS AT BOTH STORM DRAIN GRATE INLETS. IT IS ASSUMED THAT THE SLOPE OF THE STORM DRAIN IS CONSISTENT OVER THE LENGTH OF THE CONNECTING LINE BETWEEN THESE TWO INLETS.
2. A CAMERA SCOPE OF THE STORM DRAIN HAS NOT BEEN PERFORMED TO VERIFY THAT THE STORM DRAIN CROSSING INVERT USED (101.94') IS ACTUALLY ACCURATE. PLEASE NOTIFY THE CONTRACTOR IF A CAMERA SCOPE VERIFICATION IS REQUIRED TO VERIFY THE ACTUAL INVERT THAT EXISTS.
3. THE PLUMBER HAS VERIFIED THAT THE SEWER GRINDER PUMP SPECIFIED (LIBERTY MODEL 322 1 W 511 H) WILL BE ABLE TO PUMP THE EFFLUENT UP TO THE EXISTING SEWER LATERAL IN THE ACCESS ROAD WHERE IT WILL GRAVITY FLOW TO CITY SERVICES. PLEASE CONTACT THE CONTRACTOR IF A SUPPORTING CALCULATION LETTER IS NEEDED FROM THE PLUMBER TO VERIFY THIS.
4. CONNECT NEW SEWER LINE TO EXISTING SEWER LATERAL PER CITY STANDARDS #513 & #515.
5. ALL CLEAN OUTS ARE TO BE INSTALLED PER CITY STANDARD #536.
6. THE CLEAN OUT AND APPROVED CONNECTION POINT OVER THE S.C.W.A. 66" STORM DRAIN IS EXISTING AND WAS INSTALLED AT THE TIME OF THE SUBDIVISION IMPROVEMENT CONSTRUCTION. THIS IS THE APPROVED CONNECTION POINT FOR THE NEW SEWER LINE. THE INVERT ELEVATION OF THE S.C.W.A. STORM DRAIN AT THIS LOCATION HAS NOT BEEN VERIFIED. PLEASE CONTACT CONTRACTOR IF CAMERA SCOPE VERIFICATION OF THE DRAIN IS REQUIRED. THE EXISTING APPROVED SEWER CONNECTION POINT MUST HAVE BEEN INSTALLED PROPERLY WITH THE PROPER CLEARANCES BUT THIS HAS NOT BEEN VERIFIED.



LA-SERVER/SHARED/RESIDENT/ALL/2024/24021/SITE/PLNS Mon, 16 Dec 2024 - 10:36AM

LeBallister's

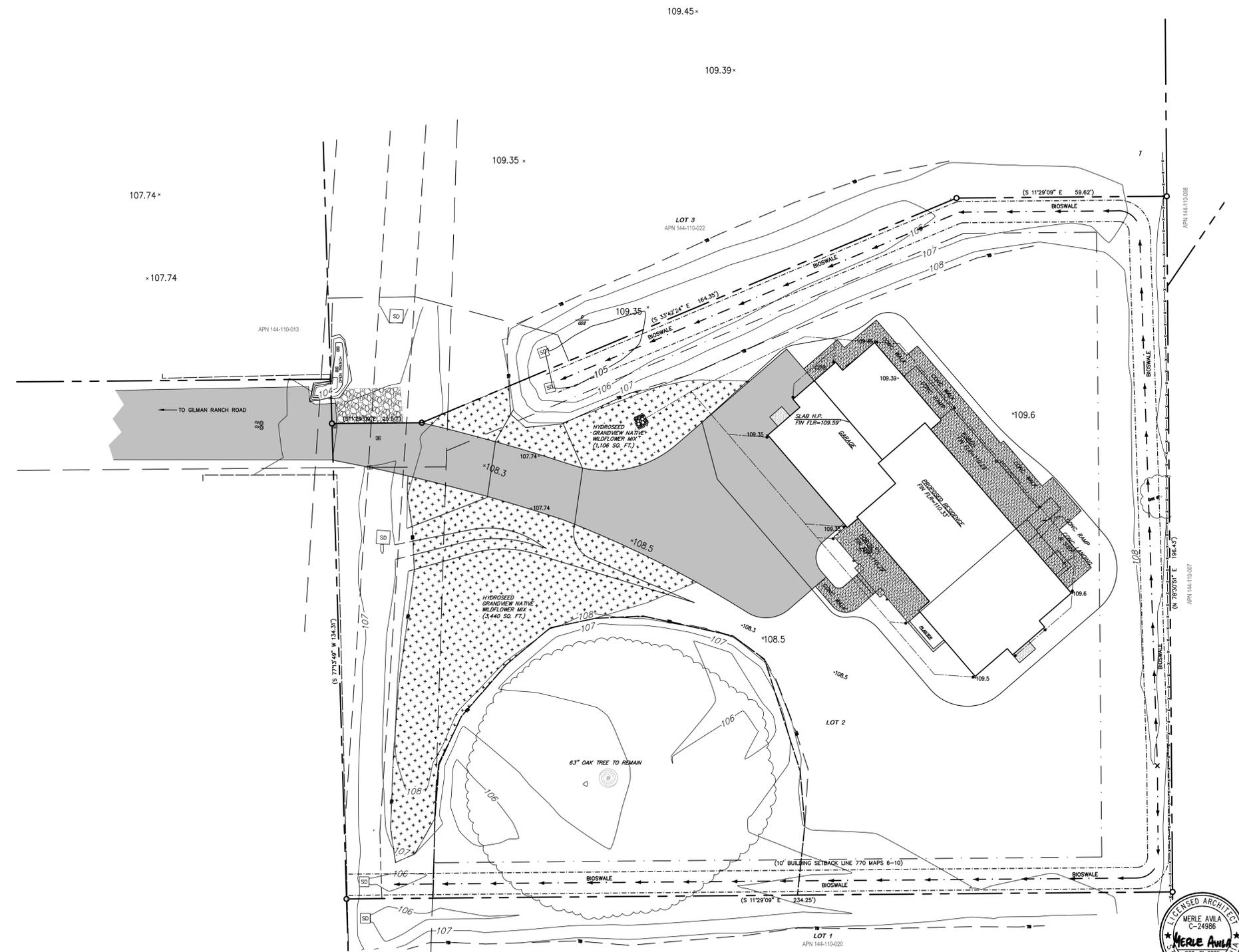


GRANDVIEW NATIVE WILDFLOWER MIX-Per Lb

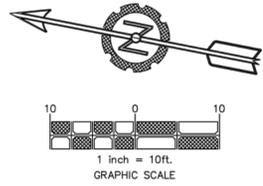
Native California wildflowers, both annual and perennial. Plant seeds in bright sunlight. Once established, this vibrant blend requires little water and care, however, it will flower most of the year if watered. If you allow the flower heads to mature and go to seed, the plants will reseed for the following season. Many of these lovely plants will also attract butterflies, bees, and other pollinators. This blend is ideal for sunny flower beds and borders, but it can also be used as a ground cover.

- NOTES:**
- BOTH SIDES OF THE DRIVEWAY WILL BE HYDROSEEDING AND WILL NOT EXTEND PAST THE TOP OF BANK OF THE SWALES (4,546 SQ. FT. TOTAL).
 - THIS GROUND COVER WILL NOT BE IRRIGATED ARTIFICIALLY MOST OF THE YEAR.
 - TO EXTEND THE GROWING SEASON OF THIS GROUND COVER IS HOT WEATHER SPELLS, USE HOSES AND IMPULSE SPIKE SPRINKLERS.

LANDSCAPE PLAN
SCALE: 1" = 10'-0"



SHEET NO: **L1** JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE**
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APN 144-110-021
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS**
 ROHNERT PARK, CALIFORNIA 91074-0444
 DATE PRINTED: **12.21.24** REVISED PER CITY OF COTATI LETTER 10.21.24
 DATE CHECKED: _____
 DATE: **12.24**
avila · bunch architects, inc. (707) 585-3711
 Merle Avila · architect Russell W. Bunch · architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928



(25' PUBLIC SEWER, PRIVATE UTILITY, & PRIVATE ACCESS EASEMENT)
D.N. 2005-106254

APN 144-110-013

APN 144-110-014

(10' PRIVATE STORM DRAIN EASEMENT
IN FAVOR OF LOT 1 & LOT 2 PER 770 MAPS 6-10)

LOT 3
APN 144-110-022

(PRIVATE ACCESS & UTILITY EASEMENT
IN FAVOR OF LOT 2 PER 770 MAPS 6-10)

(S 33°42'24" E 164.35')

(10' BUILDING SETBACK LINE 770 MAPS 6-10)

(S 11°29'09" E 59.62')

(PRIVATE ACCESS & UTILITY EASEMENT
IN FAVOR OF LOT 3, PER 770 MAPS 6-10)

(SWALE & GRADING EASEMENT)
D.N. 2004-194643
D.N. 2005-016251

(10' PRIVATE STORM DRAIN EASEMENT
IN FAVOR OF LOT 1, PER 770 MAPS 6-10)

BICKEL SUBDIVISION
770 MAPS 6-10

LOT 2
APN 144-110-021

(20' BUILDING SETBACK LINE 770 MAPS 6-10)

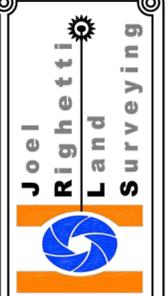
(N 78°30'51" E 196.43')

APN 144-110-007

- LEGEND**
- ASPHALT PAVING
 - WOOD FENCE
 - WIRE FENCE
 - PROJECT BENCHMARK
 - WATER METER
 - SEWER CLEANOUT
 - DRAIN INLET (DIAMOND PLATE TOP)
 - 4x8 POST
 - TREE SYMBOL & DRIP LINE
 - SPOT ELEVATION
 - TOP OF BANK
 - FLOW LINE
 - RECORD DATA

NOTE:
PARCEL INFORMATION SHOWN HEREON WAS DERIVED FROM THE ASSESSOR'S PARCEL MAP AND MAPS OF RECORD. IT DOES NOT REPRESENT A BOUNDARY SURVEY AS DEFINED BY SEC 8762 OF THE BUSINESS AND PROFESSIONS CODE. ANY ENCROACHMENTS, AMBIGUITIES, AND INCONSISTENCIES THAT EXIST BETWEEN THE RECORD DATA AND ACTUAL FIELD CONDITIONS WERE NEITHER CONSIDERED NOR RESOLVED.

PROJECT BENCHMARK:
ALUMINUM REBAR CAP STAMPED "CURTIS & ASSOCIATES PLS 8485"
EL = 108.40' (ASSUMED)



P.O. BOX 992
SEBASTOPOL, CA
95473
(707) 843-1656

SURVEYOR'S STATEMENT
THIS MAP IS BASED ON A FIELD SURVEY MADE BY ME IN 2024 AND REPRESENTS THE VISUAL SURFACE CONDITIONS ON THE DATE OF SAID SURVEY.



2101 GILMAN RANCH ROAD
COTATI, CA
APN 144-110-021
TOPOGRAPHIC MAP

DATE:
APRIL 15, 2024

REVISIONS:
EASEMENT NOTATIONS
NOVEMBER 5, 2024

FIELD EDIT:

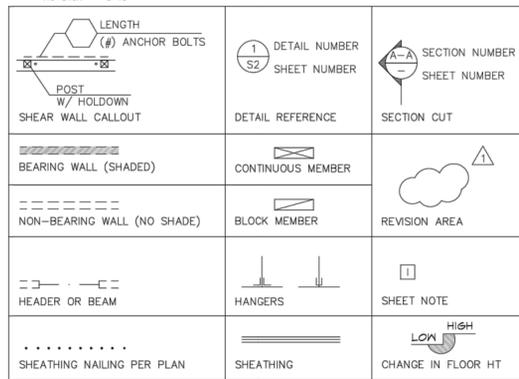
JOB No. 24-2-02
FILE NAME 24-4-02-TOPO.dwg

SCALE 1" = 10'

SHEET 1 OF 1



ABBREVIATIONS		
AB	ANCHOR BOLT	FLR FLOOR
AB	ANCHOR BOLT	FND FOUNDATION
AB	ANCHOR BOLT	F.O.C. FACE OF CONCRETE
AB	ANCHOR BOLT	F.O.M. FACE OF MASONRY
AB	ANCHOR BOLT	F.O.P. FACE OF POST
AL	ALTERNATE	F.P. FACE OF STUD
ALY.C.	ALASKAN YELLOW CEDAR	F.N. FINISH
BD	BOARD	F.N. FACE OF STUD
BDC	BUILDING	F.N. FRAMING
BK(G)	BLOCK(ING)	FT FOOT/FEET
BLK	BELOW	FTG FOOTING
BM	BEAM	GA GAUGE OR GAGE
BT	BOTTOM	GA.V GALVANIZED
B.P.	BRACED PANEL	GLU-GLU-LAMINATED BEAM
CA	CALIFORNIA	GRZ GRIZZARD
CA	CALIFORNIA	GYP GYPSUM
CANT	CANTILEVER	HDR HEADER
CBC	CALIF. BUILDING CODE	HDR HOT DIPPED GALVANIZED
C.I.P.	CAST IN PLACE	HDR HANGER
C.J.	CONCRETE JOINT	HDR HORIZONTAL
CL	CLEAR	H.S. HIGH STRENGTH
C.M.U.	CONCRETE MASONRY UNIT	HSS HOLLOW STRUCTURAL SECTIONS (STEEL)
C.O.L.	COLUMN	HT HEIGHT
CONC	CONCRETE	ICC INTERNATIONAL CODE COUNCIL
CONN	CONNECTION	INFO INFORMATION
CONT	CONTINUOUS	INT INTERIOR
CSK	COUNTERSINK	IST JOIST
J	PENNY (NAIL SIZE)	JST JOIST
DBL	DOUBLE	K.P. KING POST
D.F.	DOUGLAS FIR	LB. LAG BOLT
DA	DIAMETER (Ø)	LBS. LBS
DM	DIMENSION	L.G.S. LIGHT GAUGE STEEL
D.J.	DOUGL. JOINT	LL. LIVE LOAD
D.L.	DEAD LOAD	LOC LOCATION
D.S.	DECK SCREWS	LSL LAMINATED STRAND LUMBER
D.T.	DRAG TRUSS	LSL LAMINATED VENEER LUMBER
DWG	DRAWING	MAX MAXIMUM
(C)	CLEAR	M.A. MECHANICAL ANCHOR
EA	EACH	M.B. MACHINE BOLT
ELEV	ELEVATION	M.C. MECHANICAL
EMBED	EMBEDMENT	MFD MANUFACTURED
EDGE	EDGE	MFR MANUFACTURER
ENGR	ENGINEER	MIN. MINIMUM
EQU	EQUAL	MISC MISCELLANEOUS
EQUIV	EQUIVALENT	M.W. MALLEABLE IRON WASHER
E.W.	EACH WAY	N/A NOT APPLICABLE
EXP	EXPANSION	N.C. NEW
EXT	EXTERIOR	NEC NECESSARY
FB	FACTORY BUILT CORE	NOT IN CONTRACT
FBH	FACTORY BUILT HOUSING	NR NUMBER
FIN	FINISHED	N.T.S. NOT TO SCALE
SYMBOL LEGEND		
110-540A 5-13		



WALL FRAMING NOTES

- See sheet S1 for standard construction details.
- Shearwalls and braced wall panels are designated with \square and are above the level of framing shown unless otherwise noted. See SHEARWALL/BRACED WALL SCHEDULE "4/S1" for specific and general requirements.
- Sheath all exterior walls and cripple walls per 6A of "4/S1" unless otherwise noted (or shown as a shearwall or braced wall panel on the plan).
- Stud size shall be framed as noted on the architectural and/or structural plans. Where not noted, size studs for insulation and hole requirements per 2/S1 and 7/S1. Studs shall meet or exceed the following: 2x4 studs at 16" o/c to a maximum height of 10'-0" for bearing walls and 14'-0" maximum for non-bearing walls. Stud walls over 10'-0" high or supporting more than two floors shall be framed with 2x6 studs at 16" o/c unless otherwise noted on plans. Stud thickness shall be as noted or as required for shear walls per 4/S1 whichever is greater.
- All studs shall be framed full height (continuous pieces) between supporting floors, ceilings and roofs unless otherwise noted. End joints in wall double top plates shall be offset a minimum of 48 inches. See detail "1/S1" for a typical lap splice connection.
- Foundation cripple walls shall be framed of studs not smaller in size than the studs in the levels above. Cripple walls greater than four feet high shall be 2x6 at 16" o/c minimum when supporting two floor levels.
- Cripple wall stud lengths less than 6 inches shall be framed of solid double 2x lumber.
- Header sizes shall be as specified on the plans and, where not noted, shall be per the schedule shown in detail "15/S1" unless otherwise noted. Interior bearing walls below framing are shown shaded. All exterior walls are bearing walls unless otherwise noted.
- Posts indicated on framing plans are below unless otherwise noted. Post sizes are indicated on the highest level framing plan on which they occur. Provide a post at each level below the uppermost post to foundation or beam/header support.
- Posts indicated but not called out are a minimum of (2) 2x studs. When posts support 4x members, provide 1/2" plywood filler between studs. See detail "3/S1" for headers framed into walls. Provide multiple studs under all multiple joists and roof girder trusses to match bearing width.
- At floor levels, solid block in the joist space under all posts to the full width of the post.
- Notches and holes cut in framing shall be per details "2/S1" and "7/S1" unless otherwise noted. Relocate piping or increase framing sizes as necessary to accommodate holes. Do not notch or bore holes in posts or studs at hollow locations. Do not notch studs for "let in" bracing.
- Wall framing at chimneys and fireplaces shall be full height. Chimneys shall be 24 inches minimum in each direction. Where splicing of studs is required, studs shall be doubled. The splice length shall be a minimum of one-third the length of the individual piece and shall be nailed with (2) 16d at 8" o/c. Top plates interrupted by full height framing shall be strapped with a continuous CS16 strap. Extend the strap 30 inches beyond each end of the full height framing and nail with (2) 8d at 4" o/c to the top plates and 2x blocking unless otherwise noted. Chimneys and fireplaces requiring splicing shall be sheathed with plywood or panel siding.
- At wall heights greater than 10'-0", provide 2x blocking at 10'-0" o/c maximum. At vertical board siding, provide 2x blocking at 24" o/c maximum unless otherwise noted.
- Provide a minimum of 3 studs at each corner.

GENERAL NOTES

- All work shall be in conformance with the 2022 California Building Code and the 2022 Residential Building Code (as applicable) and any applicable local ordinances except where other notes are more restrictive.
- Drawings are not to be scaled. Building dimensions shown on the structural drawings are for general reference only. See architectural drawings for all actual building dimensions. Prior to commencing work, the contractor shall notify the architect/engineer of any discrepancies on the drawings requiring clarification or revisions.
- The information contained in these drawings is intended to be interpreted, constructed and implemented by an experienced and skilled contractor along with his/her experienced and skilled employees or subcontractors. Individuals lacking the mentioned experience and skill level should not assume this role.
- Details not shown, nor detailed on drawings, nor called for in these notes shall be constructed to the same size and character as for similar conditions which are shown, detailed or specified.
- At all times the contractor shall be solely and completely responsible for conditions at the job site, including safety of persons and property. The contractor shall also be solely and completely responsible for the design, adequacy and safety of temporary shoring, bracing, form work, scaffolding, erection methods, etc. Any job site visit by the engineer is not intended to include review of the adequacy of the contractor's safety measures.
- The contractor shall warrant that all materials and workmanship are in compliance with the drawings and specifications. Any and all changes must have the engineer's approval.

DESIGN CRITERIA

Vertical Loads	Dead Load	Live Load	Snow Pg
Roof (4.5:12)	14 PSF	20 PSF	N/A
Roof (6 :12)	15 PSF	18 PSF	N/A
Mat Slab on Grade	130 PSF	40 PSF	N/A

Occupancy Category	R-3
Wind Design Data	
Wind Speed	95 MPH
Wind Exposure Category	C
Building Risk Category	II
Internal Pressure Coefficient	N/A
Earthquake Design Data	
Seismic Importance Factor	I = 1.0
Spectral Response Accelerations	Ss = 1.32 S1 = 0.60
Spectral Response Coefficients	Sps = 1.01 Spt = 0.68
Seismic Design Category	D
Seismic Force Resisting System	bearing wall system light framed walls w/ wood structural sheathing
Response Modification Factor	R = 6.5
Seismic Response Coefficient	Cs = 0.16
Analysis Procedure	Equivalent Procedure
Soil / Foundation:	
Allowable Soil Bearing Pressure:	600 PSF
Soil Site Classification	D

STRUCTURAL OBSERVATION

110-503 1-23

Structural observation is not required for this project per CBC Section 1704.6, unless required by the building official. Johnson, DeBois & Forrest is available to provide structural observation as an additional service, upon request. Structural observation services include the review of construction for general conformance with the approved plans and to mitigate the risk of problems during the construction process. In the event that Johnson, DeBois & Forrest is not retained to provide structural observation services, it is understood and agreed that the services performed by Johnson, DeBois & Forrest are limited to the design and preparation of basic structural concepts and construction documents and that Johnson, DeBois & Forrest has no control whatsoever with regard to construction methods or compliance with the approved plans. The owner and contractor, their heirs and assigns, shall indemnify, hold harmless and defend Johnson, DeBois & Forrest from any and all claims of any person or entity arising out of the construction performed without structural observation services unless any such claim was caused by the sole negligence of Johnson, DeBois & Forrest. Contact the office of Johnson, DeBois & Forrest in writing if structural observation services are desired.

SPECIAL INSPECTION NOTES

110-505 6-19

In addition to the inspections required by CBC Section 110, special inspections in accordance with CBC Section 1704 are also required. Special inspections shall be performed by one or more agencies employed by the owner. The special inspector or agency shall be qualified in the area of inspections listed under Section 1705 and be approved by the Building Official, the architect of record and Johnson, DeBois and Forrest. The special inspector shall furnish inspection reports to the Building Official, the architect of record and Johnson, DeBois and Forrest. All discrepancies shall be brought to the immediate attention of the contractor for correction; then, if not corrected, to the appropriate design professional and the Building Official. The special inspector shall submit a final signed report stating whether the work requiring special inspection was in conformance with approved plans and specifications and the applicable workmanship provisions of the code.

The following items require special inspection:

- SOILS:** The Geotechnical Engineer shall provide special inspection of existing site soil conditions, fill placement and load bearing requirements.
 - Load Bearing:** Special inspector shall provide periodic inspections to verify that footing excavations extend to proper depth and have reached proper material to achieve design bearing capacity.
 - Fill Placement:** Special inspector shall provide periodic inspection to observe subgrade and verify the site has been prepared properly and perform classification and testing of compacted fill materials. The special inspector shall provide continuous inspection to verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill.
- REINFORCING STEEL:** Special inspector shall review reinforcing steel prior to closing of forms or delivery of concrete.
 - Exception: Slab on grade conventional spread footing construction does not require special inspection.
- CONCRETE (Cast in Place):** Special inspector shall review during the taking of compression test specimens, slump tests and placement of reinforced concrete. Exception: Slab on grade and conventional spread footing construction does not require special inspection.

Following is a list of individuals or firms approved by Johnson, DeBois & Forrest to provide any of the above referenced special inspection services:

1. Reese & Associates	(707) 528-3078
2. Bauer Associates	(707) 887-2505
3. PJC & Associates	(707) 584-4804
4. RGH Consultants	(707) 544-1072

FOUNDATION NOTES (Slab on Grade)

110-518 5-18

- All site work, drainage systems, grading and foundation excavations shall be done in accordance with the requirements of the soil report, if noted below, plus any subsequent recommendations made by the Soil Engineer of Record and chapter 18 of the CBC. The recommendations made in the soil report and all addenda are to be considered as part of these drawings.
 - Soil Engineer: Reese & Associates
 - Title: 2101 Gillman Ranch Road,
 - Date: 6-18-24 Job Number: 2055.2.1
- Prior to excavations, the contractor shall have the Soil Engineer review and approve site plans, foundation plans and details for conformance with the design intent of the soil report. The Soil Engineer shall also review and approve all foundation excavations prior to the placement of reinforcement and formwork.
- Bottoms and tops of footings shall be level and stepped where the slope exceeds 1:10. Provide 7" minimum horizontal confinement from bottom of footing to face of slope.
- All foundations shall bear on firm, undisturbed, native soils or engineered fill at or exceeding the depths shown on the drawings. All footing excavations shall be neat. Overexcavations in depth and width shall be filled with concrete or shall be reported to the engineer and backfilled with ge. directs. All loose soils shall be removed from excavations prior to the placement of concrete.
- Garage concrete slab on grade shall be 5 inches thick with #4 @ 18" o/c each way at the centerline of the slab over 4 inches minimum of compacted crushed rock over competent, firm subgrade.
- Porch slab on grade shall be 5 inches thick with #4 at 18" o/c each way at the centerline of the slab over 4 inches minimum of compacted crushed rock over competent, firm subgrade.
- Interior slab on grade shall be 5" min thick with #4 at 16" o/c each way at the centerline of the slab over Stego (or equivalent) vapor retarder over 4" minimum of compacted crushed rock over competent, firm subgrade.
- Slabs shall have 1/8"x 1" deep control joints at 12 feet on center maximum in each direction unless otherwise noted.
- Provide 20"-0" of #4 AWG (American Wire Gauge) bare copper wire in the bottom 2" of the footing/grade beam with the grounding electrode below the electrical panel where occurs.
- Anchor bolt size and spacing shall be per plan. Bolts shall have 7" minimum embedment into concrete. Bolts shall be located 6" minimum and 12" maximum from ends of sill plates. Bolts shall also be located within the middle third from the edge of the mudsill. Anchor bolts and inserts shall be rigidly held in place prior to concrete placement.
- Shearwalls and braced wall panels are designated with \square . See the Wall Framing Notes for general requirements.
- Sheath all exterior walls per 6A of "4/S1" unless otherwise noted (or shown as a shearwall or braced wall panel on the plan).
- Shearwall tie down anchors shall be "Holdown" or "Tension Tie" anchors as manufactured by Simpson Strong-Tie Company, Inc. and referenced per the current catalog specifications (i.e. HDU, HTT). See detail "8/S1" for installation requirements.

REINFORCING STEEL

110-513 10-21

- All reinforcing steel shall conform with ASTM A-615, grade 60 for #3 rebar and larger and ASTM A-615 grade 40 for #3 and #4 rebar. Use ASTM A-706 for rebar to be welded. Reinforcing steel shall be kept clean and free of rust.
- Welded wire mesh shall conform with ASTM A-185 and shall be lapped 12" minimum and be placed at center depth of slab.
- All reinforcing bars shall be as long as is practical and all bends shall be cold bend. Securely tie all reinforcing bars at each end or as near thereto as possible and brace at a maximum of 48" on center prior to placement of concrete or grout. At corners and intersections, bars shall return a minimum of 24". All reinforcing bar splices and bends shall be lapped per detail "11/S1". Provide "L" hook at dead end horizontal reinforcing u.o.n.

CONCRETE NOTES

110-512 2-17

- All concrete shall be normal weight (150 pcf) hard rock concrete and shall develop a minimum compressive strength of 3000 psi at 28 days. Special inspection is required when specified in the Special Inspection notes. Type II hydraulic cement and Fly Ash per ASTM C618 Class F shall be used (portion Fly Ash to allow a 20% reduction in cement use). Concrete quality, mixing and placing shall conform with ACI 318-14.
- Minimum concrete cover requirements for reinforcing steel shall be:
 - 3" when cast against and exposed to earth
 - 2" when formed and exposed to earth or weather
 - 3/4" when not exposed to weather or in contact with ground (slab & walls)
- Concrete shall not be allowed to cure in temperatures less than 40 degrees Fahrenheit for the first three days unless cold weather concreting provisions of ACI 306 (American Concrete Institute) are followed. Contractor shall take all necessary precautions for cold weather concreting when required.
- Maximum free fall of concrete shall be 4'-0".

FRAMING HANGERS

110-522 3-19

FRAMING MEMBER	FACE MOUNT HGR	TOP FLANGE HGR	SLOPED HGR
JOIST	IUS	MIT	LSSR
DBL 1 JOIST	MIU	MIT	LSU
2x SOLID SAWN	LUS	JB	LRUZ
DBL 2x SOLID SAWN	LUS	WP	LSSR
3x SOLID SAWN	LUS/HU	HUTF	-
4x SOLID SAWN	LUS	BA	LSSR
6x SOLID SAWN	HU	HUTF	-
1-3/4" LVL/LSL	HU	MIT	LSSR
3-1/2" LVL/PSL/LSL	HU	BA3.56	LSSR
5-1/4" OR 7" LVL/PSL/LSL	HGUS	EGQ	-

- NOTES:
- Unless otherwise noted on plan, use the above schedule to determine the series of hanger. Hangers by Simpson Strong-Tie. Fill all nail holes to achieve maximum capacity u.o.n. Contact the engineer for connections that are not covered by the above schedule or not noted on the plans.
 - When two or more hanger sizes are available for the framing member, use the deeper hanger.
 - See Carpentry Notes for additional hanger information.

STRONG-WALL WOOD SHEARWALLS (WSWH)

110-518 4-21

- Strong-Wall High Strength Wood Shearwalls shall comply with ICC E5 ESR-2652.
- Installation shall comply with the manufacturer's requirements and installation instructions.
- Panel Naming Legend:
 - Strong-Wall Wood Shearwall
 - Width (in)
 - Nominal Height (ft) (Not actual height)
- Verify foundation and rough framing heights, widths and vertical & horizontal alignment prior to construction and/or installation.
- Special inspection/observation is required for WSWH foundation, anchor rods and framing connections.

CARPENTRY NOTES

110-520 2-20

- Lumber shall be grade-marked in accordance with "standard grading and dressing rules" of the West Coast Lumber Inspection Bureau (W.C.L.I.B.).
- All lumber framing members shall be Douglas Fir (D.F.) of the following grades unless specifically noted otherwise on the plans:
 - Joists & Rrafters No. 2
 - Beams & Posts No. 2
 - 6x Beams & Posts No. 1
 - Studs > 10 feet No. 2
 - Studs < 10 feet STD or better
 - Plates & Blocking STD or better
- All framing lumber shall have a maximum moisture content of 19%. Green lumber should be braced at midspan, until dried, to prevent sagging. Structural connections made with nails, lags or bolts shall be made to wood members with < 19% moisture content. Use surfaced dry lumber at these locations if necessary. Verify moisture content of studs, beams, headers, etc. to have an average of less than or equal to 15% and not greater than 19% per member prior to installing drywall or other finishes.
- Lumber in contact with concrete and other "above grade" uses where required shall be pressure treated Douglas Fir (P.T.D.F.) conforming to CBC 2303.1.9 and applicable AWPA Standard UI (commodity specification A). Lumber embedded in concrete or earth shall be pressure treated Douglas Fir (P.T.D.F.) with an exposure for "Ground Contact" conforming to AWPA UI (commodity specification A) standards. Field cut ends, notches and drilled holes of pressure preservative-treated wood shall be re-treated in the field in accordance with AWPA M4.
 - Fasteners and connectors for pressure preservative and fire-retardant wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicone bronze or copper (exception, 3/8" diameter or greater steel bolts used in residential construction). The coating weights for zinc-coated fasteners and connectors shall be in accordance with ASTM A153 and A653 respectively. Fasteners other than nails, wood screws and lag screws shall be permitted to be mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.
 - Stainless steel shall be Type 304 or 316. When using stainless steel or hot-dip galvanized connectors, the connectors and fasteners should be made of the same material.
 - Electroplated/electro galvanized and mechanically galvanized coatings are not considered to be hot-dip. Aluminum, uncoated, painted and other non-approved fasteners may not be used in preservative-treated lumber under any circumstance.
- Structural panel sheathing shall be APA rated sheathing, exposure 1, conforming to PS-1 or PS-2 or PRP-108 or PRP-210 of the APA "The Engineered Wood Association" unless otherwise noted. Installation and application of sheathing shall be per manufacturer's specifications.
- Nails used in exterior applications shall be hot-dipped, zinc-coated galvanized box nails, unless otherwise noted. Nails used in pressure treated wood shall be as specified in Note 4. Where nailing causes wood to split, replace member and predrill holes.

All nailing not specifically called out on the plans shall be per CBC Table 2304.10 and detail "9/S1". Nail types shall be as indicated below (also applies to gun nails):

Nail Size	Length (min)	Common	Box
8d	2 1/2"	.131	.113
10d	2 1/2" SHGT	.148	.128
10d	3" FRAMING	.148	.128
16d	3 1/2"	.162	.135
20d	4"	.192	.148

MANUFACTURED WOOD PRODUCTS

110-521 10-18

- Glue-Lam beams shall conform to ANSI and ASTM D 3737. Glue-Lams shall be combination 24F-V4 for simple span conditions and 24F-V8 for continuous and cantilever conditions unless otherwise noted. Beams shall have standard camber (5000±) unless otherwise noted. Glue-Lam beams shall meet the following design properties: E = 1,800,000 psi; Fb = 2400 psi; Fv = 165 psi. GLB's shall be industrial appearance u.o.n.
- All Glue-Lam beam inspection certificates shall be submitted to the field inspector prior to completion of framing inspection.
- Manufactured I-joists shall be TJI's as manufactured by Trus Joist or an approved equal. Approved equivalent I-joists shall be ICC approved, have the same minimum depth and spacing and meet or exceed the design properties (E, M & V) of the I-joists specified on these plans. Joist installation details shall be per the manufacturer's specifications unless otherwise noted on the plans. Holes in I-joist webs shall be located per the manufacturer's specifications. Do not cut or notch the top or bottom flanges of I-joists. Protect manufactured joists and beams from moisture per the manufacturer's specifications. Rim board material shall be 1 1/4" TimberStrand (LSL) by Trus Joist u.o.n. and shall meet the following design properties: E = 1,300,000 psi; Fb = 1700 psi; Fv = 400 psi.
- Manufactured laminated veneer lumber (LVL) shall be Microlam lumber beams as manufactured by Trus Joist or "Billet Beams" by Louisiana Pacific. Approved equivalent LVL shall be ICC approved, have the same minimum dimensions and meet or exceed the following design properties: E = 2,000,000 psi; Fb = 2,600 psi; Fv = 285 psi. Nail multiple LVL beams with (3) rows of 16d nails at 12" o/c staggered u.o.n.
- Manufactured parallel strand lumber (PSL) shall be Parallam lumber beams as manufactured by Trus Joist or an approved equal. Approved equivalent PSL shall be ICC approved, have the same minimum dimensions and meet or exceed the following design properties: E = 2,200,000 psi; Fb = 2,900 psi; Fv = 290 psi.
- Manufactured laminated strand lumber (LSL) shall be TimberStrand lumber beams as manufactured by Trus Joist. 1 3/4" and 3 1/2" LSL lumber shall meet the following design properties: E = 1,550,000 psi; Fb = 2,325 psi; Fv = 310 psi. Nail multiple LSL beams with (3) rows of 16d nails at 12" o/c staggered u.o.n.

ROOF FRAMING NOTES (Manufactured trusses)

110-531 12-23

- See sheet S1 for standard construction details.
- See the Wall Framing Notes for shearwall and braced panel general requirements.
- Roof shall be sheathed with APA rated sheathing, 32/16 minimum, exposure 1, 15/32" minimum thickness (use thicker sheathing as required by roofing manufacturer). Install sheaths with face grain perpendicular to supports. Stagger sheets and nail with 8d at 6" o/c edges and 12" o/c field typical unless otherwise noted. Use 4'x8" min size sheet with smaller size at boundary and framing changes only. U.O.N. min sheet size to be 24" unless all edges are fastened to framing or blocking.
- The truss diagrams provided on the Roof Framing Plan are for general reference only. See architectural drawings for truss shapes, dimensions, etc. Truss deferred submittal documents (shop drawings and calculations prepared by an engineer licensed in California) shall be submitted to the architect or engineer of record for review. These deferred truss documents shall be forwarded to the Building Official with a notation indicating that they have been reviewed and have been found to be in general compliance with the project design intent. The trusses shall not be installed until the deferred truss submittal documents have been approved by the Building Official.
- The truss manufacturer shall provide in-plant inspection per CBC 1704.2.5.
- Trusses shall be designed and installed per the following standards:
 - ANSI/TPI 1 "National Design Standard for Metal Plate Connected Wood Truss Construction."
 - TPI HIB "Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses."
 - TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
 - CBC 2303.4
- All roof openings shall be between rafters or trusses unless otherwise noted on drawings.
- Manufactured roof truss design loads: (see notes 7, 8, 9 & 10 for additional loads)

Truss Member (b)	Dead Load	Live Load	Notes	
Top Chord	8 psf	20 psf	Dead load based on a max roofing wt of 3 psf	
Bottom Chord	Uninhabitable Attics without storage	7 psf (c)	10 psf	Live load non-concurrent with roof top chord live load
	Uninhabitable Attics with storage (a)	10 psf (c)	20 psf	Live load in concurrent with roof live load Dead load applies over entire span

- Uninhabitable attics with storage are those where there are two or more adjacent trusses with a clear minimum height of 42" between top and bottom chords for a minimum of 24" along the truss (per CBC Table 1607.1 Footnote j).
- See Roof Framing Plan for any truss design requirements due to lateral loads.
- Bottom chord to be designed for greater of actual imposed dead load or load specified above. Use 15 psf dead load at stucco soffits.

The truss manufacturer shall design gable end trusses for wind loads perpendicular to the face of the truss. If gable end truss is not over a bearing wall, then provide design for span. Gable end trusses shall have vertical web members at a spacing of 24" o/c maximum.

Sheath all gable end trusses per 6A of "4/S1" unless otherwise noted on the plan. In lieu of sheathing, gable end trusses may be designed for a lateral load of 300 pif minimum and connected to the top plate with A35 clips at 18" o/c.

Special truss designation per plan: G.T. = Girder Truss. Design girder trusses for all tributary dead plus live loads. D.T. (xxxx) = Drag Truss. Design each drag truss to transfer the specified lateral shear force from the top chord to the bottom chord. Nail the roof sheathing to the top chord with 8d at 6" o/c typical unless otherwise noted.

G.T./D.T. (xxxx) = Girder Truss/ Drag Truss. Design truss for both G.T. and D.T. Nail the roof sheathing to the top chord with 8d at 6" o/c typical unless otherwise noted.

Superimposed loads from jack trusses, architectural finishes or other secondary framing (i.e. California framing, furred ceilings, soffits, etc.) shall be included in the design of supporting trusses.

The positions, weights and method of attachment of all mechanical units, electrical fixtures, plumbing, etc. shall be included in the design of the trusses by the truss manufacturer and shall be verified by the designer. Additional trusses or specially designed trusses may be required.

The truss manufacturer is responsible for specifying all truss to truss connections, truss to beam connections and model types of connectors to be used on the layout plan.

The contractor shall verify the requirement for and provide all erection and permanent truss bracing as recommended by the truss manufacturer and note 4C above.

"Scissor" type trusses shall be designed for a maximum deflection under dead plus live loads as follows: Midspan - 1/2" (vertical); Supports - 1/2" (horizontal). The truss manufacturer shall include deflection calculations with the shop drawing submittal.

California framing shall be 2x6 rafters and 2x8 ridges and hips unless otherwise noted. Brace California framing to typical roof framing below at 48" o/c maximum. Typical roof framing and plywood sheathing shall be continuous below California framed areas. Provide solid blocks or a continuous flat 2x member under the ends of all rafters.

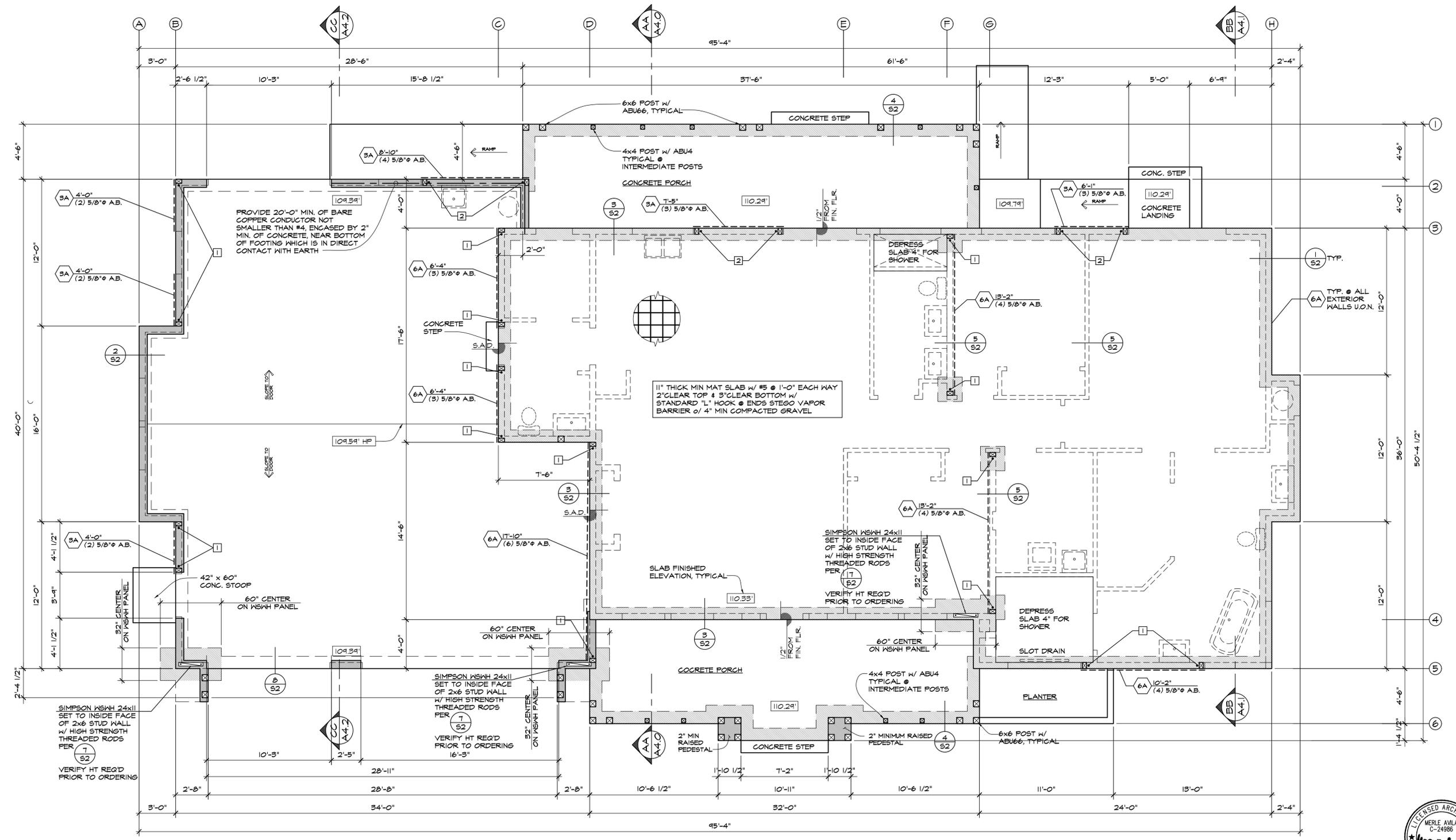
L:\SERVER\SHARED\RESIDENTIAL\2024\24021\FOUNDATION PLANDING - Mod. 06 Nov. 2024 - 12:34PM



SHEET NOTES

- 1 DBL 2x w/ HDU2 PER (6) S2
- 2 4x MIN. POST w/ HDU4 PER (6) S2

FOUNDATION LEGEND	
	SLAB ON GRADE
	STEM WALL AND FOOTING
	FOOTING



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

SEE SHEETS SN & S1 FOR INFORMATION NOT NOTED



SHEET NO: **S1.1** (OF 3) JOB NO: **24021** DESIGN FOR: **PITTELKOW RESIDENCE** 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APN 144-110-021
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS** ROHNERT PARK, CALIFORNIA (707) 484-0444
 DATE PRINTED: **12.21.24** REVISION PER CITY OF COTATI LETTER 10.21.24
 DATE CHECKED: _____

avila-bunch architects, inc. (707) 585-3711
 Merle Avila - architect Russell W. Bunch - architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928

ATTIC VENT SCHEDULE

MAIN ATTIC AREA	1,194 SQ.FT. x 1/300	= 3.98 SQ. FT.
		REQUIRED VENTILATION
(25) BLOCKS W/ 3-2" Ø SCREENED VENTS @ .052 SQ. FT. PER BLOCK		= 1.30 SQ. FT. (LOW)
(4) "NOLL" V20A EYEBROW ROOF VENT @ 0.34 SQ. FT. PER VENT		= 0.68 SQ. FT. (LOW)
(6) "NOLL" V20A EYEBROW ROOF VENT @ 0.34 SQ. FT. PER VENT		= 2.04 SQ. FT. (HIGH)
TOTAL VENTILATION PROVIDED		= 4.02 SQ.FT.

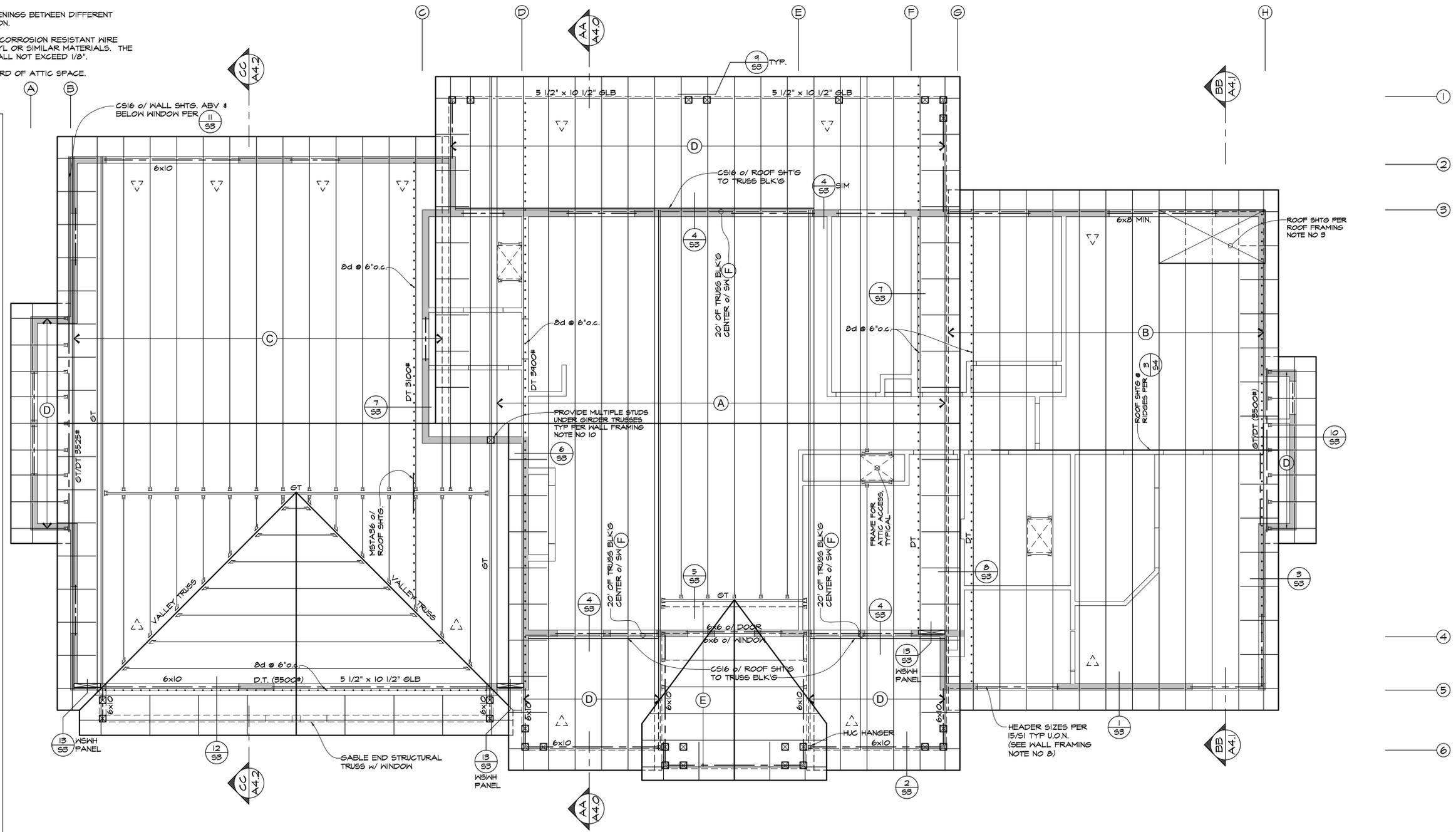
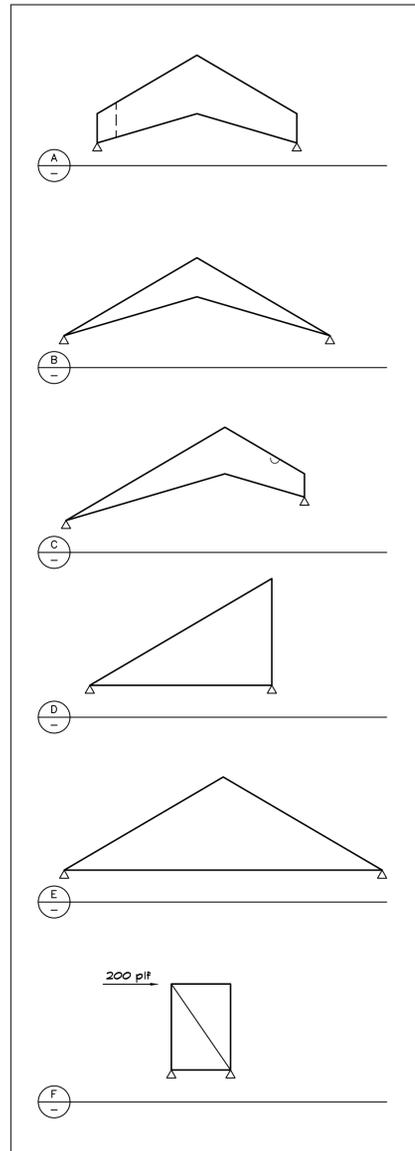
ATTIC AREA @ MASTER BEDROOM/BATH AREA	882 SQ.FT. x 1/300	= 2.94 SQ. FT.
		REQUIRED VENTILATION
(24) BLOCKS W/ 3-2" Ø SCREENED VENTS @ .052 SQ. FT. PER BLOCK		= 1.25 SQ. FT. (LOW)
(2) "NOLL" V20A EYEBROW ROOF VENT @ 0.34 SQ. FT. PER VENT		= 0.68 SQ. FT. (LOW)
(2) 24" SQ. G.I. LOUVERED ATTIC VENT @ 3.25 SQ. FT. PER VENT		= 6.50 SQ. FT. (HIGH)
TOTAL VENTILATION PROVIDED		= 8.43 SQ.FT.

ATTIC AREA @ GARAGE	1,254 SQ.FT. x 1/300	= 4.20 SQ. FT.
		REQUIRED VENTILATION
(14) BLOCKS W/ 3-2" Ø SCREENED VENTS @ .052 SQ. FT. PER BLOCK		= 0.75 SQ. FT. (LOW)
(6) "NOLL" V20A EYEBROW ROOF VENT @ 0.34 SQ. FT. PER VENT		= 2.04 SQ. FT. (LOW)
(2) 24" SQ. G.I. LOUVERED ATTIC VENT @ 3.25 SQ. FT. PER VENT		= 6.50 SQ. FT. (HIGH)
TOTAL VENTILATION PROVIDED		= 9.29 SQ.FT.

NOTE:

1. PROVIDE MIN. (2) 22" X 22" SQ. FLOW THROUGH VENT OPENINGS BETWEEN DIFFERENT ATTIC AREAS WHERE POSSIBLE FOR THROUGH VENTILATION.
2. ALL ATTIC VENTS ARE REQUIRED TO BE PROVIDED WITH CORROSION RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH, PERFORATED VINYL OR SIMILAR MATERIALS. THE SCREEN OPENINGS SHALL BE A MINIMUM OF 1/16" AND SHALL NOT EXCEED 1/8".
3. ALL LOW EYEBROW VENTS TO BE LOCATED IN LOWER THIRD OF ATTIC SPACE.

