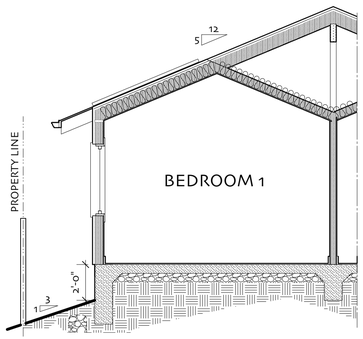
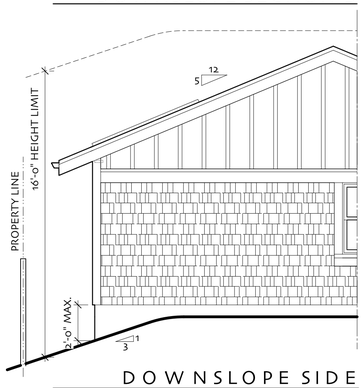
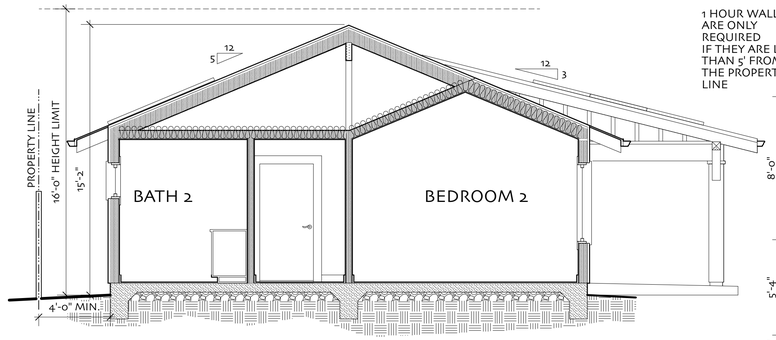


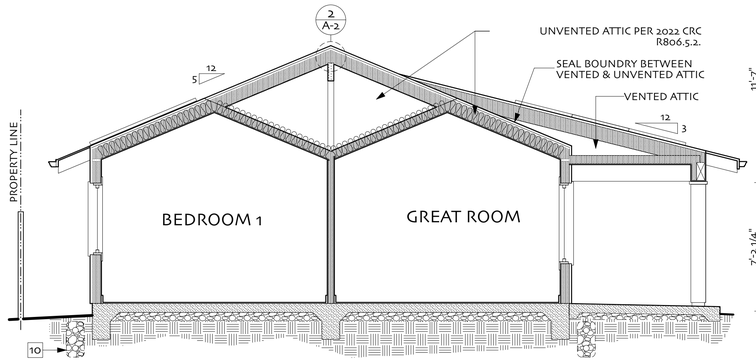
DOWNSLOPE SECTION B



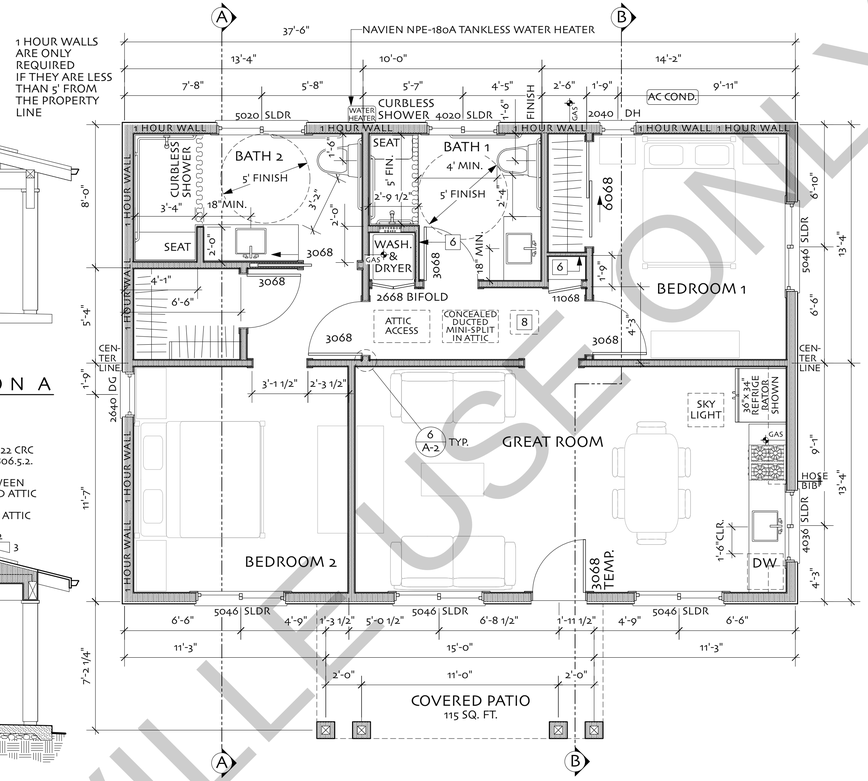
DOWNSLOPE SIDE



SECTION A



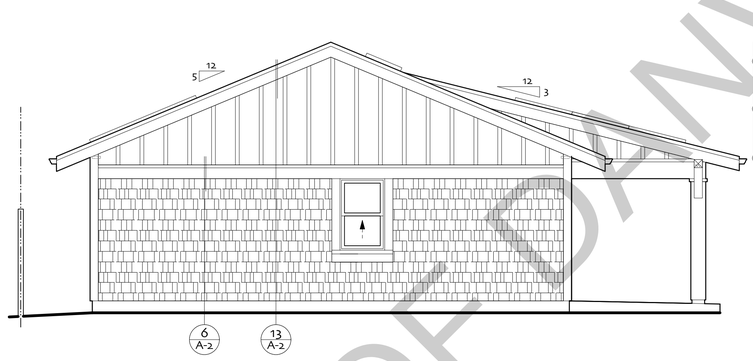
SECTION B



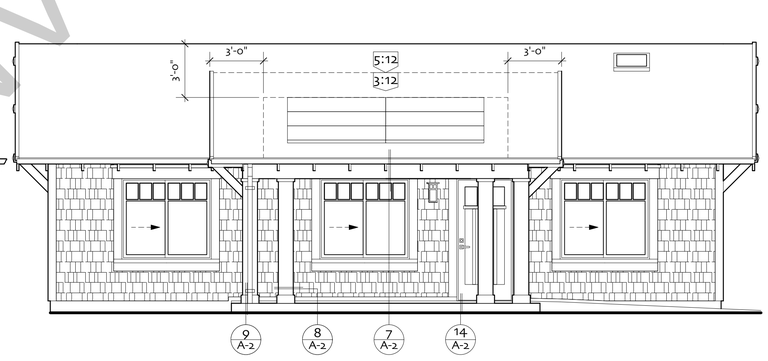
1000 SQ. FT. FLOOR PLAN

SCALE 1/4"=1'-0"

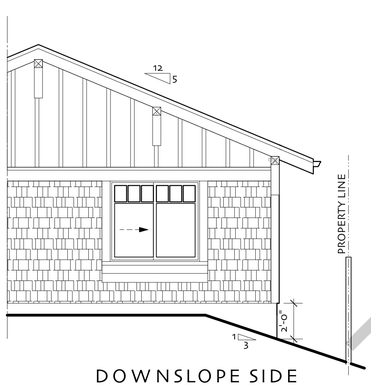
DOWNSLOPE SIDE



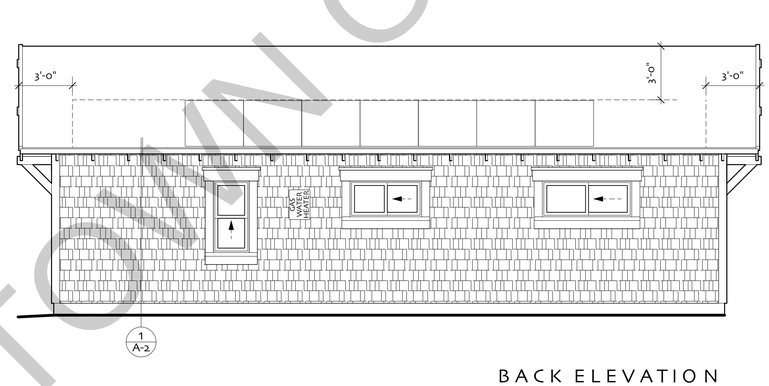
SIDE ELEVATION



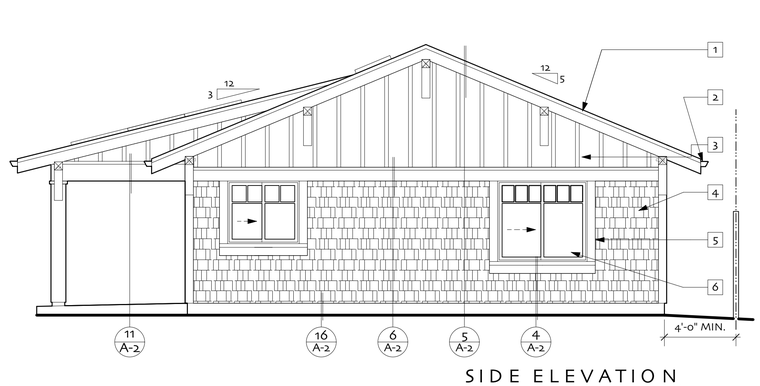
FRONT ELEVATION



DOWNSLOPE SIDE



BACK ELEVATION



SIDE ELEVATION



FLOOR PLAN NOTES

1. PROVIDE BLOCKING FOR 42 INCH MINIMUM LENGTH GRAB BAR PER CBC 11B-604.3.1

2. THE LAVATORY HEIGHT OF THE RIM OR COUNTER SURFACE SHALL NOT EXCEED 34 INCHES MAXIMUM HEIGHT PER CBC 11B-606.3.

3. BATHROOM SINKS SHALL BE A MINIMUM OF 18 INCHES TO THE SIDEWALL FROM THE CENTERLINE OF THE SINK.

4. STANDARD ROLLING TYPE SHOWER COMPARTMENT SHALL BE 30 INCH MINIMUM WIDTH BY 60 INCH MINIMUM CLEAR DEPTH WITH A FULL OPENING WITH ON THE LONG SIDE OF 60 INCHES MINIMUM PER CBC 11B-608.2.2.

