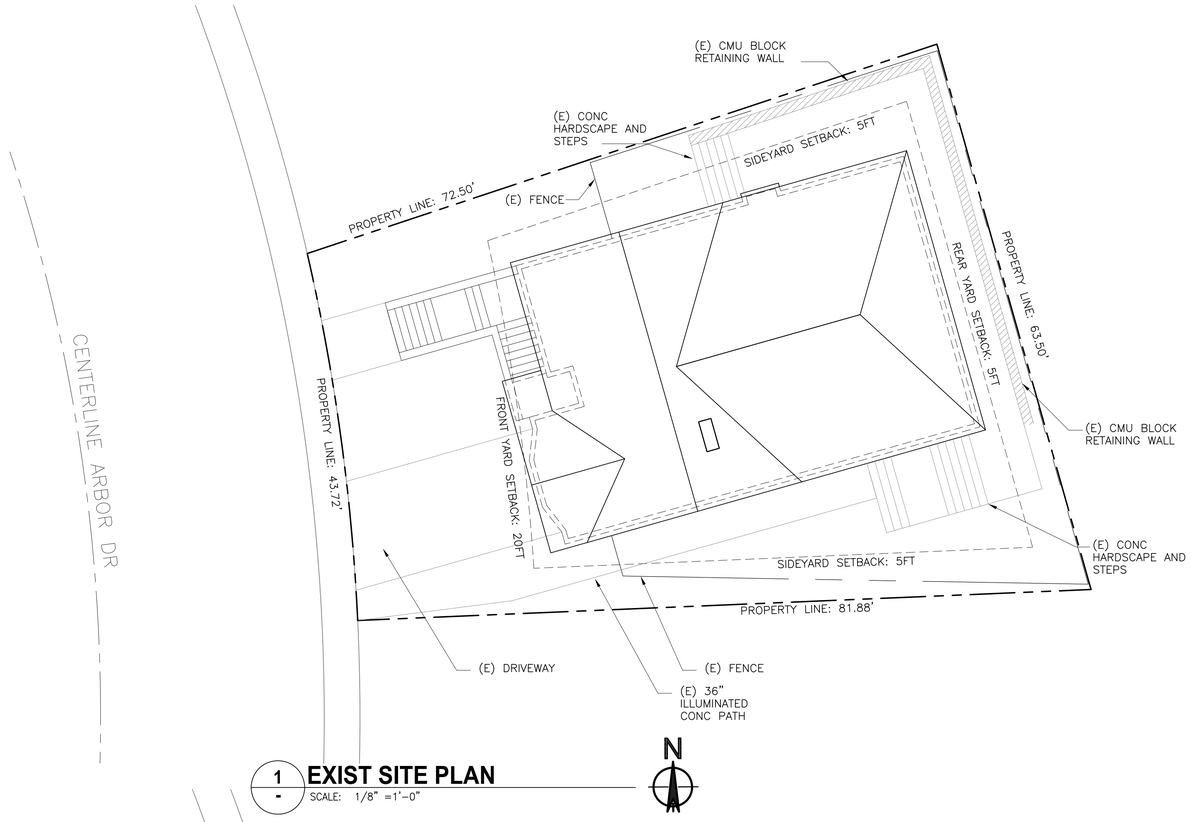
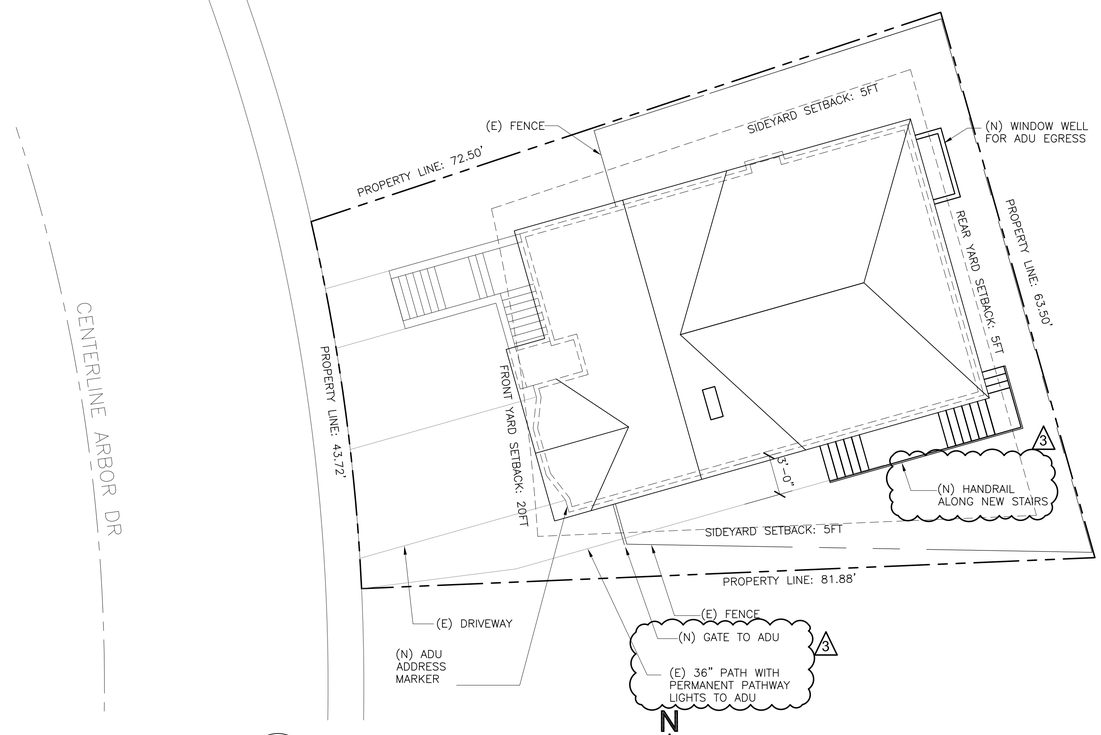
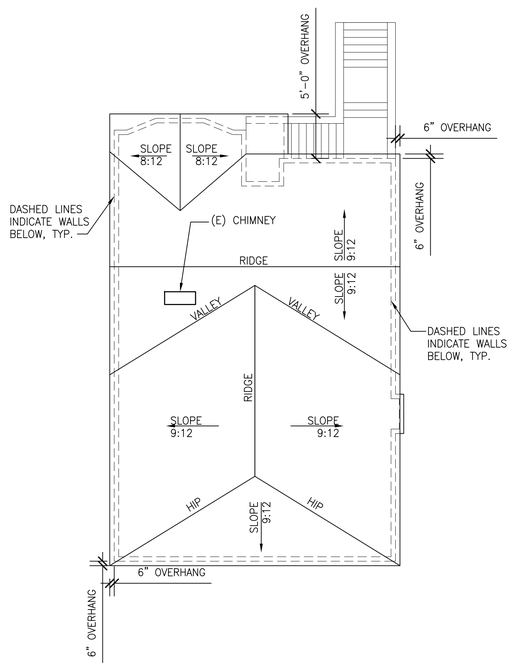


1 - **EXIST SITE PLAN**
SCALE: 1/8" =1'-0"



2 - **PROPOSED SITE PLAN**
SCALE: 1/8" =1'-0"



3 - **ROOF PLAN**
SCALE: 1/8" =1'-0"

PROJECT DATA

APN:	51-4641-25
LOT SQUARE FOOTAGE:	4,158 SF
EXISTING LIVING SF:	1,429 SF
PROPOSED ADDITIONAL SF	800 SF
PROPOSED LIVING SF:	2,229 SF
ZONE:	ZONE A
SETBACKS	FRONT – 20' SIDE – 5' REAR – 5'
MAX HEIGHT:	35'
EXISTING AVERAGE HEIGHT	26 FT
PROPOSED AVERAGE HEIGHT	27.6 FT
PROPOSED BUILDING HEIGHT:	UNCHANGED
OCCUPANCY:	R3/U
CONSTRUCTION TYPE:	TYPE V-B
SPRINKLERS:	NO
PARKING REQUIRED:	NO ADDITIONAL PARKING SPACES REQUIRED

SCOPE OF WORK

SCOPE OF WORK TO CONVERT EXISTING UNCONDITIONED BASEMENT INTO CONDITIONED ACCESSORY DWELLING UNIT.