TRUSS LAYOUTS



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

SEE SHEETS S1 & S1 FOR INFORMATION NOT NOTED

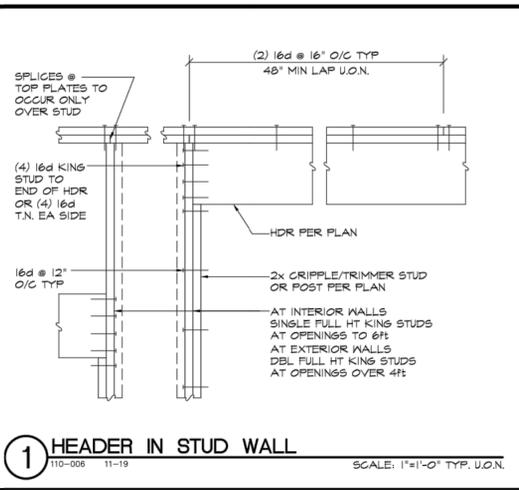


SHEET NO: **S1.2** (OF 25)
 JOB NO: **24021**
 DESIGN FOR: **PITTELKOW RESIDENCE**
 2101 SILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS**
 107148-4-0444
 DATE PRINTED: **12-24**
 DATE CHECKED: _____
 NOTES: _____
 REVISIONS: _____
 DATE: _____

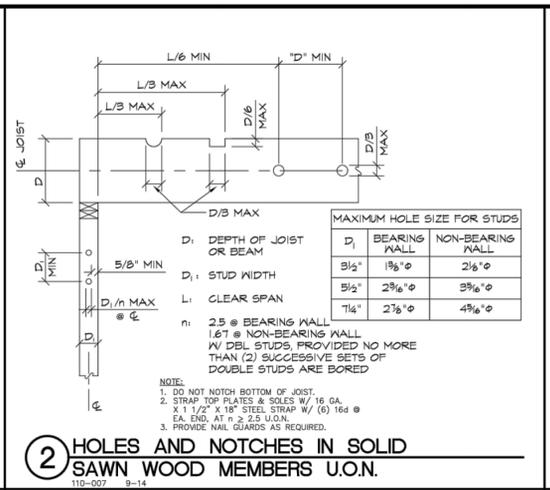
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 Merle Avila · architect
 Russell W. Bunch · architect
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L.A.-SERVER SHARED RESIDENTIAL 2024-04-02 12:00 PM FRAMING PLANS THU, 07 NOV 2024 - 4:59 AM

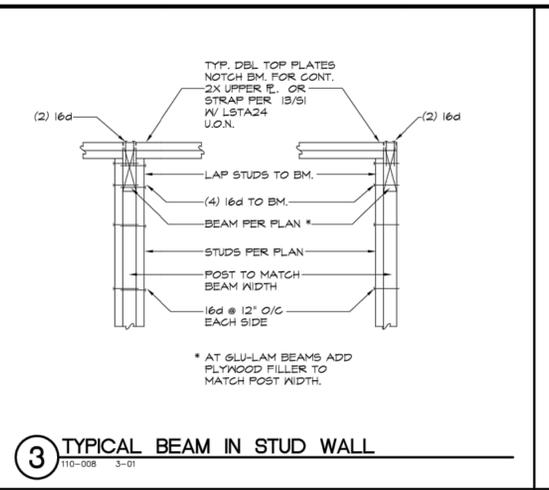




1 HEADER IN STUD WALL
110-006 11-19 SCALE: 1"=1'-0" TYP. U.O.N.



2 HOLES AND NOTCHES IN SOLID SAWN WOOD MEMBERS U.O.N.
110-007 9-14



3 TYPICAL BEAM IN STUD WALL
110-008 3-01

4 SHEARWALL / BRACED WALL SCHEDULE
110-013 2-24

S.W.	SHEATHING	EDGE NAILING	ANCHORAGE	REMARKS
3A	15/32" MIN	8d @ 3" O/C	PER PLAN	NOTE A
6A	15/32" MIN	8d @ 6" O/C	PER PLAN @ EXT 2X SOLE PLATE W/ 16d @ 5" O/C TO JOIST/ BLK BELOW WALL @ INT	

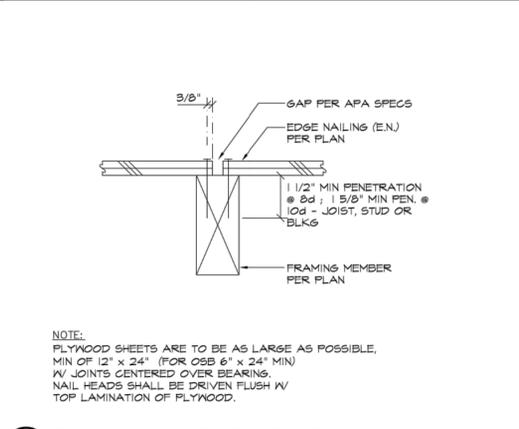
SEE SHEARWALL/BRACED WALL NOTES 1-10

SHEARWALL/BRACED WALL SCHEDULE NOTES

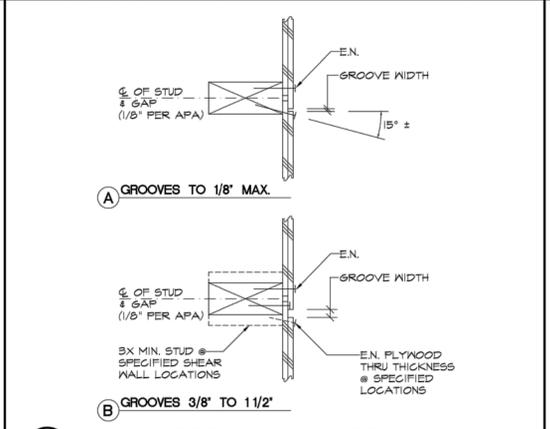
- SHEATHING SHALL BE APA RATED, EXPOSURE 1 OR EXTERIOR GRADE.
- SHEAR WALL NAILS SHALL BE COMMONS OR HOT-DIPPED GALVANIZED BOX (INCLUDING INTERIOR WALLS) SEE CARPENTRY NOTES 6 AND 7 ON SHEET SN
- BLOCK AND NAIL ALL SHEATHING EDGES.
- FIELD NAILING TO BE 12" O.C. U.O.N.
- EXTERIOR WALLS NOT REFERENCED TO SHEAR WALL SCHEDULE ARE TO BE BRACED PER (6A)
- WALL FRAMING TO BE 16" O/C MAXIMUM.
- EDGE NAIL WALL PLY TO STUDS OR POST W/ HOLDOWNS.
- SEE DETAIL 12/S1 FOR TYPICAL SHEAR WALL CONSTRUCTION.
- ALL SHEATHING SHALL BE SPLICED AT CENTERLINE OF FRAMING OR BLOCKING (SEE 5/S1, 6/S1 & 16/S1).
- OPENINGS IN SHEAR WALLS ARE NOT ALLOWED UNLESS SPECIFICALLY DETAILED.

ADDITIONAL NOTES: (N/A UNLESS NOTED IN SCHEDULE)

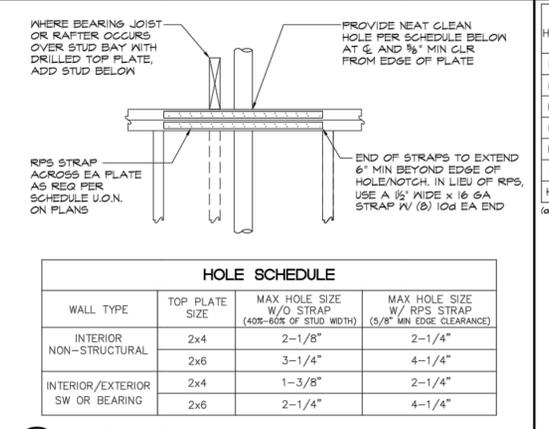
- FRAMING AT ADJOINING PANEL EDGES SHALL BE DBL 2x OR A 3x MINIMUM AND NAILS SHALL BE STAGGERED PER DETAIL 10A/S1 OR 10B/S1.
- EDGE NAIL PANEL JOINTS THRU THICK PORTION OF PANEL PER 6B/S1.
- FRAMING AT ADJOINING PANEL EDGES SHALL BE 3x MINIMUM AND NAILS SHALL BE STAGGERED. SEE DETAIL 10A/S1.
- NAILING APPLIES TO ALL STUDS, TOP AND BOTTOM PLATES. USE 6d NAILS @ 5/8" GYP. BD. HORIZONTAL JOINTS OF WALLS WITH A HEIGHT LESS THAN 1 1/2 TIMES THE WIDTH MAY BE UNBLOCKED.
- PLATE WASHER ON MUDDILL ANCHOR BOLTS TO EXTEND TO WITHIN 1/2" OF THE EDGE OF THE PLATE ON THE SIDE(S) WITH STRUCTURAL SHEATHING. SEE DETAIL 12/S1.
- USE 3x MIN MUDDILL.



5 TYPICAL PLYWOOD SPLICE
110-009 6-08 SCALE: 2"=1'-0"



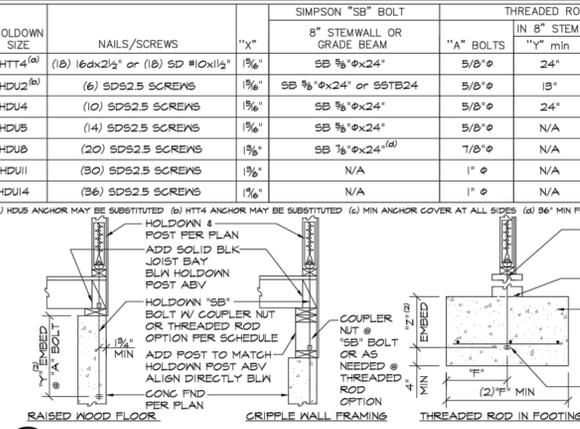
6 303 PLYWOOD SIDING JOINTS
110-011 3-01 SCALE: 3"=1'-0"



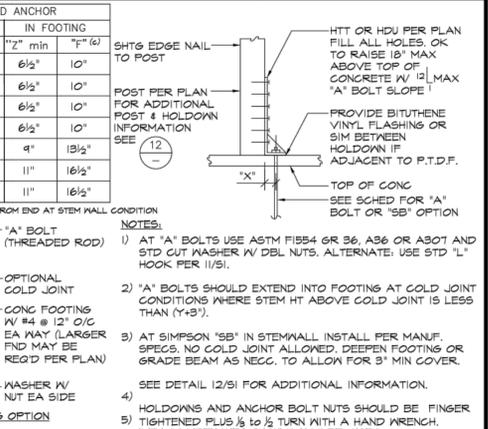
7 HOLES IN TOP PLATES
110-007A 11-17

HOLE SCHEDULE

WALL TYPE	TOP PLATE SIZE	MAX HOLE SIZE W/O STRAP (40%-60% OF STUD WIDTH)	MAX HOLE SIZE W/ RPS STRAP (5/8" MIN EDGE CLEARANCE)
INTERIOR NON-STRUCTURAL	2x4	2-1/8"	2-1/4"
	2x6	3-1/4"	4-1/4"
INTERIOR/EXTERIOR SW OR BEARING	2x4	1-3/8"	2-1/4"
	2x6	2-1/4"	4-1/4"



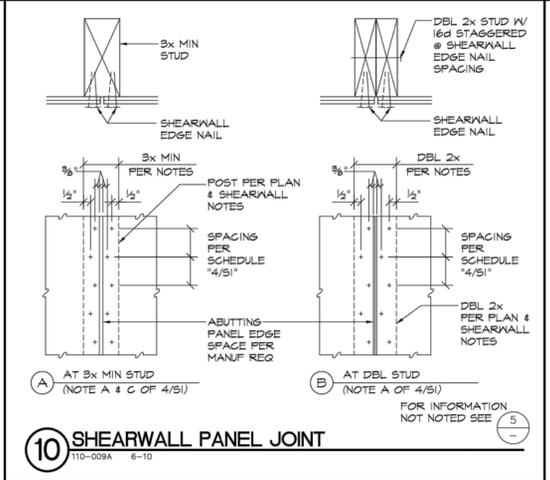
8 HOLDOWN SCHEDULE
110-015 6-22



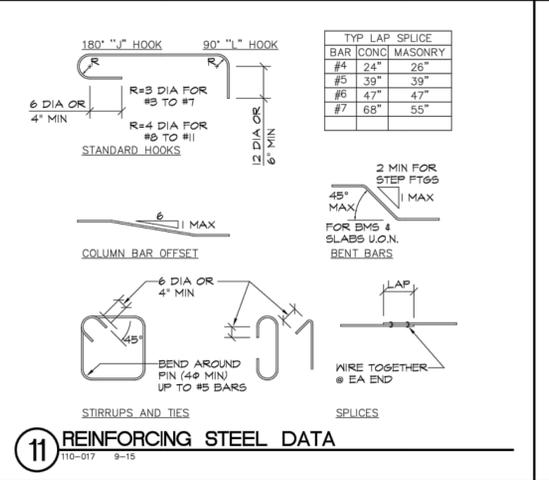
12 SHEAR WALL
110-016 9-15

9 NAILING SCHEDULE U.O.N.
110-014 2-20

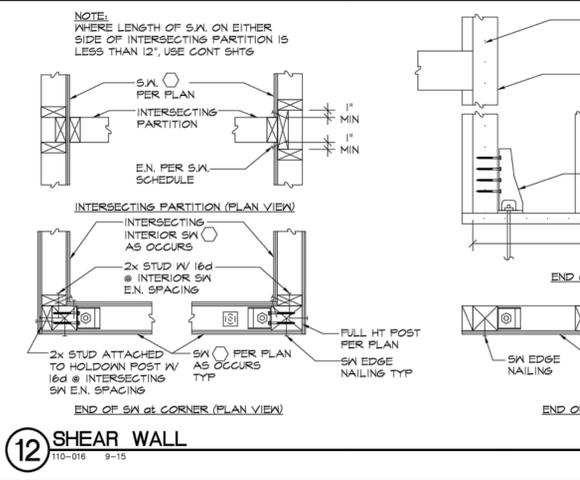
CONNECTION	FASTENING - COMMON NAILS (U.O.N.)	LOCATION
BLKS BTWN JSTS OR RAFTER TO 1/2\"/>		



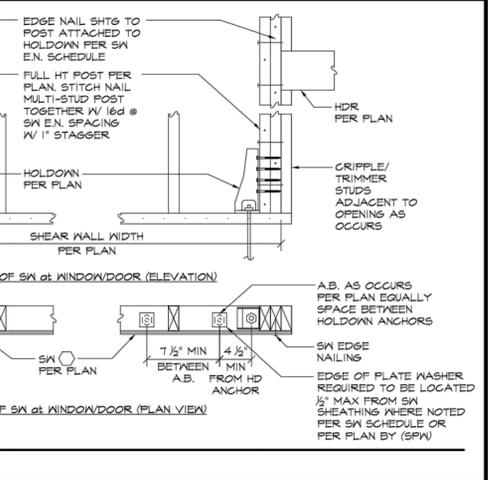
10 SHEARWALL PANEL JOINT
110-009A 6-10



11 REINFORCING STEEL DATA
110-017 9-15



13 BEAM TO TOP PLATE TIE
110-018 7-01 SCALE: 1"=1'-0"

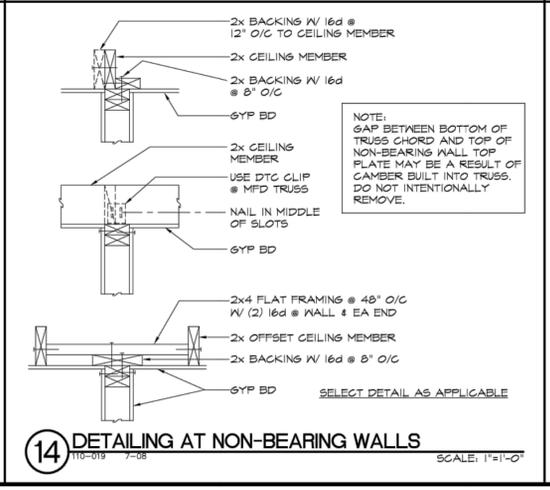


14 DETAILING AT NON-BEARING WALLS
110-019 7-08 SCALE: 1"=1'-0"

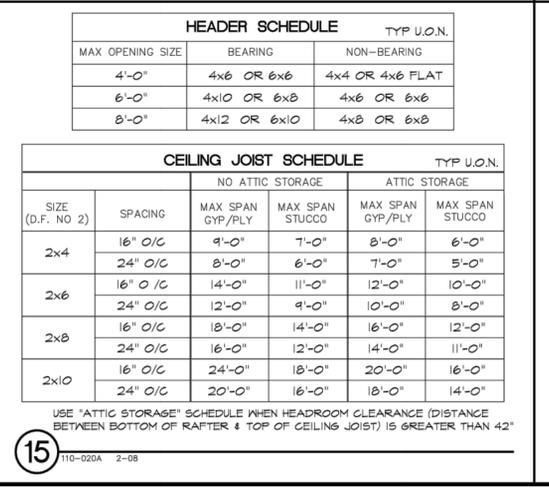
13 BEAM TO TOP PLATE TIE
110-018 7-01 SCALE: 1"=1'-0"

SIZE (D.F. NO 2)	SPACING	MAX SPAN GYP/PLY	MAX SPAN STUCCO	MAX SPAN GYP/PLY	MAX SPAN STUCCO
2x4	16" O/C	9'-0"	7'-0"	8'-0"	6'-0"
	24" O/C	8'-0"	6'-0"	7'-0"	5'-0"
	16" O/C	14'-0"	11'-0"	12'-0"	10'-0"
2x6	24" O/C	12'-0"	9'-0"	10'-0"	8'-0"
	16" O/C	18'-0"	14'-0"	16'-0"	12'-0"
2x8	24" O/C	16'-0"	12'-0"	14'-0"	11'-0"
	16" O/C	24'-0"	18'-0"	20'-0"	16'-0"
2x10	24" O/C	20'-0"	16'-0"	18'-0"	14'-0"
	16" O/C	24'-0"	18'-0"	20'-0"	16'-0"

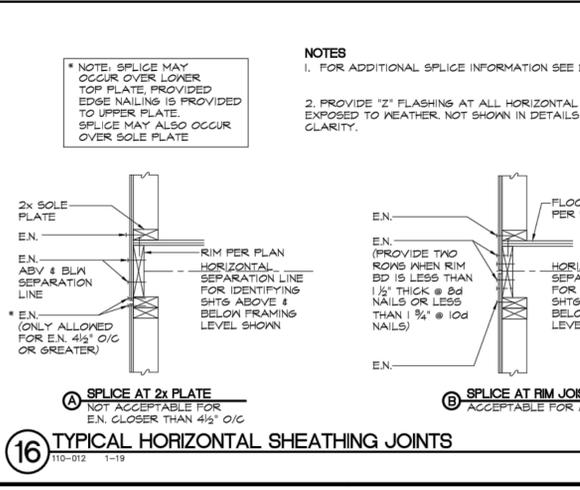
USE \"ATTIC STORAGE\" SCHEDULE WHEN HEADROOM CLEARANCE (DISTANCE BETWEEN BOTTOM OF RAFTER & TOP OF CEILING JOIST) IS GREATER THAN 42"



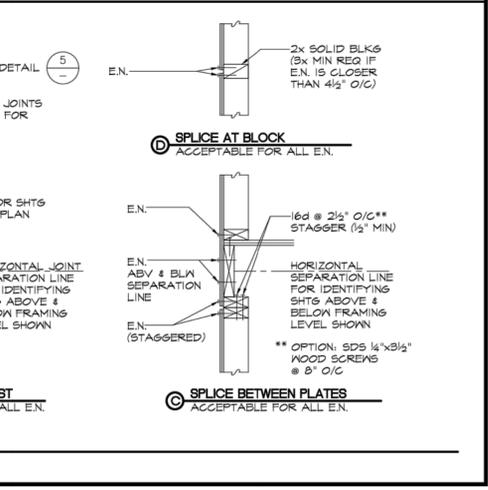
16 TYPICAL HORIZONTAL SHEATHING JOINTS
110-012 1-19



15 CEILING JOIST SCHEDULE
110-020A 2-08



13 BEAM TO TOP PLATE TIE
110-018 7-01 SCALE: 1"=1'-0"



14 DETAILING AT NON-BEARING WALLS
110-019 7-08 SCALE: 1"=1'-0"

REVISIONS

NO.	DESCRIPTION	DATE

File : 24087S1

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email: jdf@jdfenr.com

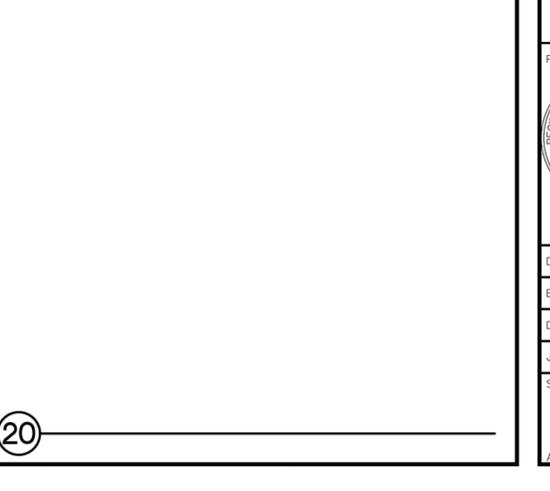
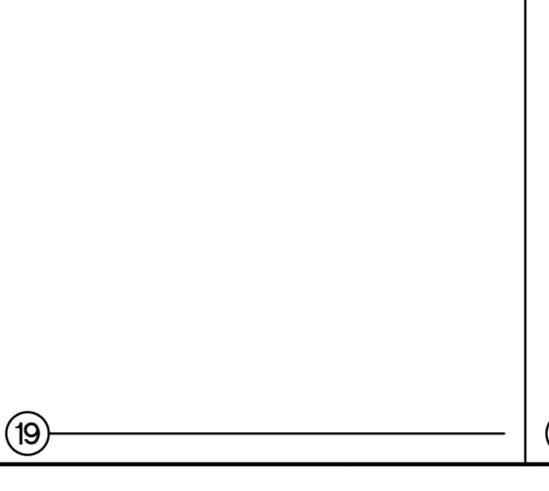
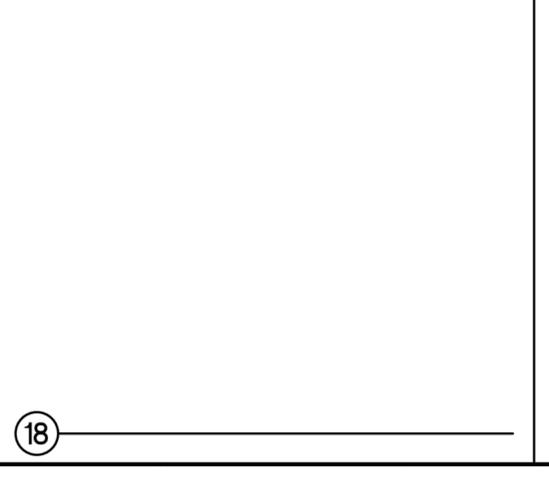
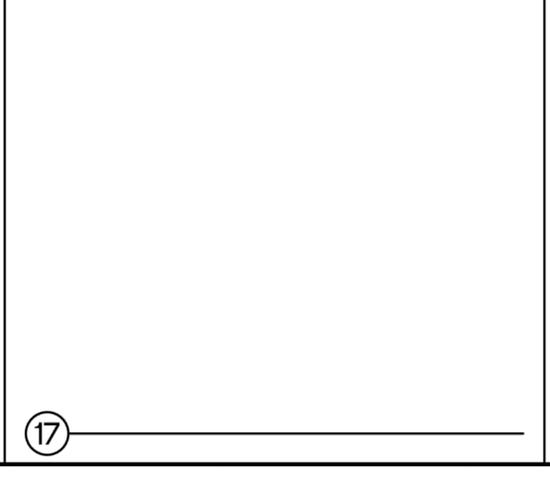
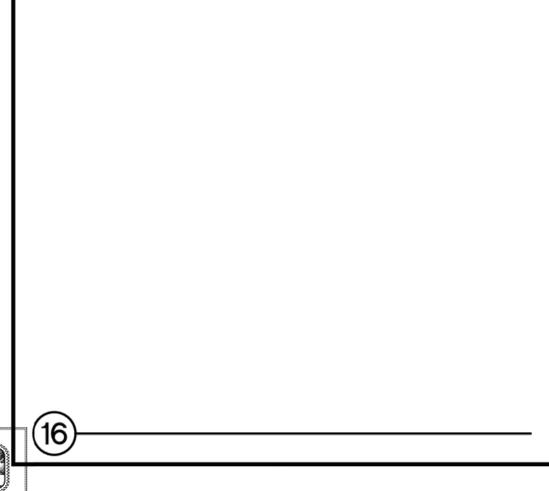
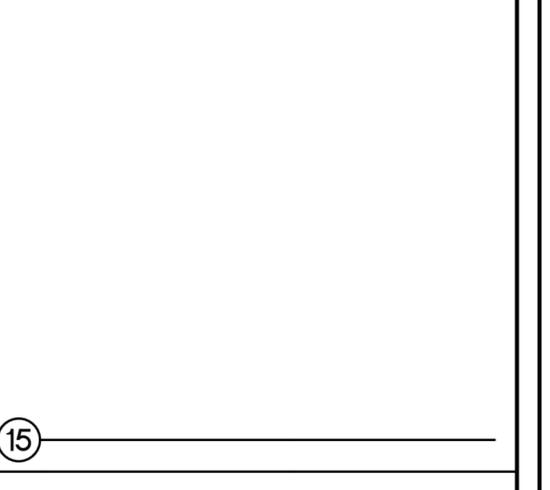
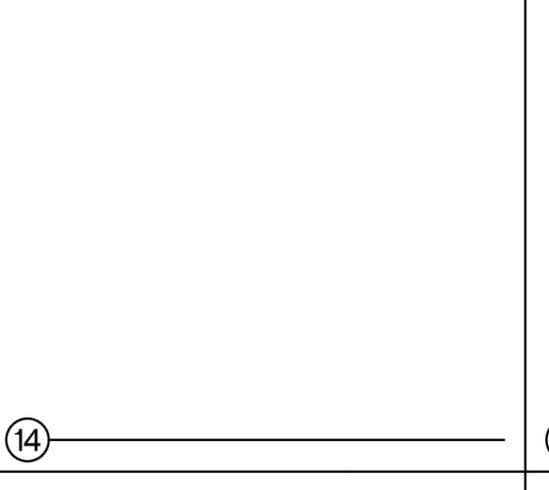
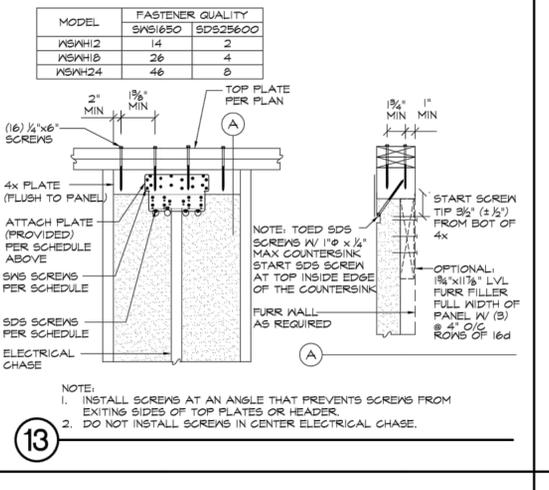
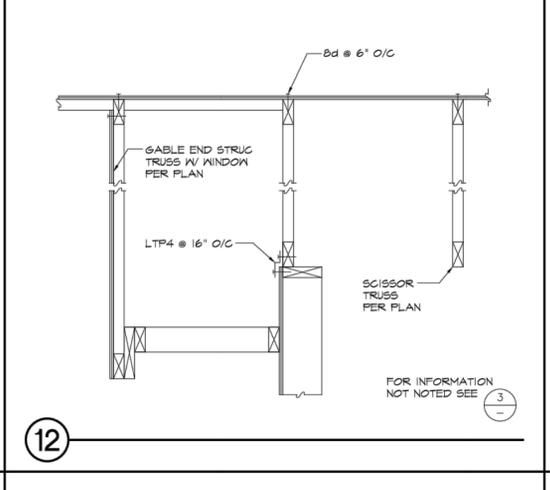
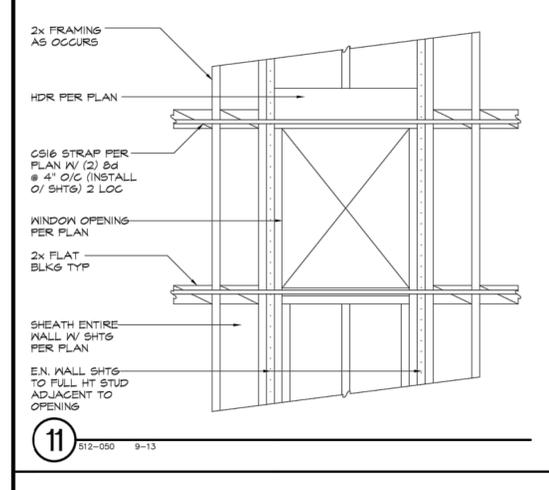
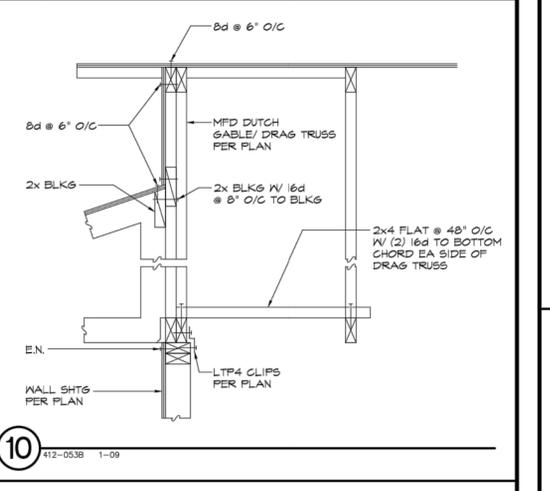
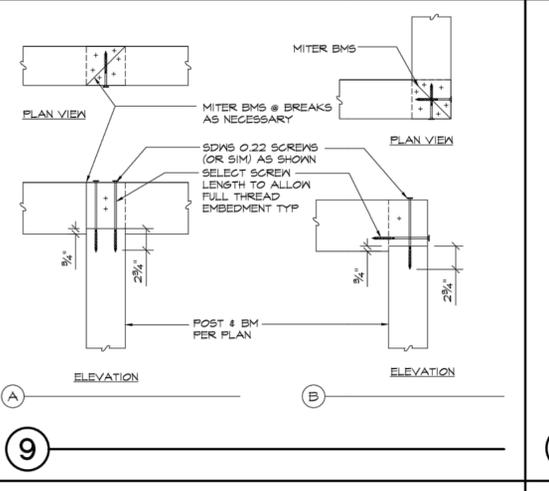
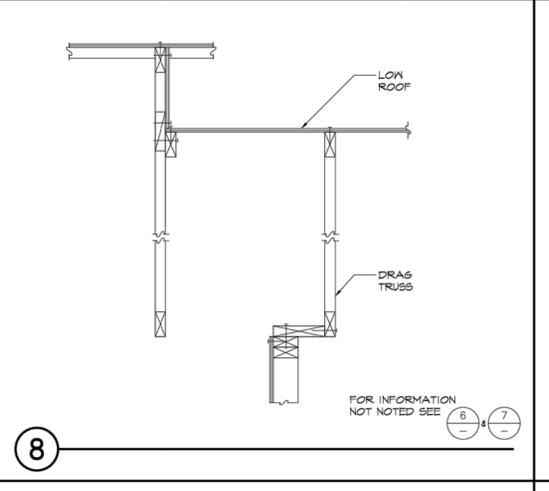
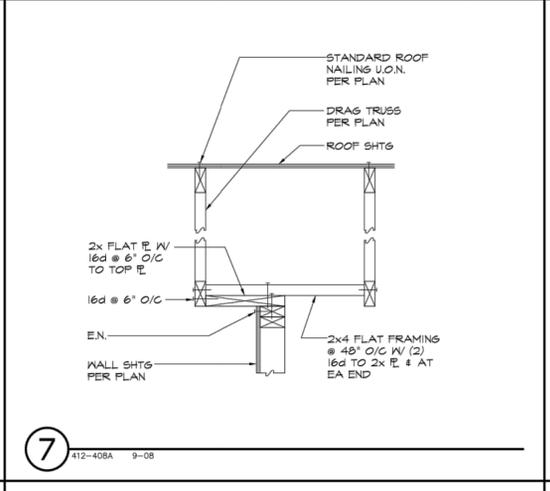
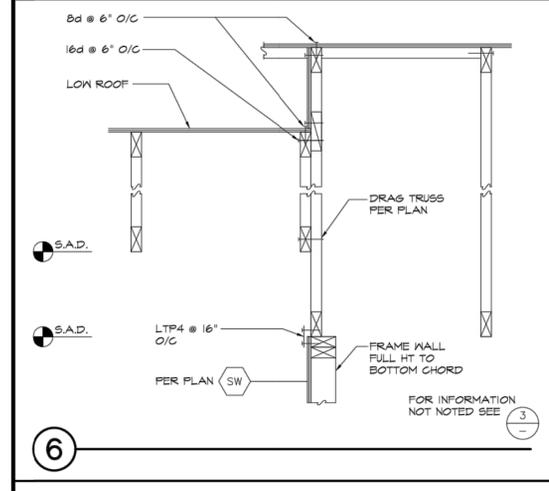
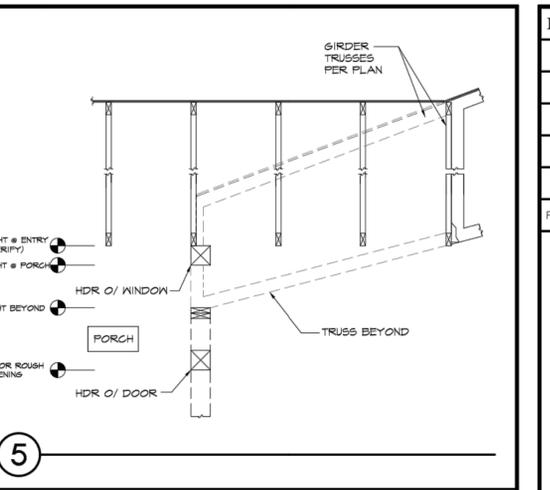
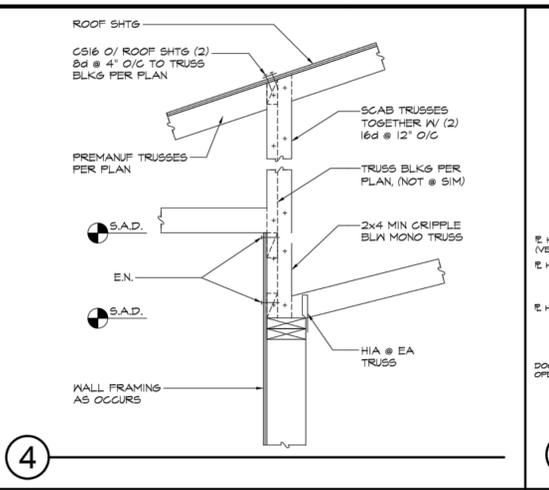
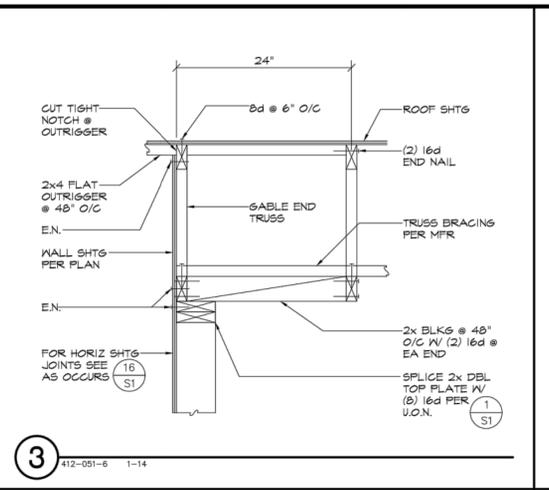
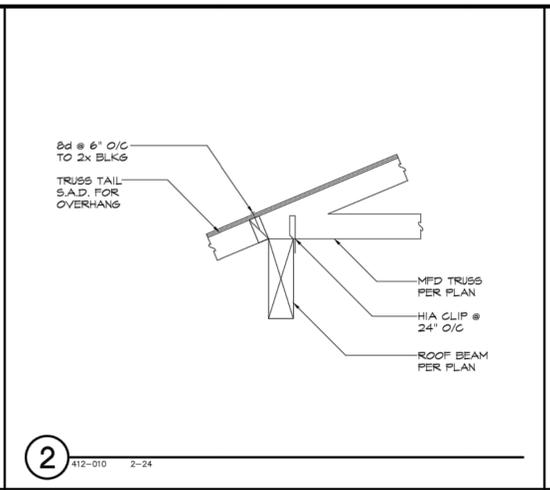
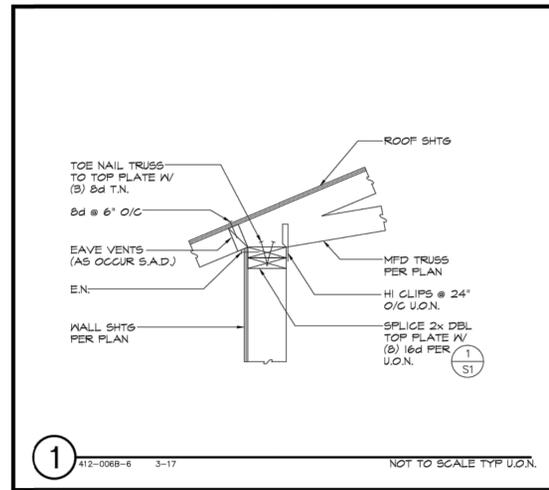
PITTELKOW RESIDENCE
2501 GILMAN RANCH ROAD,
COTATI, CA

Project Engineer :
Jeff Debois
REGISTERED PROFESSIONAL ENGINEER
No. 42011
CIVIL
STATE OF CALIFORNIA
9-10-24

Date : 8-12-24
Engr : J.D.
Drawn : J.H.
Job : 24087
Sheet
S1
AVILA 24021



APPROVED



REVISIONS	BY

File : 240875T3

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Job : 24087
Sheet
S3
AVILA 24021



APPROVED

GENERAL INFORMATION			
01	Project Name	2501 Gilman Ranch Residence	
02	Run Title	Title 24 Analysis	
03	Project Location	2501 Gilman Ranch Rd.	
04	City	05	Standards Version
06	Zip code	07	Software Version
08	Climate Zone	09	Front Orientation (deg/ Cardinal)
10	Building Type	11	Number of Dwelling Units
12	Project Scope	13	Number of Bedrooms
14	Addition Cond. Floor Area (ft²)	15	Number of Stories
16	Existing Cond. Floor Area (ft²)	17	Fenestration Average U-factor
18	Total Cond. Floor Area (ft²)	19	Glazing Percentage (%)
20	ADU Bedroom Count	21	ADU Conditioned Floor Area
22	Fuel Type	23	No Dwelling Unit

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

ENERGY DESIGN RATINGS	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ² EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ² EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	46.1	49.8	38.5			
Proposed Design	32.6	49.3	38.2	13.5	0.5	0.3

RESULT: PASS

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

- Standard Design PV Capacity: 2.76 kWdc
- PV System resized to 2.76 kWdc (a factor of 2.762) to achieve 'Standard Design PV' PV scaling

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft²-yr)	Standard Design TDV Energy (EDR2) (kTDO/ft²-yr)	Proposed Design Source Energy (EDR1) (kBtu/ft²-yr)	Proposed Design TDV Energy (EDR2) (kTDO/ft²-yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	10.17	44.71	5.33	41.62	4.84	3.09
Space Cooling	0.04	7.3	0.09	12.97	-0.05	-5.67
IAQ Ventilation	0.31	3.34	0.31	3.34	0	0
Water Heating	1.54	16.53	1.22	13.3	0.32	3.23
Self Utilization/Flexibility Credit			0	0	0	0
Efficiency Compliance Total	12.06	71.88	6.95	71.23	5.11	0.65
Photovoltaics	-1.08	-36.08	-1.08	-36.28		
Battery			0	0		
Flexibility			0			
Indoor Lighting	0.75	7.5	0.75	7.5		
Appl. & Cooking	2.91	19.78	2.92	19.82		
Plug Loads	2.67	27.87	2.67	27.87		
Outdoor Lighting	0.19	1.71	0.19	1.71		
TOTAL COMPLIANCE	17.5	92.66	12.4	91.85		

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	
2501 Gilman Ranch Residence	2041	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
House	Conditioned	HVAC1	2041	13.75	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	Tilt (deg)
Front Wall 1	House	R-21 Wall	309	Front	510	170	90
Left Wall 1	House	R-21 Wall	39	Left	36	0	90
Back Wall	House	R-21 Wall	129	Back	560	195.5	90
Right Wall 1	House	R-21 Wall	219	Right	486	22.5	90
Interior Wall	House>>_Garage_	R-21 Wall	n/a	n/a	576	20	n/a
Roof Attic Front 2	House	R-38 Roof Attic	n/a	n/a	1140.21	n/a	n/a
Roof Attic Back 2	House	R-38 Roof Attic	n/a	n/a	1140.21	n/a	n/a
Roof Attic	_Garage_	R-38 Roof Attic	n/a	n/a	1408	n/a	n/a
Front Wall 2	_Garage_	R-0 Wall	309	Front	333	0	90
Left Wall 2	_Garage_	R-0 Wall	39	Left	510	0	90
Back Wall 2	_Garage_	R-0 Wall	129	Back	288	0	90
Right Wall 2	_Garage_	R-0 Wall	219	Right	510	0	90

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft²-yr)	Proposed Design (kBtu/ft²-yr)	Compliance Margin (kBtu/ft²-yr)	Margin Percentage
Gross EUI ¹	22.32	15.5	6.82	30.56
Net EUI ²	15.43	8.61	6.82	44.2

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 (%)
2.76	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES
 The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
 • Window overhangs and/or fins
 • Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY
 The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
 • Indoor air quality ventilation
 • Kitchen range hood
 • Verified heat pump rated heating capacity

OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft²)	Skylight Area (ft²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof Attic Front	House	R-38 Roof Attic1	309	Front	0.89	0.79	6	0.1	0.85	No
Roof Attic Back	House	R-38 Roof Attic1	129	Back	0.89	0.79	6	0.1	0.85	No

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic_Garage	Attic Garage Roof Cons	Ventilated	4.5	0.1	0.85	No	No
Attic House	Attic RoofHouse	Ventilated	6	0.1	0.85	No	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Oper 22.5 oh #1	Window	Front Wall 1	Front	309	5	4.5	1	22.5	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 12 oh #1	Window	Front Wall 1	Front	309	6	2	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 19.25 oh #2	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 19.25 oh #2 2	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 12 oh #3	Window	Front Wall 1	Front	309	1.5	8	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 12 oh #3 2	Window	Front Wall 1	Front	309	1.5	8	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 10.5 oh #4	Window	Front Wall 1	Front	309	7	1.5	1	10.5	0.3	NFRC	0.23	NFRC	Bug Screen

SOLAR TEC/24

1180 Burnside Rd.
 Sebastopol, CA 95472

Title 24
 Energy Compliance
 Documentation

Job No: 23027-20

1
Project Name: 2101 Gilman Ranch Residence
 Address: 2101 Gilman Ranch Rd., Cotati, CA 94931
 Designer: Avila-Bunch Architects, Inc.
 Date: 9/9/2024

Method of Compliance: Performance Method (Climate Zone 2) showing that this project is in compliance with the 2022 edition of the California Residential Energy Standards when built as documented in this submittal. Compliance is established using a three pronged approach, in which each prong is called a metric. They are called Energy Design Ratings, named EDR1, EDR2 and EDRtotal; and each of these metrics must be in compliance to have a complying design. EDR1 (source energy) includes the envelope, HVAC, and water heating. EDR2 includes the photovoltaics and batteries. EDRtotal includes the sum total of other metrics.

Summary: The standard house in this climate zone has R21+5 walls, R38 roof/ceiling attic, R-19 floor and 20% glass to floor area ratio; R-8 on ducts; QII (quality installation of insulation); glazing U-Factor = 0.30; glazing SHGC = 0.23; door U-Factor = 0.20 (R-5); HERS tested tight ducts; refrigerant charge measurement for split cooling systems; a roof radiant barrier. A cool roof is not mandatory in climate zone 2. This report shows the total compliance margin on Form CF-1R to be small based on the building's resulting metrics: EDR1 = 13.5, EDR2 = 0.5, and EDRtotal = 0.3. The glass area is at 17.13%; and the following features are below standard: R21 walls; no QII; no roof radiant barrier. The following off-setting features help the design comply: a two NEEA certified heat pump water heaters; dual pane, non-metal framed windows and sliding doors with standard, low solar gain low-E glass. The specific compliance requirements are shown in the tables below.

- Specific Requirements:** (must also conform to all applicable Mandatory Measures on Form MF-1)
- INSULATION:** R38 insulation at roof/ceiling attic; R21 insulation at walls; R-19 at raised floors; no insulation at entry door.
 - GLAZING:** Windows and sliding doors are double pane, non-metal, NFRC tested assemblies with low solar gain low-E glass.
 - Note:** Glazing U-Factors and solar heat gain coefficients (SHGC's) are per the default values given in Tables 116-A and 116-B in Appendix B of the Residential Energy Manual or per the NFRC tested values published by the manufacturer.
 - Note:** Maximum allowed glazing U-Factors are as follows: operable = 0.30; fixed = 0.30; sliding door = 0.30; tubular skylight = 0.52.
 - Maximum allowed Solar Heat Gain Coefficients (SHGC's)** are as follows: operable = 0.23; fixed = 0.23; sliding door = 0.23; tubular skylight = 0.27.
 - MANDATORY HERS:** The following HERS features apply & require 3rd party HERS inspection and verification:
 - Ventilation minimum of 83 cfm
 - Kitchen range hood
 - Verified heatpump rated heating capacity
 - HEATING/AC:** Ductless, multi-split heatpump without VCHP credit and a minimum HSPF2 = 8.3 and SEER2 = 14.7; EER = 10.4.
 - DUCTS:** NA
 - WATER HEATING:** Two NEEA certified, heatpump water heater heaters (one 50 gallon & one 40 gallon).
 - THERMAL MASS:** NA
 - RADIANT BARRIER:** Not required
 - COOL ROOF:** Not required in Climate Zone 2.
 - LIGHTING:** See notes on the plans for lighting requirements.
 - VENTILATION:** Continuous whole house ventilation requirement shall be met by an exhaust fan or fans with a summed total minimum rating of 83 cfm and a maximum allowed sound rating of one sone per fan. Manual override switch is allowed, but must be labeled appropriately.
 - PHOTOVOLTAIC:** Minimum required 2.76 kw.
 - OPTIONAL HERS:** None

LA-SERVER/SHARED/RESIDENTIAL/2024/2402/CAL GREEN 4 TITLE 24.DWG Mod, 06 Nov 2024 - 12:56PM

DATE: 12-24
 DATE PRINTED: REVISED PER CITY OF COTATI LETTER 10.21.24
 DATE CHECKED
 CONTRACTOR: NOTES
 CUSTOM HOUSING SYSTEMS
 ROHNERT PARK, CALIFORNIA (707)484-0444
 DESIGN FOR: PITTELKOW RESIDENCE
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021
 SHEET NO.: 24021
 CF1R-1

Merle Avila - architect
 Russell W. Bunch - architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
 (707) 585-3711
 avila-bunch architects, inc.



CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 7 of 13)
Table with 14 columns: 01-14. Rows include window and skylight details with properties like Name, Type, Surface, Orientation, Azimuth, Width, Height, Mult., Area, U-factor, U-factor Source, SHGC, SHGC Source, and Exterior Shading.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 8 of 13)
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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 9 of 13)
Table with 8 columns: 01-08. Rows include slab floors and opaque surface constructions with properties like Construction Name, Surface Type, Construction Type, Framing, Total Cavity R-value, Interior/Exterior Continuous R-value, U-factor, and Assembly Layers.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 10 of 13)
Table with 8 columns: 01-08. Rows include opaque surface constructions, building envelope verification, water heating systems, and water heaters - NEA heat pump.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 11 of 13)
Table with 8 columns: 01-08. Rows include water heaters - NEA heat pump, water heating - HERS verification, space conditioning systems, and HVAC - heat pumps.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 12 of 13)
Table with 9 columns: 01-09. Rows include HVAC heat pumps - HERS verification and indoor air quality (IAQ) fans.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: 2501 Gilman Ranch Residence
Calculation Date/Time: 2024-09-09T13:09:59-07:00
Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.rbd22x
CFIR-PRF-01-E (Page 13 of 13)
Documentation Author's Declaration Statement and Responsible Person's Declaration Statement. Includes fields for Documentation Author Name, Signature, Date, Company, Address, City/State/Zip, and Responsible Designer Name, Signature, Date, Company, Address, City/State/Zip.

Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.
Registration Number: 424-P010205684A-000-000-0000000-0000
Registration Date/Time: 09/09/2024 13:24
HERS Provider: CHEERS
Report Version: 2022.0.000
Schema Version: rev 20220901
Report Generated: 2024-09-09 13:10:43

DATE: 12.24.24
DATE PRINTED: 12.24.24
DATE CHECKED:
CONTRACTOR: CUSTOM HOUSING SYSTEMS
ROHNERT PARK, CALIFORNIA (707)484-0444
DESIGN FOR: PITTELKOW RESIDENCE
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JOB NO: 24021
SHEET NO: 24021
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MERLE AVILA
C-24986
OCT. 31 2025
STATE OF CALIFORNIA

LA-SERVER/SHARED/RESIDENTIAL/2024/24021/CAL GREEN 4 TITLE 24.DWG Mod. 06 Nov. 2024 - 12:56PM





2022 Single-Family Residential Mandatory Requirements Summary

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

Building Envelope:

- § 110.6(a)1: Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 1011.5.2/A440-2011.
§ 110.6(a)5: Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b): Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.
§ 110.7: Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a): Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g): Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i): Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CFR.
§ 110.8(j): Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a): Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(b): Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c): Wall Insulation. Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B.
§ 150.0(d): Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.
§ 150.0(f): Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1: Vapor Retarder. In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2: Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(i): Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.

Fireplaces, Decorative Gas Appliances, and Gas Log:

- § 110.5(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 light-fitting damper or combustion-air control device.
§ 150.0(e)3: Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.

Space Conditioning, Water Heating, and Plumbing System:

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

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2022 Single-Family Residential Mandatory Requirements Summary

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

Solar Readiness:

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

Electric and Energy Storage Ready:

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2022 Single-Family Residential Mandatory Requirements Summary

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

Ducts and Fans:

- § 110.8(d)3: Ducts. Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1: CMC Compliance. All air-distribution system ducts and plenums must meet CMC §601.0-605.0 and ANSIS/MACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than 1/4". If mastic or tape is used, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed.
§ 150.0(m)2: Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3: Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7: Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8: Gravity Ventilation Dampers. Gravity ventilation systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9: Protection of Insulation. Insulation must be protected from damage due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10: Porous Inner Core Flex Duct. Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11: Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.1.
§ 150.0(m)12: Air Filtration. Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter.*

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2022 Single-Family Residential Mandatory Requirements Summary

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

*Exceptions may apply.

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2022 Single-Family Residential Mandatory Requirements Summary

- § 150.0(m)13: Space Conditioning System Airflow Rate and Fan Efficiency. 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 efficiency ≤ 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 efficiency ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*

Ventilation and Indoor Air Quality:

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

Pool and Spa Systems and Equipment:

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

Lighting:

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

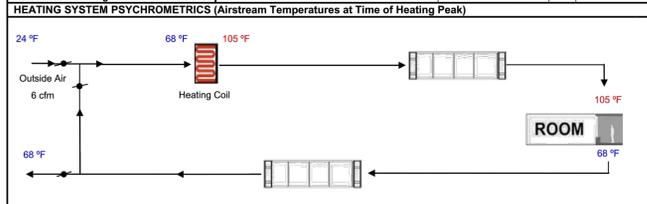
5/6/22

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

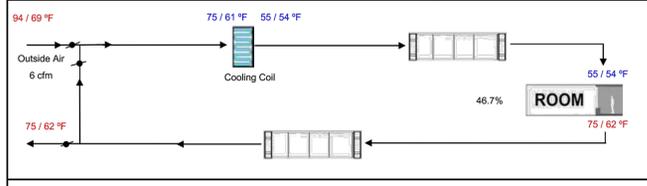
Table with Project Name (2501 Gilman Ranch Residence), Date (9/9/2024), System Name (HVAC), and Floor Area (2,041).

Table with columns for Number of Systems, Heating System, Cooling System, and HVAC Equipment Selection. Includes sub-tables for COIL COOLING PEAK and COIL HTG. PEAK.

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



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



MANDATORY MEASURES

DATE 12.24

DATE PRINTED

NOTES

DATE CHECKED

CONTRACTOR: CUSTOM HOUSING SYSTEMS

DESIGN FOR: PITTELKOW RESIDENCE

JOB NO: 24021

2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA

AP# 144-110-021

CFIR-3

avila-bunch architects

Russell W. Bunch - architect
Merle Avila - architect
5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928

(707) 585-3711

in c.

LA-SERVER/SHARED/RESIDENTIAL/2024/24021/CAL GREEN 4 TITLE 24.DWG Mod, 06 Nov 2024 - 12:36PM



APPROVED

2022 CALGreen CHECKLIST - RESIDENTIAL - NEW
(MANDATORY MEASURES TIER 1)
FREE ACCESS TO CALIFORNIA CODES: <https://www.sds.ces.cmu.edu/USC-Codes/ViewPage.asp?>

City of COTATI Building Division PAGE 1 of 22 EFFECTIVE: 01 JANUARY 2023

Applies to building permit applications received on or after January 1, 2023, for newly constructed hotels, motels, lodging houses, dwellings, dormitories, shelters, temporary residences, employee housing, factory-built housing, and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Detached "U" occupancy buildings are not subject to the requirements of CALGreen. For residential additions or alterations that increase conditioned space, see separate checklist. Repairs to existing structures are not subject to CALGreen at this time.