5. MAXIMUM FLOOR SLOPE IN SHOWER STILL NOT EXCEED 1/2 INCH PER FOOT. 2 INCH MINIMUM DEPTH TO DRAIN INLET.

6. 2x6 FLAT STUDS @ 12" O.C. ALL OTHER INTERIOR STUDS ARE 2x4 AND EXTERIOR STUDS 2x6 UNLESS NOTES OTHERWISE.

7. INSULATE CEILINGS AND WALLS BETWEEN BEDROOMS AND GREAT ROOM WITH R-11 SOUND ATTENUATION BATTS.

8. PANASONIC FV-10VE1 ENERGY RECOVERY VENTILATOR SET TO 50 CFM

9. WEATHER STRIP & TEMPERED GLASS ON EXTERIOR DOOR.

10. CONTINUOS DRAIN SYSTEM ON 4 SIDES OF HOUSE; SDR-35 PVC PIPES WITH 1% MIN. SLOPE TO DRAIN. TOP PIPE IS SOLID 4"Ø FOR RAIN LEADERS. BOTTOM PIPE IS SEPARATE SYSTEM OF 4"Ø PIPES WITH PERFORATIONS DOWN. PIPES IN 12" WIDE FILTER FABRIC WRAPPED TRENCH WITH CLASS II DRAIN ROCK FILL. 6" COMPACTED NATIVE SOIL OVER TRENCH. SLOPE SURFACE GRADE 5% MINIMUM AWAY FROM BUILDING.

ELEVATION NOTES

THESE ARE SUGGESTED EXTERIOR MATERIALS. CONSULT WITH TOWN OF DANVILLE TO DETERMINE WHICH MATERIALS WILL BE COMPATIBLE WITH THE MATERIALS AND COLORS OF THE PRIMARY RESIDENCE.

1. ASPHALT COMP ROOF AT 3:12 AND 5:12 (ENGINEERED FOR CONCRETE TILE IN CASE MAIN HOUSE HAS CONCRETE TILE ROOF).

2. 5" OGEE BONDERIZED GSM GUTTERS AND 2" X 3" DOWNSPOUTS.

3. HARDIE PANEL SMOOTH PANEL SIDING WITH HARDIE TRIM BATTENS OVER WATER-RESISTIVE, VAPOR-PERMEABLE BANNER WITH A PERFORMANCE AT LEAST EQUIVALENT TO TWO LAYERS OF GRADE D PAPER OVER 1/2" CDX PLYWOOD.

4. HARDIE SHINGLE SIDING STRAIGHT EDGE OVER WATER-RESISTIVE, VAPOR-PERMEABLE BANNER WITH A PERFORMANCE AT LEAST EQUIVALENT TO TWO LAYERS OF GRADE D PAPER OVER 1/2" CDX PLYWOOD.

5. PRE-PRIMED EXTERIOR GRADE PINE TRIM. SET FILL & SAND ALL NAILS.

6. "SIERRA PACIFIC" ALUMINUM CLAD WOOD WINDOWS.

FILE NAME
2-CR-LD-F 4-21-23

SHEET INDEX

	ARCHITECTURAL
A-1	FLOOR PLANS & ELEVATIONS
A-2	ROOF, CEILING & ELECTRICAL PLANS & DETAILS
A-3	GENERAL NOTES
A-4	GREEN BUILDING CHECKLIST
	TITLE 24
EC	ENERGY CALCULATIONS
EC M	RESID. MANDATORY MEASURES
	STRUCTURAL
SN1	GENERAL NOTES
SN2	GENERAL SPECIFICATIONS
S1	ROOF FRAMING & FOUNDATION
SD1	SHEARWALL SCHEDULE
SD2	TYPICAL DETAILS
SD3	FOUNDATION DETAILS
SD4	ROOF RAMING DETAILS

CODE COMPLIANCE

OCCUPANCY GROUP: R3
TYPE OF CONSTRUCTION: VB
2022 CALIFORNIA RESIDENTIAL CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA BUILDING GREEN STANDARDS CODE
2022 CALIFORNIA BUILDING CODE (STRUCTURAL ONLY)
TYPE V CONSTRUCTION

THE FOLLOWING TO BE DEFERRED AND/OR REVIEWED AND APPROVED UNDER A SEPARATE PERMIT
A. FIRE SPRINKLERS (consult Danville if required per NFPA 13D)
B. GAS LINE SIZING CALCULATIONS
C. ELECTRICAL LOAD CALCULATIONS
D. PHOTOVOLTAIC SYSTEM

STRUCTURAL ENGINEER & TITLE 24

JUSTEN PEEK
ADVANCED ENGINEERING
3361 WALNUT BLVD. SUITE 100
BRENTWOOD CA 94513
(925) 516-3502
jp@advengineering.com

FRANCIS GARCIA
ARCHITECT
925 984 9983
www.francisgarciaarchitect.com

1000 S.F. 2 BEDROOM A.D.U. FOR THE TOWN OF DANVLLE

Rev. No.	Revision
1	PLAN CHECK RESPONSE 4-21-23

LICENSED ARCHITECT
FRANCIS GARCIA
C-26992
REN. 6-30-25
STATE OF CALIFORNIA

Drawn: FG
Date: 3-24-2023
Scale: 1/4"=1'-0"

CRAFTSMAN STYLE LEFT PLAN DOWN SLOPE LOT

A-1

TOWN OF DANVILLE USE ONLY

NOTES

1. ALL PERMITS EXCEEDING $1,000.00 IN VALUATION SHALL REQUIRE INSTALLATION OF APPROVED SMOKE AND CARBON MONOXIDE DETECTORS WITHIN THE DWELLING.

2. ALL PERMITS EXCEEDING $10,000.00 IN VALUATION SHALL REQUIRE THE INSTALLATION OF AN APPROVED AUTOMATIC GAS SHUT-OFF DEVICE ON THE CUSTOMER OWNED PIPING AT THE UTILITY METER.

3. BUILDING ADDRESS NUMBERS MUST BE A MINIMUM OF 4 INCHES IN HEIGHT OR 3 INCHES IN HEIGHT AND SELF-ILLUMINATED.

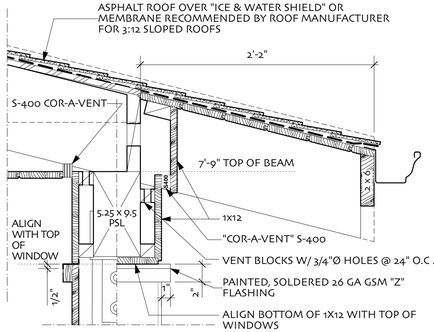
4. PER THE GREEN BUILDING STANDARDS CODE, THE CONSTRUCTION AND DEMOLITION ORDINANCE (C&D) APPLIES.

5. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR. CRC R307.2

6. GYPSUM BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY. CRC R702.3.7:

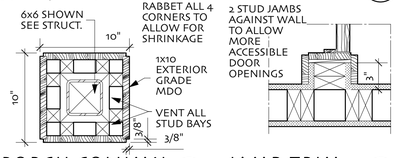
7. BATHROOMS EXHAUST SHALL TERMINATE 3'-0" FROM PROPERTY LINE AND 3'-0" FROM OPENINGS INTO THE BUILDING PER CMC 502

8. WALLS WITHIN 5 FEET OF THE PROPERTY LINE SHALL BE OF ONE-HOUR FIRE RATED FIRE RESISTIVE ASSEMBLY IN ACCORDANCE WITH CBC 721 TABLE 721.1(1)ITEM NUMBER 15-1.14;
2" X 6" WOOD STUDS AT 16" WITH DOUBLE TOP PLATES, SINGLE BOTTOM PLATE; INTERIOR AND EXTERIOR SIDES COVERED WITH 5/8" TYPE X GYPSUM WALLBOARD, 4' WIDE, APPLIED HORIZONTALLY OR VERTICALLY WITH VERTICAL JOINTS OVER STUDS, AND FASTENED WITH 2 1/4" TYPE S DRYWALL SCREWS, SPACED 7" ON CENTER.