APPLICABLE CODES

- 2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE PART 1
- 2019 CALIFORNIA BUILDING CODE PART 2, VOLUME 1
- 2019 CALIFORNIA BUILDING CODE PART 2, VOLUME 2
- 2019 CALIFORNIA RESIDENTIAL CODE PART 2.5
- 2019 CALIFORNIA ELECTRICAL CODE PART 3
- 2019 CALIFORNIA MECHANICAL CODE PART 4
- 2019 CALIFORNIA PLUMBING CODE PART 5
- 2019 CALIFORNIA ENERGY CODE PART 6 2019 CALIFORNIA HISTORICAL BUILDING CODE PART 8
- 2019 CALIFORNIA FIRE CODE PART 9
- 2019 CALIFORNIA EXISTING BUILDING CODE PART 10
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN CODE) PART 11
- 2019 CALIFORNIA REFERENCE STANDARDS CODE PART 12

SHEET INDEX

VICINITY MAP

LICENSED ARCHITECT
SCOTT D SMITH
C-38879
RENEWAL DATE
STATE OF CALIFORNIA

Design By: Scott D Smith
4321 Spring Creek Ct, Fairfield CA
(510) 318-1073
Sign:

RESIDENTIAL RENOVATION
ACCESSORY DWELLING UNIT
136 ARBOR DRIVE
PIEDMONT, CA

SDS-2022-136

Revisions

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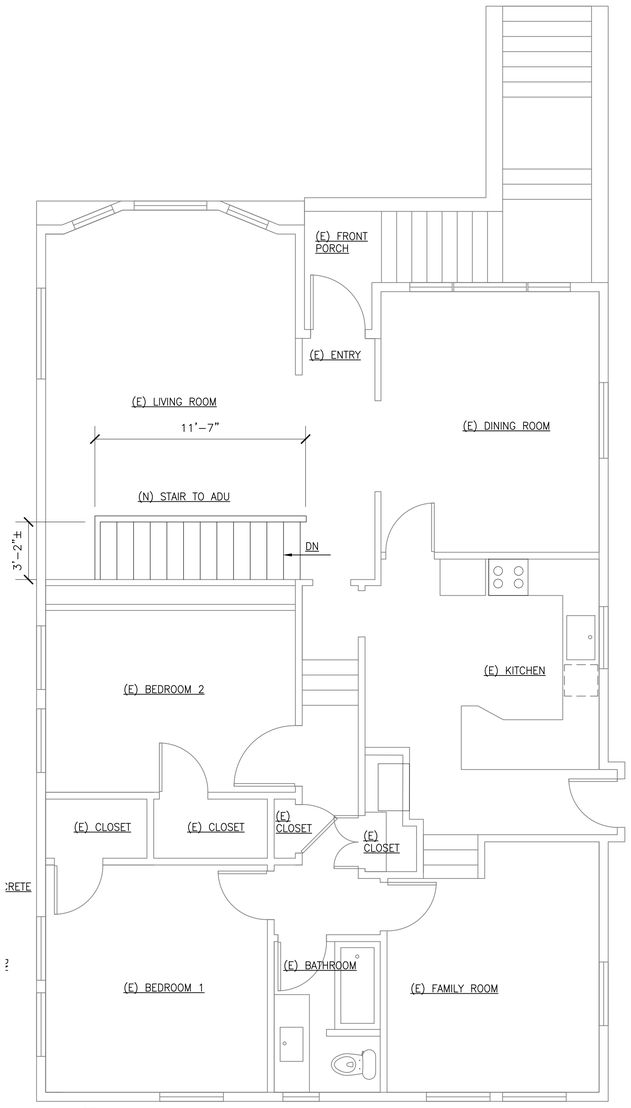
2	10/10/22	Plan Chk Cmmts
1	8/29/22	Plan Chk Cmmts
0	7/15/22	Issued for Permit
A	2/28/22	Conceptual Design

SITE PLAN & ROOF PLAN

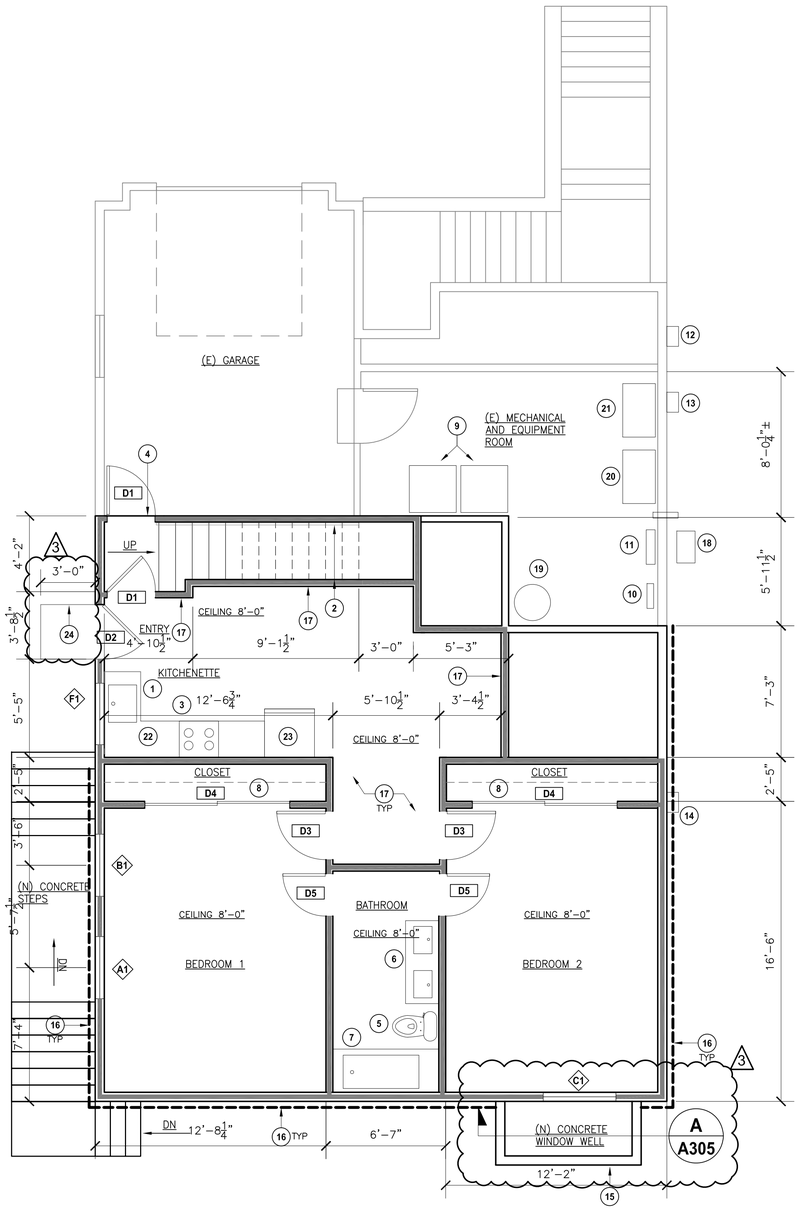
DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

A101



1 PROPOSED UPPER LEVEL FLOOR PLAN

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



2 PROPOSED BASEMENT ADU FLOOR PLAN

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

SHEET NOTES:

1. ALL ITEMS SHOWN SCREENED ARE EXISTING TO REMAIN.
2. ALL DIMENSIONS ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED
3. FIELD VERIFY ALL EXISTING DIMENSIONS BEFORE COMMENCING WORK.
4. TYPICAL INTERIOR WALL CONSTRUCTION: 5/8" GYP. BD ON BOTH SIDES OF WOOD 2X4 STUDS W/ R-15 BATT INSULATION, UNLESS OTHERWISE NOTED. PROVIDE FIBER CEMENT BOARD ON ALL SHOWER AND WATER CLOSET WALLS.
5. CEILING SHALL BE GYP BRD AT 8'-0" UNLESS NOTED OTHERWISE.

KEYNOTES "(X)"