PROJECT ADDRESS: 2101 Gilman Ranch Rd, Cotati, CA 94931

PROJECT NAME: 2101 Gilman Ranch Residence

PROJECT DESCRIPTION: New Single Family Dwelling

BUILDING PERMIT NUMBER:

INSTRUCTIONS:
The Owner (or the Owner's agent) shall employ a certified ICC CALGreen Inspector to complete this checklist via the following steps:

- The CALGreen Inspector, in collaboration with the owner and the design professional, shall complete Column 2 of this checklist. Either "required" or "not required" is to be selected for each feature/measure. If "required" is selected, a description and reference to the plan sheet where the item is specified should be provided. If "not required" is selected, a description of why the feature/measure does not apply shall be provided. **Sections not separated by horizontal lines are all related to the separate checkboxes in that non-separated box.** See CALGreen Chapter 4 and Appendix A4 for complete descriptions of features and measures listed below. A specific number of Tier 1 electives is required for each general Tier 1 Elective Section. See CALGreen Section A4.601 for Tier 1 scoring.
- When Column 2 is complete, the Owner, Design Professional, and CALGreen Inspector are to be identified on, sign, and date the CALGreen Building Acknowledgments Section 1 (Design Verification) at the end of this checklist. The completed checklist is then to be submitted to the City of Santa Rosa Building Division as part of the building permit application.
- Building Division plan review staff will provide a fourth review of the plans and Column 2 (first three by Owner, Design Professional, and CALGreen Inspector as stated above). When approvable, the approved checklist will be included as part of the approved job set that is to be kept on the construction site throughout construction.
- The CALGreen Inspector is to inspect all applicable features/measures listed in Column 2, and mark the verification boxes in Column 3 as each feature/measure is completed.
- Prior to final inspection by the Building Division, the CALGreen Inspector shall verify that all applicable features/measures have been installed, and sign and date the CALGreen Building Acknowledgments Section 2 (Implementation Verification) found at the end of this checklist.

***NOTE:** The CALGreen Inspector shall not be the design professional or contractor for the project and shall not have a financial interest in the project for which services are being provided (except for the cost of providing said services).

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 2 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
CALGreen DIVISIONS 4.1 & A4.1: PLANNING AND DESIGN	ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED	SELECT AT LEAST TWO ELECTIVE MEASURES FROM A4.1
Site Selection		
A4.103.1 Select a site which complies with at least one of the following characteristics (support documentation required at application submittal): 1. An infill site. 2. A greyfield site. 3. An EPA-recognized and remediated brownfield site.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.103.2 Facilitate community connectivity by one of the following methods: 1. Locate the project within a 1/4-mile true walking distance of at least four basic services. 2. Locate the project within 1/2-mile true walking distance of at least seven basic services. 3. Other methods increasing access to additional resources.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Site Preservation		
A4.104.1 Individuals with oversight authority on the project who have been trained in areas related to environmentally friendly development can teach green concepts to other members of the development staff and ensure that training is provided to all parties associated with the project.		<input type="checkbox"/>
Prior to beginning the construction activities, all parties involved with the development process shall receive a written guideline and instruction specifying the green goals of the project.		
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Deconstruction and Reuse of Existing Materials		
A4.105.1 and A4.105.2 Existing buildings on the site are deconstructed, and the salvaged materials (which must comply with current building standards) are reused. Materials which can be easily reused include, but are not limited to, the following (verify at least one): 1. Light fixtures 2. Plumbing fixtures 3. Doors and trim 4. Masonry 5. Electrical devices 6. Appliances 7. Foundations or portions of foundations		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 3 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Site Development		
4.106.2 Storm water drainage and retention during construction. Newly constructed projects which disturb less than one acre of land shall prevent the pollution of storm water runoff from the construction activities by complying with lawfully enacted storm water management and/or erosion control ordinances. See Santa Rosa City Code Chapter 17-12. Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		<input checked="" type="checkbox"/>
By use of temporary swales or wattles. See plan sheet CG.		
A4.106.2 The soils at the building site are analyzed and protected as specified in this section. A4.106.2.1 Soil analysis. Soil analysis is performed by a licensed design professional and the findings utilized in the structural design of the building. Support documentation is required at application submittal. A4.106.2.2 Soil protection. The effect of development on the building sites is evaluated and the soil is protected by one or more of the following: 1. Natural drainage evaluation and erosion controls implemented to minimize erosion. 2. Site access is accomplished by minimizing the amount of cut and fill to install access roads/driveways. 3. Underground construction activities are coordinated to utilize the same trench, minimize disturbed soil, and soil is replaced using accepted compaction methods.		<input checked="" type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Minimize the amount of cut and fill to install access roads/driveways. See plan sheet CG.		
A4.106.2.3 Displaced topsoil is stockpiled for reuse in designated area and covered or protected from erosion. (Tier 1 Prerequisite)		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Stockpile displaced top soil. See plan sheet CG.		
4.106.3 Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
By use of erosion controls. See plan sheet CG		
A4.106.3 Landscape design. Post construction landscape designs accomplish one or more of the following: 1. Areas disrupted during construction are restored to be consistent with native vegetation 2. Utilize at least 75 percent native Californian or drought tolerant plant and tree species appropriate for the climate zone region.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 4 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
4.106.4 New construction shall comply with Section 4.106.4.1 (One and two-family dwellings and town-houses with attached private garages) or 4.106.4.2 (multi-family dwellings, hotels, motels, and new residential parking facilities) to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625. Exceptions to Section 4.106.4: 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 town-houses 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. Exception to 4.106.4.1: 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, motels, and new residential parking facilities. When parking is provided, parking spaces for new multifamily dwellings, hotels, and motels shall meet the requirements of Sections 4.106.4.2.1 and 4.106.4.2.2. Calculators for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by the local jurisdiction. See Vehicle Code Section 22511.2 for further details.	<input checked="" type="checkbox"/>	
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
4.106.4.2.1 Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms. The number of dwelling units, sleeping units, or guest rooms shall be based on all buildings on a project site subject to this section.		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 5 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
4.106.4.2.1(1) EV Capable. 10% of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. Exceptions to 4.106.4.2.1(1): 1. When EV chargers (Level 2 EVSE) are installed in a number equal to or greater than the required number of EV capable spaces. 2. When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed. Notes: a. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. b. There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use. 4.106.4.2.1(2) EV Ready. 25% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit. Exception to 4.106.4.2.1(2): Areas of parking facilities served by parking lifts. 4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels, and motels with 20 or more sleeping units or guest rooms. The number of dwelling units, sleeping units, or guest rooms shall be based on all buildings on a project site subject to this section. 4.106.4.2.2(1) EV Capable. 10% of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. Exception to 4.106.4.2.2(1): When EV chargers (Level 2 EVSE) are installed in a number greater than 5% of parking spaces required by Section 4.106.4.2.2(3), the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed over the 5% required.	<input type="checkbox"/>	
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 6 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Notes to 4.106.4.2.1(2): a. Construction documents shall show locations of future EV spaces. b. There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use. 4.106.4.2.2(2) EV Ready. 25% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit. Exception to 4.106.4.2.2(2): Areas of parking facilities served by parking lifts. 4.106.4.2.2(3) EV Chargers. 5% of the total number of parking spaces shall be equipped with Level 2 EVSE. Where common use parking is provided, at least one EV charger shall be located in the common use parking area, and shall be available for use by all residents or guests. When low power Level 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces. 4.106.4.2.2.1 Electric vehicle charging stations (EVCS). Electric vehicle charging stations require by Section 4.106.4.2.2(3) shall comply with Section 4.106.4.2.2.1. Exception to 4.106.4.2.2.1: Electric vehicle charging stations serving public accommodations, public housing, motels, and hotels shall not be required to comply with this section. See California Building Code, Chapter 11B, for applicable requirements. 4.106.4.2.2.1.1 Location. EVCS shall comply with at least one of the following options: 1. The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The charging space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building. Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1. 4.106.4.2.2.1.2 Electric vehicle charging stations (EVCS) dimensions. 1. The minimum length of each EV space shall be 18 feet. 2. The minimum width of each EV space shall be 9 feet. 3. One in every 25 charging spaces, but not less than one, shall also have an 8-foot wide minimum aisle. A 5-foot wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet. a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083% slope) in any direction.	<input type="checkbox"/>	
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 7 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.2, Item 3. (see 4.106.4.2.2.1.1 Exception) 4.106.4.2.2.1.3 Accessible EV spaces. In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B, EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 11099. 4.106.4.2.3(1) Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box, or enclosure in close proximity to the location or the proposed location of the EV space. Construction documents shall identify the raceway termination point, receptacle, or charger location, as applicable. The service panel and/or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective devices installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device. Exception to 4.106.4.2.3(1): A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location (or the proposed location) of the EV space at the time of original construction in accordance with the California Electrical Code. 4.106.4.2.3(2) Multiple EV spaces required. Construction documents shall indicate the raceway termination point and the location of installed or future EV spaces, receptacles, or EV chargers. Construction documents shall also provide information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics, and electrical load calculations. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible, or in concealed areas and spaces shall be installed at the time of original construction. Exception to 4.106.4.2.3(2): A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location (or the proposed location) of the EV space at the time of original construction in accordance with the California Electrical Code. 4.106.4.2.4 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code. 4.106.4.2.5 Electric vehicle ready space signage. Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).	<input type="checkbox"/>	
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. See Plan Sheet CG		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 8 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
A4.106.4 Water permeable surfaces. Permeable paving is utilized for not less than 20 percent of the total parking, walking, or patio surfaces. (Tier 1 Prerequisite)		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
By use of pavers and/or gravel - See plan sheet CG.		
4.106.4.3 Multi-family residential only: When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered, ten percent of the total number of parking spaces added or altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. (Electric Vehicle Charging Space definition: A space intended for future installation of EV charging equipment and charging of electric vehicles.)		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
NA -- Not multi-family		
A4.106.5 Cool Roof. Roofing materials shall have a minimum 3-year aged solar reflectance and thermal emittance or a minimum Solar Reflectance Index (SRI). Low-rise Residential: Roof covering shall meet or exceed the values contained in Table A4.106.5.1(1). Santa Rosa is in Zone 2 - N/A at this time. High-rise Residential, Hotels, and Motels: Roof covering shall meet or exceed the values contained in Table A4.106.5.1(3). (Tier 1 Prerequisite)		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Roof covering shall meet or exceed the values contained in Table A4.106.5.1(1) - See plan sheet CG.		
PENDING REQUIREMENT / NOT APPLICABLE New construction (low-rise residential). All newly constructed buildings shall be all-electric buildings. Exemptions: 1. Attached Accessory Dwelling Units. 2. Reconstructed buildings lost in a disaster or calamity. 3. New construction where existing utility infrastructure would have to be removed at the owner's expense.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
NA - Pending		
A4.106.6 Vegetated roof. Install a vegetated roof for at least 50% of the roof area.		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.106.7 Reduction of heat island effect for nonroof areas. Reduce nonroof heat islands for 50% of sidewalks, patios, driveways or other paved areas by using one or more of the methods listed in #1 - 5.		<input type="checkbox"/>

DATE: 12-24-24
DATE PRINTED: REVISED PER CITY OF COTATI LETTER 10.21.24
DATE CHECKED: _____

CONTRACTOR: CUSTOM HOUSING SYSTEMS
ROHNERT PARK, CALIFORNIA (707)484-0444

DESIGN FOR: PITTELKOW RESIDENCE
2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021

JOB NO: 24021
CITY OF COTATI

CGI
CITY OF COTATI

Merle Avila - architect
Russell W. Bunch - architect
5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
(707) 585-3711

avila - bunch architects, inc.



COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 9 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.106.8 Electric vehicle (EV) charging. Dwellings shall comply with the following requirements for the future installation of electric vehicle supply equipment (EVSE): A4.106.8.1 One- and two-family dwellings and townhouses with attached private garages. Install a dedicated 208/240 volt branch circuit, including an overcurrent protective device rated at 40 amperes minimum per dwelling unit. (Tier 1 Prerequisite) A4.106.8.2 Multifamily dwellings. Provide capability for future electric vehicle charging in 15 percent of total parking spaces, as specified. (Tier 1 Prerequisite) A4.106.8.3 New Hotels and Motels. If total number of parking spaces is more than 9, provide EV spaces in accordance with Table A4.106.8.3.1. (Tier 1 Prerequisite)	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Install a dedicated 208/240 volt branch circuit. See plan sheet CG		
A4.106.9 Bicycle parking. Comply with Sections A4.106.9.1 through A4.106.9.3 or meet local ordinance, whichever is more stringent. Exception: Spaces may be reduced as approved by enforcing agency, due to building site characteristics, including but not limited to, isolation from other development. A4.106.9.1 Short-term bicycle parking. Provide permanently anchored bicycle racks within 100 ft. of the visitor's entrance for 5% of visitor motorized vehicle parking capacity with a minimum of one 2-bike capacity. A4.106.9.2 Long-term bicycle parking for multifamily buildings. Provide on-site conveniently reached bicycle parking facilities for at least one bicycle per every 2 dwelling units. A4.106.9.3 Long-term bicycle parking for hotel and motel buildings. Provide one on-site conveniently reached bicycle parking facilities for every 25,000 sq. ft., but not less than 2.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.106.10 Light pollution reduction. Outdoor lighting systems shall be designed and installed to comply with all the following: 1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of California Administrative Code 2. Backlight, Uplight and Glare (BUG) ratings as defined in IES TM-15-11 3. Allow BUG ratings not exceeding those shown in Table A4.106.10 Exceptions to Section A4.106.10: 1. Luminaires that qualify as exceptions in the California Energy Code 2. Emergency lighting 3. One- and two-family dwellings	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 13 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.304.2 Potable water elimination. When landscaping is provided, a landscape design is installed which does not utilize potable water. (Support documentation required at application submittal)	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.304.3 Irrigation metering device. For new water service connections, landscaped irrigated areas more than 5,000 sq. ft. shall be provided with separate submeters or metering devices for outdoor potable water use.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Water Reuse Systems		
A4.305.1 Graywater. Alternative plumbing piping is installed to permit the discharge from the clothes washer or other fixtures to be used for an irrigation system in compliance with the California Plumbing Code.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.305.2 Recycled water piping. Based upon projected availability, dual water piping is installed for future use of recycled water at interior and exterior locations. Interior piping for use of recycled water for water closets, urinals and floor drains. Exterior piping to transport recycled water from the point of connection to the structure.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.305.3 Recycled water for landscape irrigation. Recycled water is used for landscape irrigation.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Innovative Concepts and Local Environmental Conditions (A4.306.1)		
Proposed Innovative Concept 1:	<input type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 10 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Innovative Concepts and Local Environmental Conditions (A4.108.1)		
Proposed Innovative Concept 1:	<input type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
CALGreen DIVISIONS 4.2 & A4.2: ENERGY EFFICIENCY		
Performance Approach		
4.201.1 Building meets or exceeds the requirements of the 2022 California Building Energy Efficiency Standards. (Energy Code Tier 1 not applicable)	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Performance method - See T24 Energy		
A4.203.1.1 Low-rise residential: Hourly Source Energy Design Rating (EDR1). EDR1 rating for the building's Proposed Design shall be computed by Compliance Software certified by the Energy Commission as specified in Title 24, Part 6, Section 100.1 and 150.1(b), and shall reduce the EDR1 required in the Compliance Software for minimum performance-based compliance with the California Energy Code by 4.4 (See Table A4.203.1.1). The rating shall be included in the Certificate of Compliance documentation.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Performance method - See T24 Energy		
A4.203.1.2 Select a minimum of TWO of the efficiency measures specified in Sections A4.203.1.2.1 through A4.203.1.2.8.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.203.1.2.1 Roof deck insulation, or ducts in conditioned space. Meet one of the three options for the location of ducts and air handlers as well as insulation R-values and installation of a radiant barrier as specified in Title 24, Part 6, Section 150.1(c)9A or B: 1. Below roof deck insulation with a minimum R-value of 19. 2. Continuous above deck insulation with a minimum R-8 and with an air space present between the roofing and the roof deck. 3. All ducts and air handlers installed in conditioned space as specified in Title 24, Part 6, Reference Appendix RA3.1 A4.203.1.2.2 High performance walls. Meet the climate zone dependent U-factor or insulation R-value for either 2x6 or 2x4 framing as specified in Title 24, Part 6, Section 150.1(c)1B; maximum U-factor of 0.048. A4.203.1.2.3 Compact hot water distribution system. Meet the requirements for installation of Compact Hot Water Distribution Systems specified in the Title 24, Part 6, Reference Appendix RA3.6.5. A4.203.1.2.4 Drain water heat recovery. Meet the requirements for installation of Drain Water Heat Recovery specified in Title 24, Part 6, Reference Appendix RA4.4.2.1. A4.203.1.2.5 High performance vertical fenestration. Meet the climate zone dependent U-factor and Solar Heat Gain Co-efficient (SHGC) specified in Title 24, Part 6, Section 110.6, and not to exceed a maximum U-factor of 0.30, and a maximum SHGC of 0.23.		
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 14 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
CALGreen DIVISIONS 4.4 & A4.4: MATERIAL CONSERVATION AND RESOURCE EFFICIENCY		
Foundation Systems		
A4.403.2 Reduction in cement use. Cement use in foundation mix design is reduced by not less than a 20 percent. (Tier 1 Prerequisite) Note: As allowed by the enforcing agency, any design cement mix must be authorized and approved by Architect of Record.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Efficient Framing Techniques		
A4.404.1 Lumber size. Beams and headers and trimmers are the minimum size to adequately support the load.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.404.2 Building dimensions & layouts. Building dimensions and layouts are designed to minimize waste in at least 80% of the structure. 1. Building design dimensions in 2 foot increments 2. Windows & doors are located at regular 16" or 24" o.c. stud positions. 3. Other methods acceptable by enforcing agency.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.404.3 Building systems. Use pre-manufactured building systems to eliminate solid sawn lumber whenever possible. One or more of the following premanufactured building systems is used: 1. Composite floor joist or premanufactured floor framing system. 2. Composite roof rafters or premanufactured roof framing system. 3. Panelized (SIPS, ICF or similar) framing systems. 4. Other methods acceptable by enforcing agency.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.404.4 Pre-cut materials and details. Material lists are included, in the plans, which specify material quantity and provide direction for on-site cuts of the following systems: (Support documentation required at application submittal). 1. Floor framing. 2. Wall framing. 3. Ceiling and roof framing. 4. Structural panels and roof sheathing.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 11 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Indoor Water Use		
4.303.1 Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Sections 4.303.1.1 through 4.303.1.4.5. 4.303.1.1 Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. 4.303.1.2 Urinals. The effective flush volume of urinals shall not exceed 0.5 gallons per flush (0.125 gpf for wall-mounted urinals). 4.303.1.3 Showerheads. 4.303.1.3.1 Single Showerheads. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. 4.303.1.3.2 Multiple Showerheads. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operations at a time. 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 gpm at 60 psi nor be less than 0.8 gpm 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 dwellings or sleeping units) in residential buildings shall not exceed 0.5 gpm 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 may not exceed 1.8 gpm at 60 psi (May temporarily increase to 2.2 gpm). Note: Aerators OK if complying faucets not available.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
All faucets shall meet their max allowed flow rates. - See Plan Sheet CG		
A4.303.1 Kitchen faucets and dishwashers. Kitchen faucets shall have a maximum flow rate not greater than 1.5 gallons per minute at 60 psi. (May temporarily increase to 2.2 gpm). Note: Aerators OK if complying faucets not available.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Kitchen faucets shall have a maximum flow rate not greater than 1.5 gallons per minute - See Plan Sheet CG		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 15 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Material Sources		
A4.405.1 Prefinished building materials. One or more of the following building materials, that do not require additional resources for finishing are used: 1. Exterior trim not requiring paint or stain. 2. Windows not requiring paint or stain. 3. Siding or exterior wall coverings which do not require paint or stain.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Windows not requiring paint or stain - See plan sheet CG		
A4.405.2 Concrete floors. Floors that do not require additional coverings are used including but not limited to stained, natural, or stamped concrete floors.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Floors are concrete and do not require additional coverings - See plan sheet CG		
A4.405.3.1 Recycled content. Use materials, equivalent in performance to virgin materials, with total (combined) recycled content value (RCV) for not less than 10% of the total material cost of the project. For the purposes of this section, materials used as components of the structural frame shall not be used to calculate recycled content. See Section A4.405.3.1 for calculation methods. Documentation is required at time of permit application. (Tier 1 Prerequisite)	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Recycled content value (RCV) for not less than 10% of the total material cost of the project - See plan sheet CG		
A4.405.4 Use of building materials from rapidly renewable sources. One or more of the following materials is manufactured from rapidly renewable sources or agricultural by-products. (Support documentation is required): 1. Insulation 2. Bamboo or cork 3. Engineered products 4. Agricultural based products. 5. Other products acceptable to enforcing agency.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Enhanced Durability and Reduced Maintenance		
4.406.1 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 openings with cement mortar, concrete masonry or similar method acceptable to the enforcing agency.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents - See plan sheet CG		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 12 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
4.303.2 Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the California Plumbing Code.	<input type="checkbox"/> RCD <input checked="" type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
NA - No rental units		
A4.303.2 Alternate water sources for nonpotable applications. Alternate nonpotable water sources are used for indoor potable water reduction. Alternate nonpotable water sources shall be installed in accordance with the California Plumbing Code.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
4.303.3 Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code and shall meet the applicable referenced standards.	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Plumbing fixtures and fittings shall meet the California Plumbing Code - See Plan Sheet CG		
A4.303.3 Appliances. Install at least one qualified ENERGY STAR dishwasher or clothes washer.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Dishwasher shall be ENERGY STAR - See Plan Sheet CG		
A4.303.4 Nonwater urinals and waterless toilets. Nonwater urinals or composting toilets are installed.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.303.5 Hot Water Recirculation. One- and two-family dwellings shall be equipped with a demand hot water recirculation system.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Outdoor Water Use		
4.304.1 Landscaping and site work shall comply with the City of Cotati Water Efficient Landscape Ordinance (WELCO)	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Landscaping and site work shall comply with Water Efficient Landscape Ordinance (WELCO) - See Plan Sheet CG		
A4.304.1 Rainwater catchment systems. A rainwater capture, storage and re-use system is designed and installed to use rainwater generated by at least 65% of the available roof area.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		

COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS	COLUMN 3: FIELD VERIFICATION
PAGE 16 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES
Water Resistance and Moisture Management		
A4.407.1 Drainage around foundation. Install foundation and landscape drains which discharge to a dry well, sump, bioswale or other approved location.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.407.2 Roof drainage. Install gutter and downspout systems to route water at least 5 feet away from the foundation or connect to landscape drains which discharge to a dry well, sump, bioswale, rainwater capture system or other approved on-site location.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.407.3 Flashing details. Provide flashing details on the building plans and comply with accepted industry standards or manufacturer's instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.407.4 Material protection. Protect building materials delivered to the construction site from rain and other sources of moisture.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Protect building materials delivered to the site. See plan sheet CG.		
A4.407.6 Door protection. Exterior doors to the dwelling are protected by awning or roof coverings at least 4 feet in depth.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
A4.407.7 Roof overhangs. A permanent overhang or awning at least 2 feet in depth is provided at all exterior walls.	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Construction Waste Reduction, Disposal and Recycling		
4.408.1 Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste. Specify which section (4.408.2, 4.408.3 or 4.408.4) was chosen for compliance. (Support documentation required at application submittal)	<input checked="" type="checkbox"/> RCD <input type="checkbox"/> N/A	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):		
Recycle construction waste at a minimum 65% diversion rate. See plan sheet CG.		





Table with 3 columns: COLUMN 1: FEATURE OR MEASURE, COLUMN 2: PROJECT DESIGN REQUIREMENTS, COLUMN 3: FIELD VERIFICATION. Includes sections for Enhanced construction waste reduction, Building Maintenance and Operation, Innovative Concepts and Local Environmental Conditions, and CALGreen DIVISIONS 4.5 & A4.5: ENVIRONMENTAL QUALITY.

Table with 3 columns: COLUMN 1: FEATURE OR MEASURE, COLUMN 2: PROJECT DESIGN REQUIREMENTS, COLUMN 3: FIELD VERIFICATION. Includes sections for Pollutant Control, Interior Moisture Control, and Interior Air Quality and Exhaust.

Table with 3 columns: COLUMN 1: FEATURE OR MEASURE, COLUMN 2: PROJECT DESIGN REQUIREMENTS, COLUMN 3: FIELD VERIFICATION. Includes sections for Carpet and carpet systems, Thermal insulation, Vapor retarder and capillary break, and Construction filter.

Table with 3 columns: COLUMN 1: FEATURE OR MEASURE, COLUMN 2: PROJECT DESIGN REQUIREMENTS, COLUMN 3: FIELD VERIFICATION. Includes sections for Direct-vent appliances, Environmental Comfort, Innovative Concepts and Local Environmental Conditions, and Verifications.

DEFINITIONS: BROWNFIELD SITE: REAL PROPERTY, THE EXPANSION, REDEVELOPMENT OR REUSE OF WHICH MAY BE COMPLICATED BY THE PRESENCE (OR POTENTIAL PRESENCE) OF A HAZARDOUS SUBSTANCE, POLLUTANT, OR CONTAMINANT (WITH CERTAIN LEGAL EXCLUSIONS AND ADDITIONS).



CGBC MANDATORY MEASURES

- DISPLACED TOPSOIL SHALL BE STOCKPILED FOR REUSE IN A DESIGNATED AREA AND COVERED OR PROTECTED FROM EROSION UNTIL REUSED.
- NOT LESS THAN 20 PERCENT OF THE TOTAL PARKING, WALKING OR PATIO SURFACES SHALL BE PERMEABLE. THE MAIN DRIVEWAY, WALKWAY TO THE ENTRANCE AND ENTRY PORCH SHALL BE EXCLUDED FROM THE TOTAL AREA USED FOR THIS CALCULATION.
- ROOFING MATERIALS SHALL HAVE A MINIMUM 3-YEAR AGED SOLAR REFLECTANCE AND THERMAL EMITTANCE OR A MINIMUM SOLAR REFLECTANCE INDEX (SRI) EQUAL TO OR GREATER THAN THE VALUES SPECIFIED IN TABLES A4.106.5.(1) AND A4.106.5.(3) FOR TIER 1 AND TABLES A4.106.5.(2) AND A4.105.5.(4) FOR TIER 2 OF THE 2022 CGBC. ROOFING TO HAVE A MINIMUM OF A 40-YEAR AND A 5-YEAR WORKMANSHIP INSTALLATION WARRANTY AND AN ASSEMBLY CARRYING A CLASS A FIRE RATING PER AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) E-108 OR UL-1910.
- BUILDING SHALL MEET OR EXCEED THE REQUIREMENTS OF THE CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS.
- 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.
- THE EFFECTIVE FLUSH VOLUME OF URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.
- 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. WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, THE COMBINED FLOW RATE OF ALL 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 ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME.
- THE MAXIMUM FLOW RATE OF 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.
- THE MAXIMUM FLOW RATE OF LAVATORY FAUCETS INSTALLED IN COMMON AND PUBLIC USE AREAS (OUTSIDE DWELLING OR SLEEPING UNITS) IN RESIDENTIAL BUILDINGS SHALL NOT EXCEED 0.5 GPM AT 60 PSI.
- METERING FAUCETS, WHEN INSTALLED IN RESIDENTIAL BUILDINGS, SHALL NOT DELIVER MORE THAN 0.25 GALLONS PER CYCLE.
- THE MAXIMUM FLOW RATE OF KITCHEN FAUCETS MAY NOT EXCEED 1.8 GPM AT 60 PSI (MAY TEMPORARILY INCREASE TO 2.2 GPM). NOTE: AERATORS OK IF COMPLYING FAUCETS NOT AVAILABLE.
- AUTOMATIC IRRIGATION SYSTEMS INSTALLED AT THE TIME OF FINAL INSPECTION SHALL BE WEATHER-BASED OR SOIL BASED WITH RAIN SENSOR.
- PROVIDE WATER EFFICIENT LANDSCAPE IRRIGATION DESIGN THAT REDUCES THE USE OF POTABLE WATER SO IT DOES NOT EXCEED 65% OF ETO TIMES THE LANDSCAPE AREA.
- CEMENT USE IN FOUNDATION MIX DESIGN SHALL BE REDUCED BY NOT LESS THAN 30 PERCENT BY INCORPORATING ADMIXTURE PRODUCTS COMMONLY USED TO REPLACE CEMENT SUCH AS FLY ASH, SLAG, SILICA FUME, OR RICE HULL ASH.
- POST- OR PRE-CONSUMER RECYCLED CONTENT VALUE (RCV) MATERIALS WITH NOT LESS THAN A 10-PERCENT RCV SHALL BE USED ON THE PROJECT.
- ANNUAL 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 OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR SIMILAR METHOD ACCEPTABLE TO THE ENFORCING AGENCY.
- AT LEAST 65% OF NONHAZARDOUS CONSTRUCTION AND DEMOLITION DEBRIS GENERATED AT THE SITE IS DIVERTED TO RECYCLE OR SALVAGE IN ACCORDANCE WITH ONE OF THE FOLLOWING: (1) SUBMIT A CONSTRUCTION WASTE MANAGEMENT PLAN OR, (2) UTILIZE A WASTE MANAGEMENT COMPANY. EXCEPTIONS TO THIS REQUIREMENT: (1) EXCAVATED SOIL AND LAND-CLEARING DEBRIS, (2) ALTERNATE WASTE REDUCTION METHODS AND, (3) ISOLATED JOB SITES.
- AT THE TIME OF FINAL INSPECTION, AN OPERATION AND MAINTENANCE MANUAL SHALL BE PLACED IN THE BUILDING THAT INCLUDES ALL THE REQUIRED ITEMS PER 2022 CGBC SECTION 4.410.1
- ANY INSTALLED GAS FIREPLACE SHALL BE A DIRECT-VENT OR SEALED-COMBUSTION TYPE. ANY WOOD STOVE OR WOOD HEATING APPLIANCE SHALL BE CERTIFIED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND INCLUDED IN THE US EPA'S PUBLISHED LIST OF EPA CERTIFIED WOOD STOVES.
- DUCT OPENINGS AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED DURING CONSTRUCTION. SPECIAL INSPECTION TO FIELD VERIFY.
- ADHESIVES, SEALANTS AND CAULKS SHALL BE COMPLIANT WITH VOC AND OTHER TOXIC COMPOUND LIMITS FOUND IN THE CURRENT CGBC CODE (SEE TABLES AT LEFT).
- PAINTS, STAINS AND OTHER COATINGS SHALL BE COMPLIANT WITH VOC LIMITS IN THE CURRENT CGBC CODE (SEE TABLES AT LEFT).
- AEROSOL PAINTS AND OTHER COATINGS SHALL BE COMPLIANT WITH PRODUCT WEIGHTED MIR LIMITS FOR VOC AND OTHER TOXIC COMPOUNDS (SEE TABLES AT LEFT).
- DOCUMENTATION SHALL BE PROVIDED TO VERIFY COMPLIANT VOC LIMIT FINISH MATERIALS HAVE BEEN USED.
- AT LEAST 80% OF THE RESILIENT FLOORING SYSTEMS INSTALLED IN THE BUILDING SHALL COMPLY WITH THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS," VERSION 1.2, JANUARY 2017 PER CGBC CODE 2022 (SEE TABLES AT LEFT).
- CARPET AND CARPET SYSTEMS SHALL MEET THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS," VERSION 1.2, JANUARY 2017 PER 2022 CGBC SECTION 4.504.3.
- ALL CARPET CUSHION INSTALLED SHALL MEET THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS," VERSION 1.2, JANUARY 2017 PER 2022 .
- ALL CARPET ADHESIVE SHALL MEET CGBC REQUIREMENTS (SEE TABLE 4.504.1 AT LEFT).
- INSTALL THERMAL INSULATION IN COMPLIANCE WITH THE VOC-EMISSION LIMITS DEFINED IN COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS LOW-EMITTING MATERIALS LIST. ALL INSULATION IS TO BE GREENGUARD CERTIFIED.
- 80% OF FLOOR AREA RECEIVING RESILIENT FLOORINGS SHALL COMPLY WITH THE VOC-EMISSION LIMITS DEFINED IN COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS HIGH PERFORMANCE PRODUCTS DATABASE OR BE CERTIFIED UNDER THE RESILIENT FLOOR COVERING INSTITUTE FLOORSCORE PROGRAM; OR MEET CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, "STANDARD METHOD FOR TESTING AND EVALUATION OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS," VERSION 1.1, FEBRUARY 2010.
- HARDWOOD PLYWOOD, PARTICLEBOARD AND MEDIUM DENSITY FIBERBOARD (MDF) COMPOSITE WOOD PRODUCTS USED ON THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE REQUIREMENTS FOR FORMALDEHYDE AS SPECIFIED IN THE ARB'S AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS SHOWN IN CURRENT CGBC CODE (SEE TABLES AT LEFT).
- A VAPOR RETARDER AND CAPILLARY BREAK SHALL BE INSTALLED AT SLAB-ON-GRADE FOUNDATIONS. CAPILLARY BREAK SHALL BE INSTALLED IN COMPLIANCE WITH AT LEAST ONE OF THE FOLLOWING: (1) A 4" THICK BASE OF 1/2" OR LARGER CLEAN AGGREGATE W/ VAPOR BARRIER IN DIRECT CONTACT WITH CONCRETE, (2) OTHER EQUIVALENT METHOD APPROVED BY THE ENFORCING AGENCY, OR (3) A SLAB DESIGN SPECIFIED BY A LICENSED DESIGNED PROFESSIONAL.
- BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED. WALL AND FLOOR FRAMING SHALL NOT BE ENCLOSED WHEN THE FRAMING MEMBERS EXCEED 19% MOISTURE CONTENT. MOISTURE CONTENT SHALL BE VERIFIED IN COMPLIANCE WITH THE FOLLOWING: (1) BY A PROBE-TYPE OR CONTACT-TYPE MOISTURE METER OR OTHER EQUIVALENT METHODS APPROVED BY ENFORCING AGENCY, (2) READINGS SHALL BE TAKEN AT A POINT 2 FEET TO 4 FEET FROM THE GRADE STAMPED END OF EACH PIECE TO BE VERIFIED OR (3) MINIMUM OF 3 RANDOM READINGS SHALL BE PERFORMED ON WALL AND FLOOR FRAMING WITH DOCUMENTATION PROVIDED TO ENFORCING AGENCY.
- EACH BATHROOM SHALL BE MECHANICALLY VENTILATED AND SHALL COMPLY WITH THE FOLLOWING: (1) FANS SHALL BE ENERGY STAR COMPLIANT AND DUCTED TO TERMINATE OUTSIDE THE BUILDINGS AND, (2) UNLESS FUNCTIONING AS A WHOLE HOUSE VENTILATION SYSTEM, FANS MUST BE HUMIDITY CONTROLLED. CONTROLS MUST BE CAPABLE OF A RELATIVE HUMIDITY ADJUSTMENT FROM 50% - 80%. HUMIDITY CONTROL MAY BE A SEPARATE COMPONENT TO THE EXHAUST FAN AND IS NOT REQUIRED TO BE INTEGRAL OR BUILT-IN. AIRFLOW TESTING COMPLETED BY HERS RATER.
- DUCT SYSTEMS SHALL BE SIZED, DESIGNED AND HAVE THEIR EQUIPMENT SELECTED USING THE FOLLOWING METHODS: (1) ESTABLISH HEAT LOSS AND HEAT GAIN VALUES ACCORDING TO ANSI/ACCA 2 MANUAL J-2004, ASHRAE HANDBOOKS, OR EQUIVALENT, (2) SIZE DUCT SYSTEMS ACCORDING TO ANSI/ACCA 1 MANUAL D-2004, ASHRAE HANDBOOKS, OR EQUIVALENT, OR (3) SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ANSI/ACCA 3 MANUAL S-2004 OR EQUIVALENT.
- HVAC SYSTEM INSTALLERS ARE TRAINED AND CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS.
- USE NON-PAPER-FACED BACKER BOARD ON THE WALLS OF THE TUB, SHOWER, AND SPA AREAS. USE WATER RESISTANT FLOORING (SUCH AS TILE LAMINATES, CONCRETE, VCT, VINYL, OR LINOLEUM BUT NOT WOOD, CARPET, OR LAMINATE WOOD) OVER THE ENTIRE FLOOR AREA OF KITCHEN, BATHROOMS, LAUNDRY/UTILITY ROOMS, AND SPA AREAS, AND WITHIN THREE FEET OF EXTERIOR DOORS.
- STORM WATER DRAINAGE & RETENTION 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.

VOC CONTENT LIMIT FOR ARCH. COATINGS

(TABLE 4.504.3, 2022 CAL. GREEN BUILDING STANDARDS CODE) GRAMS OF VOC PER LITER OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS

COATING CATEGORY	CURRENT VOC LIMIT
FLAT COATINGS	50
NONFLAT 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	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, AND UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS CLEAR OPAQUE	130 550
SPECIALTY PRIMERS, SEALERS AND UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB AND TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

ADHESIVE VOC LIMIT

(TABLE 4.504.1, 2022 CAL. GREEN BUILDING STANDARDS CODE) LESS WATER AND LESS EXEMPT COMPOUNDS IN GRAMS PER LITER

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVE	100
RUBBER FLOOR ADHESIVE	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT AND ASPHALT TILE ADHESIVES	50
DRYWALL AND PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVES	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT SPECIFICALLY LISTED	50
SPECIALTY APPLICATION	
PVC WELDING	510
CPVC WELDING	440
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	350
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP AND TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

SEALANT VOC LIMIT

(TABLE 4.504.2, 2022 CAL. GREEN BUILDING STANDARDS CODE) LESS WATER AND LESS EXEMPT COMPOUNDS IN GRAMS PER LITER

SEALANTS	CURRENT VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL NONPOROUS POROUS	250 775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

FORMALDEHYDE LIMITS

(TABLE 4.504.5, 2022 CAL. GREEN BUILDING STANDARDS CODE) MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLEBOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD	0.13

WATER USE REDUCTION CALCULATION

NUMBER OF OCCUPANTS: 2 OCCUPANTS x 1 = 2
1 OCCUPANT x 2 = 2
TOTAL OCCUPANTS = 4

FIXTURE	FLOW RATE	DURATION	DAILY USES/OCC	OCCUPANTS	GALLONS/DAY
SHOWERHEAD	1.8 GPM @ 80 PSI	5 MIN	1	4	36
KITCHEN FAUCET	1.8 GPM @ 60 PSI	4 MIN	1	4	28.8
LAVATORY FAUCET	1.2 GPM @ 60 PSI	0.25 MIN	3	4	3.6
WATER CLOSET	1.28 GPF	1 FLUSH	3	4	15.36

TOTAL DAILY BASELINE WATER USE: = 83.76 GPD
TOTAL DAILY BASELINE WATER USE x 0.80 = 67.01 GPD ALLOWABLE DAILY WATER USE

- NOTES:
- NUMBER OF OCCUPANTS DETERMINED PER CALIFORNIA GREEN BUILDING STANDARDS CODE, WORKSHEET (WS-1) BASELINE WATER USE, NOTE #1.
 - MAXIMUM ALLOWABLE PLUMBING FIXTURE FLOW RATES:
 - SHOWERHEADS = 1.8 GPM @ 80 P.S.I. (MAX FLOW RATE)
 - LAVATORY FAUCETS = 1.2 GPM @ 60 P.S.I. (WATERSENSE CERTIFIED)
 - WATER CLOSETS = 1.28 GALLONS PER FLUSH W/ A MAP (MAXIMUM PERFORMANCE) SCORE OF 500 GRAMS OR GREATER - WATERSENSE CERTIFIED
 - KITCHEN FAUCETS: ≤ 1.8 GPM @ 60 PSI (TEMPORARY INCREASE ALLOWED: 2.2 GPM @ 60 PSI, MUST DEFAULT BACK TO REGULAR FLOW)
 - PLUMBING FIXTURES AND FITTINGS REQUIRED IN SECTION 4.303.1 SHALL BE INSTALLED IN ACCORDANCE WITH THE CALIFORNIA PLUMBING CODE, AND SHALL MEET THE APPLICABLE REFERENCED STANDARDS

CALGreen BUILDING ACKNOWLEDGMENTS

PROJECT ADDRESS: 2101 Gilman Ranch Rd, Cotati, CA 94931
PROJECT DESCRIPTION: New Single Family Dwelling

SECTION 1 - DESIGN VERIFICATION

INSTRUCTIONS:
Prior to building permit application, complete all lines of Section 1 - "Design Verification," and submit the completed checklist (Columns 1 and 2) with the plans and building permit application to the City of Santa Rosa Building Division.

The signatures below certify that the owner, design professional, and the CALGreen inspector have reviewed the plans and Columns 1 and 2 of this checklist, and certify that the items checked above are hereby incorporated into the project plans and will be implemented into the project in accordance with the requirements set forth in the 2022 California Green Building Standards Code.

Owner's Signature	Date
Owner's Name (Please Print)	
<i>Merle Avila</i>	9/10/2024
Design Professional's Signature	Date
Merle Avila, Architect	
Design Professional's Name (Please Print)	
<i>Skeer</i>	9/6/2024
CALGreen Inspector's Signature	Date
Skeer	707-838-8505
CALGreen Inspector's Name (Please Print)	CALGreen Inspector's Phone Number
skeer22@gmail.com	8343214
CALGreen E-mail Address	ICC Certification Number

SECTION 2 - IMPLEMENTATION VERIFICATION

Complete, sign, and submit the completed checklist, including Column 3, together with all original signatures in this Section 2 - "Implementation Verification" to the Building Department prior to Building Department final inspection.

The owner, design professional, and the CALGreen inspector have reviewed the plans and certify that the items checked above are hereby incorporated into the project plans and will be implemented into the project in accordance with the requirements set forth in the 2022 California Green Building Standards Code.

CALGreen Inspector's Signature	Date
CALGreen Inspector's Name (Please Print)	CALGreen Inspector's Phone Number (If Different Than Above)
CALGreen E-mail Address (If Different Than Above)	ICC Certification Number (If Different Than Above)



MANDATORY MEASURES

LA-SERVER/SHARED/RESIDENTIAL/2024/0402/CAL GREEN 4 TITLE 24.DWG Mod 06 Nov 2024 - 12:56PM

SHEET NO: CG4 24021 (REV 25)
 DESIGN FOR: PITTELKOW RESIDENCE 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA APN 144-110-021
 CONTRACTOR: CUSTOM HOUSING SYSTEMS ROHNERT PARK, CALIFORNIA (707)484-0444
 DATE PRINTED: 12.23.24
 DATE CHECKED:

DATE: 12.24
 Merle Avila - architect
 Russell W. Bunch - architect
 5850 Commerce Blvd., Suite 100, Rohnert Park, California, 94928
 (707) 585-3711
 avila · bunch architects, inc.

Construction Waste Management Plan (CWMP) – CW 1

Project Name: PITTELKOW RESIDENCE
Project Location: 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021
Building Permit #: _____ **Project Sq. Ft.:** 3,900 SQ. FT.
Contractors Name: GARY TATMAN - CUSTOM HOUSING SYSTEMS
Owners Name: JOE PITTELKOW **Telephone:** (707) 484-0444

This construction waste management plan is hereby submitted to comply with Section 4.408.2 of the 2019 California Green Building Standards Code and the GreenPoint Rated Program.

The purpose of this plan is to identify and outline the methods to be used as the minimum requirements for a construction waste management plan when the local jurisdiction does not have a construction and demolition waste management ordinance per Section 4.408.2.

- The project's overall rate of waste diversion will be **65%**.
- The method of waste tracking to be used on this project will be:
 Volume **Weight** **4 Lbs. per Sq. Ft.** **Recycling Facility**
- Construction waste generated on this project for transport to a recycling facility will be:
 (Check appropriate box)
 Sorted on-site (Source-separated) **Bulk mixed (Single stream)**
- The facility (or facilities) where the construction waste material will be taken is:
 Name of Facility: GLOBAL MATERIALS RECOVERY SERVICE
 Address: _____
 Telephone: (707) 586-6666
- The following construction methods will be used to reduce the amount of waste generated:
 (Check all that apply)
 Efficient design (dimensions of building components are designed to available material sizes or standard sizes).
 Careful and accurate material ordering.
 Careful material handling and storage.
 Panelized or prefabricated construction.
 Other _____
 Other _____
- Waste reduction and recycling strategies shall be discussed at periodic project meetings. Each new [Contractor]* that comes onto the site shall be provided with a copy of the CWMP, which shall also be posted in the project office. The [Project Manager]* shall also instruct all [Subcontractors]* as to the location and proper use of debris boxes for disposal of construction waste materials.

CW-1 Construction Waste Management Plan

- Every effort shall be made to use recycling and/or reuse (diversion) measures to reduce the amount of construction waste and other materials sent to landfills. Whenever possible, site-sorted debris boxes shall be used to segregate construction waste materials to maximize the diversion rate.
- The [Contractor]* shall provide debris boxes for materials sorted on-site (source-separated) and/or bulk mixed (single stream) waste for all construction related waste generated on this project. Mixed construction waste shall be taken to a recycling facility that has a diversion rate of at least 75 percent. In the event that a [Subcontractor]* provides their own debris box, they shall be responsible for providing the [Contractor]* with a monthly report of the total Recycled and Reused (Diverted) and the total Non-Recycled (Disposed) materials to be included in the project's overall waste management/waste reduction program.
- Any [Supplier]* hauling away packaging or waste materials shall notify the [Contractor]* of the amount of these materials and how they will be disposed of (reused, recycled, salvaged, or taken to landfill).
- Identified below are the construction waste materials that will be reused and/or recycled during the course of this project and how they will be diverted:

Material	Diversion Method: (Recycle/Reuse)
Asphalt	Recycle
Cardboard, Mixed Paper	Recycle
Concrete, Brick, Masonry, Stucco	Recycle
Drywall/gypsum	Recycle
Metal	Recycle
Pallets	Recycle
Wood, Lumber, Plant Debris	Recycle

(See Construction Waste Management Worksheets for examples of common materials.)

- The [Waste Hauler]* shall track the total amount of construction waste leaving the project by weight or by volume and supply the [Contractor]* with copies of tickets or detailed receipts from all loads of construction waste removed from the jobsite.
- The [Contractor]* shall monitor the process of waste management, recycling, and reuse of construction waste materials to ensure compliance with the CWMP during the course of the project.
- The [Contractor]* shall ensure that all supporting documentation which demonstrates compliance with the waste management plan is provided to the local enforcement agency upon completion of the project.

CW-1 Construction Waste Management Plan



LA-SERVER/SHARED/RESIDENT/AL/2024/24021/CW/1.DWG Mod, 06 Nov 2024 - 12:36PM

SHEET NO: **CWM 24021** JOB NO: **PITTELKOW RESIDENCE** DESIGN FOR: **PITTELKOW RESIDENCE** DATE PRINTED: **12.2.24** DATE CHECKED: _____
 CONTRACTOR: **CUSTOM HOUSING SYSTEMS** REVISIONS PER CITY OF COTATI LETTER 10.21.24
 2101 GILMAN RANCH ROAD, COTATI, CALIFORNIA AP# 144-110-021
 ROHNERT PARK, CALIFORNIA (707)484-0444

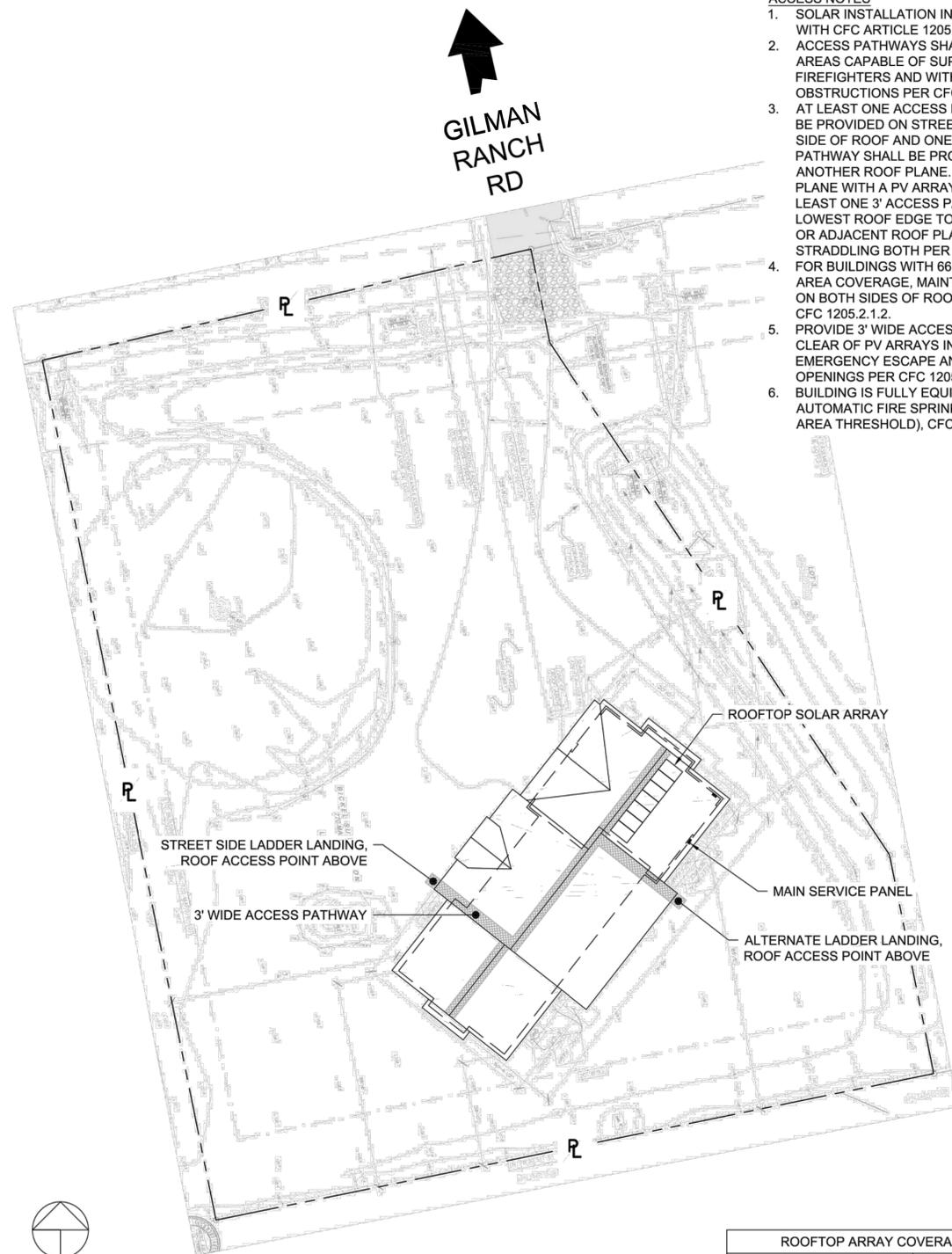
avila · bunch architects, inc. (707) 585-3711 Merle Avila · architect Russell W. Bunch · architect
 5850 Commerce Boulevard, Rohnert Park, California 94928



SOLAR PHOTOVOLTAIC INSTALLATION

2101 GILMAN RANCH RD, COTATI, CA 94931

SITE PLAN - SCALE: 1" = 20'



ACCESS NOTES

1. SOLAR INSTALLATION IN ACCORDANCE WITH CFC ARTICLE 1205.
2. ACCESS PATHWAYS SHALL BE PLACED IN AREAS CAPABLE OF SUPPORTING FIREFIGHTERS AND WITH MINIMAL OBSTRUCTIONS PER CFC 1205.2.
3. AT LEAST ONE ACCESS PATHWAY SHALL BE PROVIDED ON STREET OR DRIVEWAY SIDE OF ROOF AND ONE ACCESS PATHWAY SHALL BE PROVIDED ON ANOTHER ROOF PLANE. FOR EACH ROOF PLANE WITH A PV ARRAY, PROVIDE AT LEAST ONE 3' ACCESS PATHWAY FROM LOWEST ROOF EDGE TO RIDGE ON THAT OR ADJACENT ROOF PLANE, OR STRADDLING BOTH PER CFC 1205.2.1.1.
4. FOR BUILDINGS WITH 66% OR LESS AREA COVERAGE, MAINTAIN 18" CLEAR ON BOTH SIDES OF ROOF RIDGE PER CFC 1205.2.1.2.
5. PROVIDE 3' WIDE ACCESS PATHWAYS, CLEAR OF PV ARRAYS IN FRONT OF EMERGENCY ESCAPE AND RESCUE OPENINGS PER CFC 1205.2.2.
6. BUILDING IS FULLY EQUIPPED WITH AUTOMATIC FIRE SPRINKLERS (66% AREA THRESHOLD), CFC 1205.2.1.3.

ROOFTOP ARRAY COVERAGE	
TOTAL ARRAY AREA	134 SF
TOTAL ROOFTOP AREA	4366 SF
ARRAY COVERAGE	3.1%
3.1% < 66% THEREFORE OK	

DESIGN NOTES

- City of Cotati jurisdiction
- Module specified for T24 minimum PV system size offers good value and decent efficiency.
- The feeders from the main panel to the Enphase AC combiner to #8 (from #10) to allow for a generous system expansion if the customer wants to do so later.
- An option is included to install an extra set of Romex (type NM) feeders from the Enphase Combiner to the rooftop junction to make system expansion easier.
- Battery integration could be done fairly easily if the customer wants to do so later.
- Equipment specs based on what is common, easy to get and ia a good value.