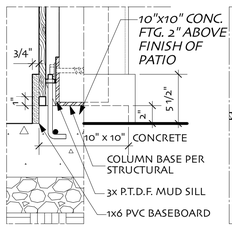
EAVE AT 3:12 PORCH ROOF 7

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



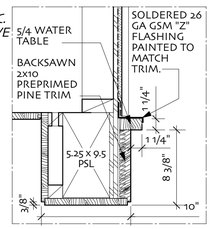
PORCH COLUMN 8

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



JAMB TRIM 10

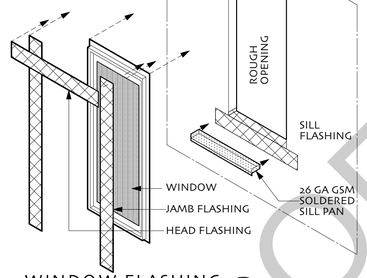
SCALE 1 1/2" = 1' -0"



COLUMN BASE 9

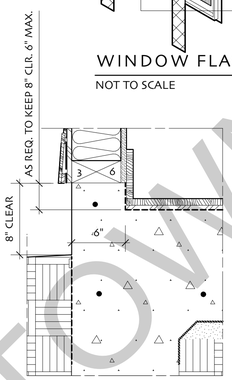
SCALE 1 1/2" = 1' -0"

PARTIAL DESCRIPTION OF WINDOW INSTALLATION FROM MANUFACTURER'S INSTALLATION MANUAL SHOWN. INSTALL WINDOWS PER MANUFACTURER'S RECOMMENDATION



WINDOW FLASHING 15

NOT TO SCALE

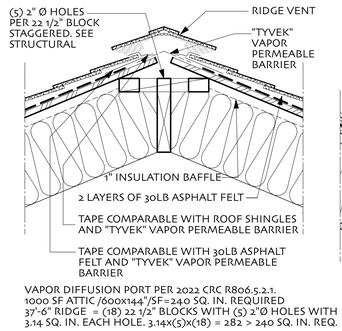


CURB AT WALL 16

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

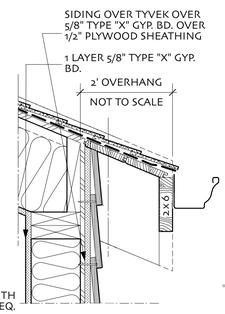
PORCH BEAM 11

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



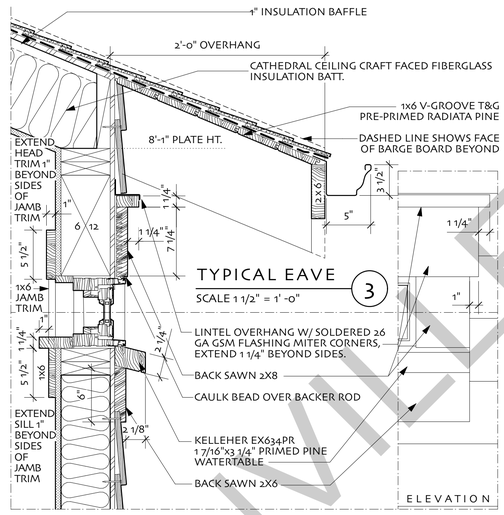
VAPOR DIFFUSION PORT 2

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



EAVE AT 1 HR. WALL 1

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



TYPICAL EAVE 3

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

EXTERIOR WINDOW TRIM 4

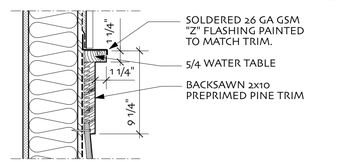
SCALE 1 1/2" = 1' -0"

1 HR WALL RAKE 13

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

RIGHT RAKE 5

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

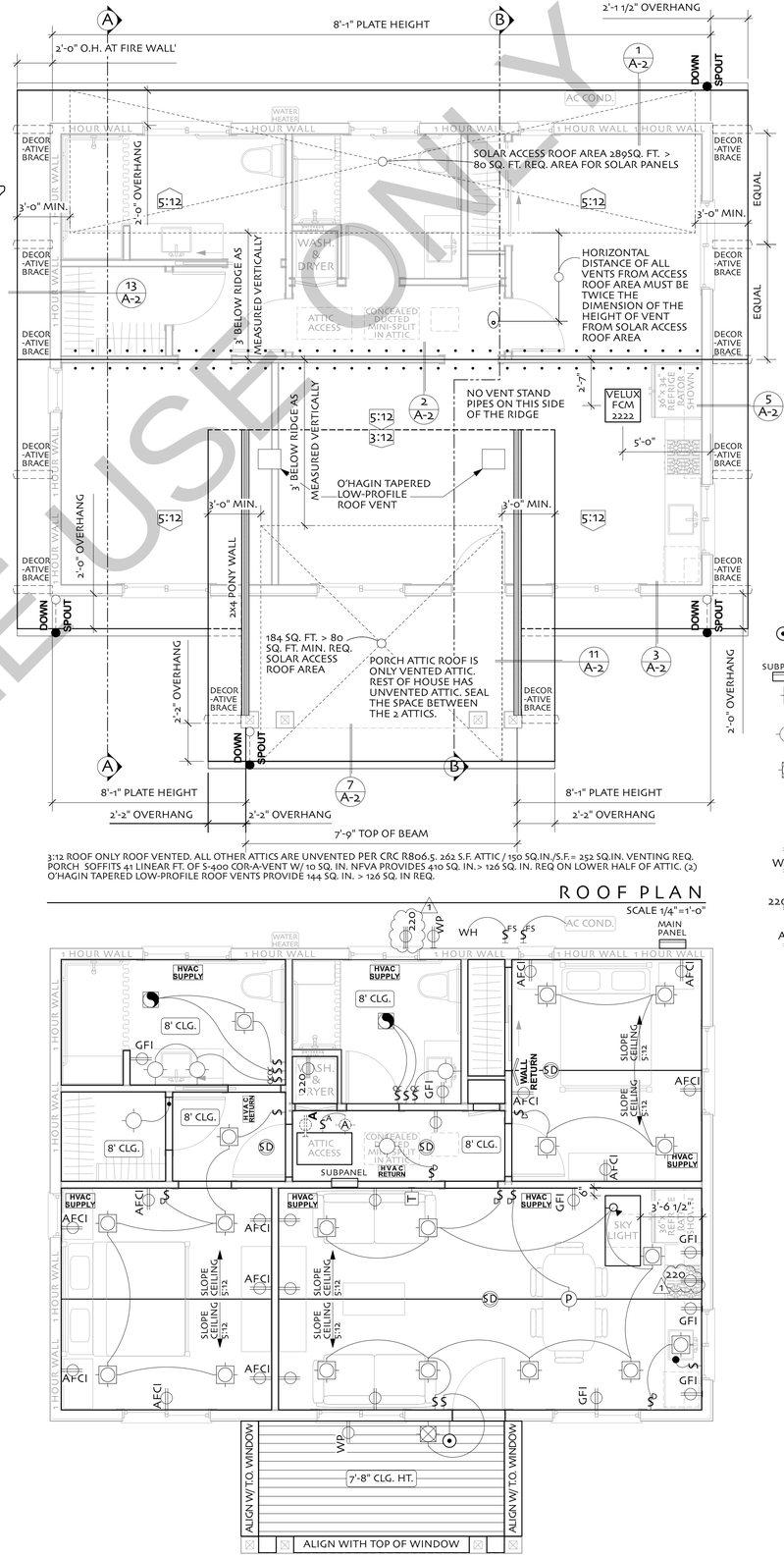


WALL BAND 6

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

DOOR THRESHOLD 14

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



3:12 ROOF ONLY ROOF VENTED. ALL OTHER ATTICS ARE UNVENTED PER CRC R806.5. 262 S.F. ATTIC / 150 SQ.IN./S.F.= 252 SQ.IN. VENTING REQ. PORCH SOFFITS 41 LINEAR FT. OF S-400 COR-A-VENT W/ 10 SQ. IN. NFVA PROVIDES 410 SQ. IN.> 126 SQ. IN. REQ ON LOWER HALF OF ATTIC. (2) O'HAGIN TAPERED LOW-PROFILE ROOF VENTS PROVIDE 144 SQ. IN. > 126 SQ. IN REQ.

ROOF PLAN

SCALE 1/4"=1'-0"

ELECTRICAL AND REFLECTED CEILING PLAN

SCALE 1/4"=1'-0"

ELECTRICAL LEGEND

- STANDARD LIGHT SWITCH
- MANUAL ON/AUTO OFF OCCUPANCY SENSOR
- DIMMER SWITCH
- FUSED SWITCH
- SWITCH IN ATTIC
- JAMB SWITCH
- DOORBELL BUTTON
- T THERMOSTAT
- SUBPANEL ELECTRICAL SUB-PANEL
- RECESSED LED FIXTURE
- SURFACE-MOUNTED LED LIGHT
- WALL MOUNTED LIGHT FIXTURE
- LED PENDANT LIGHT FIXTURE P
- EXTERIOR LED FIXTURE WITH MOTION SENSOR & PHOTOCELL
- A FLUORESCENT LIGHT FIXTURE IN ATTIC
- SURFACE MOUNTED LED SPOT LIGHT
- GARBAGE DISPOSAL
- DUPLEX OUTLET
- WP WEATHERPROOF GFI DUPLEX OUTLET
- DUPLEX OUTLET WITH W/ GFI GFI
- 220 STANDARD 220 VOLT OUTLET
- DUPLEX OUTLET IN ATTIC A
- AFCI ARCH FAULT CIRCUIT DUPLEX OUTLET
- SD HARD-WIRED 120V SMOKE & CARBON MONOXIDE ALARM W/ BATTERY BACKUP
- EXHAUST FAN/LIGHT COMBO SWITCHED SEPARATELY.