1. KITCHEN SINK WITH A MAXIMUM FLOW RATE OF 2.2 GPM.
2. 36" WIDE STAIRS WITH 7-3/4" MAX RISER AND 11" TREAD AND HANDRAIL
3. ELECTRIC COOKTOP OVER CABINET
4. CONCRETE STEPS, MAX RISER OF 7-3/4"
5. FLOOR MOUNTED 1.28 GPF MIN. TOILET
6. BUILT-IN CABINET AND COUNTERTOP WITH 1.5 GPM BATHROOM SINK
7. BUILT-IN SHOWER W/ LAMINATED SAFETY GLASS ENCLOSURE. PROVIDE PRESSURE BALANCED OR THERMOSTATIC MIXING VALVES. CERAMIC TILE SHOWER SURROUND OVER FIBER CEMENT BOARD OR APPROVED EQUAL. SHOWERHEAD TO HAVE A MAXIMUM FLOW RATE OF 1.8 GPM. MIN. 26" WIDE SLIDING/SWINGING GLASS DOOR
8. WOOD SHELF AND CLOTHES ROD
9. WASHER AND DRYER. WASHER WITH METAL DRAIN PAN AND DRYER WITH VENT TO EXTERIOR AS REQUIRED BY CODE.
10. WALL MOUNTED TANKLESS WATER HEATER. VENT TO EXTERIOR AS REQUIRED BY CODE
11. ELECTRICAL SUB-PANEL
12. EXISTING ELECTRICAL METER AND MAIN PANEL
13. EXISTING GAS METER
14. EXISTING TELEPHONE AND CABLE BOXES TO REMAIN
15. WINDOW WELL, SEE STRUCTURAL DRAWING
16. TEXTILE WATERPROOFING DRAINAGE MAT AND PERFORATED DRAIN PIPE, SEE DETAILS A305
17. 1 HR RATED SEPARATION WALL BETWEEN ADU AND (E) GARAGE/ PRIMARY RESIDENCE, SEE 1 HR RATED WALL AND CEILING DETAILS ON SHEET A305
18. NEW CONDENSER UNIT; MAX 50 DB AT NEAREST PROPERTY LINE
19. EXISTING WATER HEATER TO REMAIN
20. EXISTING FURNACE TO REMAIN
21. HEAT PUMP SYSTEM SHALL BE A MITSUBISHI ELECTRIC SPLIT SYSTEM WITH VARIABLE SPEED INVERTER COMPRESSOR TECHNOLOGY. THE SYSTEM SHALL CONSIST OF A HORIZONTAL DISCHARGE, SINGLE PHASE, OUTDOOR UNIT, A MATCHED CAPACITY INDOOR MULTI-POSITION AIR HANDLER THAT SHALL BE EQUIPPED WITH A WIRED WALL MOUNTED REMOTE CONTROLLER.
22. UPPER AND LOWER CABINETS WITH COUNTERTOP
23. REFRIGERATOR WITH WATER LINE
24. 36"X36" ENTRY EXTERIOR LANDING

MINIMUM LIGHTING AND VENTILATION

LOCATION	FLOOR AREA SQ FT	GLAZING AREA REQUIRED (8%) SQ FT	GLAZING AREA PROVIDED SF	VENTILATION REQUIRED (4%) SF	VENTILATION PROVIDED SF
BEDROOM 1	181	14.5	18.2	7.24	18.2
BEDROOM 2	181	14.5	16	7.24	16
KITCHENETTE	118	9.4	11.7	4.72	5.85

ADU WINDOW SCHEDULE

WINDOW TAG	LOCATION	WINDOW SIZE	TYPE	MATERIAL	COUNT	DIVIDED LIGHT	SASH SIZE	TEMPERED	RECESS	U-FACT	EGRESS	NOTES
A1	BEDROOM 1	2'-8" X 3'-5"	DOUBLE CASEMENT	ALUM CLAD	1	SIMULATED	2	YES	2	<0.32	YES	
B1	BEDROOM 1	2'-8" X 3'-5"	DOUBLE CASEMENT	ALUM CLAD	1	SIMULATED	2	YES	2	<0.32	YES	
C1	BEDROOM 2	4'-0" X 4'-0"	DOUBLE CASEMENT	ALUM CLAD	1	SIMULATED	2	YES	2	<0.32	YES	
D1	BEDROOM 2	2'-8" X 3'-5"	DOUBLE CASEMENT	ALUM CLAD	1	SIMULATED	2	YES	2	<0.32	YES	
F1	KITCHENETTE	3'-5" X 3'-5"	DOUBLE HUNG	ALUM CLAD	1	SIMULATED	2	YES	2	<0.32		

ADU DOOR SCHEDULE

DOOR TAG	DOOR SIZE	DOOR TYPE	COUNT	COMMENTS
D1	3'-0"X6'-8"	EXTERIOR	2	SELF CLOSING, 45 MIN RATED,WEATHER STRIPPING GASKET
D2	3'-0"X6'-8"	EXTERIOR	1	WEATHER STRIPPING GASKET
D3	2'-6" X 6'-8"	INTERIOR	2	-
D4	PAIR 3'-0"X6'-8"	INTERIOR/SLIDING	2	-
D5	2'-4"X6'-8"	INTERIOR	2	-

LICENSED ARCHITECT SCOTT D SMITH C-38879 RENEWAL DATE STATE OF CALIFORNIA

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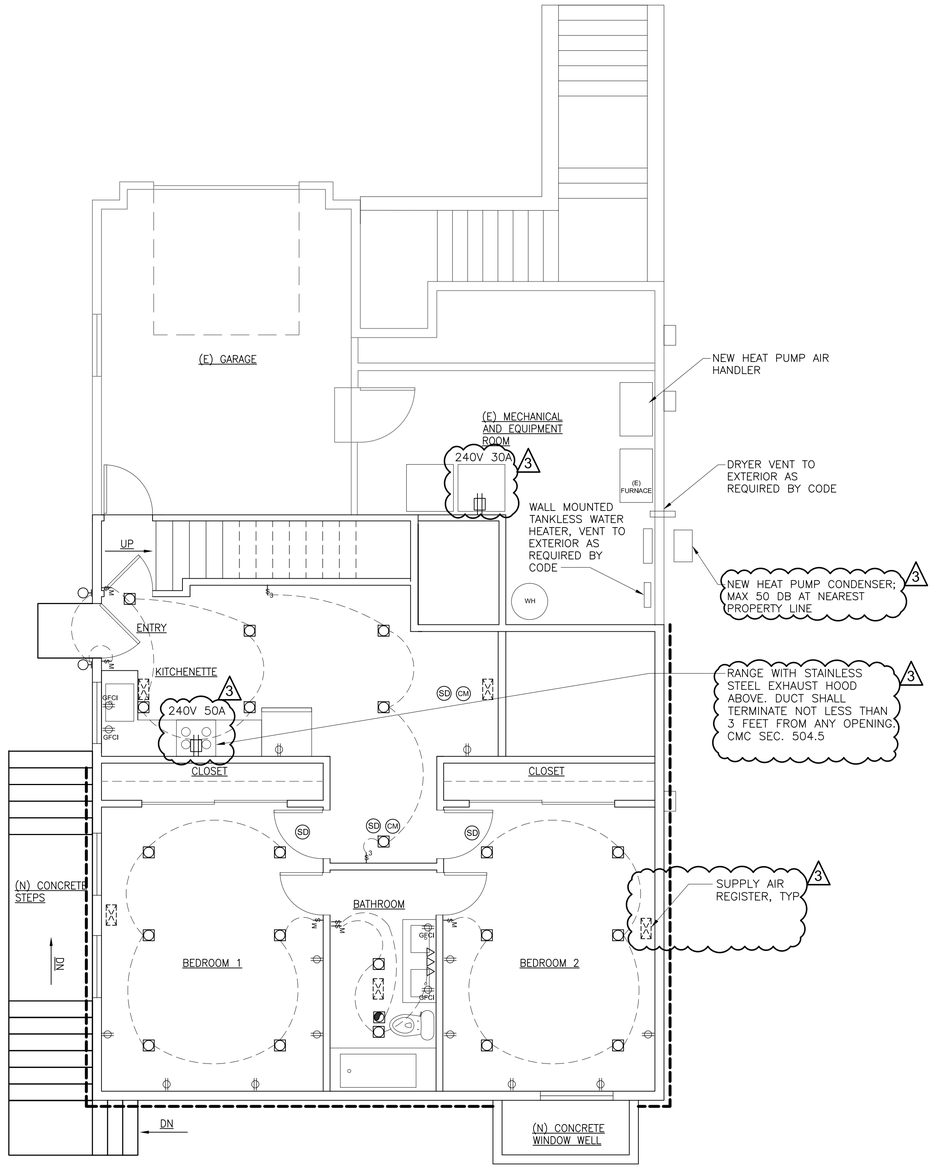
PROPOSED FLOOR PLANS
UPPER LEVEL & BASEMENT ADU

DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

A201



1 - **PROPOSED ELECTRICAL PLAN**
SCALE: 1/4"=1'-0"

GENERAL MECH/ELEC NOTES:

1. BASE MATERIAL BENEATH SHOWER PAN SHALL BE SLOPED TO DRAIN PER UPC SECTION 410.5.
2. ALL SHOWERS AND TUB/SHOWER SHALL BE PROVIDED WITH INDIVIDUAL CONTROLS OF THE PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE.
3. ALL LIGHTS ABOVE TUBS & SHOWERS SHALL BE LISTED AS "SUITABLE" FOR WET LOCATIONS".
4. ALL 110–VOLT, SINGLE PHASE, 15 AND 20 AMPRE RECEPTACLES TO SERVE COUNTERTOP SURFACES, INSTALLED WITHIN 6 FEET OF A WET BAR SINK OR TO SERVE A KITCHEN COUNTER, SHALL HAVE A GFIC PROTECTION, PER NEC SECTION 210–8.
5. ALL BRANCH CIRCUITS THAT SUPPLY RECEPTACLE OUTLETS, LIGHTS AND SMOKE DETECTORS INSTALLED IN BEDROOMS SHALL BE PROTECTED BY AN ARC–FAULT CIRCUIT INTERRUPTUR(S) PER C.E.C. SEC. 210–12(B).
6. IN THE KITCHEN AN OUTLET SHALL BE INSTALLED AT EACH WALL COUNTERTOP SPACE 12" OR WIDER. OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE WALL IS MORE THAN 24". OUTLETS MUST BE LOCATED ABOVE THE COUNTERTOP NOT MORE THAN 20" AND CANNOT BE INSTALLED FACE–UP IN THE COUNTER PER CEC 406.5(E) AND 210–52(C)(5)
7. IN THE KITCHEN OUTLETS SERVING COUNTERTOP SURFACES SHALL BE SUPPLIED BY NOT LESS THAN TWO SMALL APPLIANCE BRANCH CIRCUITS. (NO LIGHTING IS PERMITTED ON THESE CIRCUITS)
8. RECEPTACLE OUTLETS TO SERVE ISLAND OR PENINSULA COUNTERTOPS SHALL BE INSTALLED ABOVE OR WITHIN 12" BELOW THE COUNTERTOP. RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE CENTERLINE OF THE LONG DIMENSION IS MORE THAN 24".
9. IN THE KITCHEN SEPARATE CIRCUITS ARE REQUIRED FOR ALL BUILT–IN APPLIANCES. PLUG IN APPLIANCES SHALL HAVE THE PLUG ACCESSIBLE FOR DISCONNECT WITHOUT HAVING TO REMOVE THE APPLIANCE.
10. COOK TOP HOOD EXHAUST SHALL NOT TERMINATE WITHIN 3' OF ANY OPERABLE WINDOW OR DOOR.
11. ANY RECEPTACLES LOCATED IN AN AREA WITH AN EXPOSED CONCRETE FLOOR MUST BE GFIC PROTECTED.
12. EXISTING HVAC UNITS OR WATER HEATERS TO REMAIN, MUST BE INSPECTED AND IF NECESSARY, UPDATED TO COMPLY WITH CURRENT MECHANICAL AND PLUMBING CODES.
13. ALL NEW KITCHEN HOODS, DRYER VENTS AND BATHROOM FANS SHALL HAVE A BACKDRAFT DAMPERS
14. ALL OUTDOOR INCANDESCENT LUMINARIES RATED OVER 100 WATTS SHALL BE CONTROLLED BY A MOTION SENSOR.
15. ALL 120V SINGLE PHASE 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNTI FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, LIBRARIES, DENS, BEDROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A ARC–FAULT CIRCUIT INTERRUPTER/TAMPER RESISTANT TYPE RECEPTACLE.

SHEET NOTES:

1. ALL CEILING ARE TO BE GYP. BD. CEILINGS MOUNTED TO THE BOTTOM OF ROOF TRUSS/STRUCTURE ABOVE UNLESS OTHERWISE NOTED.
2. FIBER–CEMENT BOARD TO BE USED IN ALL WET LOCATIONS

LEGEND:

- SURFACE MOUNTED DECORATIVE FLUORESCENT LIGHT FIXTURE, COMMERCIAL 2–LIGHT MDL #EFG8012A–BN
- RECESSED HIGH EFFICIENCY LED CAN LIGHT FIXTURE HALO H7501CAT W/ 494 TRIM & ML7068XX 600 SERIES LED MODULE (13.8W) OR APPROVED EQUAL
- WP — RECESSED HIGH EFFICIENCY LED WATERPROOF CAN LIGHT FIXTURE.
- RECESSED FLUORESCENT LIGHT FIXTURE
- EXHAUST FAN UNIT, MIN 50 CFM, VENT TO EXTERIOR WALL. EXHAUST FAN SHALL BE CONTROLLED BY A HUMIDISTAT CONTROL CAPABLE OF ADJUSTMENT BETWEEN A RELATIVE HUMIDITY RANGE OF 50 TO 80%.
- SD — SMOKE DETECTOR, SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 217 PER CRC R314.1 –PROVIDE 120V SUPPLY W/ BATTERY BACKUP AND INTERCONNECTED. PROVIDE IN EACH BEDROOM AND HALLWAY
- CM — CARBON MONOXIDE DETECTOR, SHALL BE LISTED AS COMPLYING WITH UL 2034 AND UL 2075 PER CRC R315.3. PROVIDE IN EACH HALLWAY ADJACENT TO BEDROOMS
- FLUORESCENT WALL MOUNTED VANITY LIGHT FIXTURE HAMPTON BAY, ANDENNE 3–LIGHT MDL#705075 OR APPROVED EQUAL
- SINGLE POLE LIGHT SWITCH
- M — SINGLE POLE LIGHT SWITCH WITH INTEGRAL MOTION SENSOR
- 3 — SINGLE POLE SWITCH – THREE WAY SYSTEM
- DIMMER SWITCH
- 3 — DIMMER SWITCH – THREE WAY SYSTEM
- HANGING DECORATIVE LIGHT FIXTURE
- WALL MOUNTED EXTERIOR HIGH EFFICIENCY LED LIGHT FIXTURE, FRANKLIN IRON WORKS "HICKORY POINT 15" OR APPROVED EQUAL
- UNDER CABINET LIGHTING – LED STRIP LIGHTS
- RECESSED IN CABINET LED LIGHTS
- DL — DAY LIGHT SENSOR
- SURFACE MOUNTED 2–BULB FLOURESCENT SHOP LIGHT
- 110 VOLT, 20 AMP DUPLEX OUTLET
- GFCI — 110 VOLT DUPLEX, 20 AMP OUTLET GROUND FAULT CIRCUIT INTERRUPTER
- WP — 110 VOLT DUPLEX, 20 AMP OUTLET WATERPROOF COVERPLATE
- 220 VOLT DEDICATED CIRCUIT APPLIANCE OUTLET – VERIFY MOUNTING LOCATION. W/ APPLIANCE REQ.
- HANGING CEILING FAN/LIGHT FIXTURE

LICENSED ARCHITECT — SCOTT D SMITH — C-38879 — RENEWAL DATE — STATE OF CALIFORNIA

Design By: Scott D Smith
4321 Spring Creek Ct, Fairfield CA
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Sign:

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ACCESSORY DWELLING UNIT
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Revisions

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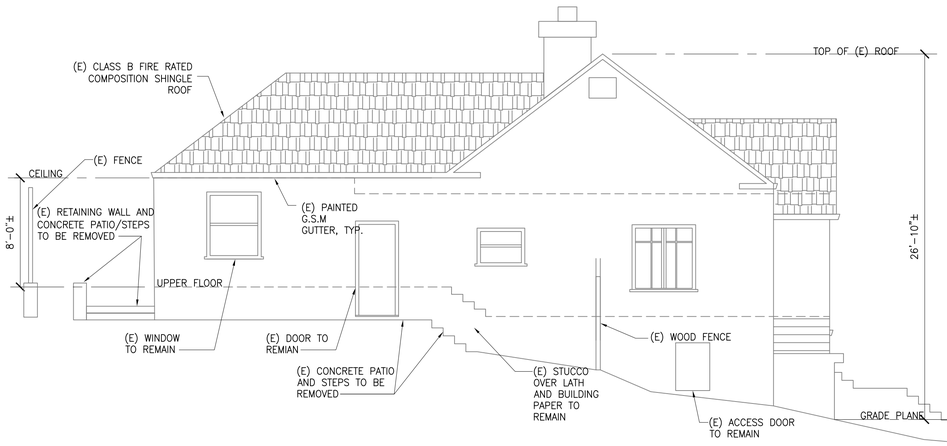
0	7/15/22	Issued for Permit
A	2/28/22	Conceptual Design

PROPOSED
ELECTRICAL PLAN

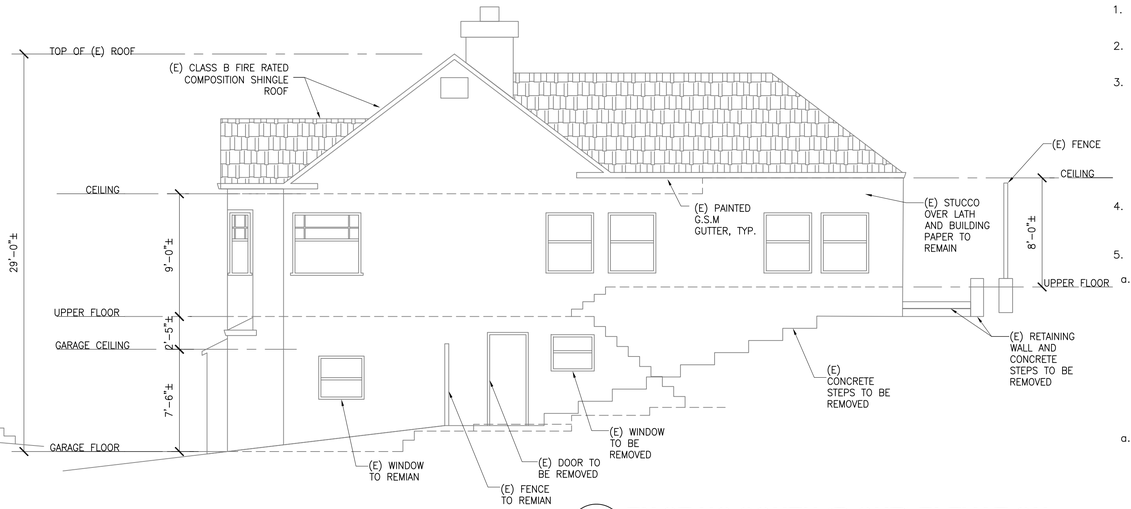
DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