PROJECT SUMMARY

SCOPE OF WORK

PHOTOVOLTAIC: RESIDENTIAL FLUSH ROOF MOUNT, GRID TIED

PV SYSTEM SIZE

2.87 kW (DC @ STC) / 7 PV MODULES

SYSTEM SIZE ASSUMES 95% MINIMUM SOLAR ACCESS. INSTALLATION CONTRACTOR SHALL PROVIDE SHADE ANALYSIS PRIOR TO SOLAR INSTALLATION AND WILL INCREASE SYSTEM SIZE INVERSELY PROPORTIONAL TO ACTUAL SOLAR ACCESS READINGS FROM SOLAR LOCATION ON ROOF.

PROJECT ADDRESS: 2101 GILMAN RANCH RD
COTATI, CA 94931
APN: 144-110-021
JURISDICTION: CITY OF COTATI
OCCUPANCY GROUP: R-3
CONSTRUCTION TYPE: VB

ABBREVIATIONS

A	AMP, AMPS
CEC	CALIFORNIA ELECTRICAL CODE
CFC	CALIFORNIA FIRE CODE
CRC	CALIFORNIA RESIDENTIAL CODE
E	EXISTING
EMT	ELECTRICAL METALLIC TUBING
ESS	ENERGY STORAGE SYSTEM
EVSE	ELECTRIC VEHICLE SUPPLY EQUIPMENT
GND	GROUND
N	NEW
O.C.	ON CENTER
OCPP	OVERCURRENT PROTECTION DEVICE
PV	PHOTOVOLTAIC
TYP	TYPICAL
V	VOLT, VOLTS

SHEET INDEX

PV1	COVER, NOTES, SITE PLAN
PV2	ROOF PLAN, SECTIONS, DETAILS
PV3	ELECTRICAL DIAGRAM
PV4	CUT SHEET PAGE
PV5	CUT SHEET PAGE

CODE SUMMARY

2022 CALIFORNIA ELECTRICAL CODE
ARTICLE 690, 705, 350, 310 ET AL
2022 CALIFORNIA FIRE CODE
ARTICLE 1205
2022 CALIFORNIA RESIDENTIAL CODE

ELECTRICAL NOTES

CIRCUITS AND WIRING

1. ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE NOTED.
2. DC CIRCUITS: SIZE CONDUCTORS AND OVERCURRENT DEVICES BASED ON CEC TABLE 310.16. USE MODULE SHORT CIRCUIT RATING CORRECTED FOR CLOUD EDGE IRRADIANCE (1.25 FACTOR) (CEC 690.8(A)(1)) AND CONTINUOUS DUTY (1.25 FACTOR) (CEC 690.8(B)(1)).
3. DC CIRCUITS: CHECK CONDUCTOR AMPACITY ADJUSTED FOR AMBIENT TEMPERATURE (CEC TABLE 310.15(B)(1)) AND MULTIPLE CONDUCTORS (CEC TABLE 310.15(C)(1)) AGAINST MODULE SHORT CIRCUIT CURRENT PLUS CLOUD EDGE IRRADIANCE (1.25 FACTOR). IF MAXIMUM CURRENT EXCEEDS DERATED AMPACITY OF CONDUCTOR, INCREASE CONDUCTOR SIZE AND REPEAT CHECK UNTIL DERATED AMPACITY MEETS OR EXCEEDS MAXIMUM CIRCUIT CURRENT.
4. DC CIRCUITS: SERIES STRING (OR MODULE FOR MICROINVERTERS INSTALLATIONS) OPEN CIRCUIT VOLTAGE CORRECTED FOR MINIMUM AMBIENT TEMPERATURE SHALL NOT EXCEED MAXIMUM INVERTER INPUT VOLTAGE.
5. SIZE CONDUCTOR SUPPLY FEEDS AND OVERCURRENT DEVICES BASED ON CEC TABLE 310.16. USE MAX CONTINUOUS INVERTER OUTPUT CORRECTED FOR CONTINUOUS DUTY (1.25 FACTOR) (CEC 690.8(B)(1)).
6. CHECK CONDUCTOR AMPACITY ADJUSTED FOR AMBIENT TEMPERATURE (CEC TABLE 310.15(B)(1)) AND MULTIPLE CONDUCTORS (CEC TABLE 310.15(C)(1)) AGAINST MAX CONTINUOUS INVERTER OUTPUT. IF MAXIMUM CURRENT EXCEEDS DERATED AMPACITY OF CONDUCTOR, INCREASE CONDUCTOR SIZE AND REPEAT CHECK UNTIL DERATED AMPACITY MEETS OR EXCEEDS MAXIMUM CIRCUIT CURRENT.
7. WHERE RACEWAYS OR CABLES ARE EXPOSED TO DIRECT SUNLIGHT ON OR ABOVE ROOFTOPS, THEY SHALL BE INSTALLED A MINIMUM DISTANCE ABOVE THE ROOF TO THE BOTTOM OF THE RACEWAY OR CABLE OF 7/8", OTHERWISE 33°C TEMPERATURE ADDER SHALL BE USED (CEC 310.15(B)(2)).
8. CONTROL WIRING WITHIN THE SAME ENCLOSURE OR RACEWAY AS POWER WIRING SHALL HAVE AN INSULATION RATING EQUAL TO AT LEAST THE MAXIMUM VOLTAGE IN THE ENCLOSURE OR RACEWAY PER CEC 300.3(C)(1)

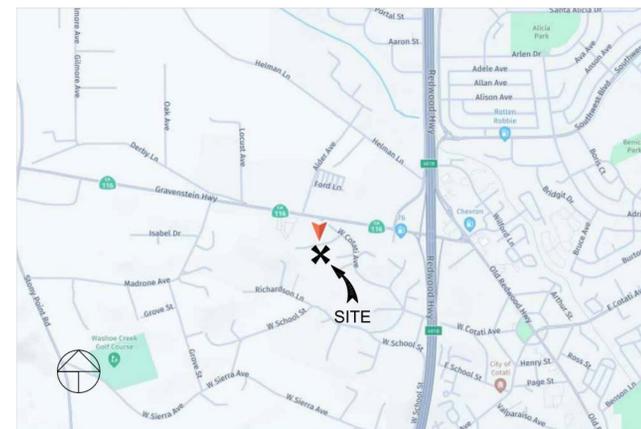
INTERCONNECTION

1. SUM OF INVERTER OCPPDS AND SUPPLY FEEDS SHALL NOT EXCEED 120% OF THE RATING OF THE BUS BARS OR OR CONDUCTORS PER CEC 705.12(B)(3)(2).
2. IF THE SUM OF THE SUPPLY FEEDS TO A BUS BAR EXCEEDS 100% OF THE BUS BAR RATING, LOCATE FEEDS AT OPPOSITE ENDS OF THE BUS BAR PER CEC 705.12(B)(3)(3).

GROUNDING

1. EXPOSED, NON CURRENT CARRYING METAL PARTS SHALL BE GROUNDED PER CEC 690.43.
2. ARRAY GROUNDING WITH IRON RIDGE UL LISTED GROUNDING SYSTEM.
3. MOUNTING RAILS GROUNDED WITH #6 BARE COPPER GROUND WIRE AND IRON RIDGE GROUND LUG ASSEMBLY
4. MODULES GROUNDED TO MOUNTING RAILS WITH IRON RIDGE GROUNDING MODULE CLAMPS.
5. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED IN ACCORDANCE WITH CEC 690.41-45 AND SIZED PER CEC 250.122.

VICINITY MAP



SOLARDIGM 365
8820 LUND HILL LANE
COTATI, CA 94931

COVER,
NOTES,
SITE PLAN

PITTELKLOW RESIDENCE
2101 GILMAN RANCH RD
COTATI, CA 94931

Date	No.	Revision

DATE: 9/25/2024
JOB: 24021

SHEET: PV1



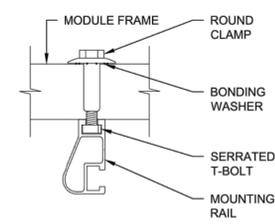
Date	No.	Revision

KEYED ROOF PLAN NOTES

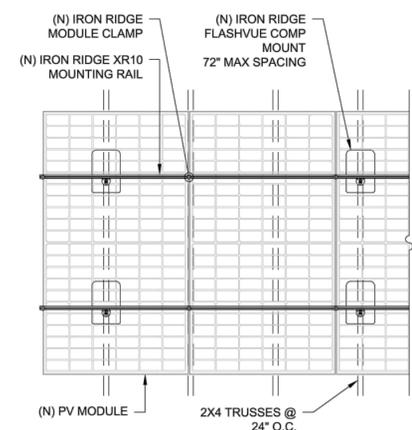
1. PV ARRAY IS 7 MODULES, AZIMUTH IS 128°, FLUSH MOUNTED AT 26.6°.
2. MOUNTING SYSTEM IS IRONRIDGE WITH 1 3/4" XR10 MOUNTING RAIL.
3. STANCHIONS ARE IRON RIDGE FLASHVUE COMP SHINGLE MOUNTS
4. ENPHASE AC COMBINER PANEL IN GARAGE
5. MAIN SERVICE PANEL

ROOF PLAN NOTES

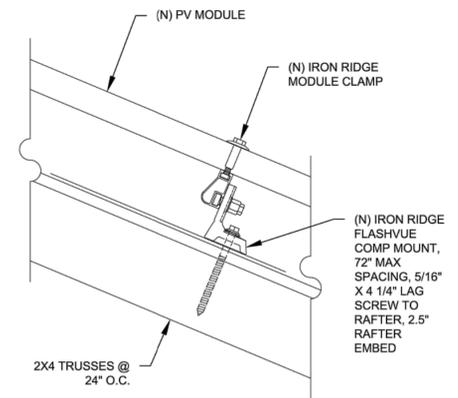
1. ROOF IS COMP SHINGLE IN GOOD CONDITION, 1 STORY, 6:12 ROOF PITCH, 2X4 TRUSSES @ 24" O.C.
2. PV MODULES ARE (7) HANWHA Q.CELLS Q.PEAK DUO BLK ML-G10+ 410, MODULE DIMENSIONS ARE 74.0" X 41.1" X 1.26", MODULE WEIGHT IS 48.5 LBS.



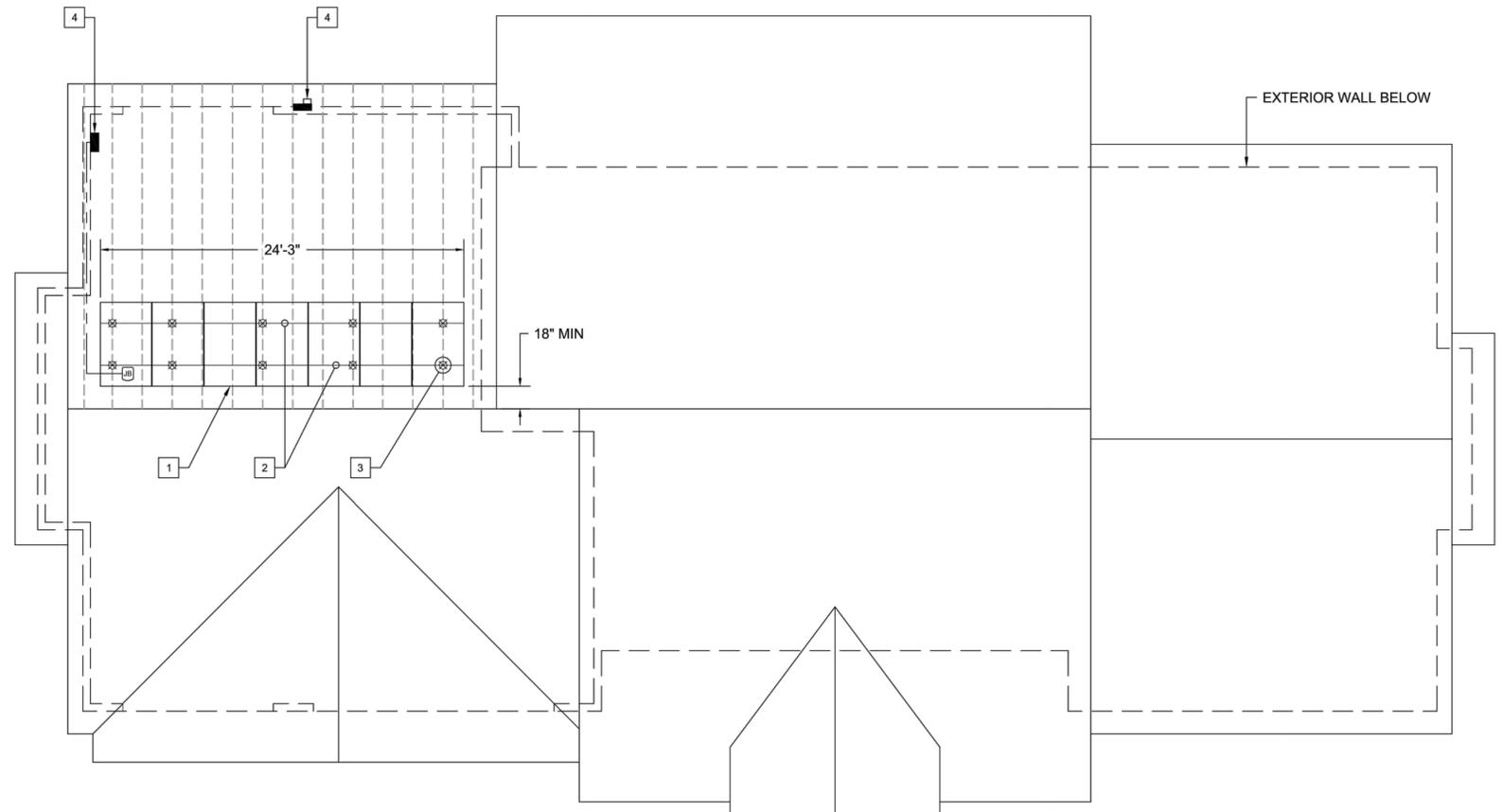
4 GROUNDING DETAIL - SCALE: 6"



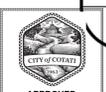
3 ARRAY DETAIL, PLAN VIEW - SCALE 1/2" = 1'



2 ARRAY DETAIL, SECTION VIEW - SCALE 3"



1 ROOF PLAN - SCALE: 1/4"



Background

All roofing products are tested and classified for their ability to resist fire.

Recently, these fire resistance standards were expanded to include solar equipment as part of the roof system. Specifically, this requires the modules, mounting hardware and roof covering to be tested together as a system to ensure they achieve the same fire rating as the original roof covering.

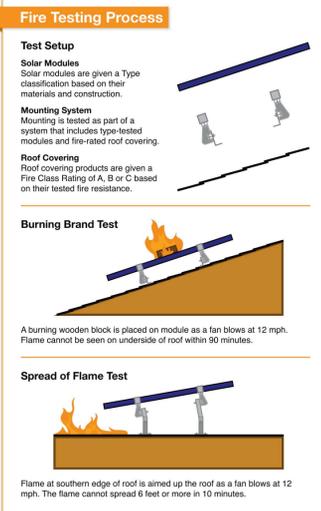
These new requirements are being adopted throughout the country in 2016.

IronRidge Certification

IronRidge was the first company to receive a Class A Fire Rating—the highest possible rating—from Intertek Group plc., a Nationally Recognized Testing Laboratory.

IronRidge Flush Mount and Tilt Mount Systems were tested on sloped and flat roofs in accordance with the new UL 1703 & UL 2703 test standards. The testing evaluated the system's ability to resist flame spread, burning material and structural damage to the roof.

Refer to the table below to determine the requirements for achieving a Class A Fire Rating on your next project.



System	Roof Slope	Module	Fire Rating*
Flush Mount	Any Slope	Type 1, 2, & 3	Class A
Tilt Mount	≤ 9.5 Degrees	Type 1, 2, & 3	Class A

*Class A rated PV systems can be installed on Class A, B, and C roofs.

Frequently Asked Questions

What is a "module type"?

The new UL1703 standard introduces the concept of a PV module type, based on 4 construction parameters and 2 fire performance parameters. The purpose of this classification is to certify mounting systems without needing to test it with every module.

What roofing materials are covered?

All fire rated roofing materials are covered within this certification including composition shingle, clay and cement tile, metal, and membrane roofs.

What if I have a Class C roof, but the jurisdiction now requires Class A or B?

Generally, older roofs will typically be "grandfathered in", and will not require re-roofing. However, if 50% or more of the roofing material is replaced for the solar installation the code requirement will be enforced.

Where is the new fire rating requirement code listed?

2012 IBC: 1509.7.2 Fire classification. Rooftop mounted photovoltaic systems shall have the same fire classification as the roof assembly required by Section 1505.

Where is a Class A Fire Rating required?

The general requirement for roofing systems in the IBC refers to a Class C fire rating. Class A or B is required for areas such as Wildland Urban Interface areas (WUI) and for very high fire severity areas. Many of these areas are found throughout the western United States. California has the most Class A and B roof fire rating requirements, due to wild fire concerns.

Are standard mid clamps covered?

Mid clamps and end clamps are considered part of the PV "system", and are covered in the certification.

What attachments and flashings are deemed compatible with Class A?

Attachments and their respective flashings are not constituents of the rating at this time. All code-compliant flashing methods are acceptable from a fire rating standpoint.

What mounting height is acceptable?

UL fire testing was performed with a gap of 5", which is considered worst case in the standard. Therefore, the rating is applicable to any module to roof gap.

Am I required to install skirting to meet the fire code?

No, IronRidge achieved a Class A fire rating without any additional racking components.

What determines Fire Classification?

Fire Classification refers to a fire-resistance rating system for roof covering materials based on their ability to withstand fire exposure.

Class A - effective against severe fire exposure
Class B - effective against moderate fire exposure
Class C - effective against light fire exposure

What if the roof covering is not Class A rated?

The IronRidge Class A rating will not diminish the fire rating of the roof, whether Class A, B, or C.

What tilts is the tilt mount system fire rated for?

The tilt mount system is rated for 1 degree and up and any roof to module gap, or mounting height.

More Resources

Installation Manuals
Visit our website for manuals that include UL 2703 Listing and Fire Rating Classification.
[Go to IronRidge.com](#)

Engineering Certification Letters
We offer complete engineering resources and pre-stamped certification letters.
[Go to IronRidge.com](#)



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Our components have been tested to the limit and proven in extreme environments, including Florida's high-velocity hurricane zones.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 25-year warranty.

Strength Tested
All components evaluated for superior structural performance.

Class A Fire Rating
Certified to maintain the fire resistance rating of the existing roof.

UL 2703 Listed System
Entire system and components meet newest effective UL 2703 standard.

PE Certified
Pre-stamped engineering letters available in most states.

Design Assistant
Online software makes it simple to create, share, and price projects.

25-Year Warranty
Products guaranteed to be free of impairing defects.

XR Rails

<p>XR10 Rail</p> <p>A low-profile mounting rail for regions with light snow.</p> <ul style="list-style-type: none"> • 6' spanning capability • Moderate load capability • Clear and black finish 	<p>XR100 Rail</p> <p>The ultimate residential solar mounting rail.</p> <ul style="list-style-type: none"> • 8' spanning capability • Heavy load capability • Clear and black finish 	<p>XR1000 Rail</p> <p>A heavyweight mounting rail for commercial projects.</p> <ul style="list-style-type: none"> • 12' spanning capability • Extreme load capability • Clear anodized finish 	<p>BOSS™ Bonded Splices</p> <p>Bonded Structural Splices connect XR Rails together.</p> <ul style="list-style-type: none"> • Integrated bonding • No tools or hardware • Self-centering stop tab
<p>UFO™</p> <p>Universal Fastening Objects bond modules to rails.</p> <ul style="list-style-type: none"> • Fully assembled & lubed • Single, universal size • Clear and black finish 	<p>Stopper Sleeves</p> <p>Snap onto the UFO to turn into a bonded end clamp.</p> <ul style="list-style-type: none"> • Bonds modules to rails • Sized to match modules • Clear and black finish 	<p>CAMO™</p> <p>Bond modules to rails while staying completely hidden.</p> <ul style="list-style-type: none"> • Universal end-cam clamp • Tool-less installation • Fully assembled 	<p>Bonding Hardware</p> <p>Bond and attach XR Rails to roof attachments.</p> <ul style="list-style-type: none"> • T & Square Bolt options • Nut uses 7/16" socket • Assembled and lubricated
<p>FlashFoot2™</p> <p>Flash and mount XR Rails with superior waterproofing.</p> <ul style="list-style-type: none"> • Twist-on Cap eases install • Wind-driven rain tested • Mill and black finish 	<p>FlashVue™</p> <p>Flash and mount conduit, strut, or junction boxes.</p> <ul style="list-style-type: none"> • Twist-on Cap eases install • Wind-driven rain tested • Secures 3/4" or 1" conduit 	<p>Knockout Tile</p> <p>Replace tiles and ensure superior waterproofing.</p> <ul style="list-style-type: none"> • Flat, S, & W tile profiles • Form-fit compression seal • Single-lag universal base 	<p>All Tile Hook</p> <p>Mount on tile roofs with a simple, adjustable hook.</p> <ul style="list-style-type: none"> • Works on flat, S, & W tiles • Single-socket installation • Optional deck flashing

Resources

Design Assistant
Go from rough layout to fully engineered system. For free.
[Go to IronRidge.com/design](#)

Endorsed by FL Building Commission
Flush Mount is the first mounting system to receive Florida Product approval for 2017 Florida Building Code compliance.
[Learn More at bit.ly/floridacert](#)

ITEM NO	DESCRIPTION	QTY IN KIT
1	BOLT, LAG 5/16 X 4.25"	1
2	WASHER, EPDM BACKED	1
3	FM FLASHING, MILL OR BLACK	1
4	GRIP CAP, MILL OR BLACK	1

FLASHVUE

PART NUMBER	DESCRIPTION
FV-01-M1	FLASHING, FLASHFOOT, MILL
FV-01-B1	FLASHING, FLASHFOOT, BLACK

1) BOLT, LAG 5/16 x 4.25"

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

2) Washer, EPDM Backed

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) Grip Cap

Property	Value
Material	Aluminum
Finish	Mill/Black

4) FM Flashing

Property	Value
Material	Aluminum
Finish	Mill/Black

v1.0

SOLARDIGM 365
8820 LUND HILL LANE
COTATI, CA 94931

CUT SHEETS

PITTELKLOW RESIDENCE
2101 GILMAN RANCH RD
COTATI, CA 94931

Date	No.	Revision

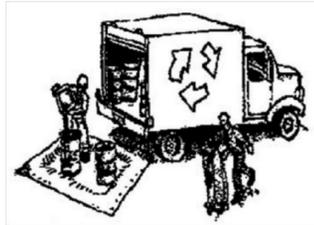
DATE: 9/25/2024
JOB: 24021

SHEET: PV4



CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs)

Construction Projects Are Required to Implement the Stormwater Best Management Practices (BMPs) on this Page, as they Apply to Your Project, All Year Long.



MATERIALS & WASTE MANAGEMENT

Non-Hazardous Materials

- Berm and securely cover stockpiles of sand, dirt, or other construction materials with tarps when rain is forecast or if stockpiles are not actively being used. For best results, this should be done at the end of the work day throughout construction when feasible.
- Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- Arrange for appropriate disposal of all hazardous wastes.

Construction Entrances and Perimeter

- Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.

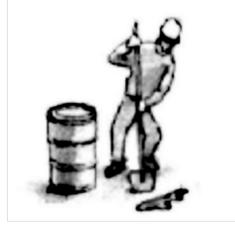
- Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Waste Management

- The California Green Building Code requires all permitted residential and non-residential construction, demolition and additions/alterations projects to recycle or salvage a minimum 65% of nonhazardous construction materials from the project.
- Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- Clean or replace portable toilets, and inspect them frequently for leaks and spills. Incorporate secondary containment and locate them away from storm drain inlets.
- Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste (the Monterey Regional Waste Management District offers a Household Hazardous Waste Facility that accepts these items).

Maintenance and Parking

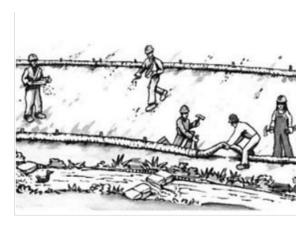
- Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, steam cleaning equipment, etc.
- Inlet protection is the last line of spill defense. Drains/inlets that receive storm water must be covered or otherwise protected from receiving sediment/dirt/mud, other debris, or illicit discharges, and include gutter controls and filtration where applicable in a manner not impeding traffic or safety.



EQUIPMENT MANAGEMENT & SPILL CONTROL

Spill Prevention and Control

- Keep spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.
- Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- Clean up spills or leaks immediately and dispose of cleanup materials properly (see the Monterey Regional Waste Management District's guidelines for accepting hazardous waste materials).
- Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- Clean up spills on dirt areas by digging up and properly disposing of contaminated soil (see the Monterey Regional Waste Management District's Contaminated Soil Acceptance Criteria).
- Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: Dial 911.



EARTHWORK & CONTAMINATED SOILS

Erosion Control

- Schedule grading and excavation work for dry weather only.
- Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- Seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.

Sediment Control

- Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, inlet filler, berms, etc.
- Prevent sediment from migrating offsite by installing and maintaining sediment controls, such as fiber rolls, silt fences, or sediment basins.
- Keep excavated soil on the site where it will not collect into the street.
- Transfer excavated materials to dump trucks on the site, not in the street.
- If any of the following conditions are observed, test for contamination and contact the Monterey County Environmental Health Department, Regional Water Quality Control Board, and local municipal inspector:
 - Unusual soil conditions, discoloration, or odor
 - Abandoned underground tanks
 - Abandoned wells
 - Buried barrels, debris, or trash.

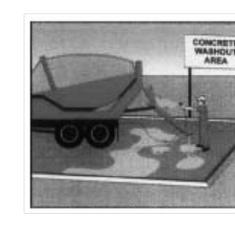


PAVING/ASPHALT WORK

- Avoid paving and seal coating in wet weather, or when rain is forecast before fresh pavement will have time to cure.
- Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- Do not use water to wash down fresh asphalt or concrete pavement.

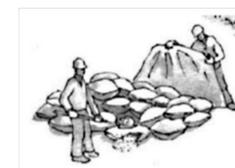
Sawcutting & Asphalt/Concrete Removal

- Completely cover or barricade storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, inlet filters, berms, etc.
- Shovel, absorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- If sawcut slurry enters a catch basin, clean it up immediately.



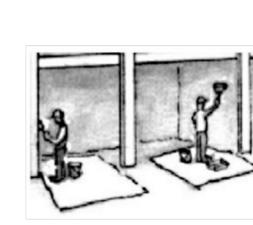
CONCRETE, GROUT & MORTAR APPLICATION

- Store concrete, grout and mortar under cover, on pallets and away from drainage areas. These materials must never reach a storm drain.
- Wash out concrete equipment/trucks offsite or in a contained area, so there is no discharge into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- Collect the wash water from washing exposed aggregate concrete and remove it for appropriate disposal offsite.



LANDSCAPE MATERIALS

- Contain stockpiled landscaping materials by storing them under tarps when they are not actively being used.
- Stack erodible landscape material on pallets. Cover or store these materials when they are not actively being used or applied.
- Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.



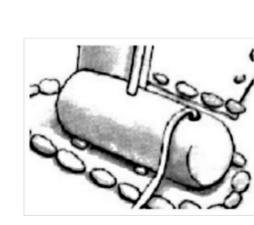
PAINTING & PAINT REMOVAL

Painting cleanup

- Never clean brushes or rinse paint containers into a street, gutter, storm drain, or surface waters.
- For water-based paints, paint out brushes to the extent possible. Rinse to the sanitary sewer once you have gained permission from the local wastewater treatment authority. Never pour paint down a drain.
- For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of residue and unusable thinner/solvents as hazardous waste.

Paint Removal

- Chemical paint stripping residue and chips and dust from marine paints or paints containing lead or tributyltin must be disposed of as hazardous waste.
- Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.



DEWATERING

- Effectively manage all run-on, all runoff within the site, and all runoff that discharges from the site.
- Divert run-on water from offsite away from all disturbed areas or otherwise ensure protection of its water quality for compliance.
- When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap, and/or disposal in sanitary sewer may be required.
- In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the Engineer and municipal staff to determine whether testing is required and how to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

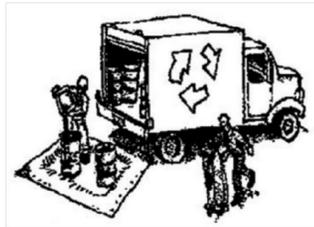
* Adapted with permission from the San Mateo Countywide Water Pollution Prevention Program

STORM DRAIN POLLUTERS MAY BE LIABLE FOR FINES OF UP TO \$10,000 PER DAY!

LAS MEJORES PRÁCTICAS DE CONSTRUCCIÓN

Los proyectos de construcción deben implementar las Mejores Prácticas de Construcción dadas en esta página, ya que son pertinentes a su proyecto todo el año.

REVISADO PER CITY OF ROHNERT PARK 4.10.24



MANEJO DE MATERIALES Y RESIDUOS

Materiales no peligrosos

- ❑ Haga un borde alrededor y cubra con lonas impermeables las pilas de arena, tierra u otros materiales de construcción cuando haya pronóstico de lluvia o si no se están usando activamente. Para mejor resultado, esto debería hacerse diariamente al final del día de trabajo durante toda la construcción cuando sea posible.
- ❑ Use (pero no abuse) agua reclamada para controlar el polvo.

Materiales peligrosos

- ❑ Póngales etiqueta con nombre a todos los materiales y residuos peligrosos (como pesticidas, pintura, diluyentes, solventes, gasolina, aceite y anticongelante) de acuerdo con las reglamentaciones de la ciudad, del condado, del estado y federales.
- ❑ Ponga los materiales y residuos peligrosos en contenedores que no pierdan, póngalos luego en contenedores secundarios apropiados y cúbralos después de cada día de trabajo, o durante la temporada lluviosa, o cuando se haya pronosticado lluvia.
- ❑ Al aplicar los materiales peligrosos, siga las instrucciones del fabricante y tenga cuidado de no usar más de lo necesario. No aplique productos químicos en el exterior cuando se haya pronosticado lluvia en las próximas 24 horas.
- ❑ Asegúrese de deshacerse apropiadamente de todos los residuos peligrosos.

Entradas y perímetros de los sitios de construcción

- ❑ Establezca y mantenga control efectivo de los perímetros y establezca todas las entradas y salidas del sitio de construcción

para controlar suficientemente la erosión y la descarga de sedimentos del sitio para que no salgan del sitio.

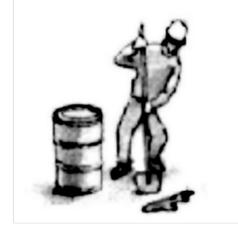
- ❑ Barra o aspire inmediatamente lo que haya pasado a la calle y controle la fuente de origen para prevenir que siga sucediendo. Nunca lave con manguera las calles para limpiar lo que haya sido acarreado o llevado del sitio de construcción.

Gestión de residuos

- ❑ El Código de Construcción Ecológica de California requiere que todos los proyectos permitidos de construcción, demolición y adiciones o alteraciones, residenciales o no residenciales, reciclen o salven un mínimo del 65% de los materiales de construcción no peligrosos del proyecto.
- ❑ Cubra los contenedores de residuos de manera segura con lonas impermeables al término de cada día de trabajo y durante el tiempo de lluvias.
- ❑ Limpie o reemplace los excusados portátiles e inspecciónelos con frecuencia para ver que no pierdan o se derramen. Incorpore contención secundaria y colóquela lejos de los desagües de aguas pluviales.
- ❑ Deshágase de los residuos líquidos de pintura, solventes, colas y líquidos de limpieza como materiales peligrosos (la compañía de Gestión de Residuos Monterey Regional Waste Management District, tiene una planta para residuos peligrosos del hogar que acepta estos artículos).

Mantenimiento y estacionamiento

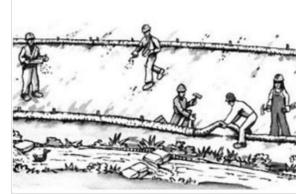
- ❑ Designe un área especial, usando técnicas apropiadas de control de polución, para estacionar los vehículos y el equipo, y para almacenamiento.
- ❑ Realice las tareas mayores de mantenimiento, los trabajos de reparación y el lavado de vehículos y equipos fuera del sitio de construcción.
- ❑ Si es necesario ponerle gasolina a un vehículo o hacer reparaciones en el sitio, trabaje en un área bordeada, alejada de los desagües pluviales y sobre una bandeja de goteo de tamaño suficiente para contener los líquidos peligrosos que se derramen. Recicle o deshágase de los líquidos como materiales peligrosos.
- ❑ Si es necesario lavar los vehículos o equipos en el sitio de construcción, límpielos sólo con agua, en un área contenida que no permita que el agua de enjuague llegue a cunetas, calles, desagües de aguas pluviales o superficies acuáticas (lagos, arroyos, etc.).
- ❑ No lave vehículos o equipos en el sitio de construcción usando jabones, solventes, desengrasadores, equipo de limpieza en seco, etc.
- ❑ La protección del conducto de entrada es el último punto de defensa de derrames. Desagües/entradas que reciben aguas pluviales deben ser cubiertos o de otra manera protegidos contra sedimentos, tierra, barro u otras basuras, o contra descargues ilícitos, y debe incluir el control de canaletas y la filtración, donde sea pertinente, de manera que no obstruya el tránsito o la seguridad.



MANEJO DEL EQUIPO Y CONTROL DE DERRAMES

Prevención y control de derrames

- ❑ Mantenga a mano en el sitio de construcción, en todo momento, los materiales para limpiar derrames (trapos, absorbentes, etc.).
- ❑ Inspeccione frecuentemente los vehículos y equipos para descubrir pérdidas de fluidos y repárelas inmediatamente. Use bandejas de goteo para recoger el líquido de la pérdida hasta que pueda hacer las reparaciones.
- ❑ Limpie los derrames o pérdidas inmediatamente y deshágase apropiadamente de los materiales de limpieza (vea las guías del *Monterey Regional Waste Management District* para ver los materiales peligrosos aceptados como desperdicio).
- ❑ No lave con manguera las superficies donde se hayan volcado líquidos. Use métodos en seco (materiales absorbentes, aserrín de cajas sanitarias para gatos, o trapos).
- ❑ Barra inmediatamente los materiales secos que se hayan desparramado. No trate de deshacerse de ellos usando agua, ni de enterrarlos.
- ❑ Limpie los derrames en la tierra excavando la tierra contaminada y deshaciéndose correctamente de ella (vea las guías del *Monterey Regional Waste Management District* sobre el criterio para aceptar tierra contaminada).
- ❑ Comuníquese inmediatamente cualquier derrame significativo. La ley obliga comunicar todos los derrames de materiales peligrosos, incluyendo el petróleo. Para comunicar un derrame: llame al 911.



TRABAJO EN LA TIERRA Y SUELOS CONTAMINADOS

Control de erosión

- ❑ Planee trabajo de nivelación y excavación sólo cuando no vaya a llover.
- ❑ Estabilice todas las áreas desnudas, instale y mantenga control de erosión provisorio (como tela de control de erosión o matriz de tejido pegado) hasta que se haya establecido la vegetación.
- ❑ Plante semillas o plantas para control de erosión en superficies en declive o donde no se planee la construcción inmediata.

Control de sedimento

- ❑ Proteja las rejillas de los desagües de aguas pluviales, las cunetas, canales y cursos de drenaje, usando apropiadas técnicas de control de polución, como bolsas con grava, rollos de fibras, bordes, etc.
- ❑ Prevenga que los sedimentos migren fuera del sitio instalando y manteniendo controles de sedimentos, como rollos de fibra, cerca de sedimentos o estanques de sedimentos.
- ❑ Mantenga la tierra que se haya excavado en el sitio de construcción en un lugar donde no pueda ser acarreada a la calle.
- ❑ Transfiera a los camiones los materiales excavados, en el sitio mismo de construcción y no en la calle.
- ❑ Si se observan cualquiera de las siguientes condiciones, analice la tierra para descubrir contaminación y comuníquese con la Junta Regional de Control de Calidad del Agua y con el inspector municipal local:
 - Condiciones inusuales en la tierra, descoloramiento u olor.
 - Tanques enterrados abandonados.
 - Pozos de agua abandonados.
 - Barriles, basuras o residuos enterrados.



TRABAJO CON PAVIMENTO/ASFALTO

- ❑ Evite pavimentar o recubrir pavimento en temporada de lluvias, o cuando se haya pronosticado lluvia para antes que el nuevo pavimento haya tenido tiempo de secarse.
- ❑ Cubra las rejillas de los desagües de aguas pluviales y las bocas de sumideros antes de aplicar la capa de sellado, capa ligante, capa de lechada (*slurry seal*), capa final fluida, etc.
- ❑ Junte y recicle o deshágase apropiadamente del exceso de grava o arena abrasivas. NO las barra ni las empuje con agua a los desagües de aguas pluviales.
- ❑ No use agua para lavar pavimento de concreto y asfalto fresco.

Cortando con sierra y removiendo asfalto/concreto

- ❑ Cubra completamente o erija una barrera alrededor de las rejillas de desagües de aguas pluviales cuando corte con sierra. Use tela de filtro, filtros en las bocas de admisión, o bolsas de grava para evitar que la lechada entre en el sistema de desagües pluviales.
- ❑ Proteja las entradas de desagües de aguas pluviales, canaletas, cunetas y cursos de drenaje con las mejores prácticas de control, como bolsas de grava, filtros de entrada, bordes, etc.
- ❑ Levante con pala, absorba o aspire la lechada producida por la sierra y deshágase de todos los residuos tan pronto como haya finalizado en un sitio, o al terminar cada día de trabajo (¡lo que ocurra antes!).
- ❑ Si la lechada producida por la sierra entra en un sumidero, límpiela inmediatamente.



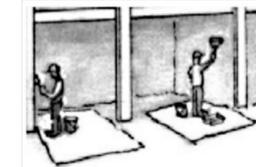
APLICACIÓN DE CONCRETO, LECHADA DE CEMENTO Y ARGAMASA

- ❑ Guarde el concreto, la lechada de cemento y la argamasa cubiertos, en paletas y alejados de las áreas de desagüe. Estos materiales nunca deben llegar a los desagües pluviales.
- ❑ Lave el concreto del equipo y de los camiones fuera del sitio de construcción o en un área contenida, para que no descarguen en la tierra subyacente o en las áreas de alrededor. Deje secar el concreto y deshágase de él como basura.
- ❑ Junte el agua con la que lavó el concreto de agregado expuesto y deshágase de ella apropiadamente fuera del sitio de construcción.



MATERIALES DE JARDINERÍA

- ❑ Contenga los materiales de jardinería ya apilados manteniéndolos cubiertos con lonas impermeables cuando no estén en uso activo.
- ❑ Ponga sobre paletas los materiales de jardinería que puedan sufrir erosión. Cubra o guarde esos materiales cuando no sean activamente usados o aplicados.
- ❑ No continúe aplicando cualquier material de jardinería que pueda sufrir erosión por lo menos dos días antes de una lluvia pronosticada o durante tiempo lluvioso.



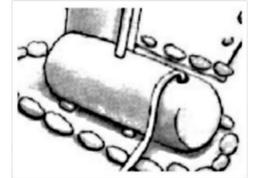
PINTANDO Y REMOVIENDO PINTURA

Limpieza después de pintar

- ❑ Nunca lave los pinceles ni enjuague los tarros de pintura en la calle, en las cunetas, desagües pluviales o superficies de aguas (arroyos, lagos, etc.).
- ❑ Al terminar de usar pinturas a base de agua, pinte lo más que pueda con la última pintura en el pincel. Enjuague los pinceles en un desagüe a las cloacas una vez que haya obtenido el permiso de las autoridades locales del sistema de tratamiento de aguas negras. Nunca eche pintura en un desagüe.
- ❑ Usando pinturas a base de aceite, pinte lo más que pueda con la última pintura en el pincel y limpie el pincel con diluyente o solvente en un envase apropiado. Filtre y vuelva a usar los diluyentes y solventes. Deshágase del residuo y del diluyente/solvente como desechos peligrosos.

Removiendo pintura

- ❑ Los residuos de productos químicos para remover pintura y los trozos y el polvo de pinturas marinas o de pinturas que contienen plomo o tributyltin, deben ser desechados como residuos peligrosos.
- ❑ Los trozos de pintura y el polvo de productos no peligrosos y removidos en seco o con ráfagas de arena pueden ser barridos o juntados en tela de plástico y echados a la basura.



EXTRACCIÓN DEL AGUA

- ❑ Controle efectivamente toda el agua que corra al sitio, o dentro del sitio y la que corra hacia afuera originada en el sitio.
- ❑ Desvíe toda el agua que venga hacia el sitio para que no llegue a las áreas disturbadas o de alguna otra manera asegúrese de proteger la calidad del agua para cumplir con las ordenanzas.
- ❑ Al extraer el agua, notifique y obtenga el permiso de la municipalidad local antes de descargar agua en la cuneta de una calle o en un desagüe de aguas pluviales. Puede que se requiera filtración, o desvío a través de un depósito, tanque o entrapamiento de sedimento y/o puede ser requerida la descarga en un desagüe cloacal.
- ❑ En las áreas que se saben contaminadas, se requiere análisis antes de volver a usar o descargar el agua subterránea. Consulte con el ingeniero y el personal municipal para determinar si es necesario el análisis y cómo interpretar los resultados. El agua subterránea contaminada debe ser tratada o acarreada fuera del sitio para su eliminación apropiada.

* Adoptado con el permiso del Programa de Prevención de Polución del Agua del Condado de San Mateo.

¡QUIENES CONTAMINEN LOS DESAGÜES DE AGUAS PLUVIALES PUEDEN RECIBIR MULTAS DE HASTA \$10,000 POR DÍA!

2022 CALGreen CHECKLIST - RESIDENTIAL - NEW

(MANDATORY MEASURES TIER 1)



City of
COTATI
Building Division PAGE 1 of 22
EFFECTIVE: 01 JANUARY 2023

FREE ACCESS TO CALIFORNIA CODES: <https://www.dgs.ca.gov/BSC/Codes#@ViewBag.JumpTo>

Applies to building permit applications received on or after January 1, 2023, for newly constructed hotels, motels, lodging houses, dwellings, dormitories, condominiums, shelters, congregate residences, employee housing, factory-built housing, and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Detached "U" occupancy buildings are not subject to the requirements of CALGreen. For residential additions or alterations that increase conditioned space, see separate checklist. Repairs to existing structures are not subject to CALGreen at this time.

PROJECT ADDRESS: _____

PROJECT NAME: _____

PROJECT DESCRIPTION: _____

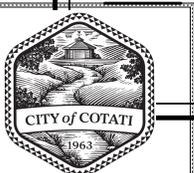
BUILDING PERMIT NUMBER: _____

INSTRUCTIONS:

The Owner (or the Owner's agent) shall employ a certified ICC CALGreen Inspector to complete this checklist via the following steps:

1. The CALGreen Inspector, in collaboration with the owner and the design professional, shall complete Column 2 of this checklist. Either "required" or "not required" is to be selected for each feature/measure. If "required" is selected, a description and reference to the plan sheet where the item is specified should be provided. If "not required" is selected, a description of why the feature/measure does not apply shall be provided. **Sections not separated by horizontal lines are all related to the relative checkboxes in that non-separated box.** See CALGreen Chapter 4 and Appendix A4 for complete descriptions of features and measures listed below. A specific number of Tier 1 electives is required for each general Tier 1 Elective Section. See CALGreen Section A4.601 for Tier 1 scoping.
2. When Column 2 is complete, the Owner, Design Professional, and CALGreen Inspector are to be identified on, sign, and date the CALGreen Building Acknowledgements Section 1 (Design Verification) at the end of this checklist. The completed checklist is then to be submitted to the City of Santa Rosa Building Division as part of the building permit application.
3. Building Division plan review staff will provide a fourth review of the plans and Column 2 (first three by Owner, Design Professional, and CALGreen Inspector as stated above). When approvable, the approved checklist will be included as part of the approved job set that is to be kept on the construction site throughout construction.
4. The CALGreen Inspector is to inspect all applicable features/measures listed in Column 2, and mark the verification boxes in Column 3 as each feature/measure is completed.
5. Prior to final inspection by the Building Division, the CALGreen Inspector shall verify that all applicable features/measures have been installed, and sign and date the CALGreen Building Acknowledgements Section 2 (Implementation Verification) found at the end of this checklist.

***NOTE:** The CALGreen Inspector shall not be the design professional or contractor for the project and shall not have a financial interest in the project for which services are being provided (except for the cost of providing said services.)



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COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
PAGE 2 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
CALGreen DIVISIONS 4.1 & A4.1: PLANNING AND DESIGN	ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED	SELECT AT LEAST TWO ELECTIVE MEASURES FROM A4.1	SELECT ALL MEASURES VERIFIED IN THE COMPLETED PROJECT
Site Selection			
A4.103.1 Select a site which complies with at least one of the following characteristics (support documentation required at application submittal): <ol style="list-style-type: none"> 1. An infill site. 2. A greyfield site. 3. An EPA-recognized and remediated brownfield site. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.103.2 Facilitate community connectivity by one of the following methods: <ol style="list-style-type: none"> 1. Locate the project within a 1/4-mile true walking distance of at least four basic services. 2. Locate the project within 1/2-mile true walking distance of at least seven basic services. 3. Other methods increasing access to additional resources. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Site Preservation			
A4.104.1 Individuals with oversight authority on the project who have been trained in areas related to environmentally friendly development can teach green concepts to other members of the development staff and ensure that training is provided to all parties associated with the project. <p>Prior to beginning the construction activities, all parties involved with the development process shall receive a written guideline and instruction specifying the green goals of the project.</p>		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Deconstruction and Reuse of Existing Materials			
A4.105.1 and A4.105.2 Existing buildings on the site are deconstructed, and the salvaged materials (which must comply with current building standards) are reused. Materials which can be easily reused include, but are not limited to, the following (verify at least one): <ol style="list-style-type: none"> 1. Light fixtures 2. Plumbing fixtures 3. Doors and trim 4. Masonry 5. Electrical devices 6. Appliances 7. Foundations or portions of foundations 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
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Site Development			
4.106.2 Storm water drainage and retention during construction. Newly constructed projects which disturb less than one acre of land shall prevent the pollution of storm water runoff from the construction activities by complying with lawfully enacted storm water management and/or erosion control ordinances. See Santa Rosa City Code Chapter 17-12.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.106.2 The soils at the building site are analyzed and protected as specified in this section. A4.106.2.1 Soil analysis. Soil analysis is performed by a licensed design professional and the findings utilized in the structural design of the building. Support documentation is required at application submittal. A4.106.2.2 Soil protection. The effect of development on the building sites is evaluated and the soil is protected by one or more of the following: <ol style="list-style-type: none"> 1. Natural drainage evaluation and erosion controls implemented to minimize erosion. 2. Site access is accomplished by minimizing the amount of cut and fill to install access roads/driveways. 3. Underground construction activities are coordinated to utilize the same trench, minimize disturbed soil, and soil is replaced using accepted compaction methods. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.106.2.3 Displaced topsoil is stockpiled for reuse in designated area and covered or protected from erosion. (Tier 1 Prerequisite)	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.106.3 Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.106.3 Landscape design. Post construction landscape designs accomplish one or more of the following: <ol style="list-style-type: none"> 1. Areas disrupted during construction are restored to be consistent with native vegetation 2. Utilize at least 75 percent native Californian or drought tolerant plant and tree species appropriate for the climate zone region. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
<p>PAGE 4 of 22 EFFECTIVE: 01 JANUARY 2023</p>	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
<p>4.106.4 New construction shall comply with Section 4.106.4.1 (One and two-family dwellings and town-houses with attached private garages) or 4.106.4.2 (multi-family dwellings, hotels, motels, and new residential parking facilities) to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625.</p> <p>Exceptions to Section 4.106.4:</p> <p>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:</p> <p>1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power.</p> <p>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.</p> <p>2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.</p> <p>4.106.4.1 New one- and two-family dwellings and town-houses 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.</p> <p>Exception to 4.106.4.1: 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.</p> <p>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".</p> <p>4.106.4.2 New multifamily dwellings, hotels, motels, and new residential parking facilities. When parking is provided, parking spaces for new multifamily dwellings, hotels, and motels shall meet the requirements of Sections 4.106.4.2.1 and 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.</p> <p>4.106.4.2.1 Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms. The number of dwelling units, sleeping units, or guest rooms shall be based on all buildings on a project site subject to this section.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>



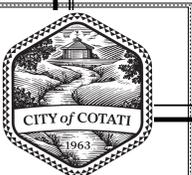
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COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
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<p>4.106.4.2.1(1) EV Capable. 10% of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.</p> <p>Exceptions to 4.106.4.2.1(1):</p> <ol style="list-style-type: none"> 1. When EV chargers (Level 2 EVSE) are installed in a number equal to or greater than the required number of EV capable spaces. 2. When EV chargers (Level 2 EVSE) are installed in a number less than the required number of EV capable spaces, the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed. <p>Notes:</p> <ol style="list-style-type: none"> a. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. b. There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use. <p>4.106.4.2.1(2) EV Ready. 25% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.</p> <p>Exception to 4.106.4.2.1(2): Areas of parking facilities served by parking lifts.</p> <p>4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels, and motels with 20 or more sleeping units or guest rooms. The number of dwelling units, sleeping units, or guest rooms shall be based on all buildings on a project site subject to this section.</p> <p>4.106.4.2.2(1) EV Capable. 10% of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.</p> <p>Exception to 4.106.4.2.2(1): When EV chargers (Level 2 EVSE) are installed in a number greater than 5% of parking spaces required by Section 4.106.4.2.2(3), the number of EV capable spaces required may be reduced by a number equal to the number of EV chargers installed over the 5% required.</p>			



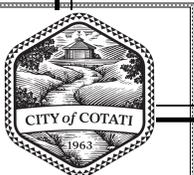
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<p>Notes to 4.106.4.2.2(1):</p> <p>a. Construction documents shall show locations of future EV spaces.</p> <p>b. There is no requirement for EV spaces to be constructed or available until receptacles for EV charging or EV chargers are installed for use.</p> <p>4.106.4.2.2(2) EV Ready. 25% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.</p> <p>Exception to 4.106.4.2.2(2): Areas of parking facilities served by parking lifts.</p> <p>4.106.4.2.2(3) EV Chargers. 5% of the total number of parking spaces shall be equipped with Level 2 EVSE. Where common use parking is provided, at least one EV charger shall be located in the common use parking area, and shall be available for use by all residents or guests. When low power Level 2 EV charging receptacles or Level 2 EVSE are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EVSE shall have a capacity of not less than 30 amperes. ALMS shall not be used to reduce the minimum required electrical capacity to the required EV capable spaces.</p> <p>4.106.4.2.2.1 Electric vehicle charging stations (EVCS). Electric vehicle charging stations require by Section 4.106.4.2.2(3) shall comply with Section 4.106.4.2.2.1.</p> <p>Exception to 4.106.4.2.2.1: 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.</p> <p>4.106.4.2.2.1.1 Location. EVCS shall comply with at least one of the following options:</p> <ol style="list-style-type: none"> 1. The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The charging space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building. <p>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.</p> <p>4.106.4.2.2.1.2 Electric vehicle charging stations (EVCS) dimensions.</p> <ol style="list-style-type: none"> 1. The minimum length of each EV space shall be 18 feet. 2. The minimum width of each EV space shall be 9 feet. 3. One in every 25 charging spaces, but not less than one, shall also have an 8-foot wide minimum aisle. A 5-foot wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet. <p>a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083% slope) in any direction.</p>			



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<p>Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.2, Item 3. (see 4.106.4.2.2.1.1 Exception)</p> <p>4.106.4.2.2.1.3 Accessible EV spaces. In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B, EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.</p> <p>4.106.4.2.3(1) Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box, or enclosure in close proximity to the location or the proposed location of the EV space. Construction documents shall identify the raceway termination point, receptacle, or charger location, as applicable. The service panel and/or subpanel shall have a 40-ampere minimum dedicated branch circuit, including branch circuit overcurrent protective devices installed, or space(s) reserved to permit installation of a branch circuit overcurrent protective device.</p> <p>Exception to 4.106.4.2.3(1): A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location (or the proposed location) of the EV space at the time of original construction in accordance with the California Electrical Code.</p> <p>4.106.4.2.3(2) Multiple EV spaces required. Construction documents shall indicate the raceway termination point and the location of installed or future EV spaces, receptacles, or EV chargers. Construction documents shall also provide information on amperage of installed or future receptacles or EVSE, raceway method(s), wiring schematics, and electrical load calculations. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible, or in concealed areas and spaces shall be installed at the time of original construction.</p> <p>Exception to 4.106.4.2.3(2): A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the location (or the proposed location) of the EV space at the time of original construction in accordance with the California Electrical Code.</p> <p>4.106.4.2.4 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.</p> <p>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).</p>			
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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<p>A4.106.4 Water permeable surfaces. Permeable paving is utilized for not less than 20 percent of the total parking, walking, or patio surfaces. (Tier 1 Prerequisite)</p> <p>Exception: Primary driveway, entry walkway and porch/landing or required accessible routes for persons with disabilities.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>4.106.4.3 Multi-family residential only: When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered, ten percent of the total number of parking spaces added or altered shall be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. (Electric Vehicle Charging Space definition: A space intended for future installation of EV charging equipment and charging of electric vehicles).</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.106.5 Cool Roof. Roofing materials shall have a minimum 3-year aged solar reflectance and thermal emittance or a minimum Solar Reflectance Index (SRI).</p> <p>Low-rise Residential: Roof covering shall meet or exceed the values contained in Table A4.106.5.1(1). Santa Rosa is in Zone 2 - N/A at this time.</p> <p>High-rise Residential, Hotels, and Motels: Roof covering shall meet or exceed the values contained in Table A4.106.5.1(3). (Tier 1 Prerequisite)</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p><u>PENDING REQUIREMENT / NOT APPLICABLE</u></p> <p>New construction (low-rise residential). All newly constructed buildings shall be all-electric buildings.</p> <p>Exemptions:</p> <ol style="list-style-type: none"> 1. Attached Accessory Dwelling Units. 2. Reconstructed buildings lost in a disaster or calamity. 3. New construction where existing utility infrastructure would have to be removed at the owner's expense. 	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.106.6 Vegetated roof. Install a vegetated roof for at least 50% of the roof area.</p>		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>7 Reduction of heat island effect for nonroof areas. Reduce nonroof areas for 50% of sidewalks, patios, driveways or other paved areas by one or more of the methods listed in #1 – 5.</p>		<input type="checkbox"/>	<input type="checkbox"/>