NOTE; OUTLETS FOR APPLIANCES ARE NOT SHOWN ON PLAN. PLEASE REFER TO APPLIANCE INSTALLATION INSTRUCTIONS FOR APPLIANCES THAT REQUIRE OUTLETS.

FRANCIS GARCIA
ARCHITECT
925 984 9983
www.francisgarciaarchitect.com

1000 S.F. 2 BEDROOM A.D.U. FOR THE TOWN OF DANVLLE

Rev. No.	Revision
1	PLAN CHECK RESPONSE 4-21-23

Drawn: FG
Date: 3-24-2023
Scale: AS NOTED

LICENSED ARCHITECT FRANCIS GARCIA C42910 REN. 8-31-25 STATE OF CALIFORNIA

CRAFTSMAN STYLE LEFT PLAN DOWN SLOPE LOT ROOF & ELECTRICAL PLANS & DETAILS

A-2

TOWN OF DANVILLE ONLY

SPECIFICATIONS

SEE ALSO STRUCTURAL NOTES BY STRUCTURAL ENGINEER. WHERE CONFLICTS OCCUR STRUCTURAL ENGINEERS NOTES SHALL GOVERN.

CONCRETE & CONCRETE BLOCK

A. CONCRETE

1. Concrete shall be machine mixed with a maximum 7 1/2 gallons of water per sack of cement.

2. Mixing water shall be clean and free from injurious amounts of oil, acids, alkalies, organic materials or other deleterious substances.

3. Course aggregate shall be hard, durable crushed stone or gravel graded per ASTM C33.

4. Sand shall be clean, hard, durable, washed free from silt, loam, or clay.

5. Concrete shall conform to ASTM 94 and reach a minimum strength of 2500 P.S.I. in 28 days or as specified in the soils report.

6. Concrete quality shall conform to provisions of Sec. 1905 CBC

7. Cement shall conform to ASTM C150, Type I or II.

8. All concrete shall be thoroughly consolidated during placement, using a mechanical vibrator.

9. Except where detailed on structural drawings, reinforcement shall not be displaced or cut to provide clearance for penetrations, inserts, or embedments.

10. Removal of forms: supporting vertical surfaces min. 2 days: supporting horizontal surfaces min. 14 days.

11. Only one grade of concrete shall be permitted on the job site at one time.

B. CONCRETE BLOCK

1. All concrete blocks shall be grade N load bearing unit F =1500 #PSI (U.N.O.) conforming to A.S.T.M. C-90 (medium weight concrete blocks).

2. Mortar (type S mortar) mix shall be 1 part cement, 4-1/2 parts sand, and a maximum of part lime putty or dry hydrated lime.

3. Mortar joints shall be a minimum of 3/8 and shall be full head and bed.

4. Grout mix shall be 1 part cement, 3 parts sand, 2 parts pea gravel, and sufficient water to cause the grout to flow into all joints without segregation.

5. Grout pours shall not exceed 4 feet in height Grout cells as noted on plans, F c 2000 P.S.I. min.

6. When grouting is stopped for one hour or longer, horizontal construction joints shall be formed by stopping the pour of grout 1-1/2" below the top of the uppermost unit.

7. Vertical reinforcement shall be held in position at the top and bottom and at intervals not exceeding 192 bar diameters.

8. Dry pack shall be 1:2 stiff mix.

9. Concrete block retaining walls shall conform to provisions set forth in CBC Chapter 16 for structural masonry walls.

10. Provide an approved waterproofing on earth side of retaining wall with protection board before backfilling. Provide back of wall drain or weep holes as per detail.

11. Block units shall have a moistcure content not to exceed 30% at time of laying to prevent dehydration of mortar and grout, and shall be free of all substances which might impair the bond of the units to mortar and grout.

12. Proper units shall be used to provide for all windows, doors, bond beams, lintels, pilasters etc. with a minimum of cutting.

13. Lay masonry in running bond except as designated otherwise on drawings. Provide masonry bonds at all corners and intersections-

14. All grout shall be thoroughly consolidated and re--consolidated, using a mechanical masonry vibrator.

15. Masonry Fireplaces shall be constructed and reinforced per code, and according to the recommendations of the Masonry Institute of America. Chimneys shall have terra cotta flue linings. Install ash dump at each fireplace.

STEEL

A. STRUCTURAL STEEL AND MISCELLANEOUS METALS

1. Structural steel shapes and plates shall conform to ASTM A36 identified with mark and mill certification.

2. Steel pipe columns shall conform to ASTM A53 Type E or S Grade B. Note dimension on plans shows out side diameter.

3. Steel tube columns shall conform to ASTM A500, Grade B.

4. All welding shall conform to standard code and A.W.S. for arc and gas welding. Use the electric arc process F-70 electrodes: low hydrogen electrodes for welding bolts and rebar as per ASTM A233.

5. All welding shall be performed by certified welders in a shop approved by local ordinances.

6. Structural field welding shall have special inspection, in accordance with CBC 1704.

7. Fasteners: Bolts and nuts shall conform to ASTM A307. All bolt heads and nuts that bear on wood shall have malleable iron washers if exposed or cut washers if concealed. All anchor bolts shall be hook bolts (with 2 hook), see plan for spacing.

8. Exposed exterior steel shall be galvanized, UNO

9. Exposed interior steel shall be shop primed and field (final) coated.

B. REINFORCING STEEL

1. Reinforcing steel shall be deformed bars conforming to ASTM designation A615–40, intermediate grade.

2. Wire fabric shall be electrically welded steel, ASTM A185. Lap 6 at edges.

3. Detailing fabrication and placing of reinforcing steel shall conform to or equal that set forth in the Manual of Standard Practice for Detailing Reinforced Concrete Structures, and better where required by the drawings.

4. Standard hooks shall comply with recommended sizes as shown in above manual, unless otherwise noted.

5. Lap all bar splices, 36 diameters in concrete and 40 diameters in concrete block, or 24",whichever is greater, stagger splices: bars shall be continuous in length as long as possible.

6. Suitable devices shall be used to hold the reinforcing in its true horizontal and vertical positions. These devices shall be sufficiently rigid and numerous to prevent displacement of the reinforcing during the placing of the concrete.

7. All dowels, anchor bolts and other inserts shall be well secured in place prior to pouring concrete.

8. All pipes and ducts through concrete to be sleeved. Verify openings with plumber and electrician.

9. All welded wire fabric shall be tied at three places to each dowel except locations where slab is designed as a floating slab.

10. Clear distance of reinforcement shall be as follows:
a) Wall surface = 1"
b) Formed surface in contact w/earth = 2"
c) Unformed surface in contact w/earth = 3"
d) Clear distance between bars = 2"

WOOD

A. MATERIALS

1. All lumber shall be Douglas Fir, and shall be stamped with a grademark of the following grades by an approved grading agency UNO

A. Studs and plates- standard grade min.

B. Joists and rafter- #2 grade min. UNO

C. Beam and lintel - #1 grade min. UNO

D. Post: 4X post - #2 grade, U.N.O. (exposed #1)
6x post & larger - #1 grade

2. Glu-Laminated Timber Beams

A. Industrial appearance grade UNO

B. All members shall be composed of 1-1/2" laminations, Fbx-2400 PSI, dry use condition. Each member shall bear specific identification for location and shall be accompanied by a Certificate of Inspection by the inspection agency- Standard camber.

C. Prior to fabrication, shop drawings shall be prepared and submitted to the Architect for approval. Taper seats for level bearing.

D. Design, fabrication and construction of structural glu-lam members shall conform in all applicable respects to the following governing standards:

1. The American Institute of Timber Construction Standards, Manual #301.

2. The commercial standard for structural glued laminated timber, CS-253.

3. Standard specifications for structural glued laminated Douglas Fir timber of the WCLA1 Comb. F, DF.

4. WCLIB certificate of lumber grades.

5. Approved inspection certificate in gluing procedures to be submitted to the building department prior to erection.

6. Each piece to be imprinted with standard identification marks.

3. Structural plywood shall be graded per A.P.A. PSI-83, and shall be interior type sheathing C-D grade with exterior glue, UNO All horizontal plywood shall be laid with face grain perpendicular to joists and with staggered joints.

B. CONNECTIONS

1. Nailing: Minimum nailing requirements for standard connections unless specifically shown or noted otherwise.

Timber Nailing Schedule
Taken from CBC Table 2304.9.1

3. A. Plywood sheathing: (at floors) UNO
Use T&G plywood (PI 48/24, CDX) w/10d common nails.
Supported panel edges nailed @ 6" o.c. Intermediate nailed @ 12" o.c.
Glue plywood to floor joist.
Nail immediately after gluing.