A202



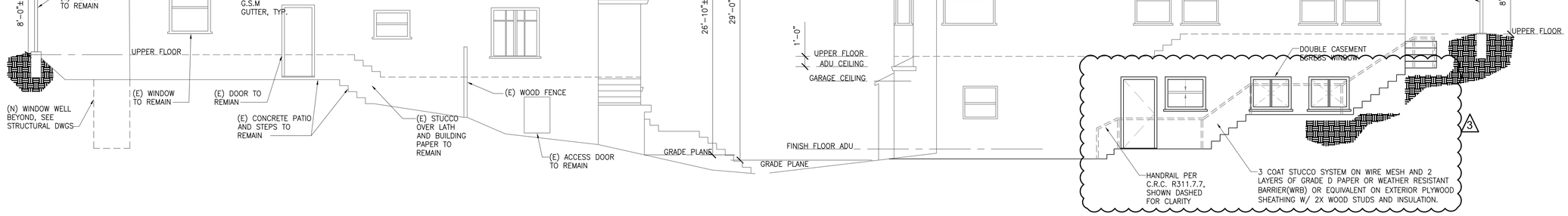
1 EXISTING NORTH (LEFT) ELEVATION

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



3 EXISTING SOUTH (RIGHT) ELEVATION

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



2 PROPOSED NORTH (LEFT) ELEVATION

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

4 PROPOSED SOUTH (RIGHT) ELEVATION

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

SHEET NOTES:

1. ALL DIMENSIONS ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED
2. FIELD VERIFY ALL EXISTING DIMENSIONS BEFORE COMMENCING WORK.
3. TYPICAL EXTERIOR WALL CONSTRUCTION: 3 COAT STUCCO SYSTEM ON WIRE MESH AND 2 LAYERS OF GRADE D PAPER OR WEATHER RESISTANT BARRIER(WRB) OR EQUIVALENT ON EXTERIOR PLYWOOD SHEATHING W/ 2X WOOD STUDS AND INSULATION. COORDINATE WITH STRUCTURAL DRAWINGS.
4. ALL EXTERIOR FINISHES, WEATHERPROOFING AND FLASHING TO MEET CODE REQUIREMENTS.
5. FENESTRATION PRODUCTS SHALL

a.a. HAVE A TEMPORARY LABEL FOR MANUFACTURED FENESTRATION PRODUCTS. THE LABEL LISTING THE CERTIFIED U-FACTOR, SHGC AND VT, SHALL NOT BE REMOVED BEFORE INSPECTION BY THE ENFORCEMENT AGENCY. THE TEMPORARY LABEL SHALL CERTIFY THAT THE AIR LEAKAGE REQUIREMENTS OF CEC SECTION 110.6(A)5 ARE MET FOR EACH PRODUCT LINE; AND

a.b. HAVE A PERMANENT LABEL IF THE PRODUCT IS RATED USING NFRC PROCEDURES

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EXISTING & PROPOSED ELEVATIONS

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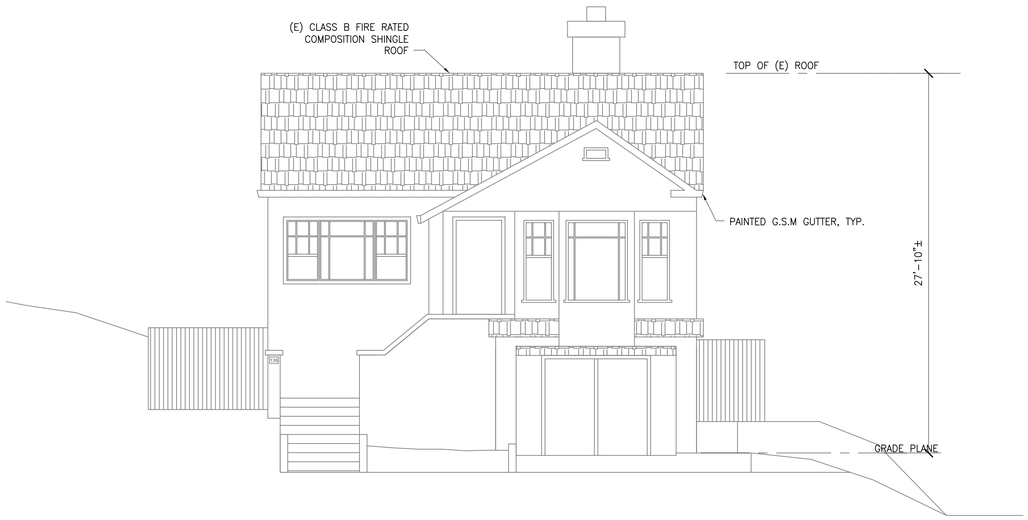
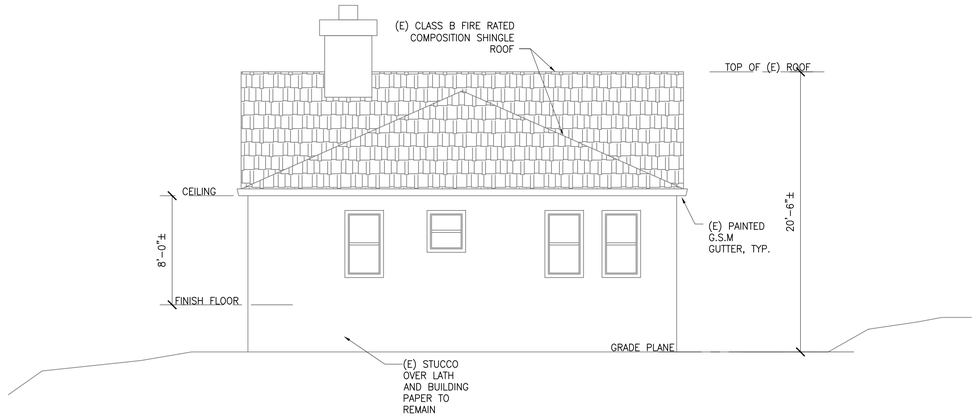
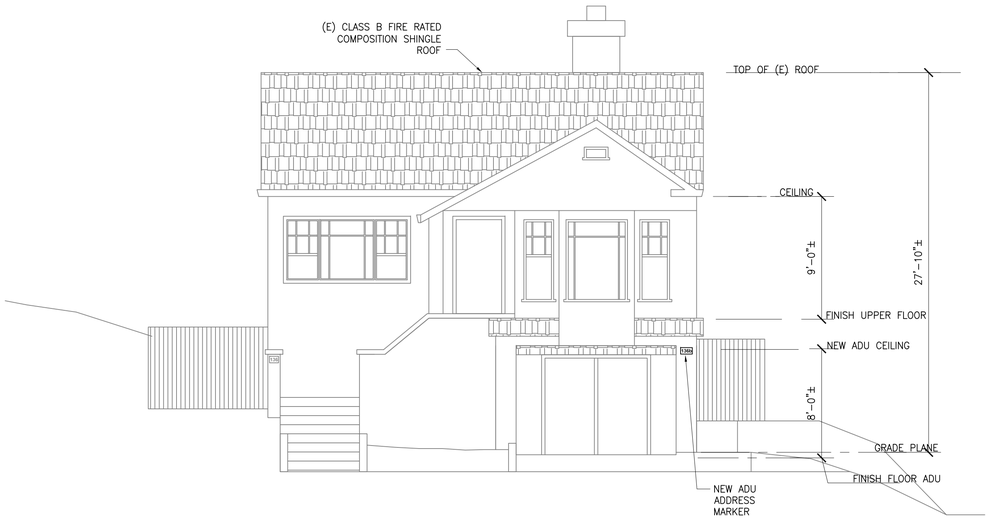
A301