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Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.106.8 Electric vehicle (EV) charging. Dwellings shall comply with the following requirements for the future installation of electric vehicle supply equipment (EVSE):</p> <p>A4.106.8.1 One- and two-family dwellings and townhouses with attached private garages. Install a dedicated 208/240 volt branch circuit, including an overcurrent protective device rated at 40 amperes minimum per dwelling unit. (Tier 1 Prerequisite)</p> <p>A4.106.8.2 Multifamily dwellings. Provide capability for future electric vehicle charging in 15 percent of total parking spaces, as specified. (Tier 1 Prerequisite)</p> <p>A4.106.8.3 New Hotels and Motels. If total number of parking spaces is more than 9, provide EV spaces in accordance with Table A4.106.8.3.1. (Tier 1 Prerequisite)</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.106.9 Bicycle parking. Comply with Sections A4.106.9.1 through A4.106.9.3 or meet local ordinance, whichever is more stringent.</p> <p>Exception: Spaces may be reduced as approved by enforcing agency, due to building site characteristics, including but not limited to, isolation from other development.</p> <p>A4.106.9.1 Short-term bicycle parking. Provide permanently anchored bicycle racks within 100 ft. of the visitor's entrance for 5% of visitor motorized vehicle parking capacity with a minimum of one 2-bike capacity.</p> <p>A4.106.9.2 Long-term bicycle parking for multifamily buildings. Provide on-site conveniently reached bicycle parking facilities for at least one bicycle per every 2 dwelling units.</p> <p>A4.106.9.3 Long-term bicycle parking for hotel and motel buildings. Provide one on-site conveniently reached bicycle parking facilities for every 25,000 sq. ft., but not less than 2.</p>		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.106.10 Light pollution reduction. Outdoor lighting systems shall be designed and installed to comply with all the following:</p> <ol style="list-style-type: none"> 1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of California Administrative Code 2. Backlight, Uplight and Glare (BUG) ratings as defined in IES TM-15-11 3. Allow BUG ratings not exceeding those shown in Table A4.106.10 <p>Exceptions to Section A4.106.10:</p> <ol style="list-style-type: none"> 1. Luminaires that qualify as exceptions in the California Energy Code 2. Emergency lighting 3. One- and two-family dwellings 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



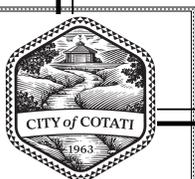
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Innovative Concepts and Local Environmental Conditions (A4.108.1)			
Proposed Innovative Concept 1:	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
CALGreen DIVISIONS 4.2 & A4.2: ENERGY EFFICIENCY			
ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED		SELECT ALL MEASURES VERIFIED IN THE COMPLETED PROJECT	
Performance Approach			
4.201.1 Building meets or exceeds the requirements of the 2022 California Building Energy Efficiency Standards. (Energy Code Tier 1 not applicable)	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.203.1.1 Low-rise residential: Hourly Source Energy Design Rating (EDR1). EDR1 rating for the building's Proposed Design shall be computed by Compliance Software certified by the Energy Commission as specified in Title 24, Part 6, Section 100.1 and 150.1(b), and shall reduce the EDR1 required in the Compliance Software for minimum performance-based compliance with the California Energy Code by 4.4 (See Table A4.203.1.1). The rating shall be included in the Certificate of Compliance documentation.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.203.1.2 Select a minimum of TWO of the efficiency measures specified in Sections A4.203.1.2.1 through A4.203.1.2.8.</p> <p>A4.203.1.2.1 Roof deck insulation, or ducts in conditioned space. Meet one of the three options for the location of ducts and air handlers as well as insulation R-values and installation of a radiant barrier as specified in Title 24, Part 6, Section 150.1(c)9A or B:</p> <ol style="list-style-type: none"> 1. Below roof deck insulation with a minimum R-Value of 19. 2. Continuous above deck insulation with a minimum R-8 and with an air space present between the roofing and the roof deck. 3. All ducts and air handlers installed in conditioned space as specified in Title 24, Part 6, Reference Appendix RA3.1 <p>A4.203.1.2.2 High performance walls. Meet the climate zone dependent U-factor or insulation R-value for either 2x6 or 2x4 framing as specified in Title 24, Part 6, Section 150.1(c)1B: maximum U-factor of 0.048.</p> <p>A4.203.1.2.3 Compact hot water distribution system. Meet the requirements for installation of Compact Hot Water Distribution Systems specified in the Title 24, Part 6, Reference Appendix RA3.6.5.</p> <p>A4.203.1.2.4 Drain water heat recovery. Meet the requirements for installation of Drain Water Heat Recovery specified in Title 24, Part 6, Reference Appendix RA4.4.21.</p> <p>A4.203.1.2.5 High performance vertical fenestration. Meet the climate zone dependent U-factor and Solar Heat Gain Co-efficient (SHGC) specified in Title 24, Part 6, Section 110.6, and not to exceed a maximum U-factor of 0.1, and a maximum SHGC of 0.23.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>



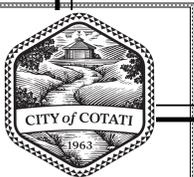
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<p>A4.203.1.2.6 Heat pump water heater demand management. For building with heat pump water heating, meet the requirements for installation of controls specified by Title 24, Part 6, Reference Appendix JA13.3.3.</p> <p>A4.203.1.2.7 Battery storage system controls. For buildings with battery storage systems, meet the requirements for installation of controls specified by Title 24, Part 6, Reference Appendix JA12 for either the Time-of-Use Control or Advanced Demand Flexibility Control option.</p> <p>A4.203.1.2.8 Heat pump space and water heating. Meet the space heating and water heating loads using heat pump equipment.</p>			
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
CALGreen DIVISIONS 4.3 & A4.3: WATER EFFICIENCY AND CONSERVATION	ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED	SELECT AT LEAST TWO ELECTIVE MEASURES FROM A4.3	SELECT ALL MEASURES VERIFIED IN THE COMPLETED PROJECT
Indoor Water Use			
<p>4.303.1 Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Sections 4.303.1.1 through 4.303.1.4.5.</p> <p>4.303.1.1 Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush.</p> <p>4.303.1.2 Urinals. The effective flush volume of urinals shall not exceed 0.5 gallons per flush (0.125 gpf for wall-mounted urinals).</p> <p>4.303.1.3 Showerheads.</p> <p>4.303.1.3.1 Single Showerheads. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi.</p> <p>4.303.1.3.2 Multiple Showerheads. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi., or the shower shall be designed to allow only one shower outlet to be in operations at a time.</p> <p>4.303.1.4 Faucets.</p> <p>4.303.1.4.1 Residential lavatory faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gpm at 60 psi nor be less than 0.8 gpm at 20 psi.</p> <p>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 dwellings or sleeping units) in residential buildings shall not exceed 0.5 gpm at 60 psi.</p> <p>4.303.1.4.3 Metering faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.</p> <p>4.303.1.4.4 Kitchen faucets. The maximum flow rate of kitchen faucets may not exceed 1.8 gpm at 60 psi (May temporarily increase to 2.2 gpm). Note: Aerators OK if complying faucets not available.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>A4.303.1 Kitchen faucets and dishwashers. Kitchen faucets shall have a maximum flow rate not greater than 1.5 gallons per minute at 60 psi. (May temporarily increase to 2.2 gpm). Note: Aerators OK if complying faucets not available.</p>		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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4.303.2 Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the California Plumbing Code.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.303.2 Alternate water sources for nonpotable applications. Alternate nonpotable water sources are used for indoor potable water reduction. Alternate nonpotable water sources shall be installed in accordance with the California Plumbing Code.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.303.3 Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code and shall meet the applicable referenced standards.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.303.3 Appliances. Install at least one qualified ENERGY STAR dishwasher or clothes washer.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.303.4 Nonwater urinals and waterless toilets. Nonwater urinals or composting toilets are installed.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.303.5 Hot Water Recirculation. One- and two-family dwellings shall be equipped with a demand hot water recirculation system.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Outdoor Water Use			
4.304.1 Landscaping and site work shall comply with the City of Santa Rosa Water Efficient Landscape Ordinance (WELO) - See Santa Rosa City Code Section 14-30	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.304.1 Rainwater catchment systems. A rainwater capture, storage and re-use system is designed and installed to use rainwater generated by at least 65% of the available roof area.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			

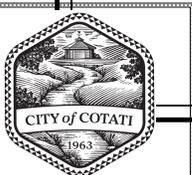


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A4.304.2 Potable water elimination. When landscaping is provided, a landscape design is installed which does not utilize potable water. (Support documentation required at application submittal.)		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.304.3 Irrigation metering device. For new water service connections, landscaped irrigated areas more than 5,000 sq. ft. shall be provided with separate submeters or metering devices for outdoor potable water use.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Water Reuse Systems			
A4.305.1 Graywater. Alternative plumbing piping is installed to permit the discharge from the clothes washer or other fixtures to be used for an irrigation system in compliance with the California Plumbing Code.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.305.2 Recycled water piping. Based upon projected availability, dual water piping is installed for future use of recycled water at interior and exterior locations. Interior piping for use of recycled water for water closets, urinals and floor drains. Exterior piping to transport recycled water from the point of connection to the structure.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.305.3 Recycled water for landscape irrigation. Recycled water is used for landscape irrigation.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Innovative Concepts and Local Environmental Conditions (A4.306.1)			
Proposed Innovative Concept 1:	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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CALGreen DIVISIONS 4.4 & A4.4: MATERIAL CONSERVATION AND RESOURCE EFFICIENCY	ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED	SELECT AT LEAST TWO ELECTIVE MEASURES FROM A4.4	SELECT ALL MEASURES VERIFIED IN THE COMPLETED PROJECT
Foundation Systems			
A4.403.2 Reduction in cement use. Cement use in foundation mix design is reduced by not less than a 20 percent. (Tier 1 Prerequisite) Note: As allowed by the enforcing agency, any design cement mix must be authorized and approved by Architect of Record.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Efficient Framing Techniques			
A4.404.1 Lumber size. Beams and headers and trimmers are the minimum size to adequately support the load.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.404.2 Building dimensions & layouts. Building dimensions and layouts are designed to minimize waste in at least 80% of the structure. <ol style="list-style-type: none"> 1. Building design dimensions in 2 foot increments 2. Windows & doors are located at regular 16" or 24" o.c. stud positions. 3. Other methods acceptable by enforcing agency. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.404.3 Building systems. Use pre-manufactured building systems to eliminate solid sawn lumber whenever possible. One or more of the following premanufactured building systems is used: <ol style="list-style-type: none"> 1. Composite floor joist or premanufactured floor framing system. 2. Composite roof rafters or premanufactured roof framing system. 3. Panelized (SIPS, ICF or similar) framing systems. 4. Other methods acceptable by enforcing agency. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.404.4 Pre-cut materials and details. Material lists are included, in the plans, which specify material quantity and provide direction for on-site cuts of the following systems: (Support documentation required at application submittal.) <ol style="list-style-type: none"> 1. Floor framing. 2. Wall framing. 3. Ceiling and roof framing. 4. Structural panels and roof sheathing. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			

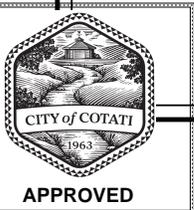


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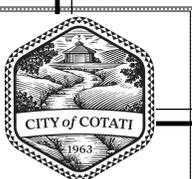
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Material Sources			
A4.405.1 Prefinished building materials. One or more of the following building materials, that do not require additional resources for finishing are used: <ol style="list-style-type: none"> 1. Exterior trim not requiring paint or stain. 2. Windows not requiring paint or stain. 3. Siding or exterior wall coverings which do not require paint or stain. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.405.2 Concrete floors. Floors that do not require additional coverings are used including but not limited to stained, natural, or stamped concrete floors.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.405.3.1 Recycled content. Use materials, equivalent in performance to virgin materials, with total (combined) recycled content value (RCV) for not less than 10% of the total material cost of the project. For the purposes of this section, materials used as components of the structural frame shall not be used to calculate recycled content. See Section A4.405.3.1 for calculation methods. Documentation is required at time of permit application. (Tier 1 Prerequisite)	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.405.4 Use of building materials from rapidly renewable sources. One or more of the following materials is manufactured from rapidly renewable sources or agricultural by-products. (Support documentation is required): <ol style="list-style-type: none"> 1. Insulation 2. Bamboo or cork 3. Engineered products 4. Agricultural based products. 5. Other products acceptable to enforcing agency. 		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Enhanced Durability and Reduced Maintenance			
4.406.1 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 openings with cement mortar, concrete masonry or similar method acceptable to the enforcing agency.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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Water Resistance and Moisture Management			
A4.407.1 Drainage around foundation. Install foundation and landscape drains which discharge to a dry well, sump, bioswale or other approved location.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.407.2 Roof drainage. Install gutter and downspout systems to route water at least 5 feet away from the foundation or connect to landscape drains which discharge to a dry well, sump, bioswale, rainwater capture system or other approved on-site location.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.407.3 Flashing details. Provide flashing details on the building plans and comply with accepted industry standards or manufacturer's instructions.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.407.4 Material protection. Protect building materials delivered to the construction site from rain and other sources of moisture.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.407.6 Door protection. Exterior doors to the dwelling are protected by awning or roof coverings at least 4 feet in depth.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.407.7 Roof overhangs. A permanent overhang or awning at least 2 feet in depth is provided at all exterior walls.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Construction Waste Reduction, Disposal and Recycling			
4.408.1 Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste. Specify which section (4.408.2, 4.408.3 or 4.408.4) was chosen for compliance. (Support documentation required at application submittal)	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			

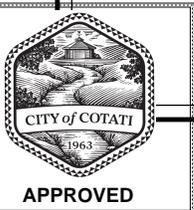


COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
PAGE 17 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
<p>A4.408.1 Enhanced construction waste reduction. At least 65% of nonhazardous construction and demolition debris generated at the site is diverted to recycle or salvage. (Tier 1 prerequisite)</p> <p>A4.408.1.1 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with this section. Documentation shall be in compliance with Section 4.408.5.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Building Maintenance and Operation			
<p>4.410.1 An operation and maintenance manual shall be provided to the building occupant or owner. See Section 4.410.1 for full requirements.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
<p>4.410.2 Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible areas that serve all buildings on the site and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Innovative Concepts and Local Environmental Conditions (A4.411.1)			
Proposed Innovative Concept 1:	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
CALGreen DIVISIONS 4.5 & A4.5: ENVIRONMENTAL QUALITY		ALL ITEMS ARE REQUIRED UNLESS OTHERWISE JUSTIFIED	SELECT AT LEAST ONE ELECTIVE MEASURE FROM A4.5
Fireplaces			
<p>4.503.1 Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed wood stove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits.</p>	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			

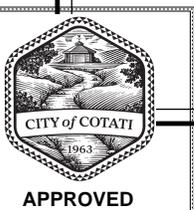


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COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
PAGE 18 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
Pollutant Control			
4.504.1 Duct openings and other related air distribution component openings shall be covered during construction.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.504.1 Compliance with formaldehyde limits. Use composite wood products made with either California Air Resources Board approved no added formaldehyde resins or ultra-low emitting formaldehyde resins.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.2.1 Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.2.2 Paints, stains and other coatings shall be compliant with VOC limits.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.2.3 Aerosol paints and other coatings shall be compliant with product weighted MIR Limits for ROC and other toxic compounds.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.2.4 Documentation shall be provided to verify that compliant VOC limit finish materials have been used.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
A4.504.2 Resilient flooring systems. At least 90% of the resilient flooring systems installed in the building shall comply with the VOC emission limits defined in at least one of the 4 listed criteria in Section A4.504.2 (Tier 1 prerequisite) (supercedes 4.504.4) Note: Documentation must be provided that verifies that finish materials are certified to meet the pollutant emission limits in this section.	<input type="checkbox"/> RQD <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
PAGE 19 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
4.504.3 Carpet and carpet systems shall be compliant with VOC limits.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.3 Thermal insulation. Install thermal insulation in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List. (Tier 1 prerequisite) Note: Documentation must be provided that verifies that finish materials are certified to meet the pollutant emission limits in this section.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.504.5 Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall comply with low formaldehyde emission standards (See CALGreen Table 4.504.5). Verification documentation is required.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Interior Moisture Control			
4.505.2 Vapor retarder and capillary break is installed at slab-on-grade foundations.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.505.3 Moisture content of building materials used in wall and floor framing is checked before enclosure (<19%). Verification documentation is required.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Interior Air Quality and Exhaust			
4.506.1 Humidity controlled exhaust fans which terminate outside the building are provided in every bathroom unless otherwise a component of a whole house ventilation system.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
4.506.2 Construction filter (High-Rise Residential). Provide filters on return air openings rated at MERV 8 or higher during construction.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



COLUMN 1: FEATURE OR MEASURE	COLUMN 2: PROJECT DESIGN REQUIREMENTS		COLUMN 3: FIELD VERIFICATION
PAGE 20 of 22 EFFECTIVE: 01 JANUARY 2023	MANDATORY MEASURES & TIER 1 PREREQUISITES	TIER 1 ELECTIVES	
4.506.3 Direct-vent appliances. Direct-vent heating and cooling equipment shall be utilized if the equipment will be located in the conditioned space or install the space heating and water heating equipment in an isolated mechanical room. Electric appliances do not qualify for this measure.		<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Environmental Comfort			
4.507.2 Duct systems and equipment are sized and designed and selected using the following methods: 1. Establish heat loss and heat gain values according to ANSI/ACCA Manual J-2016 or equivalent. 2. Size duct systems according to ANSI/ACCA 1 Manual D-2016 or equivalent. 3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2014 or equivalent.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Innovative Concepts and Local Environmental Conditions (A4.509.1)			
Proposed Innovative Concept 1:	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
INSTALLER AND CALGreen INSPECTOR QUALIFICATIONS			
Qualifications			
702.1 HVAC system installers are trained and certified in the proper installation of HVAC systems.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
702.2 The CALGreen Inspector shall be ICC certified CALGreen Inspector is qualified and able to demonstrate competence in the discipline they inspect and verify.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			
Verifications			
703.1 Verification of compliance with this code shall include, but not be limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance.	<input type="checkbox"/> RQ'D <input type="checkbox"/> N/A		<input type="checkbox"/>
Sheet number and description of proposed measure(s) or explanation of why it is not applicable (N/A):			



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DEFINITIONS:

BROWNFIELD SITE: REAL PROPERTY, THE EXPANSION, REDEVELOPMENT OR REUSE OF WHICH MAY BE COMPLICATED BY THE PRESENCE (OR POTENTIAL PRESENCE) OF A HAZARDOUS SUBSTANCE, POLLUTANT, OR CONTAMINANT (WITH CERTAIN LEGAL EXCLUSIONS AND ADDITIONS.)

ELECTRIC VEHICLE CHARGING SPACE DEFINITION: A SPACE INTENDED FOR FUTURE INSTALLATION OF EV CHARGING EQUIPMENT AND CHARGING OF ELECTRIC VEHICLES

GREYFIELD SITE: ANY SITE PREVIOUSLY DEVELOPED WITH AT LEAST 50% OF THE SURFACE AREA COVERED WITH IMPERVIOUS MATERIAL.

INFILL SITE: A SITE IN AN URBANIZED AREA THAT MEETS EITHER OF THE FOLLOWING CRITERIA:

1. THE SITE IS IMMEDIATELY ADJACENT TO PARCELS THAT ARE DEVELOPED WITH QUALIFIED URBAN USES, OR AT LEAST 75% OF THE PERIMETER OF THE SITE ADJOINS PARCELS THAT ARE DEVELOPED WITH QUALIFIED URBAN USES, AND THE REMAINING 25% OF THE SITE ADJOINS PARCELS THAT HAVE PREVIOUSLY BEEN DEVELOPED FOR QUALIFIED URBAN USES.
2. NO PARCEL WITHIN THE SITE HAS BEEN CREATED WITHIN THE PAST 10 YEARS UNLESS THE PARCEL WAS CREATED AS A RESULT OF THE PLAN OF A REDEVELOPMENT AGENCY



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CALGreen BUILDING ACKNOWLEDGMENTS

PROJECT ADDRESS: _____

PROJECT DESCRIPTION: _____

SECTION 1 - DESIGN VERIFICATION

INSTRUCTIONS:

Prior to building permit application, complete **all** lines of Section 1- "Design and 2) with the plans and building permit application to the City of Santa Rosa

NOTE: BELOW SECTIONS MUST BE COMPLETED/SIGNED AND RETURNED TO THE BUILDING DEPT. BEFORE FINAL INSPECTION

Columns 1

The signatures below certify that the owner, design professional, and the CALGreen inspector have reviewed the plans and Columns 1 and 2 of this checklist, and certify that the items checked above are hereby incorporated into the project plans and will be implemented into the project in accordance with the requirements set forth in the 2022 California Green Building Standards Code.

Owner's Signature _____

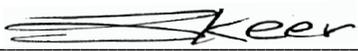
_____ Date

Owner's Name (Please Print) _____

Design Professional's Signature _____

_____ Date

Design Professional's Name (Please Print) _____


CALGreen Inspector's Signature _____

_____ Date

CALGreen Inspector's Name (Please Print) _____

_____ CALGreen Inspector's Phone Number

CALGreen E-mail Address _____

_____ ICC Certification Number

SECTION 2 - IMPLEMENTATION VERIFICATION

Complete, sign, and submit the completed checklist, including Column 3, together with all original signatures in this Section 2 – "Implementation Verification" to the Building Department prior to Building Department final inspection.

The owner, design professional, and the CALGreen inspector have reviewed the plans and certify that the items checked above are hereby incorporated into the project plans and will be implemented into the project in accordance with the requirements set forth in the 2022 California Green Building Standards Code.

CALGreen Inspector's Signature _____

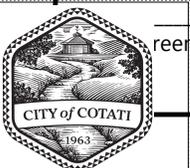
_____ Date

CALGreen Inspector's Name (Please Print) _____

_____ CALGreen Inspector's Phone Number
(If Different Than Above)

_____ CALGreen E-mail Address (If Different Than Above)

_____ ICC Certification Number
(If Different Than Above)



APPROVED

134 LYSTRA COURT
TELEPHONE (707) 528-3078

REESE CONSULTING
GEOTECHNICAL
& ASSOCIATES ENGINEERS
REESE@REESEANDASSOC.COM

SANTA ROSA, CA 95403
FACSIMILE (707) 528-2837

September 19, 2024

Job No. 2055.2.13

Custom Housing Systems, Inc.
959 Golf Course Drive – PMD 274
Rohnert Park, CA 94928
gary@customhousingsystems.com

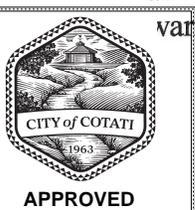
Report
Soil Engineering Consultation
and Review of Plans
Pittelkow Residence
Cotati, California

This report presents the results of our soil engineering consultation and review of plans for the proposed residence at 2501 Gilman Ranch Road in Cotati, California. We performed a soil investigation for the project, and the results were submitted in our report dated June 18, 2024. Our general recommendations for foundation support included criteria for a mat slab floor and foundation system.

Plans prepared by Avila-Bunch Architects, Inc. indicate that the residence will be one-story, wood-framed structure with a concrete slab-on-grade floor. Structural plans prepared by Johnson, Debois & Forrest are dated August 12, 2024 and indicate the residence will be supported by an 11-inch-thick mat slab. Based on our knowledge of the subsurface conditions, we believe that the foundation system as planned would be suitable for the proposed residential construction.

Positive surface drainage of at least 1/4-inch per foot extending at least 4 feet out should be provided away from all foundations. The ground surface around the perimeter of the new residence should be sloped to provide positive lateral drainage. The roof should be provided with gutters, and the downspouts should discharge onto paved areas or splash blocks draining at least 30 inches away from foundations.

Based on our plan review and previous work at the site, we believe that the materials and methods indicated on the plans are in general conformance with our recommendations. We recommend that slab subgrade and footing excavations be observed by the soil engineer to verify actual conditions encountered are as anticipated and to modify our recommendations, if warranted.



Custom Housing Systems, Inc.
September 19, 2024
Page Two

We trust this provides the information needed at this time. If you have questions or wish to discuss this in more detail, please do not hesitate to contact us.

Yours very truly,

REESE & ASSOCIATES



Joseph M. Mauney
Civil Engineer No. 85560

GG/JMM:jpc/ra/Job No. 2055.2.13
Copies Submitted: 1



JDF JOHNSON, DEBOIS & FORREST

STRUCTURAL ENGINEERING / CODE CONSULTING

405 West College Avenue • Suite E • Santa Rosa • California • 95401 • (707)575-0911 • Fax (707)575-0838

STRUCTURAL CALCULATIONS

Pittelkow Residence
2101 Gilman Ranch Road
Cotati, CA



PREPARED FOR

9-10-24

Avila-Bunch Architects, Inc.
5850 Commerce Blvd, Ste 100
Rohnert Park, CA 94928
Phone: (707) 585-3711

Job #: 24087
Date: 8.30.24
Pages: 1 thru 27



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ENGR:	CHKD:	PITTELKOW RES. 2101 GILMAN RANCH RD COTATI CA	JOB NO:
DATE:	8.6.24		14081 SHEET: _____ OF _____ 1

DESIGN CRITERIA

2022 California Building Code (CBC)

Building Risk Category: II
 (For Risk Category I, reduce P_s by ratio $90^2/95^2$)

WIND LOADS: Per ASCE 7-16 Chapter 28 Part 2

95 MPH wind, Exposure **C**

$$P_s = (0.6) \lambda K_{ZT} P_{S30} \quad \text{eq. (28.5-1)} \quad \text{where: } K_{ZT} = 1.0$$

$P_s = 15$ psf
Pa Roof 2

Roof Slope	P_{S30} (psf)					
	Horizontal Pressure Zone A (wall)	Zone B (roof)	Zone E (WW)	Zone F (LW)	EOH	GOH
3:12	16	8	-17.2	-11.2	-24.1	-18.8
4:12	19.3	8	-17.2	-12	-24.1	-18.8
5:12	19	8	-13	-11	-24.1	-18.8
6:12	17.4	8	-8	-11	-14.8	-12.6
7:12 - 12:12	16.1	11	1.3	-10	-5.6	-6.5
			6.2	-5		

Mean Roof Height (ft)	Adjustment Factor for Bldg Ht & Exposure, λ		
	B	C	D
15	1.00	1.21	1.47
20	1.00	1.29	1.55
25	1.00	1.35	1.61
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.09	1.49	1.74

Notes: WW = Windward, LW = Leeward

SEISMIC LOADS: Per ASCE 7-16 Section 12.14

$$V = \frac{(0.7 F_s S_{DS})}{R} (W_{DL}) \quad \text{eq. (12.14-12)}$$

$$S_{DS} = (2/3) F_a S_s =$$

Seismic Design Category = **D** Table 11.6-1

SITE CLASS D
 $V = (0.11) (W_{DL})$
USE 0.12 W_{DL}

$F_a = 1.0$	at rock sites; for rock ≤ 10 ft below footing	$R = 6.5$	for light framed walls with wood or steel shear walls per Table 12.14-1
$F_a = 1.4$	at soil sites	$F = 1.0$	for 1-story building
$S_s = 1.5$	or less per 11.4.4	$F = 1.1$	for 2-story building
$S_1 = 0.60$	< 0.75 Fig. 22-2	$F = 1.2$	for 3-story building

DEAD & LIVE LOADS:

Roof Dead Loads: psf

	Attic	Vaulted
Roofing (Comp)	3	3
1/2" Sheathing	1.5	1.5
Roof Framing	3.3	2.2
3/4" Gyp Board Ceiling	2.8	2.8
Insulation Misc/Solar	3	3
Total Dead Load	13.4	
W/ DL Slope Factor	15	15

Roof DL Slope Factor & Live Loads (psf)			
Slope & Factor	LL	Slope & Factor	LL
4:12 = 1.06	20	5:12 = 1.08	19
6:12 = 1.12	18	7:12 = 1.16	17
8:12 = 1.20	16	9:12 = 1.25	15
10:12 = 1.30	14	12:12 = 1.41	12

Trib Area Reduction Factor	
Area (sq ft)	Factor (R_1)
200	1.0
300	0.9
400	0.8
500	0.7
600	0.6

Reduced Roof LL = $LL (R_1)$
 Min reduced roof LL is 12 psf

Floor Dead Loads: psf

	Upper	Lower	Deck
Finish Floor			
3/4" Sheathing	2.3	2.3	
Floor Framing	3.3	2.2	
3/4" Gyp Board Ceiling	2.8	0.0	
Insulation & Misc			
Total Dead Load	SOFT (MAT)		

Floor Live Loads: psf

Residential	40 psf
Garage (uniform)	40 psf
Garage (concentrated)	3000 lbs
Office	50 psf
Exit Facilities	100 psf

Wall Dead Loads: psf

Wood studs w/ stucco	18
Wood studs w/ wood siding	10
Wood studs w/ gyp board	8



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ENGR:	CHKD:		JOB NO: 24087
DATE:			SHEET: 2 OF

MATERIALS

CONCRETE: $f'_c = 2,500$ psi at 28 days

MASONRY: $f'_m = 1,500$ psi; Grade N block with type S mortar

REINFORCING STEEL: ASTM A-615
40 ksi for #4 bars or smaller
60 ksi for #5 or larger

STRUCTURAL STEEL:

W Shapes:	ASTM A-992
Plates:	ASTM A-36
Tubes:	ASTM A-500, Grade B
Pipes:	ASTM A-53, Grade B
Anchor Bolts:	ASTM F1554 Gr 36
Threaded Rods:	ASTM A-36
Machine Bolts:	ASTM A-307
High Strength Bolts:	ASTM A-325
Welding:	E70XX Electrodes

DOUGLAS FIR LUMBER: U.O.N., all framing shall be Douglas Fir-Larch as follows:

studs < 10'-0"	Standard or better
studs > 10'-0"	No 2
2x rafters & joist	No 2
4x beams & posts	No 2
6x beams & posts	No 1

PLYWOOD: PS1-07 CD EXP 1

DF/DF GLU-LAM BEAMS: Combination 24F-V4 for simple span conditions and 24F-V8 for continuous and cantilever span conditions:
 $F_b = 2,400$ psi; $F_v = 265$ psi; $E = 1,800,000$ psi



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ENGR:	CHKD:	JOB NO: 24021
DATE:		SHEET: 3 OF

SHEAR WALL / SHEAR TRANSFER CAPACITY CHARTS

Type	Sheathing Thickness	Nailing	Notes	Allow Shear Seismic	Allow Shear Wind
6A	3/8" min	8d @ 6" o/c		260 plf	365 plf
4A	3/8" min	8d @ 4" o/c	Note A	380 plf	532 plf
3A	3/8" min	8d @ 3" o/c	Note A	490 plf	685 plf
2A	3/8" min	8d @ 2" o/c	Note C & E	640 plf	895 plf
4A/4A	3/8" min (both sides)	8d @ 4" o/c	Note C & E	760 plf	1,065 plf
3A/3A	3/8" min (both sides)	8d @ 3" o/c	Note C & E	980 plf	1,370 plf
4B	15/32" min	10d @ 4" o/c	Note C	460 plf	645 plf
3B	15/32" min	10d @ 3" o/c	Note C & E	600 plf	840 plf
2B	15/32" min	10d @ 2" o/c	Note C & E	770 plf	1,077 plf
3B/3B	15/32" min (both sides)	10d @ 3" o/c	Note C & E	1,200 plf	1,680 plf
2B/2B	15/32" min (both sides)	10d @ 2" o/c	Note C & E	1,540 plf	2,155 plf

Notes: Shear values are per 2015 NDS SDPWS
Douglas Fir Larch lumber grade for shear wall values (Specific Gravity: G = 0.5)

Anchor Bolt (A.B.) Capacity (160%)			Mudsill Connection Capacity Based on A.B. Spacing							
A.B. Size	Mudsill	A.B. Capacity	48" o/c	40" o/c	32" o/c	24" o/c	20" o/c	16" o/c	12" o/c	8" o/c
5/8"Φ A.B.	2x	1,488 #	372 plf	446 plf	558 plf	744 plf	893 plf	1,116 plf	1,488 plf	2,232 plf
5/8"Φ A.B.	3x	1,880 #	470 plf	564 plf	705 plf	940 plf	1,128 plf	1,410 plf	1,880 plf	2,820 plf
1/2"Φ A.B.	2x	1,040 #	260 plf	312 plf	390 plf	520 plf	624 plf	780 plf	1,040 plf	1,560 plf
MASA	2x	1,235 #	309 plf	371 plf	463 plf	618 plf	741 plf	926 plf	1,235 plf	1,853 plf

Notes: A.B. values are per NDS-2005 Table 11E and 2006 IBC Section 2305.3.11
Douglas Fir Larch lumber grade for mudsill/A.B. values (Specific Gravity: G = 0.5)

Framing Clip Capacity (160%)		Shear Transfer Connection Capacity Based on Clip Spacing								
Framing Clip	Capacity	48" o/c	36" o/c	32" o/c	24" o/c	18" o/c	16" o/c	12" o/c	8" o/c	6" o/c
A34	465 #	116 plf	155 plf	174 plf	233 plf	310 plf	349 plf	465 plf	698 plf	930 plf
A35	650 #	163 plf	217 plf	244 plf	325 plf	433 plf	488 plf	650 plf	975 plf	1,300 plf
LTP4	625 #	156 plf	208 plf	234 plf	313 plf	417 plf	469 plf	625 plf	938 plf	1,250 plf
LTP5	565 #	141 plf	188 plf	212 plf	283 plf	377 plf	424 plf	565 plf	848 plf	1,130 plf
RBC	445 #	111 plf	148 plf	167 plf	223 plf	297 plf	334 plf	445 plf	668 plf	890 plf
L70	740 #	185 plf	247 plf	278 plf	370 plf	493 plf	555 plf	740 plf	1,110 plf	1,480 plf
L90	925 #	231 plf	308 plf	347 plf	463 plf	617 plf	694 plf	925 plf	1,388 plf	1,850 plf
HGA10KT	1,165 #	291 plf	388 plf	437 plf	583 plf	777 plf	874 plf	1,165 plf	1,748 plf	2,330 plf

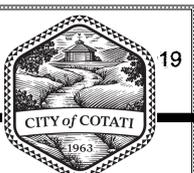
Notes: Framing clip capacities are from Simpson catalog C-2019
Douglas Fir Larch lumber grade for clip values (Specific Gravity: G = 0.5)

GENERAL NOTES:

- Allowable shear values for 3/8" sheathing is dependent on a maximum stud spacing of 16" on center.

SPECIAL NOTES:

- Framing at adjoining panel edges shall be double 2x or 3x minimum and nails shall be staggered per detail "10A/S1" or "10B/S1".
- Edge nail panel joints though thick portion of panel per detail "6B/S1".
- Framing at adjoining panel edges shall be 3x minimum and nails shall be staggered. See detail "10A/S1".
- Nailing applies to all studs, top and bottom plates. Use 6d (cooler nails) at 5/8" gypsum board.
- Requires plate washers at mudsill A.B. to extend to within 1/2" of the mudsill edge on the side(s) with structural sheathing. See detail 12/S1.



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ENGR:	CHKD:		JOB NO: 24087
DATE:			SHEET: 4 OF

UPLIFT TIE DOWN ANCHOR AND STRAP CAPACITY CHARTS

TIE DOWN ANCHORS				
Model	Anchor Diameter	Post Size	Post Fasteners	Capacity (160%)
HTT4	5/8"Φ	(2) 2x or 4x	(18) 16dx2 1/2"	4,235 #
HTT5	5/8"Φ	(2) 2x or 4x	(26) 16dx2 1/2"	5,090 #
HDU2	5/8"Φ	(2) 2x or 4x	(6) SDS 1/4"x2 1/2"	3,075 #
HDU4	5/8"Φ	(2) 2x or 4x	(10) SDS 1/4"x2 1/2"	4,565 #
HDU5	5/8"Φ	(2) 2x or 4x	(14) SDS 1/4"x2 1/2"	5,645 #
HDU8	7/8"Φ	(2) 2x or 4x	(20) SDS 1/4"x2 1/2"	6,765 #
HDU11	1"Φ	4x	(30) SDS 1/4"x2 1/2"	9,335 #
HDU14	1"Φ	6x6	(36) SDS 1/4"x2 1/2"	14,445 #
STHD10	embed	(2) 2x or 4x	(28) 16d sinker	3,350 #
STHD10-12	embed	(2) 2x or 4x	(12) 16d sinker	2,040 #

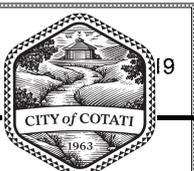
Notes: Tie down anchor capacities are from Simpson catalog C-2019
Douglas Fir Larch lumber grade for tie down anchor values (Specific Gravity: G = 0.5)

STRAPS AT POST TO POST CONNECTIONS				
Model	Overall Length	End Length	Total Fasteners	Capacity (160%)
CS16	27" + clear span	13"	(22) 8d	1,705 #
CMSTC16	41" + clear span	20"	(50) 16d sinker	4,690 #
CMST14	61" + clear span	30"	(66) 10d	6,475 #
MST37	37 1/2"	9 3/4"	(20) 16d	2,460 #
MST48	48"	15"	(32) 16d	3,950 #
MST60	60"	21"	(46) 16d	6,235 #
MSTC52	52 1/4"	17 1/8"	(44) 16d sinker	4,225 #
MSTC66	66 3/4"	23 3/8"	(64) 16d sinker	5,850 #
MSTC78	77 3/4"	29 3/8"	(76) 16d sinker	5,850 #
MSTA49	49"	15 1/2"	(26) 10d	2,020 #

Notes: Strap capacities are from Simpson catalog C-2019
Douglas Fir Larch lumber grade for strap values (Specific Gravity: G = 0.5)

STRAPS AT POST TO BEAM CONNECTIONS				
Model	Overall Length	End Length	Total Fasteners	Capacity (160%)
LSTA24	24"	10 5/8"	(18) 10d	1,235 #
MSTA24	24"	10 5/8"	(18) 10d	1,640 #
MSTA30	30"	13 3/8"	(22) 10d	2,050 #
MSTA36	36"	16 3/8"	(26) 10d	2,050 #
ST6224	23 1/4"	10 1/2"	(28) 16d	2,535 #
ST6236	33 3/4"	15 3/4"	(40) 16d	3,845 #
MST27	27"	12 3/8"	(30) 16d	3,700 #
MSTA30-8	30"	13 3/8"	(16) 10d	1,490 #

Notes: Strap capacities are from Simpson catalog C-2019
Douglas Fir Larch lumber grade for strap values (Specific Gravity: G = 0.5)



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ENGR:	CHKD:	JOB NO: 24087
DATE:		SHEET: 5 OF

SAWN LUMBER CAPACITY CHART - DOUGLAS FIR-LARCH

Size	Lumber Grade and Allowable Stresses	Moment Capacity ft lbs				Shear Capacity lbs		A in ²	S _x in ³	I _x in ⁴
		floor	floor	roof	roof	floor	roof			
		C _D = 1.00 C _r = 1.00	C _D = 1.00 C _r = 1.15	C _D = 1.25 C _r = 1.00	C _D = 1.25 C _r = 1.15	C _D = 1.00	C _D = 1.25			
2x4	DF No 2 F _b = 900 psi F _v = 180 psi E = 1,600,000 psi	345	396	431	495	630	788	5.25	3.06	5.36
2x6		737	848	922	1,060	990	1,238	8.25	7.56	20.80
2x8		1,183	1,360	1,478	1,700	1,305	1,631	10.88	13.14	47.63
2x10		1,765	2,029	2,206	2,537	1,665	2,081	13.88	21.39	98.93
2x12		2,373	2,729	2,966	3,411	2,025	2,531	16.88	31.64	177.98
2x14		2,963	3,407	3,703	4,259	2,385	2,981	19.88	43.89	290.78
2x4	DF No 1 F _b = 1,000 psi F _v = 180 psi E = 1,700,000 psi	383	440	479	550	630	788	5.25	3.06	5.36
2x6		819	942	1,024	1,178	990	1,238	8.25	7.56	20.80
2x8		1,314	1,511	1,643	1,889	1,305	1,631	10.88	13.14	47.63
2x10		1,961	2,255	2,451	2,819	1,665	2,081	13.88	21.39	98.93
2x12		2,637	3,032	3,296	3,790	2,025	2,531	16.88	31.64	177.98
2x14		3,292	3,786	4,115	4,732	2,385	2,981	19.88	43.89	290.78
4x4	DF No 2 F _b = 900 psi F _v = 180 psi E = 1,600,000 psi	804	924	1,005	1,156	1,470	1,838	12.25	7.15	12.51
4x6		1,720	1,979	2,151	2,473	2,310	2,888	19.25	17.65	48.53
4x8		2,989	3,438	3,737	4,297	3,045	3,806	25.38	30.66	111.15
4x10		4,492	5,166	5,615	6,457	3,885	4,856	32.38	49.91	230.84
4x12		6,091	7,004	7,614	8,756	4,725	5,906	39.38	73.83	415.28
4x14		7,681	8,833	9,601	11,041	5,565	6,956	46.38	102.41	678.48
4x4	DF No 1 F _b = 1,000 psi F _v = 180 psi E = 1,700,000 psi	893	1,027	1,117	1,284	1,470	1,838	12.25	7.15	12.51
4x6		1,912	2,198	2,390	2,748	2,310	2,888	19.25	17.65	48.53
4x8		3,322	3,820	4,152	4,775	3,045	3,806	25.38	30.66	111.15
4x10		4,991	5,740	6,239	7,175	3,885	4,856	32.38	49.91	230.84
4x12		6,768	7,783	8,459	9,728	4,725	5,906	39.38	73.83	415.28
4x14		8,534	9,814	10,668	12,268	5,565	6,956	46.38	102.41	678.48
4x4	DF SS F _b = 1,500 psi F _v = 180 psi E = 1,900,000 psi	1,340	1,541	1,675	1,926	1,470	1,838	12.25	7.15	12.51
4x6		2,867	3,298	3,584	4,122	2,310	2,888	19.25	17.65	48.53
4x8		4,982	5,730	6,228	7,162	3,045	3,806	25.38	30.66	111.15
4x10		7,487	8,610	9,358	10,762	3,885	4,856	32.38	49.91	230.84
4x12		10,151	11,674	12,689	14,593	4,725	5,906	39.38	73.83	415.28
4x14		12,801	14,722	16,002	18,402	5,565	6,956	46.38	102.41	678.48

DESIGN NOTES AND EQUATIONS:

Per 2022 CBC and 2018 NDS

Moment Capacity = C_D • C_r • C_F • C_M • C_t • C_L • C_i • F_b • S_x / 12

Shear Capacity = C_D • C_M • C_t • C_i • F_v • A / 1.5

DEFAULT VALUES:

C_F varies with beam depth

dry conditions

temperature is less than 100°

lumber is not pressure treated

CL is taken as unity



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ENGR:	CHKD:	JOB NO:
DATE:		24087
		SHEET: 6 OF

SAWN LUMBER CAPACITY CHART - DOUGLAS FIR-LARCH

Size	Lumber Grade and Allowable Stresses	Moment Capacity ft lbs		Shear Capacity lbs		A in ²	S _x in ³	I _x in ⁴
		floor C _D = 1.00	roof C _D = 1.25	floor C _D = 1.00	roof C _D = 1.25			
6x6	DF No 1 F _b = 1,350 psi F _v = 170 psi E = 1,600,000 psi	3,120	3,899	3,428	4,285	30.25	27.73	76.26
6x8		5,801	7,251	4,675	5,844	41.25	51.56	193.36
6x10		9,307	11,634	5,922	7,402	52.25	82.73	392.96
6x12		13,638	17,048	7,168	8,960	63.25	121.23	697.07
6x14		18,550	23,188	8,415	10,519	74.25	167.06	1,127.67
6x16		24,081	30,101	9,662	12,077	85.25	220.23	1,706.78
6x6	DF Dense No 1 F _b = 1,550 psi F _v = 170 psi E = 1,700,000 psi	3,582	4,477	3,428	4,285	30.25	27.73	76.26
6x8		6,660	8,325	4,675	5,844	41.25	51.56	193.36
6x10		10,686	13,357	5,922	7,402	52.25	82.73	392.96
6x12		15,659	19,573	7,168	8,960	63.25	121.23	697.07
6x14		21,298	26,623	8,415	10,519	74.25	167.06	1,127.67
6x16		27,649	34,561	9,662	12,077	85.25	220.23	1,706.78
6x6	DF SS F _b = 1,600 psi F _v = 170 psi E = 1,600,000 psi	3,697	4,622	3,428	4,285	30.25	27.73	76.26
6x8		6,875	8,594	4,675	5,844	41.25	51.56	193.36
6x10		11,031	13,788	5,922	7,402	52.25	82.73	392.96
6x12		16,164	20,205	7,168	8,960	63.25	121.23	697.07
6x14		21,985	27,482	8,415	10,519	74.25	167.06	1,127.67
6x16		28,541	35,676	9,662	12,077	85.25	220.23	1,706.78
8x8	DF No 1 F _b = 1,350 psi F _v = 170 psi E = 1,600,000 psi	7,910	9,888	6,375	7,969	56.25	70.31	263.67
8x10		12,691	15,864	8,075	10,094	71.25	112.81	535.86
8x12		18,598	23,247	9,775	12,219	86.25	165.31	950.55
8x14		25,296	31,620	11,475	14,344	101.25	227.81	1,537.73
8x16		32,838	41,047	13,175	16,469	116.25	300.31	2,327.42
8x18		41,298	51,623	14,875	18,594	131.25	382.81	3,349.61
8x8	DF SS F _b = 1,600 psi F _v = 170 psi E = 1,600,000 psi	9,375	11,719	6,375	7,969	56.25	70.31	263.67
8x10		15,042	18,802	8,075	10,094	71.25	112.81	535.86
8x12		22,042	27,552	9,775	12,219	86.25	165.31	950.55
8x14		29,980	37,475	11,475	14,344	101.25	227.81	1,537.73
8x16		38,919	48,649	13,175	16,469	116.25	300.31	2,327.42
8x18		48,946	61,183	14,875	18,594	131.25	382.81	3,349.61

DESIGN NOTES AND EQUATIONS:

Per 2022 CBC and 2018 NDS

Moment Capacity = C_D • C_r • C_F • C_M • C_t • C_L • C_i • F_b • S_x / 12

Shear Capacity = C_D • C_M • C_i • C_i • F_v • A / 1.5

DEFAULT VALUES:

C_F varies with beam depth

dry conditions

temperature is less than 100°

lumber is not pressure treated

CL is taken as unity



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ENGR:	CHKD:	JOB NO: 24087
DATE:		SHEET: 7 OF

MANUFACTURED LUMBER CAPACITY CHART - TRUSJOIST TIMBERSTRAND

Size	Lumber Grade and Allowable Stresses				Moment Capacity ft lbs		Shear Capacity lbs		A in ²	S _x in ³	I _x in ⁴
					floor C _D = 1.00	roof C _D = 1.25	floor C _D = 1.00	roof C _D = 1.25			
1 3/4x9 1/2	LSL (1.55E)	F _b = 2,325 psi	F _v = 310 psi	E = 1,550,000 psi	5,211	6,514	3,436	4,295	16.63	26.32	125.03
1 3/4x11 7/8					7,977	9,971	4,295	5,368	20.78	41.13	244.21
1 3/4x14					10,920	13,650	5,063	6,329	24.50	57.17	400.17
1 3/4x16					14,089	17,611	5,787	7,233	28.00	74.67	597.33
1 3/4x9 1/2	LVL (2.0E)	F _b = 2,600 psi	F _v = 285 psi	E = 2,000,000 psi	5,827	7,284	3,159	3,948	16.63	26.32	125.03
1 3/4x11 7/8					8,920	11,150	3,948	4,936	20.78	41.13	244.21
1 3/4x14					12,212	15,265	4,655	5,819	24.50	57.17	400.17
1 3/4x16					15,755	19,694	5,320	6,650	28.00	74.67	597.33
3 1/2x9 1/2	PSL (2.2E)	F _b = 2,900 psi	F _v = 290 psi	E = 2,200,000 psi	12,999	16,249	6,428	8,035	33.25	52.65	250.07
3 1/2x11 7/8					19,879	24,849	8,035	10,044	41.56	82.26	488.41
3 1/2x14					27,241	34,052	9,473	11,842	49.00	114.33	800.33
3 1/2x16					35,146	43,933	10,827	13,533	56.00	149.33	1,194.67
3 1/2x18					43,665	54,581	12,180	15,225	63.00	189.00	1,701.00
5 1/4x9 1/2	PSL (2.2E)	F _b = 2,900 psi	F _v = 290 psi	E = 2,200,000 psi	19,585	24,482	9,643	12,053	49.88	78.97	375.10
5 1/4x11 7/8					29,819	37,274	12,053	15,066	62.34	123.39	732.62
5 1/4x14					40,743	50,928	14,210	17,763	73.50	171.50	1,200.50
5 1/4x16					52,432	65,540	16,240	20,300	84.00	224.00	1,792.00
5 1/4x18					65,497	81,872	18,270	22,838	94.50	283.50	2,551.50
7x9 1/2	PSL (2.2E)	F _b = 2,900 psi	F _v = 290 psi	E = 2,200,000 psi	26,114	32,642	12,857	16,071	66.50	105.29	500.14
7x11 7/8					39,759	49,698	16,071	20,089	83.13	164.52	976.83
7x14					54,324	67,904	18,947	23,683	98.00	228.67	1,600.67
7x16					69,909	87,387	21,653	27,067	112.00	298.67	2,389.33
7x18					87,330	109,162	24,360	30,450	126.00	378.00	3,402.00

DESIGN NOTES AND EQUATIONS:

Per 2022 CBC and 2018 NDS

Moment Capacity = C_D • C_r • C_F • C_M • C_t • C_L • C_i • F_b • S_x / 12

Shear Capacity = C_D • C_M • C_t • C_i • F_v • A / 1.5

DEFAULT VALUES:

C_F varies with beam depth

dry conditions

temperature is less than 100°

lumber is pressure treated

CL is taken as unity



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ENGR:	CHKD:		JOB NO: 24087
DATE:			SHEET: 8 OF

LUMBER COLUMN CAPACITY CHART - DOUGLAS FIR-LARCH

Load Duration Factor: $C_D = 1.00$

Size	2x4	2x6	4x4	4x6	4x6	4x8	6x6	6x8	6x10	8x8	8x10
Material	DF No 2	DF No 2	DF No 2	DF No 2	DF No 2	DF No 2	DF No 1	DF No 1	DF No 1	DF No 1	DF No 1
Type	stud	stud	post	post	stud	post	post	post	post	post	post
Area	5.25	8.25	12.25	19.25	19.25	25.38	30.25	41.25	52.25	56.25	71.25
P_{crush}	4,102	6,445	8,652	13,234	13,595	15,859	20,797	25,781	32,656	35,156	44,531
Height	Allowable Axial Load, P_A (lbs)										
7'-0"	3,730	9,670	8,690	13,520	22,550	17,620	26,350	35,920	45,500	52,790	66,870
8'-0"	2,990	8,690	6,960	10,870	20,270	14,230	24,800	33,820	42,830	51,520	65,260
9'-0"	2,430	7,660	5,660	8,850	17,860	11,610	22,960	31,310	39,660	49,970	63,290
10'-0"	2,000	6,670	4,670	7,310	15,570	9,600	20,920	28,530	36,140	48,090	60,920
11'-0"	1,680	5,800	3,910	6,120	13,520	8,050	18,830	25,680	32,530	45,900	58,140
12'-0"	1,420	5,040	3,320	5,200	11,750	6,830	16,830	22,950	29,060	43,410	54,990
13'-0"	1,220	4,400	2,850	4,460	10,260	5,870	14,990	20,440	25,890	40,700	51,550
14'-0"	1,060	3,870	2,470	3,870	9,010	5,090	13,350	18,210	23,060	37,860	47,960
15'-0"	Le/d > 50	3,410	Le/b > 50	Le/b > 50	7,960	Le/b > 50	11,920	16,250	20,590	35,020	44,360
16'-0"	Le/d > 50	3,030	Le/b > 50	Le/b > 50	7,070	Le/b > 50	10,680	14,560	18,440	32,260	40,860
17'-0"	Le/d > 50	2,710	Le/b > 50	Le/b > 50	6,320	Le/b > 50	9,600	13,090	16,570	29,650	37,550
18'-0"	Le/d > 50	2,430	Le/b > 50	Le/b > 50	5,670	Le/b > 50	8,660	11,810	14,960	27,230	34,490
19'-0"	Le/d > 50	2,200	Le/b > 50	Le/b > 50	5,120	Le/b > 50	7,850	10,700	13,550	25,020	31,690
20'-0"	Le/d > 50	1,990	Le/b > 50	Le/b > 50	4,650	Le/b > 50	7,140	9,730	12,330	23,010	29,150
21'-0"	Le/d > 50	1,820	Le/b > 50	Le/b > 50	4,230	Le/b > 50	6,520	8,890	11,250	21,200	26,850
22'-0"	Le/d > 50	1,660	Le/b > 50	Le/b > 50	3,870	Le/b > 50	5,970	8,140	10,310	19,560	24,780
23'-0"	Le/d > 50	Le/d > 50	Le/b > 50	Le/b > 50	Le/d > 50	Le/b > 50	Le/b > 50	Le/b > 50	Le/b > 50	18,090	22,920
24'-0"	Le/d > 50	Le/d > 50	Le/b > 50	Le/b > 50	Le/d > 50	Le/b > 50	Le/b > 50	Le/b > 50	Le/b > 50	16,770	21,240

DESIGN CRITERIA AND ASSUMPTIONS:

Simple solid column design per 2022 CBC and 2018 NDS (Section 3.7.1).