B. Plywood sheathing: (at roof) UNO
Use plywood (CDX) w/8d common nails.
Supported panel edges nailed @ 6" o.c. Intermediate nailed @ 12" o.c.
Blocking not required UNO

4. For flush framing of joists, use Simpson std. U joist hanger or equal. Provide rafter ties 4' -0" o.c. immediately above ceiling joists where ceiling joists are not parallel to roof rafters.

5. All manufactured connection hardware shall be as designated on drawings and installed and full nailed in conformance to manufacturer's instructions and applicable ICBO approvals.

6. Install lag screws in drilled lead holes with a diameter equal to of the shank diameter (lag screws shall not be hammered in). Wax or soap lag screws. Provide washers under heads bearing on wood. Holes shall be properly aligned.

7. Bolt holes shall be drilled 1/16" larger than the bolt diameter. Provide washers under all bolt heads and nuts bearing on wood. Holes shall be properly aligned. In no case shall misalignment be allowed which prevents proper bearing or alignment of members. Oversized holes shall not be allowed. Nuts shall be tightened snug.

8. Nails to be common wire nails.

C. INSTALLATION

1. Cutting and Notching of Studs:

Studs in exterior walls and bearing partitions may be cut or notched to a depth not exceeding 25% of stud width. Cutting or notching of studs in non-bearing partitions shall not exceed 40% of the width.

2. A hole not greater in diameter than 40% of the stud width may be bored in any wood stud. Bored holes not greater than 60% of the width of the stud are permitted in non-bearing partitions. In no case shall the edge of the bored hole be nearer than 5/8" to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

3. All lumber in contact with concrete shall be pressure treated (Wolminized) Douglas Fir or construction grade Redwood.

4. All stud walls shown on Structural Drawings shall have 2 x 4 studs placed at 16" o.c. except where noted otherwise.

5. Top plates shall be doubled on all stud walls. UNO

6. Cripples under headers shall be continuous to sole plate.

7. Block all stud walls as required for sheathing.

8. Provide blocking 2x wide of equal depth of the members between all joists and rafters at their supports, unless members are nailed to a rim joist

9. Install all horizontal members with crown up.

10. All members in bearing shall be accurately cut and aligned so that full bearing is provided without the use of shims.

11. Bearing posts shall have full blocking or support under.

12. Double joist under all parallel non-bearing partitions. Use 2-16d nails at 16" o.c. to nail double joist together unless noted otherwise.

13. All joists shall have a minimum of 2" bearing at supports. Lapping joists shall have 6" laps centered over interior supports.

14. Provide 2X solid blocking on joists and rafters @ 8'-0" o.c. and at supports.

15. Sills and Plates:
Sills and plates at shear walls shall be continuous and free of cuts and notches. Perforations shall be allowed with a maximum of 1 3/4" diameter and shall be located as close to the center as possible. Sill plates shall be pressure treated Douglas Fir. Sill bolts shall have 7" minimum embedment and be 12" maximum from ends of sills and corners. Provide metal washers under all bolt heads and nuts bearing on wood. All bolts through wood to be drive fit. At least 2 bolts shall be provided for each board.

16. Double joists around all openings

17. Non-Bearing Stud Wall Requirements:
Maximum Height
Up to 12' 2 X 4 @ 16" o.c
Up to 18' 2 X 6 @ 16" o.c
Up to 20' '2 x8 @ 16" o.c.
Lintels as Follows: (U.N.O.)
Roof Lintel Floor Lintel
Opening=8'-0" Use 4 x 8 Opening=8'-0" Use 4x10
Opening =6'-0" Use 4 x 6 Opening=6'-0" Use 4x8
Opening=4'-0" Use 4 x 4 Opening=4'-0" Use 4x6

18. Provide double trimmers at all openings 6'-0" wide or greater UNO

19. Fire stops are required at the following locations:

A. In concealed spaces of stud walls and partitions, including furred spaces, at the ceiling and floor levels and at 10 foot intervals along the length of the wall.

B. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.

C. In concealed spaces between stair stringers at the top and bottom of the run and between studs along and incline with the run of stairs if the walls under the stairs are unfinished.

D. In openings around vents, pipes, ducts, chimneys, fireplaces and similar openings that afford a passage for fire at ceiling and floor levels, with non-combustible materials.

E. Gas vents and non-combustible piping, in walls, passing through three floors or less shall be effectively draft stopped at each floor or ceiling.

20. Lap 4-0" minimum at top plate splice, with 8-16d nails at each side of splice U.N.O. Splices in upper and lower plates shall be staggered at least 10 feet.

21. All wood posts shall be 4X width of beam (UNO) 4 X 10 and larger beams/headers shall have post caps at ends, where indicated on plan.

22. Plywood at shear walls to be continuous at wall and door jamb intersections.

23. Provide boundary nailing to end posts at each shear wall.

24. Structural members shall not be cut for pipe, ducts, sleeves, etc., unless specifically noted or detailed.

25. Provide 3/8" min. particle board (underlayment under vinyl floors).

THERMAL AND MOISTURE PROTECTION

A. INSULATION

1. Minimum insulation to be as follows:
Roof and ceiling - Refer to
Exterior walls - Title 24
Floors wood - Notes
Sound Attenuation- See notes on Floor Plan

2. Cold Walls:
Portion of building between living space and an unheated garage, storage room and portion of wall above ceiling of an adjacent section of a split-level dwelling to be insulated same as roof, walls, or floor of dwelling.

3. It may be necessary to increase the depth of framing members to accommodate thicker insulation materials than that shown on drawings. Verify with Architect.

4. Install ceiling insulation as required to allow air circulation at eave vents.

5 Studs must be constructed, installed, and insulated as per Chapter 6, CMC

6. All insulation must meet California Energy Commission quality standards and be certified by the manufacturer

7. Provide water heater insulation blanket (R-12 or greater) or combined interior/exterior insulation (R-16 or greater): first 5 feet of pipes closest to tank insulated (R-3 or greater).

8. Insulate recirculating hot water piping in unheated spaces.

9. Insulation installer shall post in a conspicuous location in the building a certificate signed by the installer and builder stating that the installation conforms with the requirements of Title 24, chapter 2-53 and that the materials installed conform with the requirements of Title 20, Chapter 2, Subchapter 4, Article 3.

10. All insulation materials shall have a flame spread rating not to exceed 25 and a smoke density not to exceed 450.

11. U.N.O., leave 1" dead air space between the insulation and roof sheathing for venting.

B. GYPSUM WALLBOARD

1. Gypsum board work and materials shall meet all requirements of ANSI No.97-1, for the Application and Finishing of Wallboard. Joint compound system mixed, applied, and finished in compliance with manufacturers printed directions, to be invisible after finished, including all metal corner beads and trim.

2. Gypsum wallboard on stud walls: (Nailed Application): Cooler nails at 7" o.c. all studs, plates, and blocking, use 5d nails with wallboard and 6d nails with 5/8" wallboard unless otherwise noted on drawings. Avoid breaking face paper.

Gypsum wallboard on stud walls: (Screwed Application):
USG (or equal) Type W screws spaced 16" o.c. max. for walls, 12" o.c. max. for ceilings.

3. Use 1/2" gypsum wallboard where stud spacing is 16" o.c. and 5/8" where stud spacing is greater than 16"o.c.

4. Use 5/8" type "x" gypsum board on all garage ceilings, walls and beams, and on all framing supporting stairs. Framing shall be at 16"oc max. Provide perimeter blocking between the ceiling joists for solid backing for the attachment of the sheetrock to the ceiling.

5. Use "Durorock" or equal backing board where tile is to be applied to walls UNO. All tub/shower walls shall have a smooth, hard, nonabsorbent surface over a moisture resistant underlayment to a height of 72 inches above the drain inlet (min). CBC R 307.2 (min).

C. LATH AND PLASTER

1. Stucco lath shall be key mesh bond lath self furred paper backed lath stapled to all studs, top and bottom plates, and blocking with 16 gauge staples 6" o.c.

2. All horizontal or sloping surfaces to receive exterior finishes shall have one layer of (min) 30# felt underlayment.

3. Plaster soffits to be over expanded metal lath.

4. Exterior cement plaster shall consist of three coats over paper backed metal lath.

5. Provide exterior plaster weep screed at grade beam/sill plate line.

D. TILE

1. Provide materials obtained from only one source for each type of tile and color to minimize variations in appearance and quality.

2. All tile installed over wood studs or solid wood backing: Studs shall be protected from moisture by 15# felt or 4 mil. polyethylene film. Metal lath shall be nailed at 4" o.c. vertical and 16" o.c. horizontal. Tile to be installed over 3 part mortar bed: scratch coat, floating coat, and bond coat. All work shall be done in accordance with the Ceramic Tile Institute's most current handbook and A.N.S.I. A108.1.

3. Grout joints for marble and granite tile shall be held as tight as possible and shall be uniform in width.

4. Grout joints for ceramic tile shall be as per manufacturer's recommendations and shall be uniform in width.

5. Where tile meets another flooring material (i.e., carpet, wood), concealed stripping as required shall be used to form the tightest possible joining. Door thresholds shall be correctly located and centered under the closed door line. Exposed screws or nails are not acceptable.