1 EXISTING WEST (FRONT) ELEVATION
SCALE: 3/16"=1'-0"



3 EXISTING EAST (REAR) ELEVATION
SCALE: 3/16"=1'-0"



2 PROPOSED WEST (FRONT) ELEVATION
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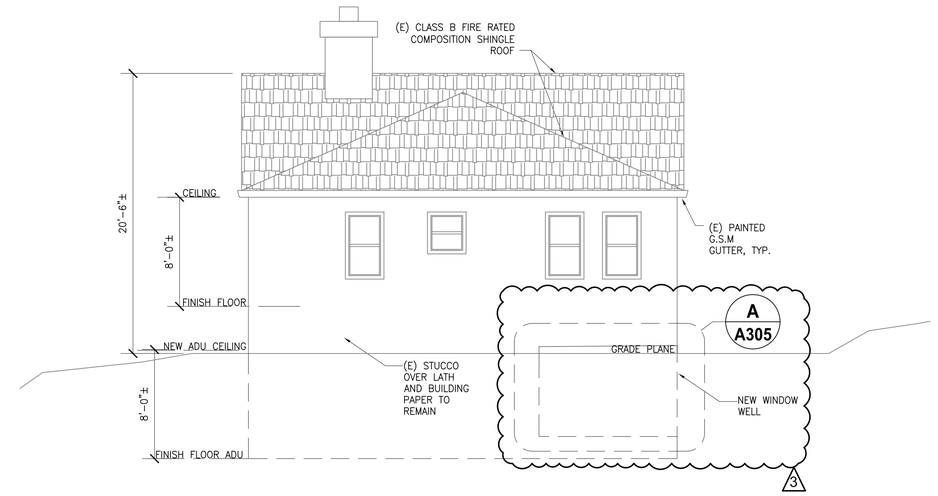

4 PROPOSED EAST (REAR) ELEVATION
SCALE: 3/16"=1'-0"

SHEET NOTES:

1. ALL DIMENSIONS ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED
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a.b. HAVE A PERMANENT LABEL IF THE PRODUCT IS RATED USING NFRC PROCEDURES

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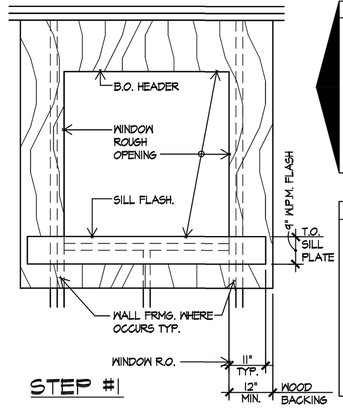
A301a

NOTE: ALL MATERIALS AND METHODS OF CONSTRUCTION NECESSARY TO COMPLETE THE PROJECT ARE NOT NECESSARILY DESCRIBED IN THIS "BUILDER'S SET". CONSTRUCTION FROM THESE PLANS REQUIRES AN OWNER/CONTRACTOR (GENERAL CONTRACTOR OR SUBCONTRACTORS) THOROUGHLY KNOWLEDGEABLE WITH THE APPLIANCE BUILDING CODES AND INDUSTRY STANDARD ACCEPTABLE METHODS OF CONSTRUCTION. THE PLANS AND GENERAL NOTES DELINEATE AND DESCRIBE ONLY LOCATIONS, DIMENSIONS, TYPES OF MATERIALS AND GENERAL METHODS OF ASSEMBLING OR FASTENING. THEY ARE NOT INTENDED TO SPECIFY PARTICULAR PRODUCTS, SPECIFIC MATERIALS, OR CONSTRUCTION METHODS.



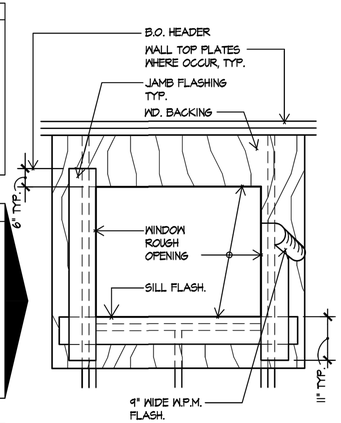
STEP #1

STEP #1 SILL FLASHING

1. PROVIDE MIN. 12" WIDE WOOD SHEATHING BACKING (PLYWOOD OR OSB) AROUND WINDOW OPENING.
2. MECHANICALY, ATTACH HORIZONTALLY, A 9" WIDE MIN. WATERPROOFING MEMBRANE SILL FLASHING STRIP (FUTURE-FLASH BY MFM BUILDING PRODUCTS), ONTO THE WOOD SHEATHING BACKING, FLUSH WITH TOP OF SILL PLATE HEIGHT.
3. EXTEND SILL FLASHING STRIP A MIN. OF 11" , LEFT AND RIGHT OF WINDOW ROUGH OPENING.
4. ALL PENETRATIONS MUST BE UNDER WINDOW FLANGE AFTER INSTALLED. STAPLES TO HAVE MIN. 1/4" LEGS.

STEP #2 JAMBS FLASHING

1. MECHANICALLY ATTACH, VERTICALLY, 9" WIDE MIN., WATERPROOFING MEMBRANE JAMB FLASHING STRIPS, (FUTURE-FLASH BY MFM BUILDING PRODUCTS), ONTO THE WOOD SHEATHING BACKING, TO LEFT AND RIGHT OF WINDOW ROUGH OPENING.
2. EXTEND JAMB FLASHING STRIPS, 11" MIN. BELOW TOP OF SILL PLATE, TO OVERLAP SILL FLASHING.
3. EXTEND JAMB FLASHING 6" ABOVE BOTTOM OF HEADER BEAM, TO ENSURE PROPER LAPPING FOR NEXT STEP.
4. ALL PENETRATIONS MUST BE UNDER WINDOW FLANGE AFTER INSTALLED POWER-DRIVEN STAPLES TO HAVE MIN. 1/4" LEGS.



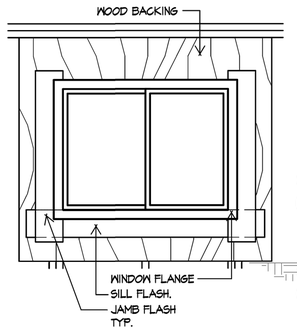
STEP #2

NOTE: LINE WIRE, WHEN USED AS BACKING TO SUPPORT BUILDING PAPER BENEATH WIRE LATH (NETTING) FOR PORTLAND CEMENT PLASTER, (STUCCO) SHALL BE PER C.B.C. 2501.4 & 2506.3 AND SHALL BE INSTALLED AS FOLLOWS:

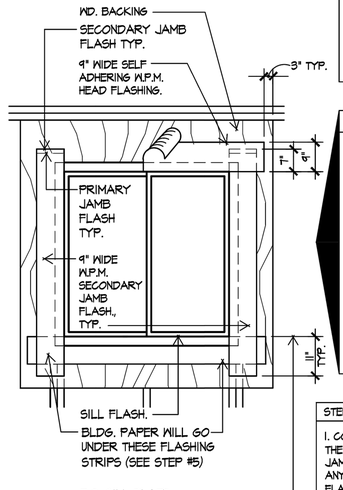
1. WIRE GAUGE, SPACING AND ATTACHMENT SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF BUILDING NEWSLETTER 25-1.
2. PERIPHERAL FLASHING AT ALL EDGES OF WALL OPENINGS SHALL COVER WIRE BACKING.
3. NO ATTACHMENT DEVICES, NOR THE WIRE BACKING, SHALL COVER OR PENETRATE THE FLASHING MATERIAL.

STEP #3 WINDOW INSTALLATION

1. WIPE SURFACE OF WINDOW AND OPENING TO MAKE SURE SURFACE IS CLEAN.
2. APPLY 3/8" TO 1/2" BEAD OF SEALANT (PRO INSTALLER FUTURE - FLASH SEALANT BY MFM BUILDING PRODUCTS) TO THE BACK SIDE OF THE WINDOW NAILING FLANGE, AND AT THE INSIDE EDGE OF NAILING FLANGE HOLES. SEALANT MUST BE APPLIED WITHIN 5 MINUTES PRIOR OF WINDOW SETTING, AND IT MUST BE VISIBLE AROUND WINDOWS AND WITHOUT VOIDS.
3. SET WINDOW PLUMB, LEVEL, AND SQUARE FOLLOWING MANUFACTURERS RECOMMENDATIONS.
4. FASTEN WINDOW WITH A MIN. 1" CORROSION RESISTANT FASTENER, 10" MAX. ON CENTERS. ALL STAPLES, NAILS, OR SCREWS MUST BE COMPLETELY FLUSH WITH FRAME. SEALANT MUST BE VISIBLE THROUGH INSIDE OF PRE-PUNCHED NAIL HOLES.
5. SEAL ALL STAPLES WITHIN 9" OF EDGE OF WINDOW FRAME. KEEP FASTENERS AT LEAST 3" FROM EDGE OF WINDOW FRAME AT CORNER.
6. KNOCK DOWN EXCESS SEALANT WHEN INSTALLATION IS COMPLETE
7. AFTER THE WINDOW IS IN PLACE, APPLY A SECOND BEAD OF SEALANT (PRO INSTALLER FUTURE - FLASH SEALANT BY MFM BUILDING PRODUCTS) OVER THE TRANSITION SEAM OF THE WINDOW NAILING FLANGE AND FLASHING; AND TOOL FLAT.