Allowable axial load: $P_A = (\text{Area}) \times F'_c$

Allowable bearing load perpendicular to grain: $P_{crush} = (\text{Area}) \times F'_{c\perp}$

All appropriate adjustment factors have been considered in the allowable stresses (F'_c , $F'_{c\perp}$ and E')

All studs use member depth "d" in the ratio " L_e/d ", while all posts use the member width "b"

Default Assumptions:

Pin-pin end conditions. Therefore the design buckling coefficient (K_e) equals 1.0

C_F varies with post depth

dry conditions

temperature is less than 100°

lumber is not pressure treated

Note that P_A loads in shaded boxes exceed the associated P_{crush} load



ENGR:	CHKD:	2501 GILMAN RANCH RD COTATI	JOB NO:	240007
DATE:	9.9.24		SHEET:	9 OF

LATERAL

• LINE B

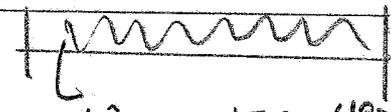
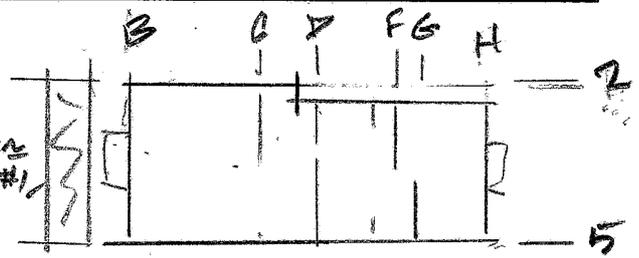
$$F_{EQ} = 207 \# / \text{ft} \cdot \left(\frac{34'}{2}\right) = 3520 \#$$

$$V_{wall} = \frac{F_{EQ}}{4' + 4' + 4'} = 293 \# / \text{ft}$$

$$F_{HD} = 2789$$

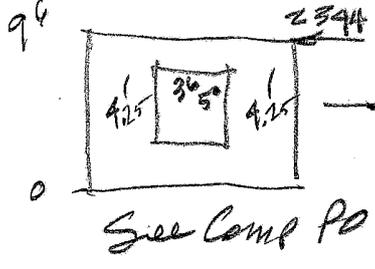
USE 3A
HDU 2
CS 16

W_{EQ} = 0.18(90) 25 pcf = 405 #/ft



$$W_{wind} = 15 \text{ pcf} \left(\frac{10}{2}\right) + 0 \text{ pcf} (10) \approx 155 \# / \text{ft}$$

$$W_{EQ} = 0.18(46') 25 \text{ pcf} = 207 \# / \text{ft}$$



• LINE C & D

$$F_{EQ} = 207 \# / \text{ft} \cdot \left(\frac{67'}{2}\right) = 6934 \#$$

$$V_{wall} = \frac{F_{EQ}}{8' + 6' + 18'} = 117 \# / \text{ft}$$

$$F_{HD} = 2000$$

6A
HDU 2

• LINE F & G

$$F_{EQ} = 207 \# / \text{ft} \cdot \left(\frac{60'}{2}\right) = 6210 \#$$

$$V_{wall} = \frac{F_{EQ}}{13' + 13'} = 239 \# / \text{ft}$$

$$F_{HD} = 2270 \#$$

6A
HDU 2



24087 10



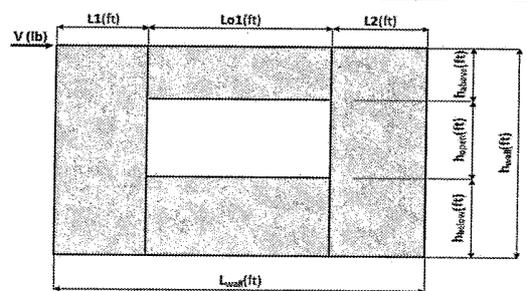
Force Transfer Around Openings Calculator

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach treats certain arrangements of one opening shear walls more favorably, because it allows for stronger wall segments while still meeting the height-to-width ratios and other design requirements.

Project Information

Code:	2022CBC	Date:	8/8/2024
Designer:			
Client:	2501 GILMAN RANCH RD		
Project:	24087		
Wall Line:	B		

Line B



Shear Wall Calculation Variables

V	2344 lbf	Opening 1	Adj. Factor Method =	1.25-0.125h/bs
L1	4.25 ft	h_o	Wall Pier Aspect Ratio	Adj. Factor
L2	4.25 ft	h_b	P1=h_o/L1=	1.18
h_wall	9.50 ft	L_o1	P2=h_o/L2=	1.18
L_wall	12.00 ft			N/A

1. Hold-down forces: $H = Vh_{wall}/L_{wall}$ = 1856 lbf

2. Unit shear above + below opening
 First opening: $va1 = vb1 = H/(h_o + h_b) = 412$ plf

3. Total boundary force above + below openings
 First opening: $O1 = va1 \times (L_{o1}) = 1443$ lbf

4. Corner forces
 $F1 = O1(L1)/(L1+L2) = 722$ lbf
 $F2 = O1(L2)/(L1+L2) = 722$ lbf

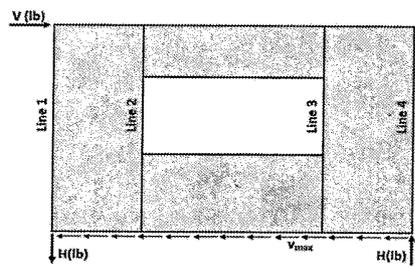
5. Tributary length of openings
 $T1 = (L1 \cdot L_{o1})/(L1+L2) = 1.75$ ft
 $T2 = (L2 \cdot L_{o1})/(L1+L2) = 1.75$ ft

6. Unit shear beside opening
 $v1 = (V/L)(L1+T1)/L1 = 276$ plf
 $v2 = (V/L)(T2+L2)/L2 = 276$ plf
 Check $v1 \cdot L1 + v2 \cdot L2 = V?$ = 2344 lbf OK

7. Resistance to corner forces
 $R1 = v1 \cdot L1 = 1172$ lbf
 $R2 = v2 \cdot L2 = 1172$ lbf

8. Difference corner force + resistance
 $R1-F1 = 450$ lbf
 $R2-F2 = 450$ lbf

9. Unit shear in corner zones
 $vc1 = (R1-F1)/L1 = 106$ plf
 $vc2 = (R2-F2)/L2 = 106$ plf



Check Summary of Shear Values for One Opening

Line 1: $vc1(h_o+h_b)+v1(h_o)=H?$		477	1379	1856 lbf
Line 2: $va1(h_o+h_b)-vc1(h_o+h_b)-v1(h_o)=0?$	1856	477	1379	0
Line 3: $va1(h_o+h_b)-vc2(h_o+h_b)-v1(h_o)=0?$	1856	477	1379	0
Line 4: $vc2(h_o+h_b)+v2(h_o)=H?$		477	1379	1856 lbf

3A

Design Summary*

Req. Sheathing Capacity	412 plf	4-Term Deflection	0.308 in.	3-Term Deflection	
Req. Strap Force	722 lbf	4-Term Story Drift %	0.011 %	3-Term Story Drift %	
Req. HD Force (H)	1856 lbf				
Req. Shear Wall Anchorage Force (v_{max})	195 plf				

CS16
HD12

Special Design Provisions for Wind and Seismic does not provide a Ga for the Sheathing and Nail Type combination entered. Please review inputs or use the Four-Term Equation Deflection calculation.

*The Design Summary assumes that the shear wall is designed as blocked.



24087
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Project Information

Code:	2022CBC	Date:	8/8/2024
Designer:			
Client:	2501 GILMAN RANCH RD		
Project:	24087		
Wall Line:	B		

Shear Wall Deflection Calculation Variables

Unfactored Shear Load $V_{unfactored}$: 3349 (lbf)

Sheathing Type: 19/32 OSB
Grade: APA Rated Sheathing

Wood End Post Values:
Species: DF#2
E: 1.60E+06 (psi)

Nail Type: 8d common (penny weight)

G_t Override:
 G_a Override:

C_d : 4.00

	Pier 1	Pier 2	(in.)
Nail Spacing:	3	3	(in.)
HD Capacity:	3075	3075	(lbf)
HD Deflection:	0.12	0.12	(in.)

Three-Term Equation Deflection Check

$$\delta_{sw} = \frac{8vh^3}{Eab} + \frac{vh}{1000G_a} + \frac{h\Delta_a}{b} \quad (4.3-1)$$

	Pier 1-L	Pier 1-R	Pier 2-L	Pier 2-R	
$V_{unfactored}$:	394	394	394	394	(plf)
E:	1.60E+06	1.60E+06	1.60E+06	1.60E+06	(psi)
h:	9.50	6.00	6.00	9.50	(ft)
Qty:					
Stud Size:	2x6	2x6	2x6	2x6	
A Override:	16.5	16.5	16.5	16.5	(in. ²)
A:	16.5	16.5	16.5	16.5	(in. ²)
G_a :	N/A	N/A	N/A	N/A	(kips/in.)
b:	4.25	4.25	4.25	4.25	(ft)
HD Capacity:	3075	3075	3075	3075	(lbf)
HD Defl.:	0.12	0.12	0.12	0.12	(in.)

Sheathing Type: 19/32 OSB APA Rated Sheathing
Nail Type: 8d common

Special Design Provisions for Wind and Seismic does not provide a G_a for the Sheathing and Nail Type combination entered. Please review inputs or use the Four Term Equation Deflection calculation.

Check Total Deflection of Wall System

Pier 1 (left)			Pier 1 (right)		
Term 1	Term 2	Term 3	Term 1	Term 2	Term 3
Bending	Shear	Fastener	Bending	Shear	Fastener
0.024		0.327	0.006		0.130
Sum			Sum		
Pier 2 (left)			Pier 2 (right)		
Term 1	Term 2	Term 3	Term 1	Term 2	Term 3
Bending	Shear	Fastener	Bending	Shear	Fastener
0.006		0.130	0.024		0.327
Sum			Sum		

Total Defl. (in.)
%drift

Comment: The 3-term equation is calibrated to be approximately equal to 4-term equation at 1.4*ASD capacity.



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ENGR:	CHKD:	2501 GILMAN RANCH RD COTATI	JOB NO:	24081
DATE:	8.8.24		SHEET:	13

LATERAL CONT.

• line 1

$$F_{EQ} = 207 \# / \left(\frac{26}{2} \right) = 2691 \#$$

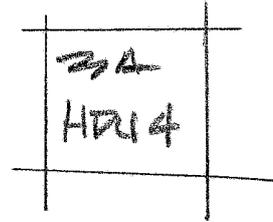
$$U_{wall} = \frac{F_{EQ}}{12 + 6} = 150 \# / \text{ft} - \text{LOW } CA \text{ OK}$$

• line 2 1/2

$$F_{EQ} = 405 \# / \left(\frac{44}{2} \right) = 8910 \#$$

$$U_{wall} = \frac{F_{EQ}}{8' + 7' + 5' \times 2} = 485 \# / \text{ft}$$

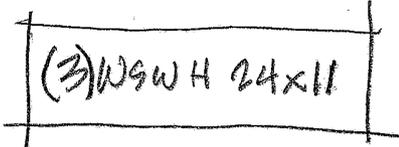
$$F_{HD} = 4130 \#$$



• line 4 1/5 (SIM TO 2 1/2)

$$F_{EQ} = 8910 \#$$

$$n = \frac{8910}{U_{wall} 2295} \approx 2.7$$



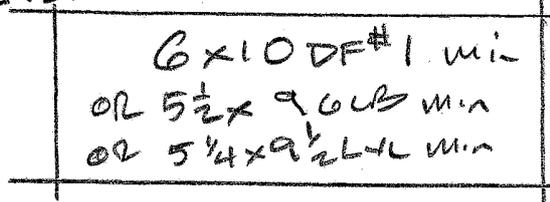
405 West College Avenue, Suite E • Santa Rosa, CA 95401 • (707) 575-0911 • Email: jdf0911@sonic.net

ENGR:	CHKD:	2501 GILMAN RANCH RD COTATI	JOB NO: 24087
DATE: 8.9.24			SHEET: 14 OF

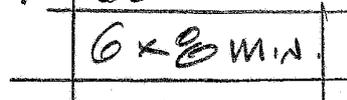
ROOF FRAMING

• PREM TRUSSES @ 24' @ BY OTHERS

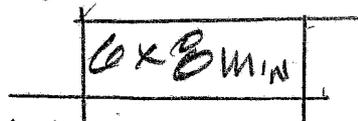
• line 1 Porch HDR $l = 14\frac{1}{2}'$
 $W_{TL} = 35 \text{ psf} \left(\frac{10^2}{2 \cdot 2} \right) = 219 \text{ \#/'}$ $R = 1980 \text{ \#}$ $M = 8200 \text{ \#'$ $I = 909$
 $\frac{Q}{240 \text{ DL}}$



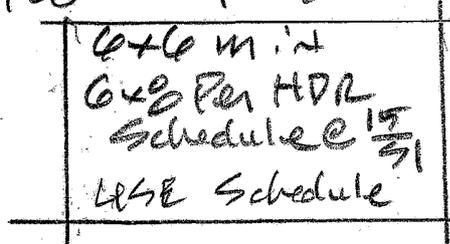
• line 3 HDR $l = 8\frac{1}{2}'$ @ MBDRM
 $W_{TL} = 35 \text{ psf} \left(\frac{39^2}{2} \right) = 683 \text{ \#/'}$ $R = 2903 \text{ \#}$ $M = 6170 \text{ \#'$ $I = 118$
 $\frac{Q}{240 \text{ DL}}$



• line 2 HDR $l = 10\frac{1}{2}'$ @ Garage Door
 $W_{TL} = 35 \text{ psf} (25\frac{1}{2} + 2) = 508 \text{ \#/'}$ $R = 2670 \text{ \#}$ $M = 7000 \text{ \#'$ $I = 165$
 $\frac{Q}{240 \text{ DL}}$



• 4th HDR $l = 6\frac{1}{2}'$ (6' opening)
 $W_{TL} = 35 \text{ psf} \left(\frac{40^2}{2} \right) = 700 \text{ \#/'}$ $R = 2275 \text{ \#}$ $M = 2700 \text{ \#'$ $I = 54 \text{ in}^4$



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ENGR:	CHKD:	2501 GILMAN RANCH RD COTATI	JOB NO:	24007
DATE:	8.9.24		SHEET:	15

FOUNDATION

MAT SLAB ON "(E) FILLS, WEAK & COMPRESSIBLE SOILS"
 8" THICK MIN. 1 1/2" TOTAL SETTLEMENT
 1" DIFF SETTLEMENT IN 20'

$S_B = 600 \text{ PSF}$ $C_F = 0.30$ MODULUS OF SUBGRADE REACTION
 $K_S = 100 \text{ PSI/IN}$

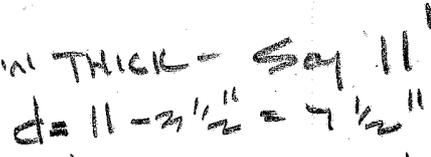
SLAB $\approx 44 \times 90$ SEE COMP PO Pg 16

$W_{\text{PERIMETER}} = 35 \text{ PSF} (22') + 100 = 870 \text{ #/L}$

$W_{\text{INT}} = 35 \text{ PSF} (40 \frac{1}{2}') + 100 = 800$ LONG DIRECTION

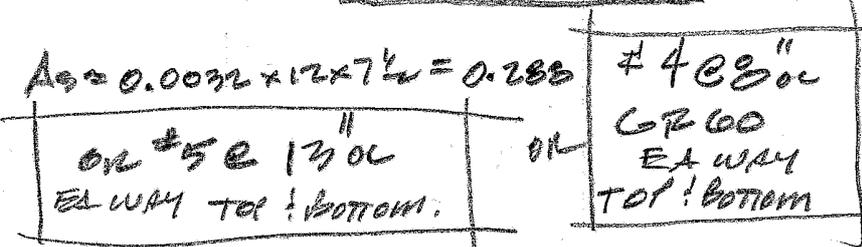
$M_{\text{MAX}} \approx 5.83 \text{ K' - L}$ $\approx 10 \frac{3}{4}"$ MIN THICK - SAY 11"

$M_U \approx 5.83 (1.6) \approx 9.33 \text{ K' - L}$



$$\therefore \frac{9.33 (12000)}{3000 (12) 7.5^2} = 0.055 \quad \omega \approx 0.044$$

$$\rho \approx \frac{0.044 (3000)}{60,000} = 0.0022 \quad A_s = 0.0022 \times 12 \times 7 \frac{1}{2} = 0.288$$



OPTION 11" POST TENSION SLAB

W/ 1/2" ϕ TENDON @ 2.10' OC SHORT DIR.

! 1/2" ϕ TENDON @ 1.75' OC LONG DIR.



24007
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Build 011313

PTISlab 3.5

Geostructural Tool Kit, Inc.

Registered To : Johnson DeBois & Forrest

Serial Number : 100-350-255

Project Title : 2501 Gilman Ranch Rd
Project Engineer : jpd

Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

UNIFORM THICKNESS FOUNDATION - DESIGN SUMMARY

Slab Dimensions : 44.00 FT x 90.00 FT x 10.75 Inches
Uniform Thickness Slab : 10.75 (10.71) Inches
(rounded to the nearest 0.25 inch)

Material Properties

Concrete Strength, f'_c : 3,000 PSI
Tendon Strength, F_{pu} : 270 KSI
Tendon Diameter : 1 / 2 Inch

Material Quantities

Concrete Volume : 131.4 Cubic Yards
Prestressing Tendon : 4,232.0 Linear Feet
Number of End Anchorages : 134

In the LONG direction ...

Number of Slab Tendons : 25
Slab Tendon Spacing : 1.75 Feet O.C.
Slab Tendon Centroid : 5.38 Inches from top of slab

In the SHORT direction ...

Number of Slab Tendons : 42
Slab Tendon Spacing : 2.15 Feet O.C.
Slab Tendon Centroid : 5.38 Inches from top of slab

Selected Variables

	Short Direction	Long Direction
Cross Sectional Area (Inch ²) :	11,610	5,676
Moment of Inertia (Inch ⁴) :	111,807	54,661
Section Modulus, Top and Bottom (Inch ³) :	20,801	10,170
Beta Distance (Center Down) (Feet) :	3.53	3.81
Beta Distance (Edge Down) (Feet) :	9.48	7.93

Jacking Force : 33.05 KIPS



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Build 011313

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Project Number : 24087
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Geotechnical Report : Reese & Associates

UNIFORM THICKNESS FOUNDATION - DESIGN COMPLIANCE SUMMARY

RIBBED FOUNDATION COMPLIANCE :

RIBBED FOUNDATION IN COMPLIANCE.

COMPRESSIBLE SOIL MODE (CENTER DOWN) :

ALL VALUES WITHIN ALLOWABLE LIMITS.

COMPRESSIBLE SOIL MODE (EDGE DOWN) :

ALL VALUES WITHIN ALLOWABLE LIMITS.



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Build 011313

PTISlab 3.5
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Geotechnical Report : Reese & Associates

UNIFORM THICKNESS FOUNDATION - RESULTS OF ANALYSIS

Uniform Thickness Slab **10.75 (10.71) Inches**
(rounded to nearest 0.25 inch)

Prestress Summary

Subgrade Friction calculated by method prescribed in PTI Manual

	<u>Short Direction</u>	<u>Long Direction</u>
Number of Tendons	42	25
Spacing of Tendons (FT)	2.15	1.75
Center of Gravity of Concrete (from top of slab) (Inch)	5.38	5.38
Center of Gravity of Tendons (from top of slab) (Inch)	5.38	5.38
Eccentricity of Prestressing (Inch)	0.00	0.00
Minimum Effective Prestress Force (K)	925.2	472.7
Beta Distance Effective Prestress Force - Center / Edge (K)	1,087.2 / 1,035.0	649.2 / 631.6
Minimum Effective Prestress (PSI)	80	83
Beta Distance Effective Prestress - Center / Edge (PSI)	94 / 89	114 / 111

Moment Analysis - Compressible Soils Mode (Center Down)

Maximum Moment, Short Direction 1.63 FT-K/FT
Maximum Moment, Long Direction 1.51 FT-K/FT

	Tension in Bottom Fiber (KSI)			Compression in Top Fiber (KSI)	
	<u>Short Direction</u>	<u>Long Direction</u>		<u>Short Direction</u>	<u>Long Direction</u>
Allowable Stress	-0.329	-0.329	Allowable Stress	1.350	1.350
Actual Stress	-0.005	0.005	Actual Stress	0.164	0.161

Differential Deflection Analysis - Compressible Soils Mode (Center Down)

Based on a Differential Deflection Coefficient of 480

	<u>Short Direction</u>	<u>Long Direction</u>
Allowable Differential Deflections controlled by 6*Beta	0.53	0.57
Actual Differential Deflections (Inches)	0.50	0.50

Shear Stress Analysis - Compressible Soils Mode (Center Down)

Maximum Shear, Short Direction 0.52 K/FT
Maximum Shear, Long Direction 0.50 K/FT

	<u>Short Direction</u>	<u>Long Direction</u>
Allowable Shear Stress (PSI)	147	148
Actual Shear Stress (PSI)	4	4



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Build 011313

PTISlab 3.5

Geostructural Tool Kit, Inc.

Registered To : Johnson DeBois & Forrest

Serial Number : 100-350-255

Project Title : 2501 Gilman Ranch Rd
Project Engineer : jpd

Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

UNIFORM THICKNESS FOUNDATION - RESULTS OF ANALYSIS continued

Moment Analysis - Compressible Soils Mode (Edge Down)

Maximum Moment, Short Direction 5.83 FT-K/FT
Maximum Moment, Long Direction 5.55 FT-K/FT

	Tension in Bottom Fiber (KSI)			Compression in Top Fiber (KSI)	
	Short Direction	Long Direction		Short Direction	Long Direction
Allowable Stress	-0.329	-0.329	Allowable Stress	1.350	1.350
Actual Stress	-0.223	-0.205	Actual Stress	0.382	0.371

Differential Deflection Analysis - Compressible Soils Mode (Edge Down)

Based on a Differential Deflection Coefficient of 960

	Short Direction	Long Direction
Allowable Differential Deflection controlled by Width	0.55	6*Beta
Allowable Differential Deflections (Inch)	0.55	0.59
Actual Differential Deflections (Inch)	0.40	0.53

Shear Analysis - Compressible Soils Mode (Edge Down)

Maximum Shear, Short Direction 1.16 K/FT
Maximum Shear, Long Direction 1.01 K/FT

	Short Direction	Long Direction
Allowable Shear Stress (PSI)	147	148
Actual Shear Stress (PSI)	9	8



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Build 011313

PTISlab 3.5

Geostructural Tool Kit, Inc.

Registered To : Johnson DeBois & Forrest

Serial Number : 100-350-255

Project Title : 2501 Gilman Ranch Rd
Project Engineer : jpd

Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

SUMMARY OF INPUT DATA

Material Properties

Concrete Strength, f'_c :	3,000.0 PSI
Concrete Creep Modulus, E_c :	1,500,000.0 PSI
Concrete Unit Weight :	145.0 PCF
Tendon Strength, F_{pu} :	270.0 KSI
Tendon Diameter :	1 / 2 Inch

Slab Properties

Rectangle Geometry : 44.00 FT x 90.00 FT x 4.00 Inches

	<u>Short Direction</u>	<u>Long Direction</u>
Minimum Permissible Prestress :	75.00 PSI	75.00 PSI

Beam Properties

	Short Direction		Long Direction		
	Type I	Type II	Type I	Type II	
Quantity :	15	0	7	0	
Depth :	17.0	0.0	17.0	0.0	Inches
Width :	8.0	0.0	8.0	0.0	Inches
Tendons :	1	0	0	0	
Cover :	2.75	0.00	2.75	0.00	Inches

Average beam spacing used in analysis



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Build 011313

PTISlab 3.5
Geostructural Tool Kit, Inc.

Registered To : Johnson DeBois & Forrest

Serial Number : 100-350-255

Project Title : 2501 Gilman Ranch Rd
Project Engineer : jpd

Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

SUMMARY OF INPUT DATA - Continued

Soil Properties

Allowable Bearing Pressure : 600.0 PSF
Expected Settlement : 1.500 Inches
Expansive soil center lift analysis performed per Section 6.13.2 in the 3rd Edition PTI Manual.
 e_m assumed to be 5 feet and y_m assumed to be Expected Settlement

Load, Deflection and Subgrade Properties

Slab Loading

Uniform Superimposed Total Load : 40.00 PSF
Total Perimeter Load : 870.00 PLF

Differential Deflection Coefficients

Compressible Soils (Center Down) : 480
Compressible Soils (Edge Down) : 960

Prestress Calculation

Subgrade Friction calculated by method prescribed in PTI Manual
Prestress Loss : 15.0 KSI
Subgrade Friction Coefficient : 0.75



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Build 011313

PTISlab 3.5
Geostructural Tool Kit, Inc.

Registered To : Johnson DeBois & Forrest

Serial Number : 100-350-255

Project Title : 2501 Gilman Ranch Rd
Project Engineer : jpd

Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

PTI EXCEPTION SUMMARY

**The following elements of the design are not in strict compliance with the
Design of Post-Tensioned Slabs-On-Ground 3rd Edition manual
published by the Post-Tensioning Institute.**

NO PTI EXCEPTIONS EXIST



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Build 011313

PTISlab 3.5

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Project Number : 24087
Project Date : August 9, 2024
Report Date : 6-18-2024
Report Number : 2055.2.1

Geotechnical Report : Reese & Associates

LINE LOAD ANALYSIS

Summary of Input Data

Line Load :	800.0 lb/ft
Direction Of Line Load :	Parallel to Long Direction
Prestress at Line Load :	Minimum Effective Prestress
Soil Modulus, K_S :	100 PCI
Slab Thickness (Ribbed Slab) :	4.00 Inch
Slab Thickness (Uniform Thickness Foundation) :	10.75 Inch
Concrete Creep Modulus, E_C :	1,500,000.0 PSI

Summary of Line Load Analysis

Applied Moment (4.00 Inch Thick Slab) :	0.40 Ft-K/Ft
Applied Moment (Uniform Thickness Foundation) :	1.25 Ft-K/Ft

Bending Stresses (KSI)

	<u>Tension in Extreme Fiber</u>	<u>Compression in Extreme Fiber</u>
Allowable Stress :	-0.329	1.350
Applied Stress (4.00 Inch Thick Slab) :	-0.069	0.228
Applied Stress (Uniform Thickness Foundation) :	0.015	0.144
Prestress at Line Load (4.00 In. Thick Slab) :		79.3 PSI
Prestress at Line Load (Uniform Thickness Foundation) :		79.7 PSI

Design Compliance Summary

The **BOLD** values exceed allowable or are less than minimum limits by the percentage indicated:

ALL VALUES WITHIN ALLOWABLE LIMITS.



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JDF JOHNSON, DEBOIS & FORREST

STRUCTURAL ENGINEERING / CODE CONSULTING

405 West College Avenue, Suite E • Santa Rosa, CA 95401 • (707) 575-0911 • Email: jdf0911@sonic.net

ENGR:	CHKD:	2901 GILMAN RANCH RD COTATI	JOB NO:	24007
DATE:	8.9.24		SHEET:	24

FPH CONT.

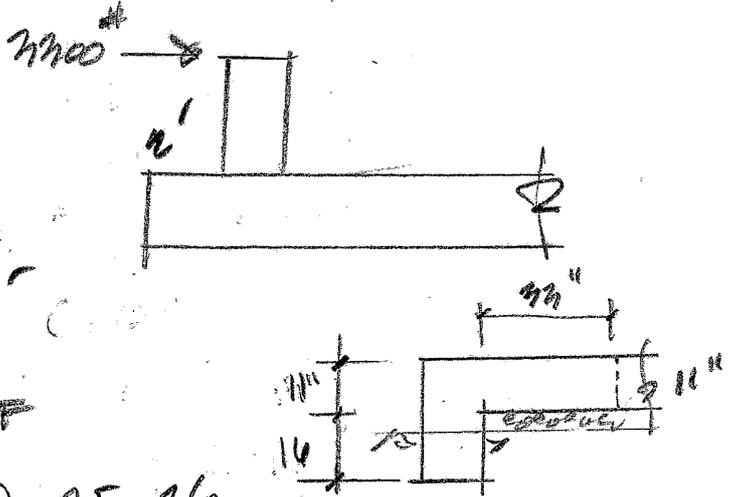
- FPH @ WSWH PANEL
See Comp FO

$$M_u = \frac{3200}{0.7} (10) \approx 47,143 \#'$$

$$S_x = 600 (1 \frac{1}{2}) = 900 \text{ in}^3$$

See Comp FO pg 25-26

(2) #5 T.B ok -



$$I_x \approx 34,300 \text{ in}^4$$

$$S_x \approx 1925 \text{ in}^3$$

$$d = \left(\frac{34300 (12)}{24} \right)^{\frac{1}{3}}$$

$$24 = 25 \frac{3}{4}$$



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Project Title:
 Engineer:
 Project ID:
 Project Descr:

24087
 25

General Section Property Calculator

Project File: 24087 Enercalc.ec6

LIC# : KW-06016787, Build:20.23.05.25

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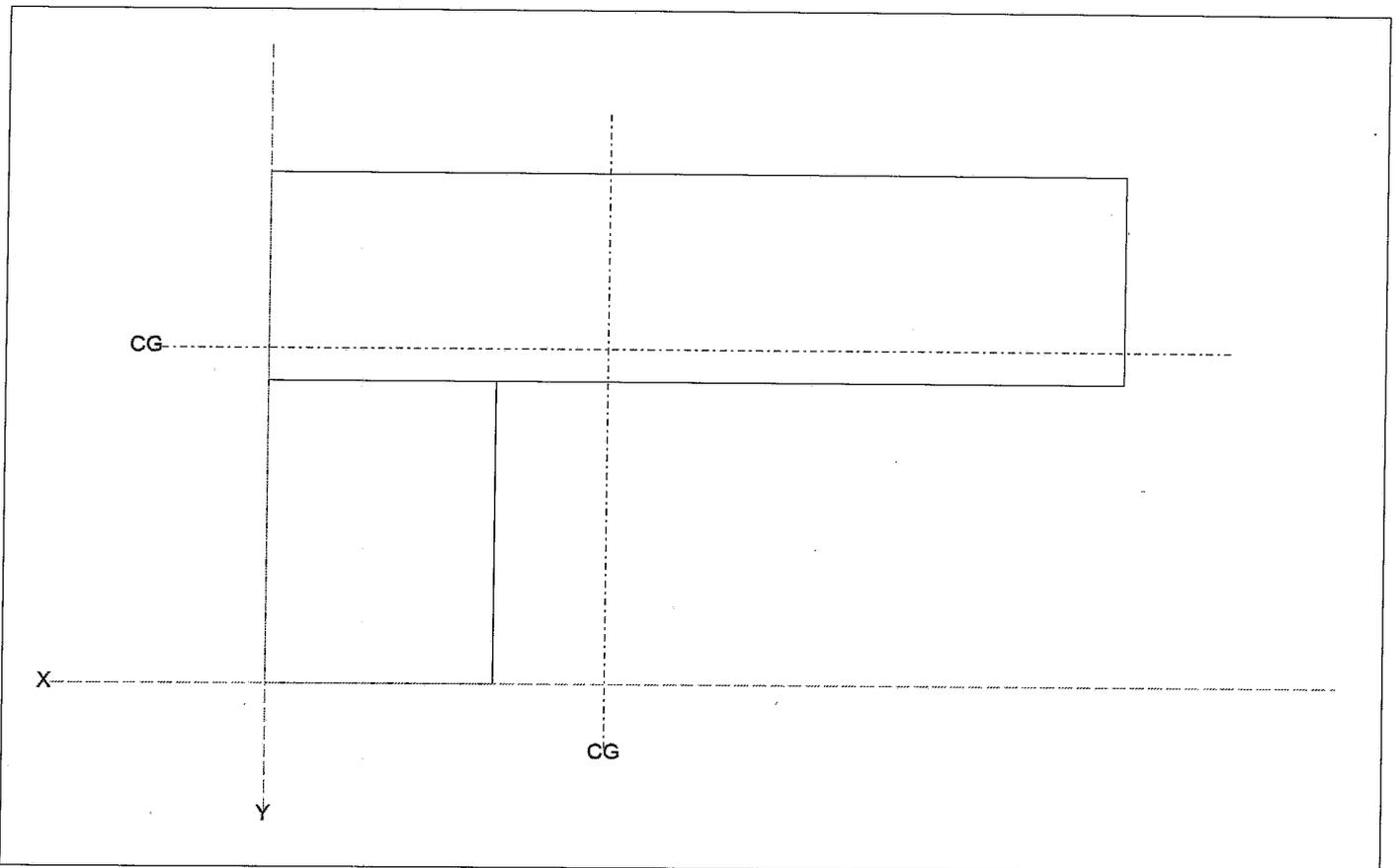
(c) ENERCALC INC 1983-2023

DESCRIPTION: Section properties at foundation edge

Final Section Properties

Total Area	:	687.0 in ²	Ixx	:	34,299.4 in ⁴	Sxx : - Y	:	1,934.86 in ³
Calculated final C.G. distance from Datum :			Iyy	:	123,495 in ⁴	Sxx : +Y	:	3,698.88 in ³
X cg Dist.	:	17.889 in	Zxx	:	3,748.43 in ³	Syy : - X	:	6,903.52 in ³
Y cg Dist.	:	17.727 in	Zyy	:	7,898.85 in ³	Syy : +X	:	4,555.09 in ³
Edge Distances from CG. :								
+X	:	27.111 in	+Y	:	9.273 in	r _{xx}	:	7.066 in
-X	:	-17.889 in	-Y	:	-17.727 in	r _{yy}	:	13.407 in

Rotation of All Components @ : 0.00 deg CCW



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	11.000 in	Width =	45.000 in	Rotation =	0 deg CCW
	Area =	495.000 in ²	Xcg =	22.500 in	Ycg =	21.500 in



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Project Title:
 Engineer:
 Project ID:
 Project Descr:

24087
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Beam on Elastic Foundation

Project File: 24087 Enercalc.ec6

LIC#: KW-06016787, Build:20.23.05.25

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DESCRIPTION: Foundation at WSWH Panel

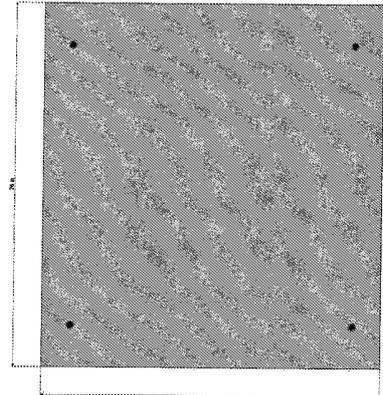
CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : ASCE 7-16

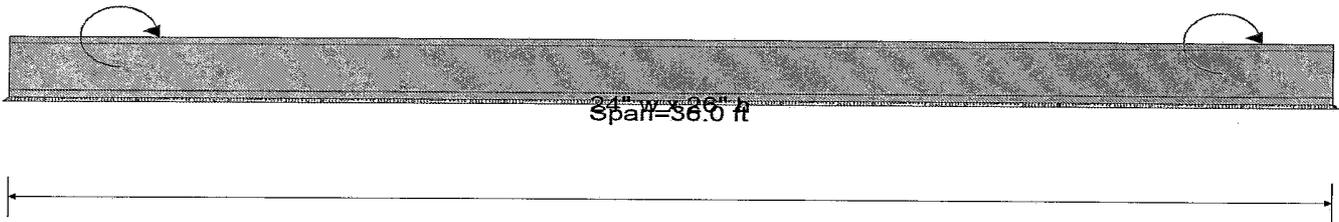
Material Properties

f_c = 3.0 ksi ϕ Phi Values Flexure : 0.90
 $f_r = f_c^{1/2} \cdot 7.50 = 410.792$ psi Shear : 0.750
 ψ Density = 145.0 pcf $\beta_1 = 0.850$
 λ Lt Wt Factor = 1.0
 Elastic Modulus = 3,122.0 ksi
 Soil Subgrade Modulus = 100.0 psi / (inch deflection)
 Load Combination ASCE 7-16

f_y - Main Rebar = 60.0 ksi F_y - Stirrups = 40.0 ksi
 E - Main Rebar = 29,000.0 ksi E - Stirrups = 29,000.0 ksi
 Stirrup Bar Size # = # 3
 Number of Resisting Legs Per Stirrup = 2



Beam is supported on an elastic foundation.



Span = 36.0 ft

Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 26.0 in

Span #1 Reinforcing....

2-#5 at 3.0 in from Bottom, from 0.0 to 36.0 ft in this span

2-#5 at 3.0 in from Top, from 0.0 to 36.0 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Load for Span Number 1

Moment : E = 33.0 k-ft, Location = 3.0 ft from left end of this span

Moment : E = 47.10 k-ft, Location = 33.0 ft from left end of this span

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.620 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-42.863 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	69.148 k-ft	Max Downward Total Deflection	0.053 in
Load Combination	+1.402D+E	Max Upward Total Deflection	0.001 in
Location of maximum on span	32.612 ft		
Span # where maximum occurs	Span # 1		
Maximum Soil Pressure =	0.757 ksf	at	36.00 ft LdComb: E Only
Allowable Soil Pressure =	0.80 ksf	OK	

Cross Section Strength & Inertia

Cross Section Bar Layout Description	Phi*Mn (k-ft)		Moment of Inertia (in^4)	
	Btm Tension	Top Tension	I gross	Icr - Btm Tension / Icr - Top Tension
Section 1 2- #5 @ d=23", 2- #5 @ d=3",	69.15	69.15	15,152.00	2,519.03 / 2,519.03

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \Phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Forces & Stresses for Load Combinator



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 Engineer:
 Project ID:
 Project Descr:

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Beam on Elastic Foundation Project File: 24087 Enercalc.ec6
 LIC# : KW-06016787, Build:20.23.05.25 JOHNSON DEBOIS & FORREST (c) ENERCALC INC 1983-2023

DESCRIPTION: Foundation at WSWH Panel

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	35.576	-0.08	69.15	0.00
+1.40D						
Span # 1		1	35.576	-0.00	69.15	0.00
+1.20D						
Span # 1		1	35.576	-0.00	69.15	0.00
+0.90D						
Span # 1		1	35.576	-0.00	69.15	0.00
+1.402D+E						
Span # 1		1	33.035	3.33	69.15	0.05
+1.402D-E						
Span # 1		1	32.612	42.86	69.15	0.62
+0.6980D+E						
Span # 1		1	33.035	3.33	69.15	0.05
+0.6980D-E						
Span # 1		1	32.612	42.86	69.15	0.62

Overall Maximum Deflections - Unfactored Lo

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.0526	36.000		0.0000	0.000

Maximum Deflections for Load Combinations - Unfactored

Load Combination	Span	Max. Downward Defl	Location in Span	Max. Upward Defl	Location in Span
D Only	1	0.0218	18.000	0.0000	0.000
+0.60D	1	0.0218	18.000	0.0000	0.000
+D+0.70E	1	0.0434	36.000	0.0000	0.000
+D+0.5250E	1	0.0380	36.000	0.0000	0.000
+0.60D+0.70E	1	0.0434	36.000	0.0000	0.000
	1	0.0218	18.000	0.0000	0.000
E Only	1	0.0526	36.000	0.0000	0.000



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ENGINEERS
REESE@REESEANDASSOC.COM

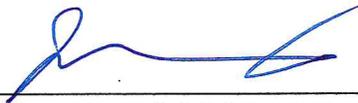
SANTA ROSA, CA 95403
FACSIMILE (707) 528-2837

Report
Soil Investigation
Pittelkow Residence
2101 Gilman Ranch Road
Cotati, California

Prepared for
Custom Housing Systems, Inc.
959 Golf Course Drive - PMD 274
Rohnert Park, CA 94928

By

REESE & ASSOCIATES
Consulting Geotechnical Engineers



Joseph M. Mauney
Civil Engineer No. 85560



Job No. 2055.2.1
June 18, 2024



INTRODUCTION

This report presents the results of our soil investigation for the proposed new residence at 2101 Gilman Ranch Road in Cotati, California. The lot is further designated as Lot 2 of the Bickel Subdivision. Kleinfelder performed a geotechnical investigation for the subdivision, and the results were presented in a report dated May 15, 2000. We understand that the proposed new residence will be a one-story, wood-frame structure with a mat slab floor and foundation system.

The object of our investigation, as outlined in our proposal dated May 10, 2024, was to review selected geologic references in our files, explore subsurface conditions, measure depth to groundwater, if encountered, and determine physical properties of the soils encountered. We then performed engineering analyses to develop conclusions and recommendations concerning:

1. Proximity of the site to active faults.
2. Site preparation and grading.
3. Foundation support and design criteria.
4. Support of concrete slab-on-grade floors.
5. Soil engineering drainage
6. Supplemental soil engineering services.



WORK PERFORMED

We reviewed the above-mentioned investigation report and selected, published, geologic information including:

1. The Cotati Quadrangle Sheet of the Alquist-Priolo Earthquake Fault Zone maps, California Division of Mines and Geology (CDMG), 1983.
2. "Geology for Planning in Sonoma County," Special Report 120, CDMG, 1980.
3. "Geologic Map of the Cotati 7.5' Quadrangle, Sonoma County, California: A Digital Database," K. B. Clahan et al., California Geological Survey, 2003.
4. Report, "Geotechnical Investigation, Gilman/Bickel Subdivision, 780 and 850 West Cotati Avenue, Cotati, California," Kleinfelder, dated May 15, 2000.

On May 16, 2024, we observed surface features and explored subsurface conditions with four test pits excavated to depths of about 3½ to 4 feet with excavator equipment at the approximate locations indicated on Plate 1. Our engineer located the pits, observed the excavations, logged the conditions encountered, and obtained a few samples for minor laboratory classification testing. In addition, we performed strength indicator tests in the walls of the pits with a penetrometer. Logs of the pits, showing the soil conditions encountered, are presented on Plate 2. The soils are classified in accordance with the Unified Soil Classification System explained on Plate 3.



Selected samples were tested in our laboratory to determine moisture content and classification (Expansion Index and percent free swell). The laboratory results and penetrometer data are summarized on Plate 4. Detailed results of the Expansion Index test are presented on Plate 5.

The pit locations shown on Plate 1 were determined by visually estimating from existing surface features. The locations should be considered no more accurate than implied by the methods used to establish the data. At the completion of the exploration, the pits were backfilled with the excavated materials, but without compaction.

SURFACE AND SUBSURFACE CONDITIONS

The subject property is an approximate 0.92-acre, rural residential lot located about 1,900 feet west of Highway 101 in Cotati, California. The property is bordered by residential properties on all sides and is accessed from a driveway easement through the neighboring property to the north. Past grading on the lot created a nearly level ground surface across most of the site, with a topographic low area near an oak tree in the northwest portion of the lot and a graded swale extending along the east property line. The home site will be located in the southern portion of the property. At the time of our exploration, the ground surface was covered with low grass and weeds.

The test pits and laboratory tests indicate that the building area is underlain by layers of existing fill overlying natural sandy soils. The upper 2 to 3 feet of the test pits consisted of sandy and gravelly existing fills that appear well compacted. We understand that the fills were



placed and compacted during lot development in 2013. Laboratory test results indicate that the fills exhibit a low expansion potential. That is, the materials would tend to undergo low strength and volume changes with seasonal changes in moisture content. In Pits 2 through 4, the existing fills were underlain by weak, porous, silty sand topsoil. The topsoil exhibits a low expansion potential and varies in thickness up to about 2 feet. All the pits bottomed in dense sandy soils that are judged to be incompressible under the anticipated foundation loads.

Groundwater was not encountered in the test pits during our exploration. Groundwater levels can vary seasonally and can rise and fall several feet annually, depending on seasonal climatic conditions. The determination of precise depth to groundwater, extent of seasonal water level fluctuations, or the existence of perched groundwater conditions are beyond the scope of this investigation.

CONCLUSIONS

Based on the results of our field exploration, laboratory tests, and engineering analyses, we conclude that, from a soil engineering standpoint, the site can be used for the proposed residential construction. The most significant soil engineering factors that must be considered in design and construction are the presence of existing fills and weak, compressible natural soils.

We have not been provided with documentation to indicate that the existing fill materials at the site were properly placed and compacted under soil engineering observation and testing services. Therefore, we conclude that the materials could be subject to significant total and/or differential settlements under anticipated loading conditions. However, the existing fill materials

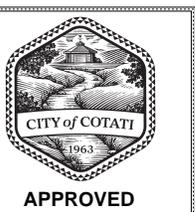


appear very well compacted, and we understand that it is desired to leave the materials in place. With the proposed foundation system (mat slab) and consistency of the fill, we judge that the materials can remain in place, provided the risk of potential distress is acceptable to the owner.

In addition, our experience indicates that weak, porous soils, such as those encountered below the existing fill to depths of about 3 to 4 feet in the test pits, can undergo considerable strength loss and settlement when loaded in a saturated condition. Where evaporation is inhibited by footings, slabs, or fill, eventual saturation of the underlying soils can occur. Accordingly, we conclude that the mat slab foundation should be designed to tolerate compressible soil movements. We judge that exterior concrete flatwork can be supported directly on properly prepared on-site soils, provided the risk of some settlement and resultant distress would be acceptable. We can provide recommendations to reduce the risk of exterior slab distress, if desired.

SEISMIC DESIGN

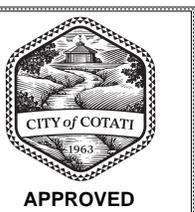
The geologic maps reviewed did not indicate the presence of active faults at the site, and the parcel is not located within a presently designated Alquist-Priolo Earthquake Fault Zone. Therefore, we judge that there is little risk of fault-related ground rupture at the site during earthquakes. In a seismically active region such as Northern California, there is always some possibility for future faulting at any site. However, historical occurrences of surface faulting have generally closely followed the trace of the more recently active faults. The closest faults generally considered active are the Rodgers Creek fault zone located approximately 5 miles to



the northeast, the Maacama fault zone (south extension) located approximately 12 miles to the northeast, and the San Andreas fault zone located approximately 14 miles to the southwest.

Strong ground shaking will occur during earthquakes. The intensity at the site will depend on the distance to the earthquake epicenter, depth and magnitude of the shock, and the response characteristics of the materials beneath the site. Because of the proximity of active faults in the region and the potential for strong ground shaking, it will be necessary to design and construct the project in strict accordance with current standards for earthquake-resistant construction.

We have determined seismic ground motion values in accordance with procedures outlined in Section 1613 of the CBC and Chapter 20 of the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) Standard ASCE/SEI 7-16. Mapped acceleration parameters (S_S and S_1) were obtained by inputting approximate site coordinates (latitude and longitude) into earthquake ground motion tools provided by ASCE. Based on our review of available geologic maps and our knowledge of the subsurface conditions, we judge that the site can be classified as Site Class D, as described in ASCE/SEI 7-16. Using corresponding values of site coefficients for Site Class D and procedures outlined in the CBC, the mapped acceleration parameters were adjusted to yield the design spectral response acceleration parameters, S_{DS} and S_{D1} . The S_{D1} value below assumes that the exception in Section 11.4.8 of ASCE/SEI 7-16 is met. If the exception is not met, we should be notified to perform a site-specific ground motion hazard analysis. The following earthquake design data summarize the results of the procedures outlined above.



2022 CBC Ground Motion Parameters

Site Class	D
Mapped Spectral Response Accelerations:	
S _s	1.522g
S ₁	0.600g
Design Spectral Response Parameters:	
S _{DS}	1.014g
S _{D1}	0.680g

RECOMMENDATIONS

Site Grading

Areas to be graded should be cleared of obstructions, stockpiles, grass, and vegetation. Resultant voids should be backfilled with compacted soil, as subsequently recommended. The areas to be graded then should be stripped of the upper few inches of soil containing abundant root growth and organic matter. We anticipate that the depth of stripping would average about 3 inches. The strippings should be removed from the site, stockpiled for reuse as topsoil or be mixed with at least five parts of soil and used as fill at least 10 feet away from structures, walkways, and paved areas.

Wells, septic tanks, leach fields, abandoned utility lines, trenches, or other voids encountered or created should be removed and filled with compacted soil or granular material or be capped with concrete, as determined by the appropriate regulatory agency or the soil engineer.

After stripping, excavations can be performed as necessary. We anticipate that the excavated materials will be suitable for reuse as compacted fill within the building pads.



Imported fill material, if needed, should be low in expansion potential and have a Plasticity Index of 15 or less. Imported materials, if used, should be free of organic matter and rocks or hard fragments larger than 4 inches in diameter. The material proposed for use as fill of low expansion potential should be tested and approved by the soil engineer prior to delivery or use at the site.

In slab areas and any areas to receive fill, if any, the surface exposed should be scarified at least 6 inches deep, moisture conditioned to near optimum, and compacted to at least 90 percent relative compaction.¹ Approved, excavated or imported fill materials then should be placed in 8-inch-thick loose lifts, be similarly moisture conditioned and compacted to at least 90 percent.

As discussed above, the existing fills in the building pad are undocumented at this time. To determine their degree of compaction, we recommend that laboratory compaction and field density testing be performed on the existing fill during foundation installation work. If it is determined that the materials were not compacted to 90 percent, then the fill should be removed (overexcavated) and replaced as properly compacted fill observed and tested by the soil engineer.

The test pits were backfilled with the excavated materials, but the soils were not compacted. Therefore, the test pits constitute local deep zones of highly compressible materials.

¹ Relative compaction refers to the in-place dry density of fill expressed as a percentage of maximum dry density of the same material determined in accordance with the American Society for Testing and Materials (ASTM) Standard ASTM D1557 laboratory compaction test procedure. Optimum moisture content refers to the moisture content at maximum dry density.



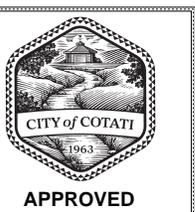
The pit backfills should be removed for their entire depth and the soils replaced as properly compacted fill.

Mat Slab Foundations

The mat slab should be at least 8 inches thick and reinforced with bars. Thickened slab edges (12-inch-wide) should be provided at the perimeter to provide stiffening and act as a moisture cutoff. The actual slab thickness and amount of reinforcing should be determined by the architect or structural design engineer.

The design of the mat slab foundation should recognize the potential for 1½ inches of total settlement and 1 inch of differential settlement in 20 feet. The mat slab can be designed using an allowable bearing pressure of 600 pounds per square foot (psf) for dead plus code live load, with a one-third increase for short-term wind or seismic loads. A friction factor of 0.30 can be used to resist sliding. The mat slab foundation can be designed using the Modulus of Subgrade Reaction (k_s) of 100 pounds per square inch per inch (psi/i).

Floor slabs should be underlain with a capillary moisture break and cushion layer consisting of at least 4 inches of clean, washed free-draining gravel or crushed rock (i.e., slab rock). The slab rock should be at least 1/4-inch and no larger than 3/4-inch in size. Prior to placing the reinforcing or slab rock, the subgrade soils should be thoroughly moistened and be smooth, firm, and uniform. Slab subgrade should not be allowed to dry prior to concrete placement. The thickened slab edges should penetrate through the underlying gravel or sand layer and bottom on the compacted pad soils.