E. CAULKING AND SEALANTS

1. Apply in strict accordance with manufacturer's printed instructions.

2. Seal all joints around openings to provide a watertight and airtight seal. Clean joints thoroughly. Areas adjacent to joints shall be masked if necessary to obtain a neat sealer line, free of stains on adjacent surfaces. Joints shall be filled with back-up material as required by manufacturer.

3. All locations indicated on drawings and wherever air, water, or dust may infiltrate between construction members and as directed by builder shall be caulked. Set exterior edges or all exterior thresholds in sealant to provide weather tight seal.

4. Caulk and/or seal all exposed exterior and interior joints above and below grade and all those exterior and interior joints and appendages concealed by other building materials, flashing, etc.. Caulking and/or sealant material at exposed areas shall be in color as near as possible to match abutting natural or painted finishes.

5. Caulking and sealant compounds indicated on drawings and corresponding to the following list shall be Standard Dry Wall products, Inc., or as otherwise approved and complying with the applicable Federal Specifications. Neoprene Sealing Tapes and Strips shall be as manufactured by Dupont, Elastomer Chemicals Department.

GLAZING

1. Glass in doors or within 18" of floor, within 24" of door,
and immediately adjacent to tubs & showers to be fully tempered float glass. Leave labels attached until final inspection.

2. All skylights within building to be double-glazed. All glass in skylights shall be fully tempered, safety glass, or wire glass. Approved plastics may be used. Skylights to comply with Chapter 24 of the California Building Code.

3. All egress or rescue windows from sleeping rooms shall have a minimum net clear opening of 5.7 square feet. Minimum net opening height shall be 24", minimum net width 20" with finished sill height not more than 44" above the floor.

SHEET METAL

1. Provide galvanized sheet metal (G.S.M.) side wall flashing at full perimeter of chimneys. G.S.M. saddle at high side.

2. Provide G.S.M. sheet metal flashing at any roof valley: edge of flashing shall be minimum 7" from center of valley.

3. Provide G.S.M. flashing for all vents or pipes penetrating roofs or roof decks.

4. Provide G.S.M. flashing at all roof-to-wall intersections.

5. Provide G.S.M. gutters continuous at full perimeter of roof. Provide exposed G.S.M. downspouts as noted on roof plan and building elevations. See gutter details for profile.

6. Provide all additional G.S.M. flashing as shown on construction documents or as may be otherwise required.

7. All flashing is to be 26 gauge galvanized sheet steel unless noted otherwise: meeting requirements of ASTM A525, mill prepared to receive paint finish, fabricated and installed in accordance with latest edition SMACNA requirements.

MECHANICAL AND PLUMBING

1. The plumbing and HVAC mechanical systems shall be designed by the Mechanical Subcontractor or his representative based upon energy calculations provided. The Mechanical Subcontractor shall size and specify equipment, provide duct layout and sizing.

2. Water meter, water line pipe and gas line pipe sizing calculations along with one line isometric drawings may be required to be provided if the building inspector requests these items.

3. Plumbing drain waste and vent and/or mechanical ducting along with electrical panel/wiring sizing calculations may be required to be provided by contractor if the field inspector requests these items. See deferred submittals

4. Installation instructions for all listed equipment shall be provided to the field inspector, time of inspection.

5. The Mechanical Subcontractor shall verify location of all registers and return air grills with Architect prior to commencing the work.

6. Setback thermostats are to be used on all heating systems.

7. Gas-fired space heating equipment to have intermittent ignition devices.

8. Attic Furnace Shall Be Set On Vibration Isolation Mounts. Provide a level working platform not less than 30" in depth in front of firebox side. If the furnace temperature-limit control, air filter, fuel-control valve, vent collar or air-handling unit is not serviceable from firebox side of furnace, a continuous floor not less than 24" in width shall be provided from platform in front of the firebox side of the furnace to in front of this equipment.

9. All air ducts penetrating separation wall or ceiling between garage and living area shall be 26 gauge minimum w/ R-6 insulation

10. All fixed appliances are to be securely fastened into place per UMC Section 304.4.

11. Sinks and water closets to have flexible pipe to water supply. Water closets shall have maximum 1.28 gpf + WaterSense. Lavatory, and sink faucets shall have a maximum flow rate of 1.2 gpm @ 60psi; minimum 0.8 gpm @ 20psi. Kitchen faucets shall have a flow rate of 1.8 gpm @ 60psi. May temporarily increase to 2.2gpm @60psi, but must default to 1.8 gpm. Shower heads shall have a maximum flow rate of 2.0 gpm @80psi +WaterSense per California Energy Commission.

12. All shower doors and sliding glass tub doors shall be 3/16" minimum fully tempered clear glass. Glass enclosure doors and panels must be labeled Category II. Swing door outward. Net area of shower receptor shall be not less than 7.1 square feet of floor area and encompass a 30" diameter circle.

13. Under floor Clean-outs shall be within 20 feet of the crawl space access, per Sect 707.1 All Clean-outs shall be water tight and air tight per Sect. 707.3

14. Pressure test is required for all gas lines prior to final inspection. (Minimum 1-1/2 times proposed maximum working pressure for half an hour. Maximum range for the pressure gage shall not exceed five times the test pressure per Sect. 1214.3.1

15. Provide 15" min. between the center of plumbing fixtures such as water closets and sinks and the nearest wall or object, per Sect. 407.6

16. Provide approved Excess Gas Shut-Off Valve (motion sensitive to be triggered when the gas flow exceeds the design flow limit) at each connection of a gas appliance to a gas line per C.C.Co. Ordinance 2004-27.

17. Provide approved Excess Gas Shut-Off Device (non-motion sensitive such as earthquake and to be triggered after 300,000 BTU flow) at the downstream meter per C.C.Co. Ordinance 2000-11.

14. Provide water supply at each refrigerator .

15. Drain pipes from upper level to be cast iron and wrapped in insulation for sound dampening. All plumbing shall be separated from structure with plumbing pipe isolators.

16. At water heater provide temperature and pressure relief valve with drain to exterior 6" to 24" to grade with pipe end pointed down.

17. Provide washer & dryer space with recessed water supply, fuel gas connection. 4" dia., 14 foot max. smooth metal dryer vent to outside air.

18. Termination of all environmental air ducts shall be a minimum of three feet from property lines or any openings into the building.

19. Provide min. 60 sq in. of screened louvered monoxide vents per car 12" from floor

20. Attic furnace shall be set on vibration isolation mounts on 3/4" plywood platform with 30"min space of platform w/ a minimum 24" wide access walk within 20 ft. of access portal of at least 30" x 30" at unit for service.

21. All gas fired mechanical appliances shall be provided with seismic anchorage. Vent cooktop to outside air. provide fuel gas and electrical components as required.

22. Verify locations of FAU and exterior condenser units.

23. Prefabricated metal fireplace unit. U. Listed or ICBO unit to have tight fitting glass doors and outside air supply. Install per CBC chapter with manufacturers flue and cap. provide spark arrestors for fireplace chimney. Verify surround and mantel materials and layout with owner.

24. Provide underfloor access with insulated door 18" x 24".

25. Flush and raised hearths shall be minimum 20" deep and 12" beyond each side of fireplace opening. Verify finish material with owner.

26. Tubs and showers shall have tempered glass enclosures and door U.N.O

27. All shower heads shall have 1.8 gpm maximum rate; lavatory faucets 1.2 gpm maximum rate and kitchen sink faucets shall have 1.8 gpm maximum rate. Toilets shall be 1.28 gallons per flush.

ELECTRICAL

A. GENERAL

1. Electrical Plan is a suggested layout. Consult with Owner for specialty electrical features such as central vacuum system, intercom, security system, cable televisions outlets, phone outlets, special lighting, etc., prior to construction.

2. The Electrical Contractor is responsible to perform all electrical wiring and installations to meet all applicable state and local code requirements, industry standards, and utility company requirements.

3. Electrical contractor is responsible to supply lateral service to building and to provide power to all mechanical systems and appliances as required per manufacturer's specifications.

4. For services exceeding 200 amps, submit a SCI letter from PG&E indicating the short-circuit current available at the service supply terminals (NEC 230--65). Provide at least 36" x 30" work space from finish grade to 6'-6" above finish grade.

5. Electrical system shall have a concrete enclosed electrode (UFER) electrical ground per (NEC 250-81).

6. Over and under gas and electric meters are not allowed.

7. Provide branch circuits as per NEC Article 220-3.

8. All electrical equipment shall be listed by an approved testing lab (NEC 110-3(a)).

9. All electrical fixtures are to be installed according to manufacturer's specifications.

10. Smoke and carbon monoxide detectors shall be 110v with battery backup and interconnected, which are audible in all sleeping areas will be provided at the following locations:
a. All bedrooms
b. In hallways and immediately adjacent to bedrooms
c. above tops of stairs
d. at least at every level
e. one additional where ceiling line elevation change> 2 feet .