STEP #3



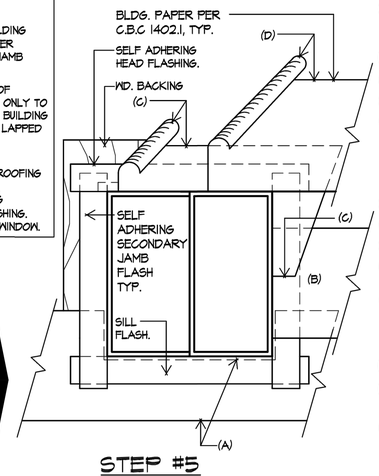
STEP #4

STEP #4 SECONDARY JAMBS FLASHING/HEAD FLASHING.

1. JAMBS:
1A. ADHERE A 9" WIDE SELF-ADHERING SHEET WATERPROOFING MEMBRANE (SUBSEAL-40 BY MFM BUILDING PRODUCTS) AS SECONDARY FLASHING, APPLYING IT OVER WINDOW FLANGES, AND OVER PREVIOUSLY INSTALLED JAMB FLASHINGS (SEE STEP #2)

1B. EXTEND SECONDARY FLASHING 11" MIN, BELOW TOP OF WINDOW SILL PLATE. BEYOND WINDOW FLANGE, ADHERE ONLY TO PRIMARY JAMB FLASHING, NOT TO THE WOOD BACKING, BUILDING PAPER TO BE INSTALLED PER STEP #5 BELOW, WILL BE LAPPED UNDER JAMBS AND SILL FLASHING.

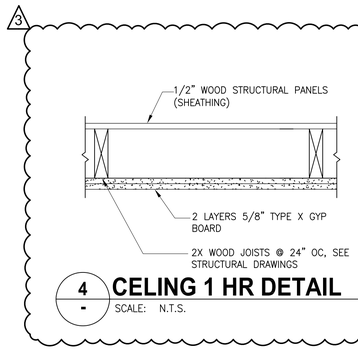
2. HEAD:
2A. ATTACH A 9" WIDE SELF-ADHERING SHEET WATERPROOFING MEMBRANE (SUBSEAL-40 BY MFM BUILDING PRODUCTS), ADHERING IT TO WINDOW HEAD FLANGE, WOOD BACKING (PLYWOOD OR OSB OVER HEADER), AND TO JAMB FLASHING. EXTEND 3" BEYOND JAMB FLASHING AT EACH SIDE OF WINDOW.



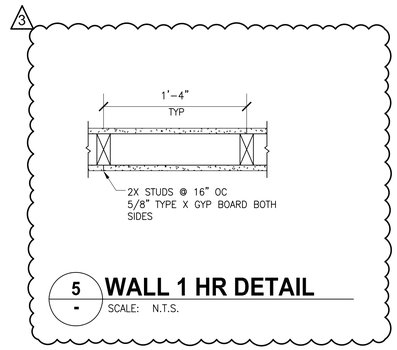
STEP #5

STEP #5 BUILDING PAPER INSTALLATION.

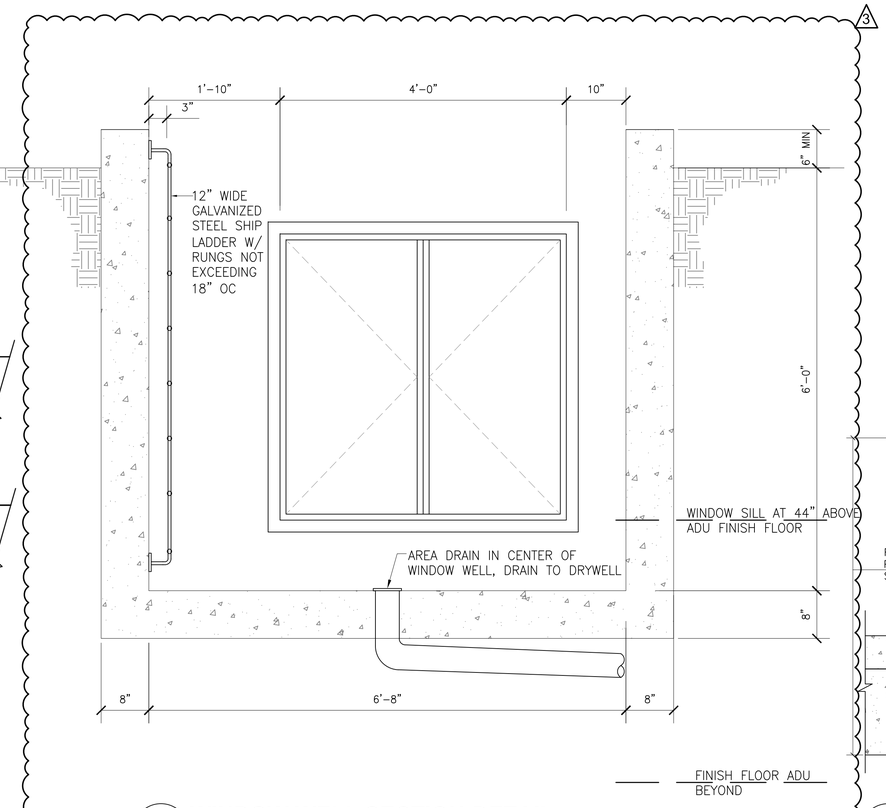
1. COMMENCING WITH THE BOTTOM (SOLE PLATE) OF THE WALL LAP BUILDING PAPER (A) UNDER SILL AND JAMBS FLASHING PREVIOUSLY INSTALLED. ADHERE ANY PORTION OF SELF ADHERING JAMB SECONDARY FLASHING TO BUILDING PAPER (A).
2. CUT ANY EXCESS BUILDING PAPER (A) BETWEEN WINDOW JAMB FLANGES THAT MAY EXTEND ABOVE THE SILL FLANGE LINE. (SEE DASHED LINE). DO NOT CUT BUILDING PAPER HORIZONTALLY BEYOND THE WINDOW, AT EACH SIDE, SO THAT THE BUILDING PAPER LAPS OVER THE JAMB FLASHING STRIPS.
3. INSTALL SUCCESSIVE LAYERS OF BUILDING PAPER (B), (C), (D), ETC.) OVER JAMB AND HEAD FLANGES, LAPPING EACH COURSE.



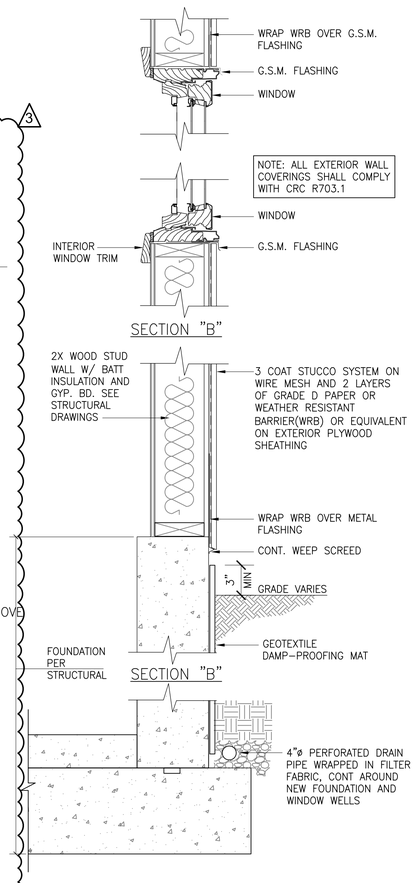
4 - CELING 1 HR DETAIL
SCALE: N.T.S.



5 - WALL 1 HR DETAIL
SCALE: N.T.S.



A - WINDOW WELL SECTION-DETAIL
SCALE: 1"=1'-0"



3 - WALL SECTION DETAILS
SCALE: N.T.S.

1 - WINDOW FLASHING
SCALE: N.T.S.