Moisture vapor will condense on the underside of slabs. Where moisture migration through the slabs would be detrimental, a vapor barrier should be provided between the supporting base material and the slab. Two inches of moist, clean sand could be placed on top of the membrane to aid in curing and to help provide puncture protection. However, the actual use of sand should be determined by the architect or design engineer. The use of a less permeable and stronger membrane should be considered if sand is not to be placed for puncture protection, or where the flooring manufacturer requires a vapor barrier. Concrete design and curing specifications should recognize the potential adverse effects associated with placement of concrete directly on the membrane.

Geotechnical Drainage

Ponding water will cause softening of the site soils and could be detrimental to foundations. It is important that the ground surface adjacent to the structure be sloped to drain away from foundations. We recommend that good, positive surface drainage of at least 1/4 inch per foot for 4 feet be provided away from and around the structure. Careful attention to fine (finish) grading around structure should be provided. The roofs should be provided with gutters, and the downspouts should discharge onto paved areas or splash block draining at least 30 inches away from foundations or be connected to nonperforated, rigid plastic pipelines with watertight joints that discharge into planned or existing drainage facilities.

Homeowner and/or professional landscaping should maintain good positive flow of surface water away from and around the house. It should be recognized that fences, walks, patio slabs, lawns,



planters, etc. can impede water flow and promote surface soil saturation and seepage into underfloor areas.

To provide an outlet for water that could accumulate in the underslab rock and reduce the risk of future excess moisture migration up through concrete floor slabs, a system of perforated, rigid plastic pipes (underslab subdrain) could be embedded in the grade below the underslab rock. The underslab subdrain system should be designed to drain each bay created by interior and/or perimeter foundations. The underslab subdrain system should be connected to a nonperforated, rigid plastic outlet pipe that extends through or beneath the perimeter foundation to suitable discharge points. A typical cross-section of an underslab subdrain is shown on Plate 6. We could provide additional consultation concerning the actual configuration and location of the underslab subdrain system during final design, if requested. Roof downspouts and surface drains must be maintained entirely separate from underslab subdrains.

Supplemental Services

We should review foundation plans for conformance with the intent of our recommendations. During site grading and foundation excavation operations, the soil engineer should provide intermittent observation and testing. The soil engineer should observe the conditions encountered, confirm overexcavation through existing fill and porous natural soils and modify our recommendations, if warranted. Field and laboratory tests should be performed to ascertain that the recommended moisture content and degree of compaction have been obtained. Concrete placement and reinforcing should be checked as stipulated on the project



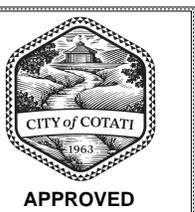
plans or as required by the Building Department. It is our understanding that approval from the Building Department must be obtained prior to the placement of concrete in foundation elements.

LIMITATIONS

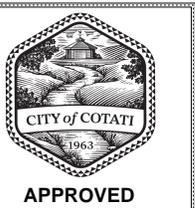
We have performed the investigation and prepared this report in accordance with generally accepted standards of the soil engineering profession. No warranty, either express or implied, is given. This scope of work is limited to evaluating the physical properties of earth materials considered typical of geotechnical engineering practice and does not include other concerns such as soil chemistry, corrosion potential, mold, and soil and/or groundwater contamination.

Subsurface conditions are complex and may differ from those indicated by surface features or encountered at test pit locations. Therefore, variations in subsurface conditions not indicated on the logs could be encountered. If the project is revised, or if conditions different from those described in this report are encountered during construction, we should be notified immediately so that we can take timely action to modify our recommendations, if warranted.

Supplemental services as recommended herein are in addition to this investigation and are performed on an hourly basis in accordance with our Standard Schedule of Charges. Such supplemental services are performed on an as-requested basis. We can accept no responsibility for items we are not notified to check, nor for use or interpretation by others of the information contained herein.



Site conditions and standards of practice change. Therefore, we should be notified to update this report if construction is not performed within 24 months.



LIST OF PLATES

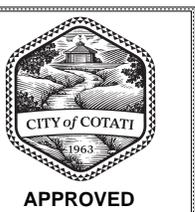
Plate 1	Test Pit Location Plan and Site Vicinity Map
Plate 2	Logs of Test Pits 1 through 4
Plate 3	Soil Classification System and Key to Test Data
Plate 4	Laboratory Test Data
Plate 5	Expansion Index Test Results
Plate 6	Typical Cross-Section Underslab Subdrain

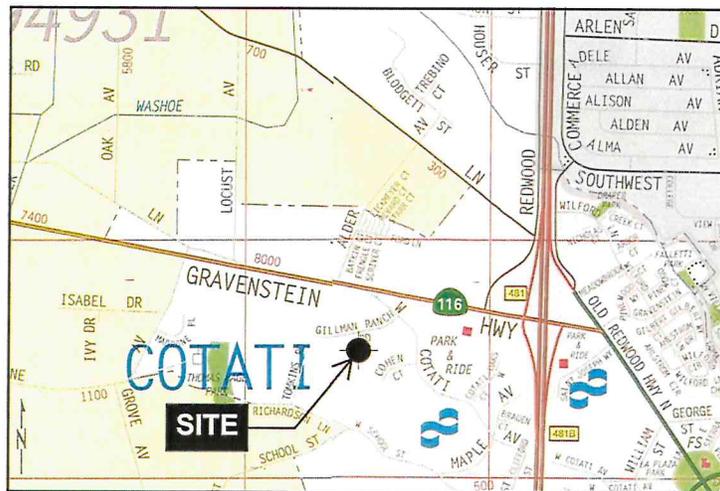
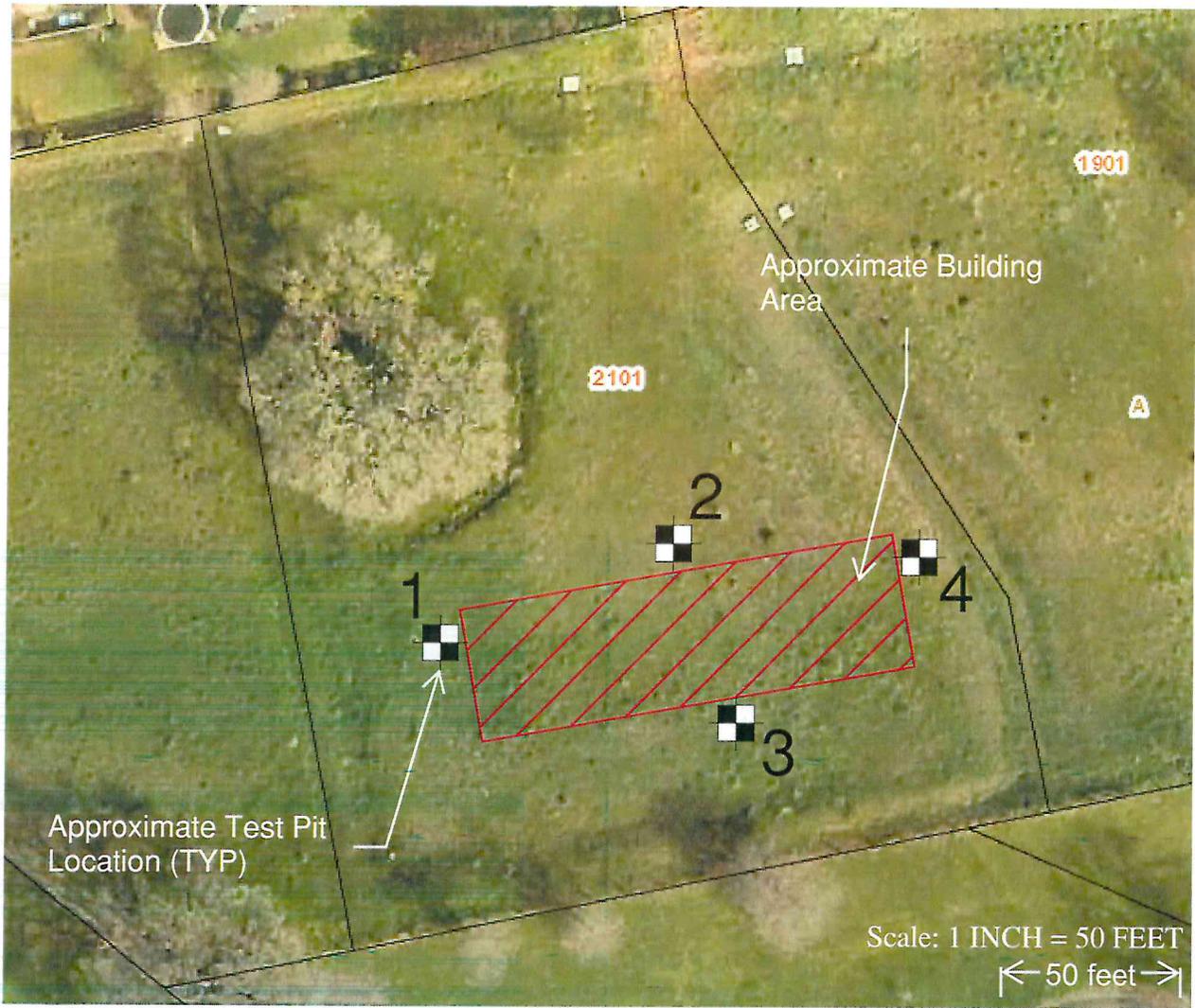
DISTRIBUTION

Copies submitted: 1

Custom Housing Systems, Inc.
Attention: Gary Tatman
gary@customhousingsystems.com

JMM:jpc/ra/Job No. 2055.2.1





Site Vicinity Map (No Scale)

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Job No: 2055.2.1

Date: 06-18-24

Appr: *Jm*

**TEST PIT LOCATION PLAN
AND SITE VICINITY MAP**

**PITTELKOW RESIDENCE
COTATI, CALIFORNIA**

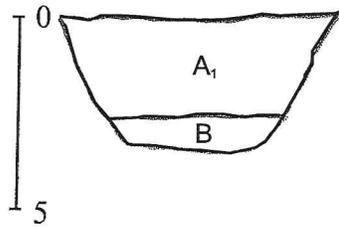
PLATE

1

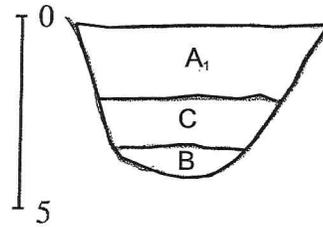


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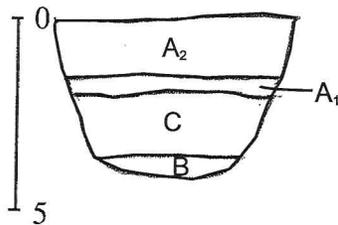
Log of Test Pit 1



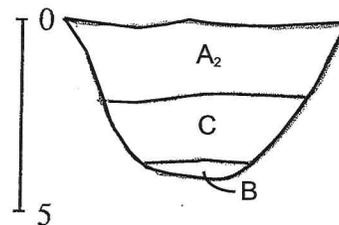
Log of Test Pit 3



Log of Test Pit 2



Log of Test Pit 4



SOIL DESCRIPTIONS

- A = EXISTING FILL MATERIALS
- A₁ = MOTTLED GRAY, BROWN, AND ORANGE CLAYEY FINE SAND (SC), very dense, moist, with some construction debris
- A₂ = YELLOW BROWN SANDY GRAVEL (GC), very dense, dry, with concrete debris
- B = GRAY CLAYEY SAND (SC), dense, moist, with occasional subrounded gravel
- C = DARK BROWN SILTY FINE SAND (SM), loose, moist, porous (Topsoil)

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Date: 06-18-24

Appr: *[Signature]*

LOGS OF TEST PITS 1 THROUGH 4

PITTELKOW RESIDENCE
COTATI, CALIFORNIA

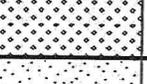
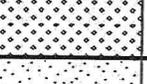
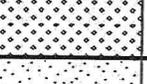
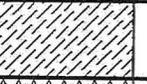
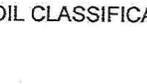
PLATE

2



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UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		TYPICAL NAMES							
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN No. 200 SIEVE	GRAVEL MORE THAN HALF OF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVEL WITH LESS THAN 5% FINES	<table border="0" style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;">GW</td> <td style="width: 30%;"></td> <td style="width: 60%;">WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE</td> </tr> <tr> <td style="text-align: center;">GP</td> <td></td> <td>POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE</td> </tr> </table>	GW		WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE	GP		POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE
		GW		WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE					
		GP		POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE					
		GRAVEL WITH OVER 12% FINES	GM		SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE				
	GC			CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURE					
	SAND MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN No. 4 SIEVE SIZE	CLEAN SAND WITH LESS THAN 5% FINES	<table border="0" style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;">SW</td> <td style="width: 30%;"></td> <td style="width: 60%;">WELL GRADED SAND, GRAVELLY SAND</td> </tr> <tr> <td style="text-align: center;">SP</td> <td></td> <td>POORLY GRADED SAND, GRAVELLY SAND</td> </tr> </table>	SW		WELL GRADED SAND, GRAVELLY SAND	SP		POORLY GRADED SAND, GRAVELLY SAND
		SW		WELL GRADED SAND, GRAVELLY SAND					
		SP		POORLY GRADED SAND, GRAVELLY SAND					
SAND WITH OVER 12% FINES		SM		SILTY SAND, GRAVEL-SAND-SILT MIXTURE					
	SC		CLAYEY SAND, GRAVEL-SAND-CLAY MIXTURE						
FINE GRAINED SOILS MORE THAN HALF IS SMALLER THAN No. 200 SIEVE	SILT AND CLAY LIQUID LIMIT LESS THAN 50	ML	 INORGANIC SILT, ROCK FLOUR, SANDY OR CLAYEY SILT WITH LOW PLASTICITY						
		CL	 INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAY (LEAN)						
		OL	 ORGANIC CLAY AND ORGANIC SILTY CLAY OF LOW PLASTICITY						
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50	MH	 INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOIL, ELASTIC SILT						
		CH	 INORGANIC CLAY OF HIGH PLASTICITY, GRAVELLY, SANDY OR SILTY CLAY (FAT)						
		OH	 ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT						
HIGHLY ORGANIC SOILS		PT	 PEAT AND OTHER HIGHLY ORGANIC SOILS						

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KEY TO TEST DATA

EI — Expansion Index Consol — Consolidation LL — Liquid Limit (in %) PL — Plastic Limit (in %) PI — Plasticity Index SA — Sieve Analysis G _s — Specific Gravity ■ "Undisturbed" Sample □ Bulk Sample	TxUU — Unconsolidated Undrained Triaxial TxCU — Consolidated Undrained Triaxial DSCD — Consolidated Drained Direct Shear FVS — Field Vane Shear LVS — Laboratory Vane Shear UC — Unconfined Compression UC(P) — Laboratory Penetrometer	Shear Strength, psf Confining Pressure, psf 320 (2600) 320 (2600) 2750 (2000) 470 700 2000 * 700 *
---	---	--

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated.

* Compressive Strength

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Job No: 2055.2.1

Date: 06-18-24

Appr: 

SOIL CLASSIFICATION CHART
AND KEY TO TEST DATA

PITTELKOW RESIDENCE
COTATI, CALIFORNIA

PLATE

3



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<u>PIT NUMBER</u>	<u>DEPTH (feet)</u>	<u>TEST TYPE*</u>	<u>TEST RESULTS</u>
1	0.5	UC(P)	2000
	1.5	M	18.0
	1.5	FS	40
	2.0	UC(P)	3750
	3.0	M	15.2
	3.0	FS	40
	3.0	UC(P)	4250
2	0.5	UC(P)	4500+
	1.0	M	9.5
	1.0	FS	45
	1.8	UC(P)	4500+
	2.5	M	18.1
	2.5	FS	40.0
	2.5	UC(P)	<500
	4.0	UC(P)	3000
3	1.0	UC(P)	3000
	2.0	UC(P)	3750
	3.0	UC(P)	<500
	4.0	UC(P)	4250
4	0.5	UC(P)	4500+
	1.5	UC(P)	4500+
	2.0	UC(P)	<500
	2.5	UC(P)	<500
	4.0	UC(P)	4000

*Test Type

- M Moisture Content (percent of dry weight)
- MD Moisture Content (percent of dry weight)/dry density (pounds per cubic foot)
- UC(P) Penetrometer - strength indicator (pounds per square foot)
- UC Unconfined Compression (pounds per square foot)
- 200 Percent Passing No. 200 sieve by weight
- FS Percent Free Swell

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Date: 06-18-24

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LABORATORY TEST DATA

PITTELKOW RESIDENCE
COTATI, CALIFORNIA

PLATE

4



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<u>SAMPLE LOCATION</u>	<u>INITIAL MOISTURE (%)</u>	<u>COMPACTED DRY DENSITY (PCF)</u>	<u>FINAL MOISTURE (%)</u>	<u>VOLUMETRIC SWELL (%)</u>	<u>EXPANSION INDEX*</u>	<u>EXPANSIVE CLASSIFICATION</u>
------------------------	-----------------------------	------------------------------------	---------------------------	-----------------------------	-------------------------	---------------------------------

Test Pit 3 0 to 1 feet	11.7	108	17.7	1.1	14	Very Low
---------------------------	------	-----	------	-----	----	----------

* Corrected to 50 percent saturation per "The Expansion Index Test," by Anderson and Lade, Geotechnical Testing Journal, Volume 4, No. 2, ASTM, June 1981

STANDARD ASTM D4829

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Date: 06/14/24

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EXPANSION INDEX TEST RESULTS

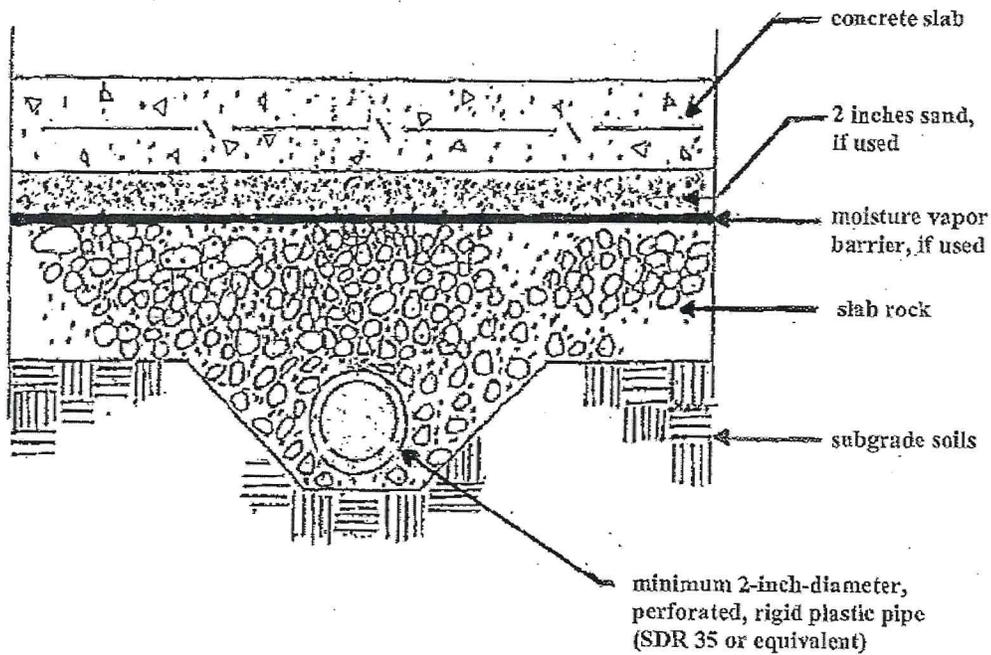
PITTELKOW RESIDENCE
COTATI, CALIFORNIA

PLATE

5



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Date: 06-11-24

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TYPICAL CROSS-SECTION
UNDERSLAB SUBDRAIN

PITTELKOW RESIDENCE
 COTATI, CALIFORNIA

PLATE

6



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SOLAR TEC/24

1180 Burnside Rd.
Sebastopol, CA 95472

Title 24
Energy Compliance
Documentation

Job No: 23027-20

Project Name: **2501 Gilman Ranch Residence**

Address: 2501 Gilman Ranch Rd., Cotati, CA 94931

Designer: Avila-Bunch Architects, Inc.

Date: 9/9/2024

Method of Compliance: Performance Method (Climate Zone 2) showing that this project is in compliance with the 2022 edition of the California Residential Energy Standards when built as documented in this submittal. Compliance is established using a three pronged approach, in which each prong is called a metric. They are called Energy Design Ratings, named EDR1, EDR2 and EDRtotal; and each of these three metrics must be in compliance to have a complying design. EDR1 (source energy) includes the envelope, HVAC, and water heating. EDR2 includes the photovoltaics and batteries. EDRtotal includes the sum total of other metrics..

Summary: The standard house in this climate zone has R21+5 walls, R38 roof/ceiling attic, R-19 floor and 20% glass to floor area ratio; R-8 on ducts; QII (quality installation of insulation); glazing U-Factor = 0.30; glazing SHGC = 0.23; door U-Factor = 0.20 (R-5); HERS tested tight ducts; refrigerant charge measurement for split cooling systems; a roof radiant barrier. A cool roof is not mandatory in climate zone 2. This report shows the total compliance margin on Form CF-1R to be small based on the building's resulting metrics: EDR1 = 13.5, EDR2 = 0.5, and EDRtotal = 0.3 . The glass area is at 17.13%; and the following features are below standard: R21 walls; no QII; no roof radiant barrier. The following off-setting features help the design comply: an two NEEA certified heat pump water heaters; dual pane, non-metal framed windows and sliding doors with standard, low solar gain low-E glass. The specific compliance requirements are shown in the tables below.

Specific Requirements: (must also conform to all applicable Mandatory Measures on Form MF-1)

INSULATION: R38 insulation at roof/ceiling attic; R21 insulation at walls; R-19 at raised floors; no insulation at entry door.

GLAZING: Windows and sliding doors are double pane, non-metal, NFRC tested assemblies with low solar gain low-E glass.

Note: Glazing U-Factors and solar heat gain coefficients (SHGC's) are per the default values given in Tables 116-A and 116-B in Appendix B of the Residential Energy Manual or per the NFRC tested values published by the manufacturer.

Note: Maximum allowed glazing U-Factors are as follows:
operable = 0.30; fixed = 0.30; sliding door = 0.30; tubular skylight = 0.52.

Maximum allowed Solar Heat Gain Coefficients (SHGC's) are as follows: operable = 0.23; fixed = 0.23; sliding door = 0.23; tubular skylight = 0.27.

MANDATORY HERS: The following HERS features apply & require 3rd party HERS inspection and verification:

1. Ventilation minimum of 83 cfm
2. Kitchen range hood
3. Verified heatpump rated heating capacity

HEATING/AC: Ductless, multi-split heatpump without VCHP credit and a minimum HSPF2 = 8.3 and SEER2 = 14.7; EER = 10.4.

DUCTS: NA

WATER HEATING: Two NEEA certified, heatpump water heater heaters (one 50 gallon & one 40 gallon).

THERMAL MASS: NA

RADIANT BARRIER: Not required

COOL ROOF: Not required in Climate Zone 2.

LIGHTING: See notes on the plans for lighting requirements.

VENTILATION: Continuous whole house ventilation requirement shall be met by an exhaust fan or fans with a summed total minimum rating of 83 cfm and a maximum allowed sound rating of one sone per fan. Manual override switch is allowed, but must be labeled appropriately.

PHOTOVOLTAIC: Minimum required 2.76 kw.

OPTIONAL HERS: None



CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

Calculation Date/Time: 2024-09-09T13:09:59-07:00

(Page 1 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

GENERAL INFORMATION					
01	Project Name	2501 Gilman Ranch Residence			
02	Run Title	Title 24 Analysis			
03	Project Location	2501 Gilman Ranch Rd.			
04	City	Cotati	05	Standards Version	2022
06	Zip code	94931	07	Software Version	EnergyPro 9.3
08	Climate Zone	2	09	Front Orientation (deg/ Cardinal)	309
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	0.31
18	Total Cond. Floor Area (ft²)	2041	19	Glazing Percentage (%)	17.13%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

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



Registration Number: 424-P010205684A-000-000-0000000-0000

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Report Version: 2022.0.000

Schema Version: rev 20220901

HERS Provider: CHEERS

Report Generated: 2024-09-09 13:10:43

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

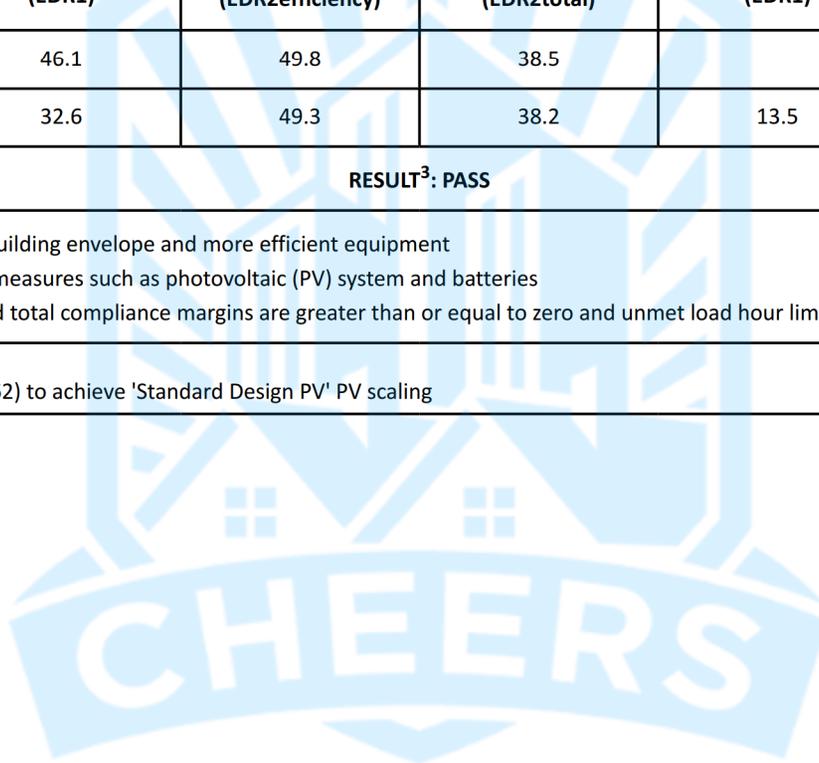
Calculation Date/Time: 2024-09-09T13:09:59-07:00

(Page 2 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)	Source Energy (EDR1)	Efficiency ¹ EDR (EDR2efficiency)	Total ² EDR (EDR2total)
Standard Design	46.1	49.8	38.5			
Proposed Design	32.6	49.3	38.2	13.5	0.5	0.3
RESULT³: PASS						
¹ Efficiency EDR includes improvements like a better building envelope and more efficient equipment ² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries ³ Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded						
<ul style="list-style-type: none"> Standard Design PV Capacity: 2.76 kWdc PV System resized to 2.76 kWdc (a factor of 2.762) to achieve 'Standard Design PV' PV scaling 						



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Registration Number: 424-P010205684A-000-000-0000000-0000

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CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

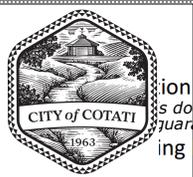
Calculation Date/Time: 2024-09-09T13:09:59-07:00

(Page 3 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	10.17	44.71	5.33	41.62	4.84	3.09
Space Cooling	0.04	7.3	0.09	12.97	-0.05	-5.67
IAQ Ventilation	0.31	3.34	0.31	3.34	0	0
Water Heating	1.54	16.53	1.22	13.3	0.32	3.23
Self Utilization/Flexibility Credit			0	0	0	0
Efficiency Compliance Total	12.06	71.88	6.95	71.23	5.11	0.65
Photovoltaics	-1.08	-36.08	-1.08	-36.28		
Battery			0	0		
Flexibility			0			
Indoor Lighting	0.75	7.5	0.75	7.5		
Appl. & Cooking	2.91	19.78	2.92	19.82		
Plug Loads	2.67	27.87	2.67	27.87		
Outdoor Lighting	0.19	1.71	0.19	1.71		
TOTAL COMPLIANCE	17.5	92.66	12.4	91.85		



Registration Number: 424-P010205684A-000-000-0000000-0000

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

Calculation Date/Time: 2024-09-09T13:09:59-07:00

(Page 4 of 13)

Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft² - yr)	Proposed Design (kBtu/ft² - yr)	Compliance Margin (kBtu/ft² - yr)	Margin Percentage
Gross EUI¹	22.32	15.5	6.82	30.56
Net EUI²	15.43	8.61	6.82	44.2

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 (%)
2.76	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES

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

- Window overhangs and/or fins
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Indoor air quality ventilation
- Kitchen range hood
- Verified heat pump rated heating capacity



Registration Number: 424-P010205684A-000-000-0000000-0000

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

Calculation Date/Time: 2024-09-09T13:09:59-07:00

(Page 5 of 13)

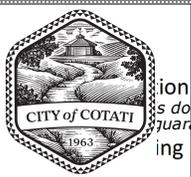
Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
2501 Gilman Ranch Residence	2041	1	3	1	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Status
House	Conditioned	HVAC1	2041	13.75	DHW Sys 1	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft ²)	Tilt (deg)
Front Wall 1	House	R-21 Wall	309	Front	510	170	90
Left Wall 1	House	R-21 Wall	39	Left	36	0	90
Back Wall	House	R-21 Wall	129	Back	560	195.5	90
Right Wall 1	House	R-21 Wall	219	Right	486	22.5	90
Interior Wall	House>>__Garage__	R-21 Wall1	n/a	n/a	576	20	n/a
Roof Attic Front 2	House	R-38 Roof Attic	n/a	n/a	1140.21	n/a	n/a
Roof Attic Back 2	House	R-38 Roof Attic	n/a	n/a	1140.21	n/a	n/a
Roof Attic	__Garage__	R-38 Roof Attic	n/a	n/a	1408	n/a	n/a
Front Wall 2	__Garage__	R-0 Wall	309	Front	333	0	90
Left Wall 2	__Garage__	R-0 Wall	39	Left	510	0	90
Back Wall 2	__Garage__	R-0 Wall	129	Back	288	0	90
Right Wall 2	__Garage__	R-0 Wall	219	Right	510	0	90



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CF1R-PRF-01-E

Project Name: 2501 Gilman Ranch Residence

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OPAQUE SURFACES - CATHEDRAL CEILINGS										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft ²)	Skylight Area (ft ²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof Attic Front	House	R-38 Roof Attic1	309	Front	0.89	0.79	6	0.1	0.85	No
Roof Attic Back	House	R-38 Roof Attic1	129	Back	0.89	0.79	6	0.1	0.85	No

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic __Garage__	Attic Garage Roof Cons	Ventilated	4.5	0.1	0.85	No	No
Attic House	Attic RoofHouse	Ventilated	6	0.1	0.85	No	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Oper 22.5 oh #1	Window	Front Wall 1	Front	309	5	4.5	1	22.5	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 12 oh #1	Window	Front Wall 1	Front	309	6	2	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 19.25 oh #2	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 19.25 oh #2 2	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 12 oh #3	Window	Front Wall 1	Front	309	1.5	8	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 12 oh #3 2	Window	Front Wall 1	Front	309	1.5	8	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
Fix 10.5 oh #4	Window	Front Wall 1	Front	309	7	1.5	1	10.5	0.3	NFRC	0.23	NFRC	Bug Screen



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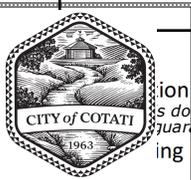
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Calculation Description: Title 24 Analysis

Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Oper 19.25 oh #2 3	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 19.25 oh #2 4	Window	Front Wall 1	Front	309	3.5	5.5	1	19.25	0.3	NFRC	0.23	NFRC	Bug Screen
1/2 Lt.Dr 8	Window	Back Wall	Back	129	2	4	1	8	0.53	Table 110.6-A	0.65	Table 110.6-B	Bug Screen
Oper 22.5 oh #6	Window	Back Wall	Back	129	5	4.5	1	22.5	0.3	NFRC	0.23	NFRC	Bug Screen
Sl.Dr 48 oh #6	Window	Back Wall	Back	129	6	8	1	48	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 10 oh #7	Window	Back Wall	Back	129	5	2	1	10	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 27 oh #1	Window	Back Wall	Back	129	6	4.5	1	27	0.3	NFRC	0.23	NFRC	Bug Screen
Sl.Dr 64 oh #1	Window	Back Wall	Back	129	8	8	1	64	0.3	NFRC	0.23	NFRC	Bug Screen
Oper 22.5 oh=0	Window	Right Wall 1	Right	219			1	22.5	0.3	NFRC	0.23	NFRC	Bug Screen
Skylight 0.79	Skylight	Roof Attic Front	Front	309			1	0.79	0.52	NFRC	0.27	NFRC	
Skylight 0.79 2	Skylight	Roof Attic Back	Back	129			1	0.79	0.52	NFRC	0.27	NFRC	

OPAQUE DOORS			
01	02	03	04
Name	Side of Building	Area (ft ²)	U-factor
Door 24	Front Wall 1	24	0.5
1/2 Lt Door 16	Back Wall	16	0.5
Door	Interior Wall	20	0.5



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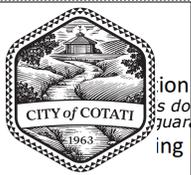
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Input File Name: 2501 Gilman Ranch Res - 4 ton - by Avila.ribd22x

OVERHANGS AND FINNS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Oper 22.5 oh #1	1.8	0.5	2	2	0	0	0	0	0	0	0	0	0
Oper 12 oh #1	1.8	0.5	2	2	0	0	0	0	0	0	0	0	0
Oper 19.25 oh #2	8.5	1.5	2.5	2.5	0	0	0	0	0	0	0	0	0
Oper 19.25 oh #2 2	8.5	1.5	2.5	2.5	0	0	0	0	0	0	0	0	0
Fix 12 oh #3	9	2.5	9	9	0	0	0	0	0	0	0	0	0
Fix 12 oh #3 2	9	2.5	9	9	0	0	0	0	0	0	0	0	0
Fix 10.5 oh #4	9	1	9	9	0	0	0	0	0	0	0	0	0
Oper 19.25 oh #2 3	8.5	1.5	2.5	2.5	0	0	0	0	0	0	0	0	0
Oper 19.25 oh #2 4	8.5	1.5	2.5	2.5	0	0	0	0	0	0	0	0	0
1/2 Lt.Dr 8	8	1.5	8	2	0	0	0	0	0	0	0	0	0
Oper 22.5 oh #6	8	1.5	8	8	0	0	0	0	0	0	0	0	0
Sl.Dr 48 oh #6	8	1.5	8	8	0	0	0	0	0	0	0	0	0
Oper 10 oh #7	8	1.5	4	8	0	0	0	0	0	0	0	0	0
Oper 27 oh #1	1.8	0.5	2	2	0	0	0	0	0	0	0	0	0
Sl.Dr 64 oh #1	1.8	0.5	2	2	0	0	0	0	0	0	0	0	0



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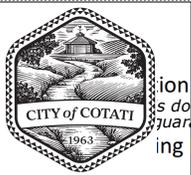
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SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	House	2041	199	none	0	80%	No
Slab-on-Grade 2	__Garage__	1259	154	none	0	0%	No

OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.361	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: 3 Coat Stucco
R-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
R-38 Roof Attic1	Cathedral Ceilings	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-38	None / None	0.036	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-38 / 2x4 Inside Finish: Gypsum Board
R-21 Wall1	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4



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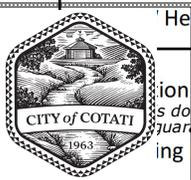
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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Attic RoofHouse	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
R-38 Roof 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

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

WATER HEATING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW Sys 1	Domestic Hot Water (DHW)	Standard	DHW Heater 1 DHW Heater 1-2	1 1	n/a	None	n/a	DHW Heater 1 (1)DHW Heater 1-2 (1)

WATER HEATERS - NEEA HEAT PUMP							
01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
Heater 1	1	50	Rheem	Rheem HPLD50-1RH	Outside	__Garage__	__Garage__



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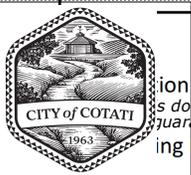
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WATER HEATERS - NEEA HEAT PUMP							
01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
DHW Heater 1-2	1	40	Rheem	PROPH40 T2 RH37515 (40 gal, JA13)	TankZone	__Garage__	__Garage__

WATER HEATING - HERS VERIFICATION						
01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Shower Drain Water Heat Recovery
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required
DHW Sys 1 - 2/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

SPACE CONDITIONING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
HVAC1	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	n/a	n/a	Setback

HVAC - HEAT PUMPS												
01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating				Cooling			Zonally Controlled	Compressor Type	HERS Verification
			Heating Efficiency Type	HSPF/HS PF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SE ER2	EER/EER 2/CEER			
Heat Pump System 1	Multi-split HP-ductless	1	HSPF2	8.3	54000	35180	EER2SEER2	14.7	10.4	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump



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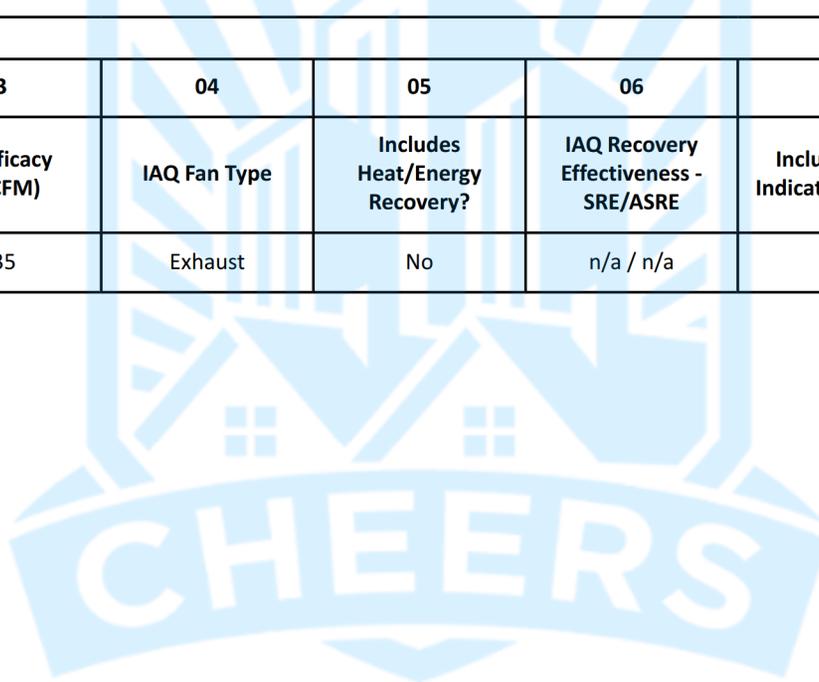
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HVAC HEAT PUMPS - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump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

INDOOR AIR QUALITY (IAQ) FANS								
01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE/ASRE	Includes Fault Indicator Display?	HERS Verification	Status
SFam IAQVentRpt	83	0.35	Exhaust	No	n/a / n/a	No	Yes	



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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: S. Skeer	Documentation Author Signature: <i>Skeer</i>
Company: Save Energy Consulting	Signature Date: 09/09/2024
Address: 10555 Chalk Hill Road	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Healdsburg, CA 95448	Phone: 707-838-8505
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California:	
<ol style="list-style-type: none"> I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 	
Responsible Designer Name: Merle Avila	Responsible Designer Signature: <i>Merle Avila</i>
Company: Avila/Bunch Architects	Date Signed: 09/09/2024
Address: 5850 Commerce Blvd.	License:
City/State/Zip: Rohnert Park, CA 94928	Phone: 7075853711

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Schema Version: rev 20220901



2022 Single-Family Residential Mandatory Requirements Summary

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

(04/2022)

Building Envelope:

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

Fireplaces, Decorative Gas Appliances, and Gas Log:

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

Space Conditioning, Water Heating, and Plumbing System:

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



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

Ducts and Fans:

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





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§ 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. *
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Ventilation and Indoor Air Quality:

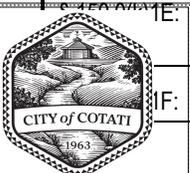
§ 150.0(o)1:	Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *
§ 150.0(o)1B:	Central Fan Integrated (CFI)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

Pool and Spa Systems and Equipment:

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

Lighting:

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





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

Solar Readiness:

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

and Energy Storage Ready:



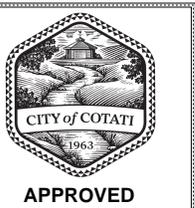
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§ 150.0(s)	Energy Storage System (ESS) Ready. All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, <u>or</u>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

*Exceptions may apply.



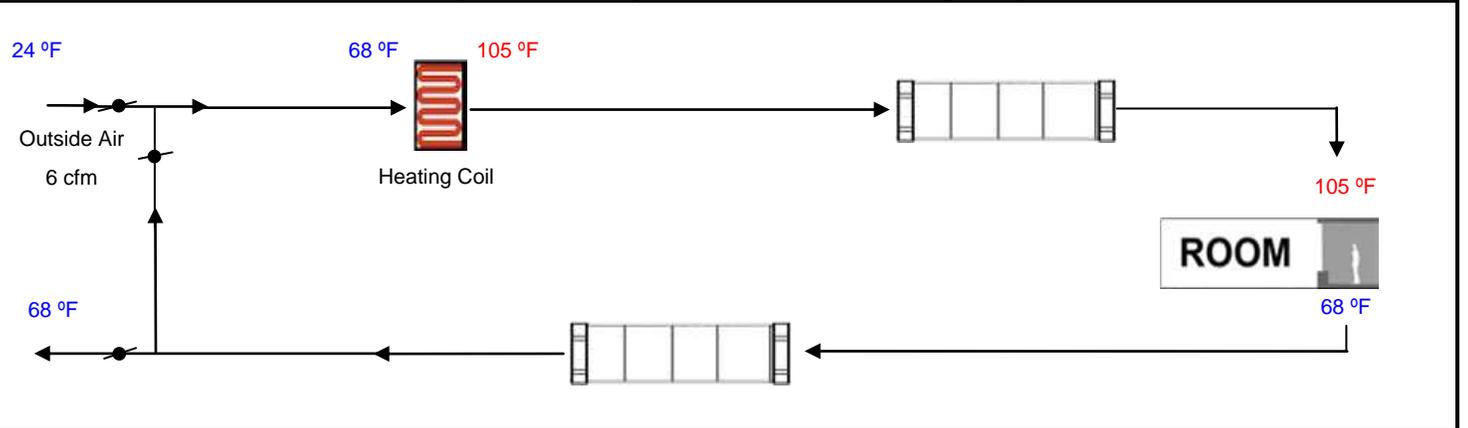
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name 2501 Gilman Ranch Residence	Date 9/9/2024
System Name HVAC	Floor Area 2,041

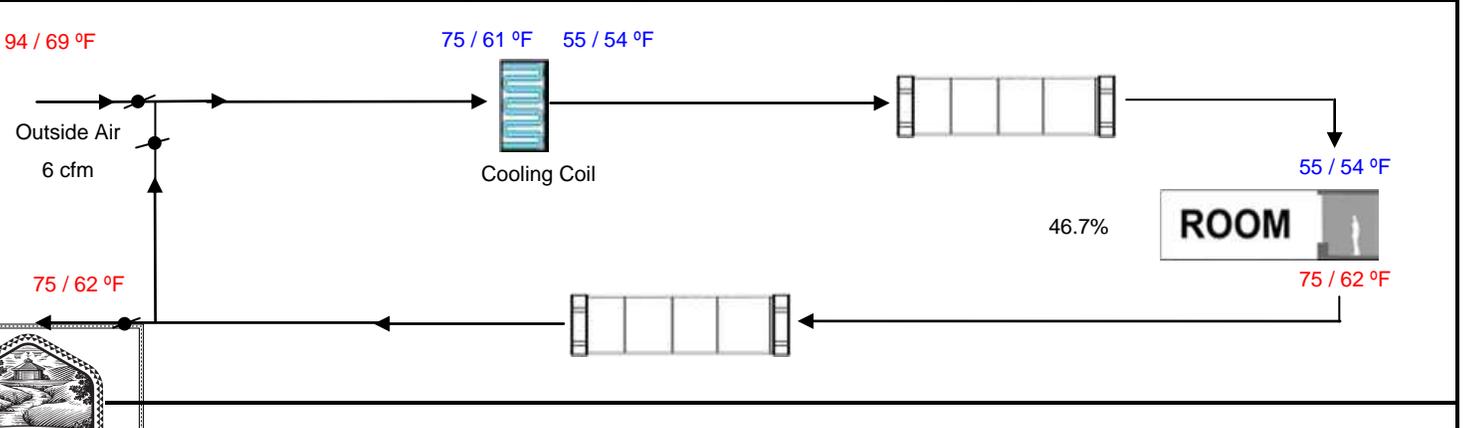
ENGINEERING CHECKS		SYSTEM LOAD					
Number of Systems	1	Total Room Loads Return Vented Lighting Return Air Ducts Return Fan Ventilation Supply Fan Supply Air Ducts TOTAL SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
Heating System			CFM	Sensible	Latent	CFM	Sensible
Output per System	54,000		883	19,003	1,047	677	26,934
Total Output (Btuh)	54,000			0			
Output (Btuh/sqft)	26.5			0			0
Cooling System				0			0
Output per System	48,000		6	125	18	6	290
Total Output (Btuh)	48,000			0			0
Total Output (Tons)	4.0			0			0
Total Output (Btuh/sqft)	23.5			0			0
Total Output (sqft/Ton)	510.3		19,128	1,065		27,224	

Air System		HVAC EQUIPMENT SELECTION				
CFM per System	0	Ductless Multi-Split HP 4 Ton				
Airflow (cfm)	0		44,194	0		31,897
Airflow (cfm/sqft)	0.00					
Airflow (cfm/Ton)	0.0					
Outside Air (%)	0.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)				
Outside Air (cfm/sqft)	0.00		44,194	0		31,897
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)



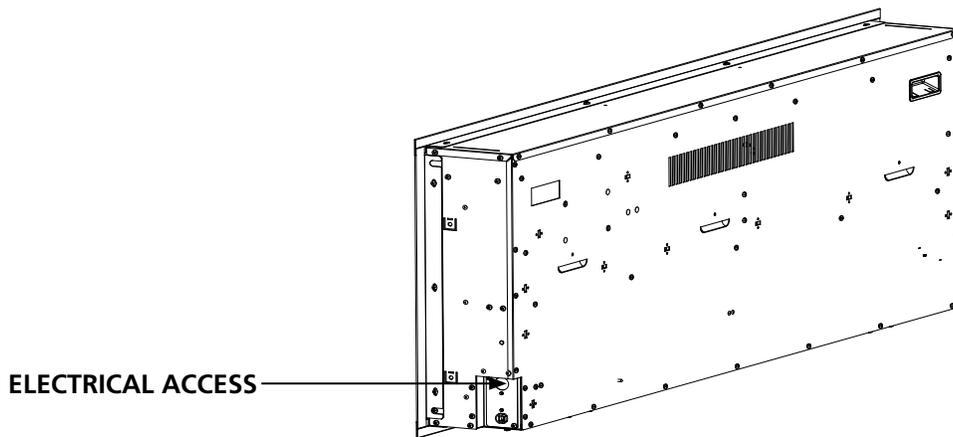
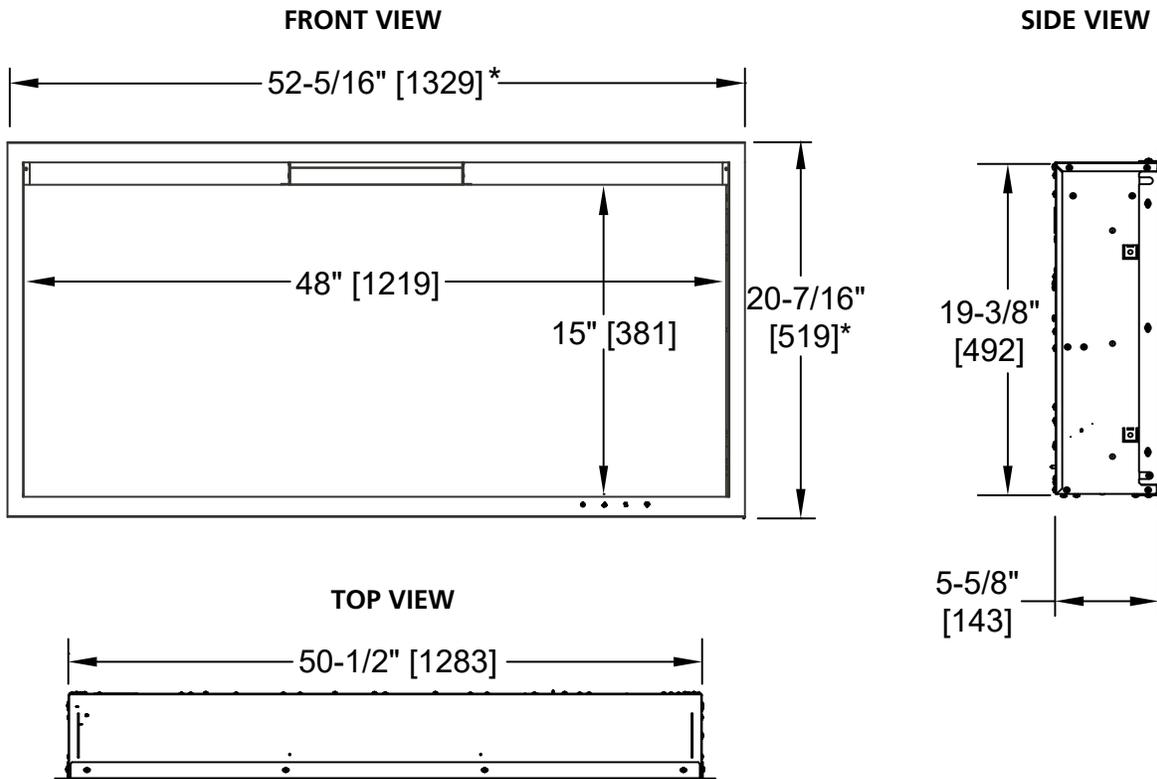
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Please consult the manufacturer's installation manual for all details and requirements before making a final design layout decision.