11. All circuits are to be labeled and properly indentified ant the sub-panel.

B. WIRING

1. Provide G.F.I. for all outlets installed in bathrooms, garages, outdoors, and areas where water may be present.

2. Locate common wall junction boxes servicing two spaces in separate stud bays.

3. Conductors shall be annealed copper, insulated, sized as required, installed in rigid metallic conduit (RSC) or metallic tub (EMT) as required. Aluminum conductors will not be permitted.

4. 240v outlets require metal boxes. Provide metal or one hr. rated boxes at walls and ceilings between the garage and house.

5. Outlet boxes for ceiling fans shall be listed specifically for that use (NEC 370-17).

6. 2 small appliance branch circuits are required for the kitchen and are limited to supplying wall and counter space outlets for the kitchen, pantry, breakfast room, dining room, or similar areas. These circuits cannot serve outside plugs, range hood, disposals, dishwashers or microwaves — only the required countertop/wall outlets including the refrigerator. CEC 210.11(C)(1) and 210.52 (a) and 210.52(C).
a. In addition, a dedicated 20-amp circuit is required to serve the required bathroom outlets. this circuit cannot supply any other receptacles, lights, fans, etc. (exception-where the circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied.) CEC 210.52 (C)(3) and exception: cec210.23(a)(1) and (a)(2).
b. A dedicated 20-amp branch circuit shall be provided to supply the laundry receptacle outlet. CEC 210.11(c)(2) and 210.52(f). & a 30 amp circuit for electric clothes dryer.

7. Provide a grounding system as per nec article 250-81 c, min 20 of #4awg bare copper wire in the footing or grade beam, 2" from the bottom. Also provide electric grounding, ("bond") of metal piping to service equipment, cold water and gas pipe.

8. Provide main and sub-panel amperages prior to first inspection.

C. LIGHTING

1. Recessed lighting fixtures in insulated ceilings shall be listed for zero clearance insulation cover.

2. Exterior lights shall be labeled "suitable for wet locations", unless under a porch roof where they can be labeled "suitable for damp locations" (NEC 410-4).

3. Kitchens: At least 50% of the total wattage of kitchen lighting must be from high efficacy luminaries. Non high efficacy luminaires must be switched separately from high efficacy luminaires. (150(K)2)

4. Bathrooms, utility rooms, garages and laundry rooms: High efficacy lighting or manual-on occupancy sensors required. (150(K)3)

5. Exterior attached to building: High efficacy luminaires or combined photosensor/ occupancy sensor required. (150(K)6)

6. All other interior spaces: High efficacy luminaires, occupancy sensor, OR dimmers required. Luminaires that are not high efficacy luminaires can be allowed in closets less than 70 square feet. (150(K) 4)

7. Recessed lighting: When installed in insulated ceilings, must be both Type IC (insulated covered) and rated airtight. (150 (K)5)

CAL GREEN MANDATORY MEASURES

Enhanced Durability and reduced Maintenance (4.406)
Joints and openings.
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.

Construction Waste Reduction, Disposal and Recycling (4.408)
A minimum of 50% of the construction waste generated at the site is diverted to recycle or salvage. This is achieved either by using City pre-certified landfills or implementation of a waste management plan. Waste management plan shall be pre-approved by Building and Safety Services Division.

Building Maintenance and Operation (4.410)
An operation and maintenance manual shall be provided to the building occupant or owner.

ENVIRONMENTAL QUALITY - Pollutant Control (4.504)
Duct openings and other related air distribution component openings shall be covered during construction.

Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.

Paints, stains and other coatings shall be compliant with VOC limits.

Aerosol paints and coatings shall be compliant with product weighted MIR limits for ROC and other toxic
compounds.

Carpet and carpet systems shall be compliant with VOC limits.

Documentation shall be provided to the City building inspector verifying that compliant VOC limit finish materials have been used.

Particleboard, medium density fiberboard (MDF), and hardwood plywood used in interior finish systems shall comply with low formaldehyde emission standards.

Interior Moisture Control (4.505)
Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:
1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece to be verified.
3. At least three random moisture readings shall be per- formed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

Environmental Comfort (4.507)
Duct systems are sized, designed, and equipment is selected using the following methods:
1. Establish heat loss and heat gain values according to Air Conditioning Contractors of America (ACCA) Manual J or equivalent.
2. Size duct systems according to ACCA 29-D (Manual D) or equivalent.
3. Select heating and cooling equipment according to ACCA 36-S (Manual S) or equivalent.

Bathroom fan shall be ENERGY STAR compliant and ducted to outside of building and shall be in humidistat capable of adjustment between a relative humidity range of 50 to 80 percent.

Qualifications (702)
HVAC system installers are trained and certified in the proper installation of HVAC systems.
Verifications (703)
Verification of compliance with this code may include construction documents, plans specifications builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance.

FRANCIS GARCIA
ARCHITECT
925 984 9983
www.francisgarciaarchitect.com

1000 S.F. 2 BEDROOM A.D.U. FOR THE TOWN OF DANVLLE

Rev. No.	Revision

LICENSED ARCHITECT FRANCIS GARCIA C42810 REN. 8-30-25 STATE OF CALIFORNIA

Drawn: FG
Date: 3-24-2023
Scale:

GENERAL NOTES

A-3

TOWN OF DANVILLE ONLY

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 1 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

GENERAL INFORMATION					
01	Project Name	Danville ADU	05	Standards Version	2022
02	Run Title	Title 24 Analysis			
03	Project Location	Varies			
04	City	Danville	06	Software Version	EnergyPro 9.1
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	All orientations
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	2
14	Addition Cond. Floor Area (ft²)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft²)	1000	19	Glazing Percentage (%)	16.40%
20	ADU Bedroom Count	n/a			

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: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 2 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

ENERGY DESIGN RATINGS	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2Efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[3] EDR (EDR2efficiency)	Total[3] EDR (EDR2total)
Standard Design	38	45.9	35.1			
Proposed Design						
North Facing	37.8	39.2	33.9	0.2	6.7	1.2
East Facing	37.9	38.9	33.7	0.1	7	1.4
South Facing	37.6	37.7	33	0.4	8.2	2.1
West Facing	37.9	39.9	34.3	0.1	6	0.8
RESULT[3]: PASS						

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

- Standard Design PV Capacity: 2.12 kWdc
- Proposed PV Capacity Scaling: North (2.12 kWdc) East (2.12 kWdc) South (2.12 kWdc) West (2.12 kWdc)

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 3 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft²-yr)	Standard Design TDV Energy (EDR2) (kTDV/ft²-yr)	Proposed Design Source Energy (EDR1) (kBtu/ft²-yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft²-yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	6.73	29.55	2.02	15.55	4.71	14
Space Cooling	0.71	23.36	0.71	23.05	0	0.31
IAQ Ventilation	0.82	8.78	0.64	6.86	0.18	1.92
Water Heating	2.66	27.12	7.21	30.34	-4.55	-3.22
Self Utilization/Flexibility Credit				0		0
North Facing Efficiency Compliance Total	**10.92**	**88.81**	**10.58**	**75.8**	**0.34**	**13.01**
Space Heating	6.73	29.55	2.02	15.41	4.71	14.14
Space Cooling	0.71	23.36	0.72	22.61	-0.01	0.75
IAQ Ventilation	0.82	8.78	0.64	6.86	0.18	1.92
Water Heating	2.66	27.12	7.21	30.34	-4.55	-3.22
Self Utilization/Flexibility Credit				0		0
East Facing Efficiency Compliance Total	**10.92**	**88.81**	**10.59**	**75.22**	**0.33**	**13.59**

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 4 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft²-yr)	Standard Design TDV Energy (EDR2) (kTDV/ft²-yr)	Proposed Design Source Energy (EDR1) (kBtu/ft²-yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft²-yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	6.73	29.55	1.91	14.4	4.82	15.15
Space Cooling	0.71	23.36	0.68	21.34	0.03	2.02
IAQ Ventilation	0.82	8.78	0.64	6.86	0.18	1.92
Water Heating	2.66	27.12	7.21	30.34	-4.55	-3.22
Self Utilization/Flexibility Credit				0		0
South Facing Efficiency Compliance Total	**10.92**	**88.81**	**10.44**	**72.94**	**0.48**	**15.87**
Space Heating	6.73	29.55	1.9	14.48	4.83	15.09
Space Cooling	0.71	23.36	0.83	25.41	-0.12	-2.05
IAQ Ventilation	0.82	8.78	0.64	6.86	0.18	1.92
Water Heating	2.66	27.12	7.21	30.34	-4.55	-3.22
Self Utilization/Flexibility Credit				0		0
West Facing Efficiency Compliance Total	**10.92**	**88.81**	**10.58**	**77.07**	**0.34**	**11.74**

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 5 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

ENERGY USE INTENSITY	Standard Design (kBtu/ft² - yr)	Proposed Design (kBtu/ft² - yr)	Compliance Margin (kBtu/ft² - yr)	Margin Percentage
North Facing				
Gross EUI[1]	22.97	21.62	1.35	5.88
Net EUI[2]	11.66	11.98	-0.32	-2.74
East Facing				
Gross EUI[1]	22.97	21.65	1.32	5.75
Net EUI[2]	11.66	12.02	-0.36	-3.09
South Facing				
Gross EUI[1]	22.97	21.46	1.51	6.57
Net EUI[2]	11.66	11.82	-0.16	-1.37
West Facing				
Gross EUI[1]	22.97	21.64	1.33	5.79
Net EUI[2]	11.66	12	-0.34	-2.92

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.

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 6 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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 (%)	
2.12	NA	Standard (14-17%)	Fixed	none	true	105-300	n/a	n/a	<=7:12	96	95	

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis:
• Indoor air quality, balanced fan
• IAQ Ventilation System: as low as 0.54717 W/CFM
• IAQ Ventilation System Heat Recovery: minimum 80 SRE and 83 ASRE
• IAQ Ventilation System: supply outside air inlet, filter, and HERV cores accessible per RACM Reference Manual
• IAQ Ventilation System: fault indicator display
• Insulation below roof deck
• Window overhangs and/or fins

HERS FEATURE SUMMARY
The following is a summary of the features that must be field-verified by a Certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
• Quality insulation installation (QII)
• Indoor air quality ventilation
• Kitchen range hood
• Minimum Airflow
• Verified EER/EER2
• Verified SEER/SEER2
• Verified Refrigerant Charge
• Fan Efficacy Watts/CFM
• Verified HSPF
• Verified heat pump rated heating capacity
• Duct leakage testing

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 7 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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
Danville ADU	1000	1	2	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
Accessory Dwelling	Conditioned	HVAC System1	1000	8	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	Accessory Dwelling	Exterior 2x6 Wall	0	Front	300	107.51	90	
Left Wall	Accessory Dwelling	Exterior 2x6 Wall	90	Left	211.3	10	90	
Back Wall	Accessory Dwelling	Exterior 2x6 Wall	180	Back	300	26	90	
Right Wall	Accessory Dwelling	Exterior 2x6 Wall	270	Right	211.3	36.5	90	
Attic Roof	Accessory Dwelling	Unvented Roof Attic	n/a	n/a	667	n/a	n/a	

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
Vaulted Roof_Front	Accessory Dwelling	Rafter Roof	0	Front	256	4	5	0.1	0.85	No
Vaulted Roof_Back	Accessory Dwelling	Rafter Roof	180	Back	77	0	5	0.1	0.85	No

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 8 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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 Accessory Dwelling	Attic RoofAccessory Dwelling	Unventilated	5	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
Bed2 SG46	Window	Front Wall	Front	0	5	4.5	1	22.5	0.29	NFRC	0.21	NFRC	Bug Screen
Greatrm L SG46	Window	Front Wall	Front	0	5	4.5	1	22.5	0.29	NFRC	0.21	NFRC	Bug Screen
Entry Glass Door	Window	Front Wall	Front	0	3	6.67	1	20.01	0.32	NFRC	0.16	NFRC	Bug Screen
Greatrm R SG46	Window	Front Wall	Front	0	5	4.5	1	22.5	0.29	NFRC	0.21	NFRC	Bug Screen
Bed2 2640	Window	Left Wall	Left	90	2.5	4	1	10	0.29	NFRC	0.21	NFRC	Bug Screen
Bed1 2040	Window	Back Wall	Back	180	2	4	1	8	0.29	NFRC	0.21	NFRC	Bug Screen
Bath1 4020	Window	Back Wall	Back	180	4	2	1	8	0.29	NFRC	0.21	NFRC	Bug Screen
Bath2 5020	Window	Back Wall	Back	180	5	2	1	10	0.29	NFRC	0.21	NFRC	Bug Screen
Kitchen 4036	Window	Right Wall	Right	270	4	3.5	1	14	0.29	NFRC	0.21	NFRC	Bug Screen
Bed1 SG46	Window	Right Wall	Right	270	5	4.5	1	22.5	0.29	NFRC	0.21	NFRC	Bug Screen
Kitchen Skylight	Skylight	Vaulted Roof_Front	Front	0			1	4	0.49	NFRC	0.27	NFRC	

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 9 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

OPAQUE DOORS				
01	02	03	04	
Name	Side of Building	Area (ft²)	U-factor	
Entry Door	Front Wall	20	0.2	

OVERHANGS AND FINS													
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
Bed2 SG46	2	0.1	2	2	0	0	0	0	0	0	0	0	0
Greatrm L SG46	9.5	0.1	2	2	0	0	0	0	0	0	0	0	0
Entry Glass Door	9.5	0.1	2	2	0	0	0	0	0	0	0	0	0
Greatrm R SG46	2	0.1	2	2	0	0	0	0	0	0	0	0	0
Bed1 2040	0.75	0.1	2	2	0	0	0	0	0	0	0	0	0
Bath1 4020	0.75	0.1	2	2	0	0	0	0	0	0	0	0	0
Bath2 5020	0.75	0.1	2	2	0	0	0	0	0	0	0	0	0

SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	Accessory Dwelling	1000	128.33	none	0	100%	No

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 10 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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
Exterior 2x6 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.066	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Rafter Roof	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-30	None / None	0.034	Roofing: 10 PSF (Roof/TileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Inside Finish: Gypsum Board
Attic RoofAccessory Dwelling	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in O. C.	R-30	None / 0	0.04	Roofing: 10 PSF (Roof/TileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Around Roof Joists: R-17.0 insul.
Unvented Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 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
Required	Not Required	N/A	n/a	n/a

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 11 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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

WATER HEATERS													
01	02	03	04	05	06	07	08	09	10	11	12	13	
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Heating Efficiency Type	Efficiency	Rated Input Type	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	Tank Location	
DHW Heater 1	Gas	Consumer Instantaneous	1	0	UEF	0.96	Btu/hr	200000	0	n/a	n/a		

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

SPACE CONDITIONING SYSTEMS									
01	02	03	04	05	06	07	08	09	
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type	
HVAC System1	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	HVAC Fan 1	Air Distribution System 1	Setback	

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 12 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2	EER / EER / CEER			
Heat Pump System 1	Central split HP	1	HSPF	11.2	43000	29600	EERSEER	18.3	12.6	Not Zonal	Single Speed	Heat Pump System: 1-hers-hpump

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-hpump	Required	350	Required	Required	Yes	Yes	Yes	Yes

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

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CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 13 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

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

HVAC - FAN SYSTEMS				
01		02	03	04
Name		Type	Fan Power (W/cfm)/(CFM)	Name
HVAC Fan 1		HVAC Fan	0.45	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION			
01		02	03
Name		Verified Fan Watt Draw	Required Fan Efficacy (W/cfm)/(CFM)
HVAC Fan 1-hers-fan		Required	0.45

INDOOR AIR QUALITY (IAQ) FANS									
01	02	03	04	05	06	07	08	09	
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display1	HERS Verification	Status	
SFam IAQVentRtSpl 1-1	53	0.54717	Balanced	Yes	83	No	Yes		

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD — CF1R-PRF-01E (Page 14 of 14)

Project Name: Danville ADU — **Calculation Date/Time:** 2023-03-23T14:55:20-07:00
Calculation Description: Title 24 Analysis — **Input File Name:** Danville ADU_Base.ribd22x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Jason E Bennett	Documentation Author Signature: Jason Bennett
Company: DP Advanced Engineering	Signature Date: 2023-03-27 17:20:50
Address: 3381 Walnut Blvd. Ste. 220	CEA/ HERS Certification Identification (if applicable): R19-21-30042
City/State/Zip: Brentwood, CA 94513	Phone: 925-516-3502

CABEC CERTIFIED ENERGY ANALYST

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

Responsible Designer Name: Francis Garcia	Responsible Designer Signature: Francis Garcia
Company: Francis Garcia Architect	Date Signed: 2023-03-27 17:52:50
Address: 14 Norwood Ave	License: C-19820
City/State/Zip: Kensington, CA 94707	Phone: 925-984-9983

Digitally signed by CalCERTS. 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.

Easy to Verify at CalCERTS.com

Registration Number: 223-P019286808A-000-000-0000208-0000 — Registration Date/Time: 2023-03-27 17:52:03 — HERS Provider: CalCERTS Inc.
CA Building Energy Efficiency Standards - 2022 Residential Compliance — Report Version: 2022.0.000, Schema Version: rev 20220901 — Report Generated: 2023-03-23 14:56:00

CalCERTS, Inc. HERS PROVIDER
TOWN OF DANVILLE ACCESSORY DWELLING UNIT
NOT FOR RELEASE

DP
ADVANCED ENGINEERING
3381 Walnut Blvd. Ste. 220
Brentwood, CA 94513
Office: 925.516.3502
Fax: 925.262.4662

NOTE: THE LOADS SHOWN ARE ONLY ONE OF THE CRITERIA AFFECTING THE SELECTION OF HVAC EQUIPMENT. OTHER RELEVANT DESIGN FACTORS SUCH AS AIRFLOW, OUTDOOR DESIGN TEMPERATURES, COIL SIZING, AVAILABILITY OF EQUIPMENT, OVERSIZING MARGIN, ETC. MUST ALSO BE CONSIDERED. IT IS THE HVAC DESIGNER'S RESPONSIBILITY TO CONSIDER ALL FACTORS WHEN SELECTING THE HVAC EQUIPMENT. MECHANICAL CONTRACTO