Allusion Platinum 50" Recessed Linear Electric Fireplace

MODEL	FRONT WIDTH		BACK WIDTH		FRONT HEIGHT		BACK HEIGHT		DEPTH		VIEWING AREA
	Actual	Framing	Actual	Framing	Actual	Framing	Actual	Framing	Actual	Framing	
SF-ALLP50-BK	52-5/16" [1329]	51" [1295]	50-1/2" [1283]	51" [1295]	20-7/16" [519]	19-3/4" [502]	19-3/8" [492]	19-3/4" [502]	5-5/8" [143]	2x6	48" x 15" [1219 x 381]



ELECTRICAL CONNECTION REQUIREMENTS

CIRCUIT	CONNECTION METHOD	BTUS
15 AMP, 120V/60 Hz	Hardwire or plug-in	5,000

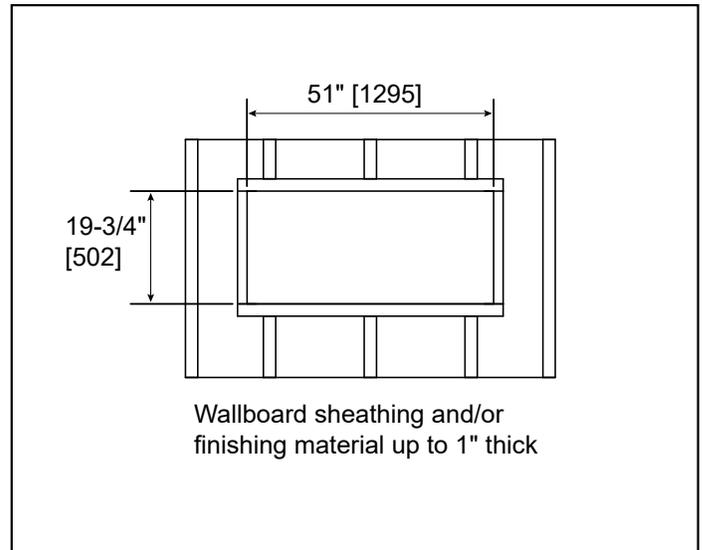


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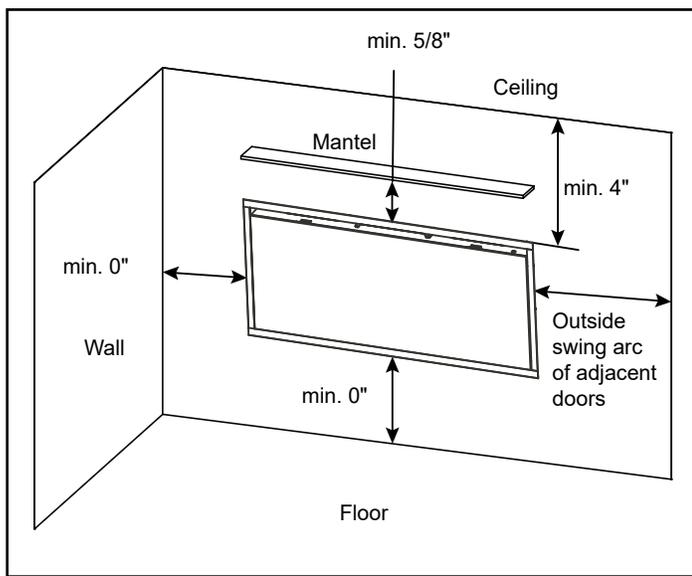
MINIMUM CLEARANCES TO COMBUSTIBLES

AREA	CLEARANCES
SIDES	0"
FLOOR	0"
TOP TO MANTEL	5/8" [16]
BACK	0"
FRONT	36" [914]

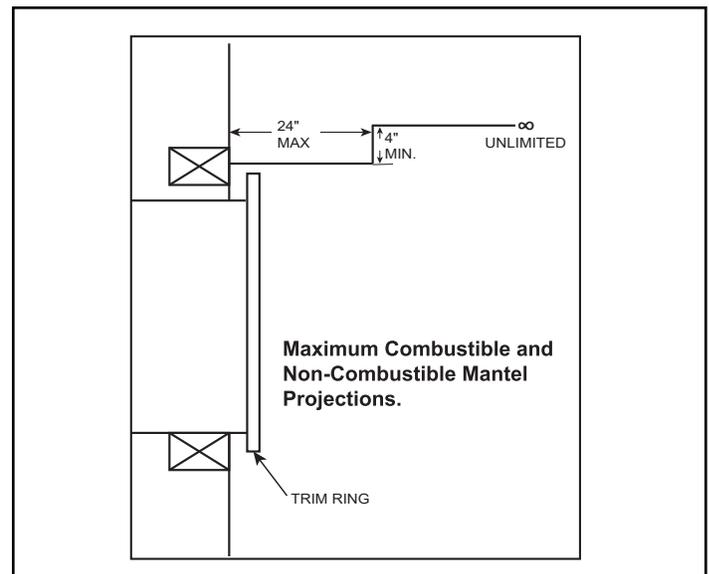
FINISHING DIMENSIONS



APPLIANCE LOCATION



MANTEL PROJECTIONS



PRODUCT LISTING CODES	
US	CSA 22.2 No 46-M1988
INTERNATIONAL	CSA 22.2 No 46-M1988

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

ELECTRICAL CONNECTION REQUIREMENTS

CIRCUIT	CONNECTION METHOD	BTUS
15 AMP, 120V/60 Hz	Hardwire or plug-in	5,000



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Grinder Pump Packages Simplex & Duplex

Fully Assembled
2hp Grinder Pump Systems
24", 30", 36" & 42"
Diameter Basin



Available heights:
48", 60", 72"



Liberty Pumps®



Pump Features:

- Single or 2-stage impellers
- 2hp heavy duty motor
- V-slice cutter technology
- One piece uni-body casting
- Stainless steel Impeller
- Dual seals

Package System Includes:

- Pre-plumbed SCH80 PVC
- Ball check valves PVC SCH80
- Ball valves PVC SCH80
- Discharge pipe simplex - 1-1/4", duplex - 2"
- Guide rail base
- Guide rails pipe available in GALV or SS
- Stainless steel lifting chain
- Splice box for electrical components pre-mounted
- Mounted float switches
- Control panel
- Fiberglass basin with anti-flotation collar
- 4" inlet hub (unmounted)
- Fiberglass lid standard, hatch cover optional
- All stainless steel supports and brackets pre-mounted
- Power options:
 - 208-230V 1-phase
 - 208-230V 3-phase
 - 440-480V 3-phase

Control Panel Features

Provide reliable alternating operation with standard features that include:

- HOA Switch
- NEMA 4X enclosure
- Circuit Breakers
- Visual and Audible alarm
- Pump run indicator lights
- Auxiliary contacts
- Three level control floats



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Liberty Pumps®

LSG200-Series



2 hp
1-1/4" Discharge

Features:

- New Patented V-Slice® cutter technology
- One-piece uni-body casting
 - Stainless steel impeller
- Quick-connect power cord
- Internal or external capacitor models available
- 300 Series SS Rotor Shaft

Patent: See www.libertypumps.com/patents



innovate. evolve.





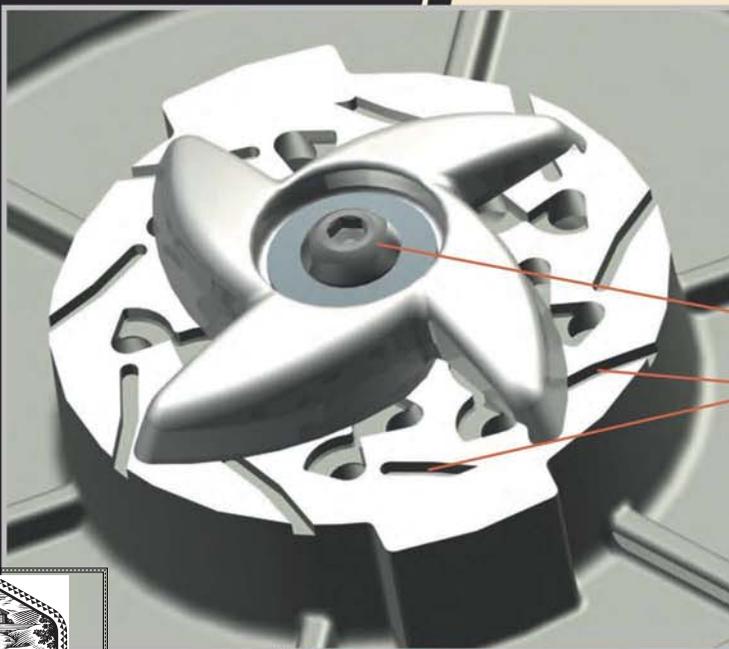
Liberty's LSG200-Series Grinder Pumps meet the demanding needs of commercial and residential sewage applications where difficult solids-handling ability is crucial. The LSG200-Series features a superior cutting system made of hardened 440 stainless steel – Rockwell C 58, for shearing solids into small particles prior to being passed to the discharge by the impeller under high pressure. Applications include individual or groups of homes, motels, schools, shopping centers, lakefront developments and systems requiring high pressure sewage pumping.

LSG200-Series Grinder Pumps

Features:

- 2 hp, heavy-duty motor – oil filled, thermally protected
- Upper and lower ball bearings
- One-piece uni-body cast iron housing
- 300 Series SS Rotor Shaft
- 316 Stainless steel impeller
- Dual seals – Upper seal is unitized durable silicon carbide. Lower seal is Viton® double-lip. (Lower seal ensures that all debris is kept away from main seal)
- Motor windings insulated to Class B (130°C)
- Advanced V-Slice® cutting system made of hardened 440 stainless steel – Rockwell C 58
- Horizontal 1-1/4" FNPT Discharge
- Back vanes on impeller and spiraled bottom plate for superior solids clearing
- All stainless steel fasteners
- Clog-free volute design
- Designed for maximum heat dissipation and cool motor operating temperatures
- Solid state starting circuit - no mechanical relay coil
- 25' power cord with Quick-connect
- Piggy back plug with wide angle float (on automatic model) eliminates need for expensive panel

Viton® is a registered trademark of DuPont Dow Elastomers LLC.



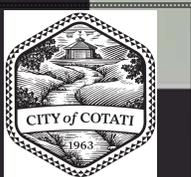
V-Slice® Technology

Superior cutting system provides improved shredding performance over radial cutters. V-pattern provides up to 108 alternated cuts per revolution. Entire cutting system made of 440 stainless steel hardened to 58Rc.

Recessed cutter bolt eliminates wadding

Exclusion cleanout slots and back relief clears debris from under cutter

Patent: See
www.libertypumps.com/patents



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inno

Stainless steel clasp for lift-out chain

Large stainless steel handle with rubber grip

Dependable solid state starting circuit

Quick-connect power cord

Thermal overload (single phase only)

Internal start/run capacitors on single phase models. "C" models have external caps and require a control panel

2 hp motor

Unique one-piece unibody casting

Wide angle float with piggy-back plug

316 SS impeller

Silicon carbide upper seal

300 Series SS Rotor Shaft

440 SS cutter plate spiraled for solids clearing

Viton® double-lip lower seal

Robust motor plate

440 SS rotary cutter hardened to 58Rc

1-1/4" NPT Discharge

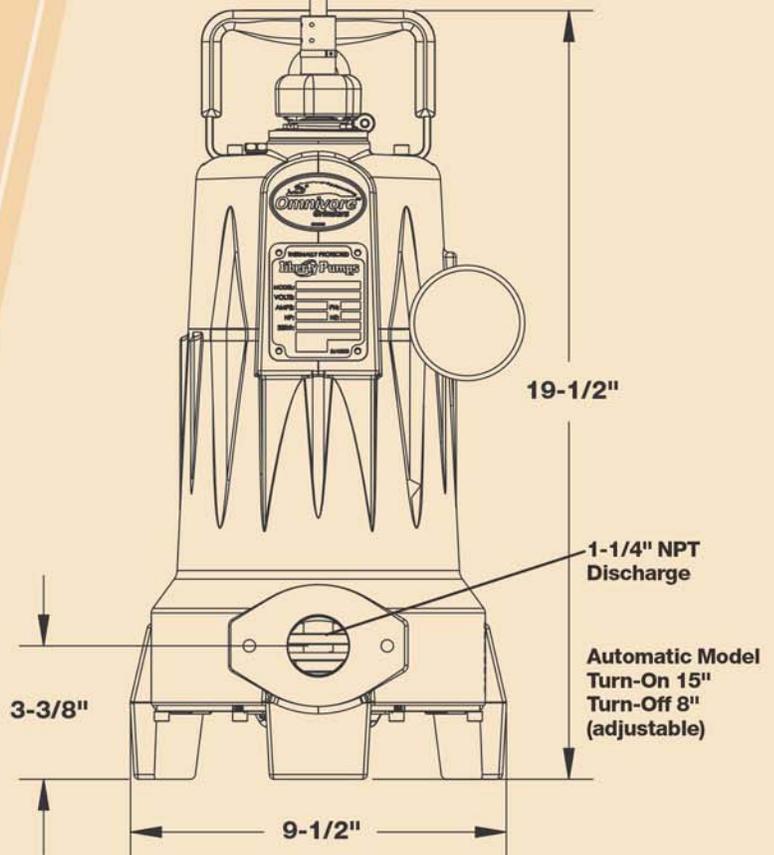
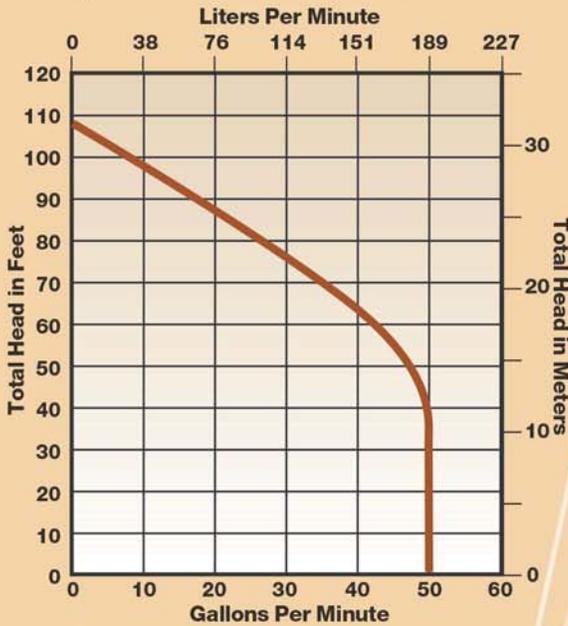
Improved clog-free volute design



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LSG200-Series Specifications



Model	HP	Volts	Phase	HZ	Amps	Locked Rotor Amps	Speed (RPM)	Discharge	Switch	Weight
LSG202A	2	208-230	1	60	15	53	3450	1-1/4"	Yes	86
LSG202M	2	208-230	1	60	15	53	3450	1-1/4"	No	84
LSG202M-C	2	208-230	1	60	15	53	3450	1-1/4"	No	84
LSG203M	2	208/230	3	60	10.6	62	3450	1-1/4"	No	84
LSG204M	2	440-480	3	60	5.3	31	3450	1-1/4"	No	84
LSG205M	2	575	3	60	4.9	31	3450	1-1/4"	No	84

Single phase models are thermally protected. 3-phase models require a properly sized control panel. Maximum fluid temperature 140° F

LSG202M and LSG202A feature internal capacitors and do not require a separate control panel for operation. LSG202M-C features external capacitors, requiring a panel with appropriately sized start and run capacitors.

Options for LSG202M-C: External Cap Grinder

Model	Description
K001316	Start/Run Capacitor Kit (for retrofit in existing panels)
SXHC24=3	Simplex NEMA 4X Panel with start/run capacitors
AE24HC=3	Duplex NEMA 4X Panel with start/run capacitors

For complete panel specifications, see SX or AE-series literature.
25' cord standard on all models. LSG202M-C features 35' cord standard.

GR20 Guide Rail Base (GR20 option sold separately)

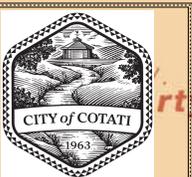


- Cast Iron construction
- Single 1-1/4" guide rail pipe design
- Auto alignment feature
- GR20 works only with LSG-Series pumps
- Upper rail support bracket



Liberty Pumps • 7000 Apple Tree Avenue • Bergen, New York 14416
Phone 800-543-2550 Fax (585) 494-1839

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libertypumps.com

36" FIBERGLASS BASINS

<u>FIBERGLASS BASIN STANDARD BOTTOM</u>	<u>FIBERGLASS BASIN GLASS ANTI-FLOAT</u>	<u>FIBERGLASS BASIN STEEL ANTI-FLOAT</u>		
<u>PART NO.</u>	<u>PART NO.</u>	<u>PART NO.</u>	<u>CAPACITY</u>	<u>WEIGHT</u>
GB-36 X 024-100	GB-36 X 024-200	GB-36 X 024-300	106 GAL	23 LBS
GB-36 X 030-100	GB-36 X 030-200	GB-36 X 030-300	132 GAL	28 LBS
GB-36 X 036-100 *	GB-36 X 036-200 *	GB-36 X 036-300	159 GAL	34 LBS
GB-36 X 042-100	GB-36 X 042-200	GB-36 X 042-300	185 GAL	39 LBS
GB-36 X 048-100 *	GB-36 X 048-200 *	GB-36 X 048-300	212 GAL	45 LBS
GB-36 X 054-100	GB-36 X 054-200	GB-36 X 054-300	238 GAL	50 LBS
GB-36 X 060-100 *	GB-36 X 060-200 *	GB-36 X 060-300	264 GAL	83 LBS
GB-36 X 066-100	GB-36 X 066-200	GB-36 X 066-300	291 GAL	92 LBS
GB-36 X 072-100 *	GB-36 X 072-200 *	GB-36 X 072-300	317 GAL	100 LBS
GB-36 X 078-100	GB-36 X 078-200	GB-36 X 078-300	344 GAL	108 LBS
GB-36 X 084-100 *	GB-36 X 084-200 *	GB-36 X 084-300	370 GAL	116 LBS
	GB-36 X 090-200	GB-36 X 090-300	397 GAL	125 LBS
	GB-36 X 096-200 *	GB-36 X 096-300	423 GAL	133 LBS
	GB-36 X 102-200	GB-36 X 102-300	450 GAL	141 LBS
	GB-36 X 108-200	GB-36 X 108-300	476 GAL	199 LBS
	GB-36 X 114-200	GB-36 X 114-300	502 GAL	210 LBS
	GB-36 X 120-200	GB-36 X 120-300	529 GAL	221 LBS
	GB-36 X 126-200	GB-36 X 126-300	555 GAL	232 LBS
	GB-36 X 132-200	GB-36 X 132-300	582 GAL	243 LBS
	GB-36 X 138-200	GB-36 X 138-300	608 GAL	254 LBS
	GB-36 X 144-200	GB-36 X 144-300	635 GAL	332 LBS
	GB-36 X 150-200	GB-36 X 150-300	661 GAL	345 LBS
	GB-36 X 156-200	GB-36 X 156-300	688 GAL	359 LBS
	GB-36 X 162-200	GB-36 X 162-300	714 GAL	373 LBS
	GB-36 X 168-200	GB-36 X 168-300	740 GAL	387 LBS
	GB-36 X 174-200	GB-36 X 174-300	767 GAL	401 LBS
	GB-36 X 180-200	GB-36 X 180-300	793 GAL	414 LBS
	GB-36 X 186-200	GB-36 X 186-300	820 GAL	428 LBS
	GB-36 X 192-200	GB-36 X 192-300	846 GAL	442 LBS
	GB-36 X 198-200	GB-36 X 198-300	873 GAL	547 LBS
	GB-36 X 204-200	GB-36 X 204-300	899 GAL	564 LBS
	GB-36 X 210-200	GB-36 X 210-300	925 GAL	580 LBS
	GB-36 X 216-200	GB-36 X 216-300	952 GAL	597 LBS
	GB-36 X 222-200	GB-36 X 222-300	978 GAL	613 LBS
	GB-36 X 228-200	GB-36 X 228-300	1005 GAL	630 LBS
	GB-36 X 234-200	GB-36 X 234-300	1031 GAL	646 LBS
	GB-36 X 240-200	GB-36 X 240-300	1058 GAL	663 LBS

OPTIONS

<u>PART NO.</u>	<u>DESCRIPTION</u>
GA-36 FILLET	FILLET BOTTOM
GA-SIMPLEX	SIMPLEX STUDS
GA-DUPLEX	DUPLEX STUDS

* STOCK ITEMS CAN BE SHIPPED WITHIN 48 HOURS FROM RECEIPT OF ORDER

INS W/FIBERGLASS ANTI-FLOAT FLANGE ADD 30 LBS TO WEIGHT
 INS W/STEEL ANTI-FLOAT FLANGE ADD 90 LBS TO WEIGHT



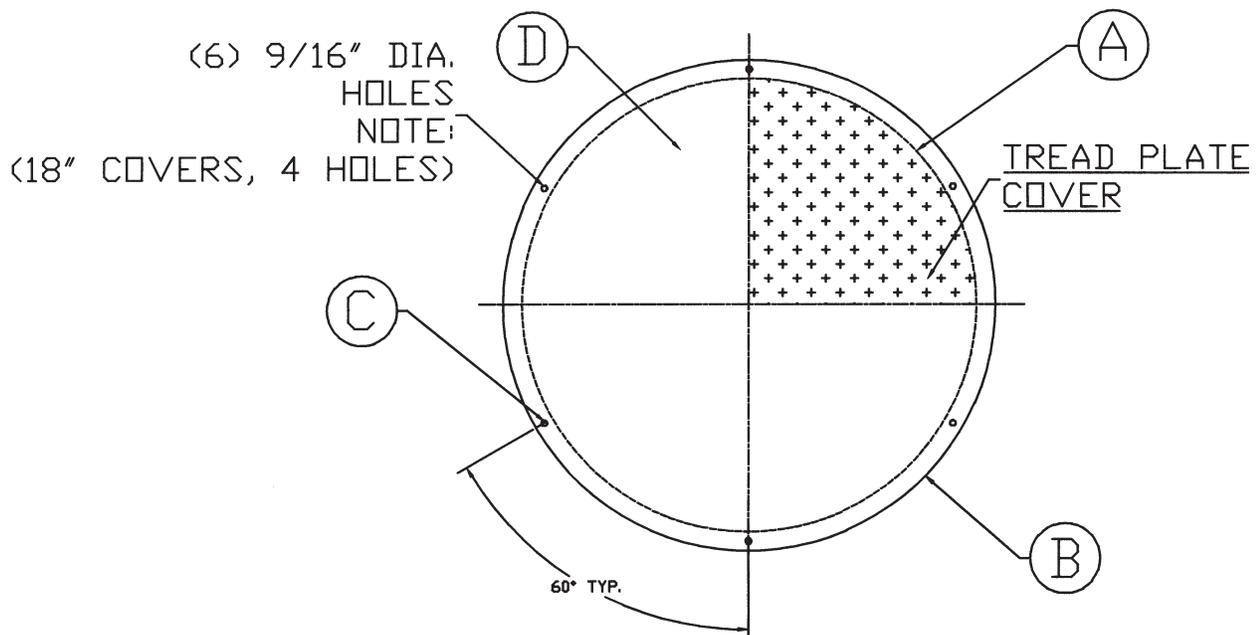


AK INDUSTRIES, INC.

SOLID FIBERGLASS COVER

PART#	(A) BASIN I.D	(B) COVER O.D	(C) BOLT CIRCLE	(D) COVER THICKNESS
GL-18FSC	18	20 1/2	19 1/2	3/8
GL-24FSC	24	28	26 1/2	3/8
GL-30FSC	30	34	32 1/2	1/2
GL-36FSC	36	40	38 1/2	1/2
GL-42FSC	42	46	44 1/2	1/2
GL-48FSC	48	54	51	1/2
*GL-60FSC	60	66	63	1/2
*GL-72FSC	72	78	75	1/2

ALL DIMENSIONS IN INCHES



COVER HAS SMOOTH FINISH

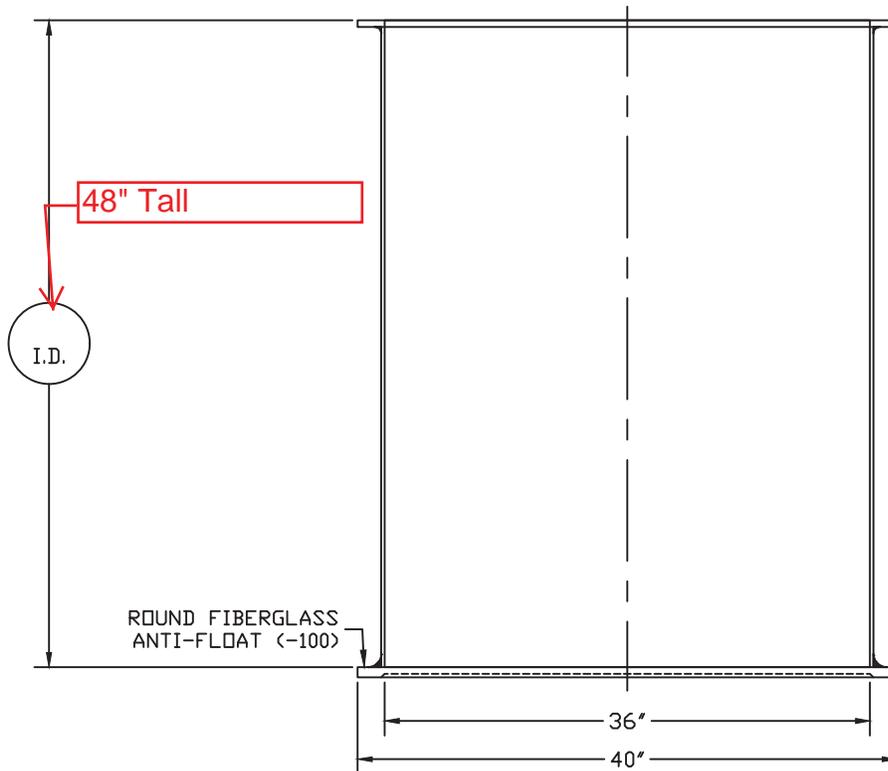
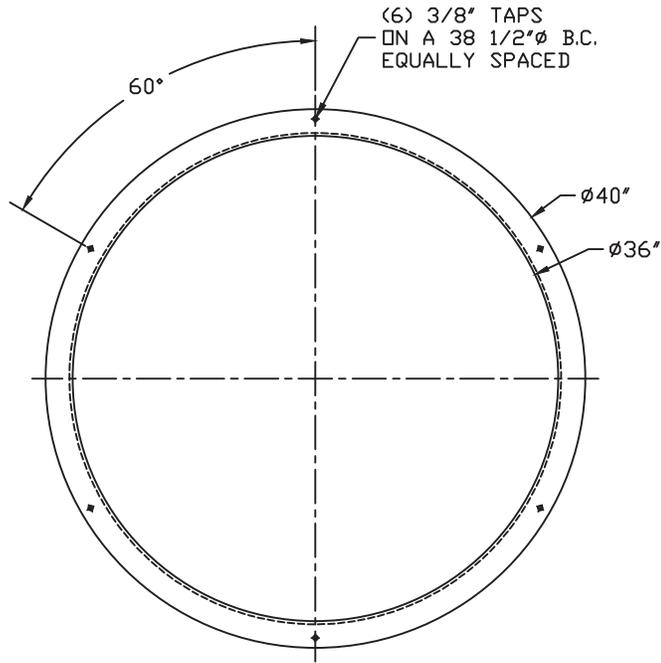


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PART/PRINT #:
GB-36-100

PART DESCRIPTION:
36"Ø FIBERGLASS BASIN W/ ROUND ANTI-FLOATATION COLLAR

DATE:
05/25/16



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AK INDUSTRIES INC.
1055 PIDCO DR.
LYNCHBURG, IN. 46563
PHONE: (574) 936-6022

DRAWN BY:
A.HARTUNG
J.CONLEY

SCALE:
NOT TO SCALE

REVISION#:

SIGNATURE:

MODEL 322 Control Panel

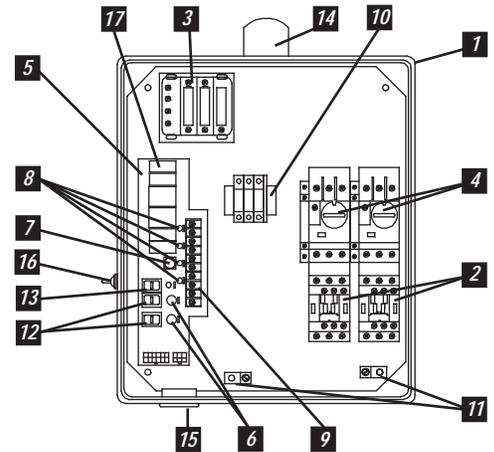
Three phase, duplex alternating pump control with override.

The Model 322 control panel is designed to alternately control two 208/240/480V three phase pumps in industrial and commercial water and sewage systems. The alternating action equalizes pump wear. In addition to the alternating pump control, this system provides override control should either pump fail. If an alarm condition occurs, the alarm switch activates the audio/visual alarm system. Common applications include lift stations, pump chambers, and irrigation systems.

PANEL COMPONENTS

1. **Enclosure** measures 14 x 12 x 6 inches (35.56 x 30.48 x 15.24 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
2. **IEC Motor Contactors** control pumps by switching electrical lines.
3. **Multi-Tap Transformer** (208/240/480 VAC primary) provides 120V control/alarm voltage. or 600VAC primary transformer.
4. **Motor Protective Switches** provide adjustable overload, branch circuit protection and pump disconnect.
5. **Alternating Circuit Board** provides pump control and alternation (U.S. Patent # 5,909,532).
6. **Green Pump Run Indicator Lights** (mounted on circuit board).
7. **Alarm/Control Fuse** (mounted on circuit board).
8. **Float Status Indicator Lights** (mounted on circuit board).
9. **Float Switch Terminal Block** (mounted on circuit board).
10. **Input Power Terminal Block**
11. **Ground Lugs**
12. **HOA Switches** for manual pump control (mounted on circuit board).
13. **Control ON/OFF Switch** (mounted on circuit board).

NOTE: Schematic/Wiring Diagram is located inside the panel on enclosure cover.



Model Shown 3221W511X



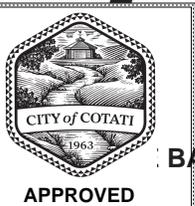
STANDARD ALARM PACKAGE

14. **Red Alarm Beacon** provides 360° visual check of alarm condition.
15. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
16. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
17. **Horn Silence Relay** (mounted on circuit board).

NOTE: other options available.

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' control switches or EZconnex® float system
- Complete with step-by-step installation instructions
- Five-year limited warranty



BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.



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1-218-847-4617 Fax

email: customer.service@sjerhombus.com
www.sjerhombus.com B.43

322 **1** **W** **511** **H**

MODEL 322 \$2,042.00

ALARM PACKAGE

0 = select options or no alarm package - \$35.00
 1 = alarm package (includes test/normal/silence switch, fuse, red light, & horn) Base

ENCLOSURE RATING

W = Weatherproof, NEMA 4X (engineered thermoplastic) Base

PUMP FULL LOAD AMPS

208/240/480V		600V		
<input type="checkbox"/> 001 = 1.0-1.6 FLA	<input type="checkbox"/> 005 = 1.0-1.6 FLA			Base
<input type="checkbox"/> 101 = 1.6-2.5 FLA	<input type="checkbox"/> 105 = 1.6-2.5 FLA			Base
<input type="checkbox"/> 201 = 2.5-4.0 FLA	<input type="checkbox"/> 205 = 2.5-4.0 FLA			Base
<input type="checkbox"/> 301 = 4.0-6.3 FLA	<input type="checkbox"/> 305 = 4.0-6.3 FLA			Base
<input type="checkbox"/> 401 = 6.0-10.0 FLA	<input type="checkbox"/> 405 = 6.0-10.0 FLA			Base
<input checked="" type="checkbox"/> 511 = 9.0-14.0 FLA	<input type="checkbox"/> 515 = 9.0-14.0 FLA			\$60.00
<input type="checkbox"/> 611 = 13.0-18.0 FLA	<input type="checkbox"/> 615 = 13.0-18.0 FLA			\$60.00
<input type="checkbox"/> 621 = 17.0-23.0 FLA	<input type="checkbox"/> 625 = 17.0-23.0 FLA			\$80.00
<input type="checkbox"/> 701 = 20.0-25.0 FLA	<input type="checkbox"/> 705 = 20.0-25.0 FLA			\$80.00

FLOAT SWITCH APPLICATION

H or L = pump down or pump up (select 17 option) Base
 E = EZconnex® float switch system (select 34 or 35 option) - \$75.00
 X = no floats - \$75.00

OPTIONS *Listed below*

★ ENCLOSURE UPSIZE - If you selected one or more of the ★ options, add a one-time \$50.00 list enclosure upsize

Total Options _____
Enclosure Upsize _____
TOTAL LIST PRICE _____

CODE	DESCRIPTION	LIST PRICE	CODE	DESCRIPTION	LIST PRICE
<input type="checkbox"/>	1A Red beacon only / no audio.....	\$20.00	<input type="checkbox"/>	16A 10' cord in lieu of 20' (per float)	\$2.00
<input type="checkbox"/>	1C Horn only / no visual.....	\$20.00	<input type="checkbox"/>	16B 15' cord in lieu of 20' (per float)	\$1.00
<input type="checkbox"/>	3A Alarm flasher	\$35.00	<input type="checkbox"/>	16C 30' cord in lieu of 20' (per float)	\$5.00
<input type="checkbox"/>	3B Manual alarm reset.....	\$90.00	<input type="checkbox"/>	16D 40' cord in lieu of 20' (per float)	\$15.00
<input checked="" type="checkbox"/>	★ 4A Redundant off	\$40.00	<input checked="" type="checkbox"/>	17A SJE SignalMaster® / pipe clamp ● (per float)	\$2.00
	<i>(select option 4D if floats included)</i>		<input type="checkbox"/>	17B SJE SignalMaster® / externally weighted ● (per float)	\$5.00
<input type="checkbox"/>	4B Red redundant off indicator & alarm.....	\$60.00	<input type="checkbox"/>	17C Sensor Float® / internally weighted ▲ (per float)	\$5.00
	<i>(must select 4A also)</i>		<input type="checkbox"/>	17D Sensor Float® / externally weighted ▲ (per float)	\$7.00
<input type="checkbox"/>	4D Redundant off float		<input type="checkbox"/>	17E Sensor Float® Mini / pipe clamp ▲ (per float)	\$2.00
	<i>(must select 4A option) (select 17 option)</i>	\$25.00	<input type="checkbox"/>	17F Sensor Float® Mini / externally weighted ▲ (per float)	\$5.00
<input checked="" type="checkbox"/>	★ 5A Thermal cutout/heat sensor auto	\$80.00	<input type="checkbox"/>	17J Sensor Float® / pipe clamp ▲ (per float)	\$0.00
	reset (for pumps w/thermal switch leads)		<input type="checkbox"/>	19B Lead lag selector switch	\$15.00
<input checked="" type="checkbox"/>	★ 5E Seal failure circuit & red indicator	\$315.00	<input type="checkbox"/>	19F Fourth float to separate alarm function from lag.....	\$25.00
	(2 wire)		<input type="checkbox"/>	19T TOA (Test/Off/Automatic) switches and pump run lights	
<input checked="" type="checkbox"/>	6A Auxiliary alarm contact, form C	\$15.00		through door mounted	\$160.00
<input type="checkbox"/>	8A Elapsed time meter	\$110.00	<input type="checkbox"/>	19U HOA (Hand/Off/Automatic) switches and pump run lights	
<input checked="" type="checkbox"/>	★ 8C Event (cycle) counter.....	\$90.00		through door mounted	\$150.00
<input type="checkbox"/>	*10A Clear inner swing-out door w/dead	\$190.00	<input type="checkbox"/>	19X Door mounted pump run indicator	\$40.00
	front (lights and switches mounted on inner door)		<input type="checkbox"/>	34D EZconnex® 4-Port, 25', w/10' floats (3) /pipe clamp,	
	*Panels ordered with this option cannot be returned.			sealing plug *	\$343.00
<input type="checkbox"/>	10E Lockable latch	\$40.00	<input type="checkbox"/>	34E EZconnex® 4-Port, 50', w/10' floats (3) /pipe clamp,	
<input type="checkbox"/>	10G Lightning arrestor	\$200.00		sealing plug *	\$388.00
<input type="checkbox"/>	10K Anti-condensation heater	\$125.00	<input type="checkbox"/>	34G EZconnex® 4-Port, 25', w/20' floats (3) /pipe clamp,	
<input type="checkbox"/>	11C NEMA 1 alarm panel (select option 6A)	\$80.00		sealing plug *	\$362.00
<input type="checkbox"/>	11D NEMA 4X alarm panel (select option 6A)	\$250.00	<input type="checkbox"/>	34H EZconnex® 4-Port, 50', w/20' floats (3) /pipe clamp,	
<input checked="" type="checkbox"/>	★ 14B Main disconnect (rotary style, mounted through door, non-fused,			sealing plug *	\$407.00
	padlockable in the OFF-position, door interlock in the ON-position)		<input type="checkbox"/>	35D EZconnex® 4-Port, 25', w/10' floats (4) /pipe clamp *.....	\$379.00
<input checked="" type="checkbox"/>	★ 0-10 FLA (total of both pumps)	\$285.00	<input type="checkbox"/>	35E EZconnex® 4-Port, 50', w/10' floats (4) /pipe clamp *.....	\$424.00
<input checked="" type="checkbox"/>	★ 10-20 FLA (total of both pumps)	\$325.00	<input type="checkbox"/>	35G EZconnex® 4-Port, 25', w/20' floats (4) /pipe clamp *.....	\$405.00
<input checked="" type="checkbox"/>	★ 20-50 FLA (total of both pumps)	\$680.00	<input type="checkbox"/>	35H EZconnex® 4-Port, 50', w/20' floats (4) /pipe clamp *.....	\$450.00

● Mechanically-activated ▲ Mercury-activated * EZconnex® mechanically-activated, narrow angle float switches with quick release connections.





STATEMENT OF SPECIAL INSPECTIONS

OFFICE USE ONLY

City of Cotati Building Department

201 W. Sierra Avenue

Cotati, CA 94931

Project Address: 2501 Gilman Ranch Rd APN: 144-110-021

Work Description: SFD

This **Statement of Special Inspections** is submitted in fulfillment of the requirement of California Building Code Sections 1704 and 1705. Included are:

- Schedule of special inspections and tests applicable to this project:
 - Special inspection permit Sections 1704 and 1705.
 - Special inspections for seismic resistance
- List of the testing agencies and other special inspectors that will be retained to conduct tests and inspections.
- Structural observation: In addition to special inspection requirements, the engineer or architect shall provide structural observation when required by Section 1704.5 of the California Building Code or the Chief Building Official. The scope and frequency for structural observation shall be clearly noted on the plans.
 - Structural observation for seismic resistance per Section 1704.5.
 - Structural observation required by the Building Official.

The **Schedule of Special Inspections** summarizes the special inspections and tests required. Special Inspectors will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Interim reports will be submitted to the Chief Building Official and the Registered Design Professional in Responsible Charge in accordance with the California Building Code Section 1704.2.4.

A **Final Report of Special Inspections** documenting required special inspections, testing, and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of Certificate of Occupancy or final (Section 1704.2.4). The final report will document:

- Required special inspections.
- Correction of discrepancies noted in inspections.

The **Owner** recognizes their obligation to ensure that the construction complies with the approved permit documents and to implement this program of special inspections. In partial fulfillment of these obligations, the Owner or Registered Design Professional in Responsible Charge acting as the owner's agent shall employ one or more approved agencies to perform special inspections as required by California Building Code Section 1704.2.

Prepared by:

Jeff DeBois Jeff DeBois 8/30/2024
 Registered Design Profession in Responsible Charge SIGNATURE PRINT NAME DATE

Owner's Authorization:

[Signature] PRINT NAME 11-4-2024
 PROPERTY OWNER SIGNATURE PRINT NAME DATE

Building Department Acceptance:

DEPARTMENT SIGNATURE PRINT NAME DATE



CONTRACTORS' RESPONSIBILITIES (Section 1704.4): Each contractor responsible for the construction of a main wind-or-seismic-force-resisting system, designated seismic system or a wind-or-seismic-resisting component listed in the statement of special inspections acknowledges:

1. Awareness of the special requirements contained in the statement of special inspections;
2. Control will be exercised to obtain conformance with the construction documents approved by the Chief Building Official;
3. Procedures for exercising control within the contractors' organization, the method and frequency of reporting and the distribution of the reports.

Contractor or Owner-Builder* Acknowledgment of Responsibilities:


GARY TATMAN
11/4/2024
679257

CONTRACTOR SIGNATURE
PRINT NAME
DATE
LICENSE NUMBER

OWNER-BUILDER* SIGNATURE
PRINT NAME
DATE

*Owner-Builder Property Package Form required

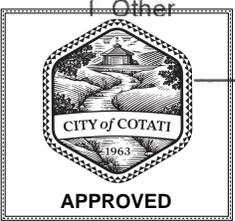
Seismic Requirements (Section 1704.3.2)

Description of seismic-force-resisting system and designated seismic systems subject to special inspections as per Section 1705.11 or 1705.12:

The extent of seismic-force-resisting systems is defined in more detail in the construction documents.

TESTING AGENCIES AND SPECIAL INSPECTORS: The following are the testing agencies and special inspectors that will be retained to conduct test and inspections on this project.

Responsibility	Firm	Address, phone, email
Geotechnical Inspections	Reese & Associates	707-528-3078
Special Inspections	Reese & Associates	707-528-3078
Material Testing		
Structural Observation	JDF Engineering	707-575-0911
Other		



SCHEDULE OF SPECIAL INSPECTION

Notation used in table:

Column headers:

- C** Indicates **continuous** inspection is required.
- P** Indicates **periodic** inspections are required. The notes and/or contract documents should clarify.
- If Req'd** If checked this inspection or special testing is required.

Box entries:

- X** Is placed in the appropriate column to denote either “**C**” continuous or “**P**” periodic inspections.
- - -** Denotes an activity that is either a one-time activity or one whose frequency is defined in some other manner.

Additional detail regarding inspections and tests are provided in the project specifications or notes on the drawings.

Verification and Inspection	C	P	If Req'd	Notes
1704.2.5.1 - Inspect fabricator's fabrication and quality control procedures.				
1704.2.5.2 - Certificate of Compliance from Approved Manufacturer.				
Table 1705.2 - Structural Steel (AISC 360 and AISC 341)				
1. Fabricator and erector documents (Verify reports and certificates listed in AISC, chapter N, paragraph N, paragraph 3.2 for compliance with construction documents.)				
2. Material verification of structural steel.		X		
3. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents.		X		
4. Structural steel welding:				
a. Inspection tasks PRIOR to welding (observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1.)		- - -		
b. Inspection tasks DURING welding (observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-2.)		- - -		
c. Inspection tasks AFTER welding (observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3.)		- - -		
d. Nondestructive testing (NDT) of welded joints:				EXCEPTION: NDT of welds completed in an approved fabricator's shop. See AISC 360, N7
1) Complete penetration groove welds 5/16" or greater in risk category III or IV.		- - -		UT on 100%, may reduce to 25% per AISC 360, N5e
2) Complete penetration groove welds 5/16" or greater in risk category II.				UT on 10%, may increase to 100% per AISC 360, N5f



Verification and Inspection	C	P	If Req'd	Notes
3) Thermally cut surfaces of access holes when material $t > 2$.		---		
4) Welded joints subject to fatigue when required by AISC 360, Appendix 3, Table A-3.1.		---		
5) Fabricator's NDT reports when fabricator performs NDT.		---		AISC 360, N5d
5. Structural steel bolting:				
a. Inspection task Prior to Bolting (Observe or Perform task for each bolted connection in Accordance with QA tasks listed in AISC 360, Table N5.6-1.)		---		
b. Inspection tasks During Bolting (Observe the QA tasks listed in AISC 360, Table N5.6-2.)		---		
c. Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in AISC 360, Table N5.6-3.)		---		
6. Inspection of steel elements of composite construction prior to concrete placement in accordance with QA tasks listed in AISC 360, Table		---		

Table 1705.2.2 - Verification of Steel Construction Other Than Structural Steel

1. Material verification of cold-formed steel deck:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.		X		Applicable ASTM material standards.
b. Manufacturer's certified test reports.		X		
2. Inspection of welding:				
a. Cold-formed steel deck:				
1) Floor and roof deck welds.		X		AWS D1.3
b. Reinforcing steel:				
1) Verification of weldability of reinforcing steel other than ASTM A 706.		X		AWS D1.4, ACI 318: Section 3.5.2
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X			AWS D1.4, ACI 318: Section 3.5.2
3) Shear reinforcement.	X			AWS D1.4, ACI 318: Section 3.5.2
4) Other reinforcing steel.		X		AWS D1.4, ACI 318: Section 3.5.2



Verification and Inspection	C	P	If Req'd	Notes
Table 1705.3 - Concrete				
1. Inspection of reinforcing steel, including prestressing tendons and placement.		X	X	ACI 318: .5
2. Inspection of reinforcing steel welding in accordance with Table 1705.2.2 Item 2b.				AWS D1.4, ACI 318: Section 3.5.2
3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.		X		ACI 318: 8.1.3, 21.1.8; CBC 1909.1
4. Inspection of anchors post-installed in hardened concrete members		X		ACI 318: 3.8.6, 8.1.3, 21.1.8; CBC 1909.1
5. Verifying use of required design mix.		X	X	ACI 318: Ch. 4.5.2-5.4; CBC 1904.2, 1910.2, 1910.3
6. At time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete.	X		X	ASTM C 172; ASTM C 31; ACI 318: 5.6; CBC 1910.10
7. Inspection of concrete and shotcrete placement for proper application techniques.	X		X	ACI 318: 5.9, 5.10; CBC 1910.6, 1910.7, 1910.8
8. Inspection for maintenance of specified curing temperature and techniques.		X		ACI 318: 5.11-5.13; CBC 1910.9
9. Inspection of prestressed concrete:				
a. Application of prestressing forces.	X			ACI 318: 18.20
b. Grouting of bonded prestressing tendons in the seismic force-resisting system.	X			ACI 318: 18.18
10. Erection of precast concrete members.		X		ACI 318: Ch. 16
11. Verification of in-situ concrete strength, prior to stressing of tendons in posttensioned concrete prior to removal of shores and forms from beams and structural slabs.		X		ACI 318: 6.2
12. Inspect formwork for shape, location, and dimensions of the concrete member being formed.		X	X	ACI 318: 6.1

Table 1705.4 - Level B Masonry Inspections (TMS 402/ACI530ASCE 5 and TMS 602/ACI 530.1/ASCE 6)

1. Verify compliance with the approved submittals.		X		TMS 602; Art.1.5
2. Verification of f' and f' AAC prior to construction except where specifically exempted by the code.		X		TMS 602; Art 1.4B
3. Verification of slump flow and VSI as delivered to the site for self-consolidating grout.	X			TMS 602; Art.1.5B.1.b.3
4. As masonry construction begins, the following shall be verified to ensure compliance:				
a. Proportions of site-prepared mortar.		X		TMS 602; Art.2.6A
b. Construction of mortar joints.		X		TMS 602; Art.3.3B
c. Location of reinforcement, connectors, prestressing tendons, and anchorages.		X		TMS 602; Art.3.4, 3.6A
d. Prestressing technique.		X		TMS 602; Art.3.6B

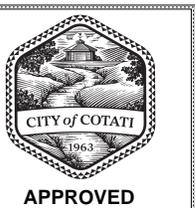


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Verification and Inspection	C	P	If Req'd	Notes
e. Grade and size of prestressing tendons and anchorages		X		TMS 602; Art.2.4B, 2.4H
5. During construction verify:				
a. Compliance with required inspection provisions of the construction documents and the approved submittals.		---		
b. Size and location of structural elements.		X		TMS 602; Art.3.3F
c. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, etc.		X		TMS 402;1.16.4.3, 1.17.1
d. Welding of reinforcing bars.	X			TMS 402; Sec. 2.1.7.7.2, 3.3.3.4(c); 8.3.3.4(b)
e. Protection of masonry during cold weather (temperature below 40 degrees F) or hot weather (temperatures about 920 degrees F).		X		CBC 2104.3, 2104.4; TMS 602; Art. 1.8C, 1.8D
f. Application and measurement of prestressing force.		X		TMS 602; Art. 3.6B
6. Prior to grouting verify the following:				
a. Grout space is clean.		X		TMS 602; Art. 3.2B
b. Specified size, grade, and type of reinforcement.		X		TMS 602; Art.2.4, 3.4
c. Placement of reinforcement and connectors and prestressing tendons and anchorages.		X		TMS 402; Sec. 1.16; TMS 602; Art. 3.4
d. Proportions of site-prepared grout and prestressing grout for bonded tendons.		X		TMS 602; Art. 2.6B
e. Construction of mortar joints.		X		TMS 602; Art. 3.3B
7. Verify grout placement to ensure compliance with code and construction document provision's.	X			TMS 602; Art. 3.5
a. Observe grouting of prestressing bonded tendons.	X			TMS 602; Art. 3.6C
8. Observe preparation of required grout specimens, mortar specimens, and/or prisms.	X			CBC 2105.2.2, 2105.3; TMS 602; Art. 1.4
9. Additional levels of masonry inspection are required as otherwise noted on the plans.		---		

Table 1705.5 - Required Verification and Inspection for Wood Construction

1. Inspect prefabricated wood structural elements and assemblies in accordance with Section 1704.205.		---		
2. Inspect site built assemblies.				
a. Inspect high-load diaphragms:		---		CBC 1705.5.1
1) Verify grade and thickness of structural panel sheathing.				



Verification and Inspection	C	P	If Req'd	Notes
2) Verify the nominal sizing of framing members at adjoining panel edges. Verify nail or staple diameter and length, number of fastener lines, and spacing between fasteners in each line and at edge margins.				
b. Metal-plate-connected wood trusses spanning 60 feet or greater:		---		CBC 1705.5.2
1) Verify that the temporary installation restraint bracing and the permanent individual truss members restraint bracing are installed in accordance with the approved truss submittal package.				

Table 1705.6 - Required Verification and Inspection of Soils

1. Verify materials below shallow foundations are adequate to achieve the desired bearing capacity.		X	X	
2. Verify excavations are extended to proper depth and have reached proper material.		X	X	
3. Perform classification and testing of compacted fill materials.		X		
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X			
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.		X		

Table 1705.7 - Required Verification for Driven Deep Foundation Elements

1. Verify element materials, sizes, and lengths comply with the requirements.	X			
2. Determine capacities of test elements and conduct additional load tests, as required.	X			
3. Observe driving operations and maintain complete and accurate records for each element.	X			
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X			
5. For steel elements, perform additional inspections in accordance with CBC Section 1705.2.		---		
6. For concrete elements and concrete-filled elements, perform additional inspections in accordance with CBC Section 1705.3.		---		
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.	X			



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Verification and Inspection	C	P	If Req'd	Notes
Table 1705.8 - Required Verification for Cast-In-Place Deep Foundation Elements				
1. Observe drilling operations and maintain complete and accurate records for each element.	X			
2. Verify location of piers and their plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes.	X			
3. For concrete elements, perform additional inspections in accordance with CBC Section 1705.3.				
Table 1705.9 - Required Verification for Helical Pile Foundation				
1. Record installation equipment used, pile dimensions, tip elevations, final depth, final installation torque, and other pertinent data.	X			
Table 1705.11 - Required Verification for Seismic Resistance				
1. Structural Steel Special Inspections for Seismic Resistance:				CBC 1705.11.1
a. Inspection of structural steel in accordance with AISC 341.		---		AISC 341
2. Structural Wood Special Inspection for Seismic Resistance:				
a. Inspection of field gluing operations of elements of the seismic-force resisting system.	X			CBC 1705.11.2
b. Inspection of nailing, bolting, anchoring and other fastening of components within the seismic-force resisting system, including wood shear walls, panels, diaphragms, collectors, and hold downs*		X		* Not required where fastener spacing of sheathing is more than 4" o.c.
3. Cold-formed Steel Light-Frame Construction Special Inspections for Seismic Resistance:				CBC 1705.11.3
a. Inspection during welding operations of elements of the seismic-force resisting system.		X		
b. Inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force resisting system, including shear walls, diaphragms*, collectors, and hold-downs.		X		* Not required where fastener spacing of sheathing is more than 4" o.c.
4. Designated Seismic Systems Verification:				
a. Inspect and verify that the component label, anchorage or mounting conforms to the certificate of compliance in accordance with Section 1705.12.3.		X		
5. Architectural Components Special Inspections for Seismic Resistance:				CBC 1705.11.5
a. Inspection during the erection and fastening of exterior cladding and interior and exterior veneer.		X		
Inspection during the erection and fastening of exterior nonbearing walls.		X		



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Verification and Inspection	C	P	If Req'd	Notes
c. Inspection during anchorage of access floors.		X		
6. Mechanical and Electrical Components Special Inspections for Seismic Resistance:				CBC 1705.11.6
a. Inspection during anchorage of electrical equipment for emergency or standby power systems.		X		
b. Inspection during the anchorage of other electrical equipment.		X		
c. Inspection during installation and anchorage of piping systems designed to carry hazardous materials, and their associated mechanical units.		X		
d. Inspection during the installation and anchorage of HVAC ductwork that will contain hazardous materials.		X		
e. Inspection during the installation and anchorage of vibration isolation systems.		X		
7. Storage Racks Special Inspection for Seismic Resistance:				CBC 1705.11.7
a. Inspection during the anchorage of storage racks 8 feet or greater in height.		X		
8. Seismic Isolation Systems:				CBC 1705.11.8
a. Inspection during the fabrication and installation of isolator units energy dissipation devices used as part of the seismic isolation system.		X		

Table 1705.12 - Testing and Qualification for Seismic Resistance

1. Concrete Reinforcement Testing and Qualification for Seismic Resistance:				CBC 1705.12.1
a. Review certified mill test reports for each shipment of reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special moment frames, special structural walls, and coupling beams connection special structural walls.		---		
b. Verify reinforcement weldability of ASTM A615 reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special frames, special structural walls, and coupling beams connecting special structural walls.		---		
2. Structural Steel Testing and Qualification for Seismic Resistance:				CBC 1705.12.2
a. Test in accordance with the quality assurance requirements of AISC 341.		---		AISC 341
3. Seismic Certification of Nonstructural Components:				CBC 1705.12.3
a. Review certificate of compliance for tested seismic system components.		---		



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Verification and Inspection	C	P	If Req'd	Notes
4. Seismic Isolation Systems:				CBC 1705.12.4
a. Test seismic isolation system in accordance with ASCE 7 Section 17.8.		---		ASCE 7 Section 17.8

Table 1705.13 - Required Verification and Inspection for Sprayed Fire-Resistant Materials

1. Verify surface condition preparation of structural members.		X		
2. Verify application of sprayed fire-resistant members.		X		
3. Verify average thickness of sprayed fire-resistant materials applied to structural members.		X		
4. Verify density of sprayed fire-resistant material complies with approved fire-resistant material.		---		CBC 1705.13.5
5. Verify the cohesive/adhesive bond strength of the cured sprayed fire-resistant material.		---		CBC 1705.13.6

Table 1705.14 - Required Verification and Inspection for Mastic and Intumescent Fire-Resistant Coatings

1. Inspect mastic and intumescent fire-resistant coatings applied to structural elements and decks.		X		
---	--	---	--	--

Table 1705.15 - Required Verification and Inspection for Exterior Insulation and Finish Systems (EIFS)

1. Verify materials, details, and installation are per the approved construction documents.		X		
2. Inspection of water-resistive barrier over sheathing substrate.		X		

Table 1705.16 - Required Verification and Field Testing for Fire-Resistant Penetrations and Joints

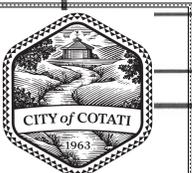
1. Inspect penetration firestop systems.		---		ASTM E2174
2. Inspect fire-resistant joint systems.		---		ASTM E2393

Table 1705.17 - Required Verification and Field Testing for Smoke Control Systems

1. Leakage testing and recording of device locations prior to concealment.		X		
2. Prior to occupancy and after sufficient completion pressure difference testing, flow measurements, and detection and control.		X		

Designer Specified Verification, Inspection or Field Testing

Other - Designer Specified:				
Structural Observation of: WSWH panel anchorage prior to pour. Rough framing at WSWH panel prior to covering.				JDF Engineering 707-575-0911



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