LICENSED ARCHITECT
SCOTT D SMITH
C-38879
RENEWAL 08/31/2024
STATE OF CALIFORNIA

Design By: Scott D Smith
4321 Spring Creek Ct, Fairfield CA
(510) 318-1073
Sign:

RESIDENTIAL RENOVATION ACCESSORY DWELLING UNIT

136 ARBOR DRIVE
PIEDMONT, CA

SDS-2022-136

Revisions		
3	12/14/22	Plan Chk Cmmts
2	10/10/22	Plan Chk Cmmts
1	8/29/22	Plan Chk Cmmts
0	7/15/22	Issued for Permit
A	2/28/22	Conceptual Design
Rev	Date	Issue

TYPICAL DETAILS

DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

A305

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 1 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

GENERAL INFORMATION					
01	Project Name	Residential Building			
02	Run Title	Title 24 Analysis			
03	Project Location	136 Arbor Drive			
04	City	Piedmont	05	Standards Version	2019
06	Zip code	94610	07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	3	09	Front Orientation (deg/ Cardinal)	315
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	AdditionOnly	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft²)	800	15	Number of Stories	1
16	Existing Cond. Floor Area (ft²)	1429	17	Fenestration Average U-factor	0.33
18	Total Cond. Floor Area (ft²)	2229	19	Glazing Percentage (%)	6.44%
20	ADU Bedroom Count	2	21	ADU Conditioned Floor Area	800
22	Is Natural Gas Available?	Yes			

Addition Alone Project Analysis Parameters					
01	02	03	04	05	06
Existing Area (excl. new addition) (ft2)	Addition Area (excl. existing) (ft2)	Total Area (ft2)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms
1429	800	2229	2	2	4

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

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 2 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

ENERGY USE SUMMARY				
Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	9.82	7.4	2.42	24.6
Space Cooling	0	0.36	-0.36	
IAQ Ventilation	4.97	4.97	0	0
Water Heating	28.36	26.86	1.5	5.3
Self Utilization/Flexibility Credit	n/a	0	n/a	n/a
Compliance Energy Total	**43.15**	**39.59**	**3.56**	**8.3**

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
• Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)

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
Building-level Verifications: • Indoor air quality ventilation • Kitchen range hood Cooling System Verifications: • Verified Refrigerant Charge • Airflow in habitable rooms (SC3.1.4.1.7) Heating System Verifications: • Verified HSPF • Verified heat pump rated heating capacity • Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5) • Ductless indoor units located entirely in conditioned space (SC3.1.4.1.8) HVAC Distribution System Verifications: • -- None -- Domestic Hot Water System Verifications: • -- None --

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 3 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

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	Water Heating System 2
First Floor	Conditioned	HVAC System1	800	8	DHW Sys 1	N/A

OPAQUE SURFACES									
01	02	03	04	05	06	07	08	09	10
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status
Southeast Wall	First Floor	R-15 Wall	135	Back	252	6	90	Ex. w/ Siding	New
Southwest Wall	First Floor	R-15 Wall	225	Right	257.6	47.3	90	Ex. w/ Siding	New
Northeast Wall	First Floor	R-15 Wall	45	Left	209.3	18.2	90	Ex. w/ Siding	New
Interior Surface Wall	First Floor	R-15 Wall1	n/a	n/a	299.3	20	n/a		New
Raised Floor	First Floor	R-19 Floor Crawlspace	n/a	n/a	800	n/a	n/a		New
Interior Surface Ceiling	First Floor	R-30 Roof No Attic	n/a	n/a	800	n/a	n/a		New

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
Window	Window	Southeast Wall	Back	135			1	6	0.33	NFRC	0.45	NFRC	Bug Screen
Window 2	Window	Southwest Wall	Right	225			1	27.3	0.33	NFRC	0.45	NFRC	Bug Screen
Window 3	Window	Northeast Wall	Left	45			1	18.2	0.33	NFRC	0.45	NFRC	Bug Screen

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 4 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

OPAQUE DOORS			
01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
Door	Southwest Wall	20	0.5
Door 2	Interior Surface Wall	20	0.5

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-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
R-15 Wall1	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.086	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Other Side Finish: Gypsum Board
R-19 Floor Crawlspace	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O. C.	R-19	None / None	0.05	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6
R-30 Roof No Attic	Interior Ceiling	Wood Framed Ceiling	2x10 @ 24 in. O. C.	R-30	None / None	0.032	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Ceiling Below Finish: Gypsum Board

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 5 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

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

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

WATER HEATERS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition	Status	Verified Existing Condition
DHW Heater 1	Gas	Consumer Instantaneous	1	0	0.87-UEF	<= 200 kBtu/hr	0	n/a	n/a	n/a	n/a	New	n/a

WATER HEATING - HERS VERIFICATION							
01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

Project Name: Residential Building **Calculation Date/Time:** 2022-12-18T20:03:36-08:00 **(Page 6 of 8)**

Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

SPACE CONDITIONING SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
HVAC System1	Heat pump heating cooling	Heat Pump System 1	Heat Pump System 1	n/a	n/a	Setback	New	NA	1	1

HVAC - HEAT PUMPS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Number of Units	Heating		Cooling		Zonally Controlled	Compressor Type	HERS Verification
			HSPF/COP	Cap 47	Cap 17	SEER	EER/CEER			
Heat Pump System 1	VCHP-ductless	1	8.5	12000	11000	14	11.7	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Not Required	0	Not Required	Not Required	Yes	Yes	Yes	Yes

VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION									
01	02	03	04	05	06	07	08	09	10
Name	Certified Low-Static VCHP System	Airflow to Habitable Rooms	Ductless Units in Conditioned Space	Wall Mount Thermostat	Air Filter Sizing & Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously
Heat Pump System 1	Not required	Required	Required	Required	Not required	Not required	Not required	Not required	Not required

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

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Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

IAQ (INDOOR AIR QUALITY) FANS						
01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
SFam ADU IAQVentRpt	47	0.35	Exhaust	n/a	n/a	Yes

CERTIFICATE OF COMPLIANCE **CF1R-PRF-01E**

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Calculation Description: Title 24 Analysis **Input File Name:** SattenSaraADURevB.ribd19x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I, I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Mario Bertacco	Documentation Author Signature: Mario Bertacco
Company: NRG Compliance LP	Signature Date: 12/18/2022
Address: PO Box 3777	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Santa Rosa, CA 95402	Phone: 707-237-6957
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California: 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: Scott Smith	Responsible Designer Signature: Scott Smith
Company: Scott Smith	Date Signed: 12/18/2022
Address: 4321 Spring Creek Ct	License:
City/State/Zip: Fairfield, CA 94534	Phone: 510-318-1073

Digitally signed by ConSol Home Energy Efficiency Rating System Services, Inc. (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.

LICENSED ARCHITECT
SCOTT D SMITH
C-38879
RENEWAL DATE
STATE OF CALIFORNIA

Design By: Scott D Smith
4321 Spring Creek Ct, Fairfield CA
(510) 318-1073

Sign:

RESIDENTIAL RENOVATION ACCESSORY DWELLING UNIT

136 ARBOR DRIVE
PIEDMONT, CA

SDS-2022-136

Revisions

Rev	Date	Issue
3	12/14/22	Plan Chk Cmmts
2	10/10/22	Plan Chk Cmmts
1	8/29/22	Plan Chk Cmmts
0	7/15/22	Issued for Permit
Δ	2/28/22	Conceptual Design

TITLE 24 ENERGY REPORT SHEET 1 OF 2

DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

T24-1

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type	Date
Satten, Sara ADU	☑ Single Family ☑ Addition Alone ☐ Multi Family ☐ Existing+ Addition/Alteration	12/19/2022

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
136 Arbor Drive Piedmont	CA Climate Zone 03	800	800	1

INSULATION

Construction Type		Cavity	Area (ft^2)	Special Features	Status
Floor	Wood Framed w/Crawl Space	R 19	800		New
Wall	Wood Framed	R 15	246		New
Wall	Wood Framed	R 15	210		New
Door	Opaque Door	- no insulation	20		New
Wall	Wood Framed	R 15	191		New
Demising	Wood Framed	R 15	279		New
Demising	Wood Framed Rafter	R 30	800		New

FENESTRATION

Total Area: 52 | Glazing Percentage: 6.4% | New/Altered Average U-Factor: 0.33

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Rear (SE)	6.0	0.330	0.45	none	none	N/A	New
Right (SW)	27.3	0.330	0.45	none	none	N/A	New
Left (NE)	18.2	0.330	0.45	none	none	N/A	New

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Split Heat Pump	9.00 HSPF	Split Heat Pump	14.0 SEER	Setback	New

HVAC DISTRIBUTION

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

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Small Instantaneous Gas	0	0.87	Standard	New

2019 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. "Exceptions may apply.
(01/2020)

Building Envelope Measures:	
§ 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):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. 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 continuous 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 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 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 Measures:	
§ 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-K.*
§ 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)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	**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.

2019 Low-Rise Residential Mandatory Measures Summary

§ 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:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-15 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)3:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 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 include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 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 Measures:	
§ 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 the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 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 a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. 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 requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, 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 cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 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, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer 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 § 150.0(m)11 and Reference Residential Appendix RA3.
§ 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. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 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.*

2019 Low-Rise Residential Mandatory Measures Summary

Requirements for 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)1C:	**Single Family Detached Dwelling Units.** 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 provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	**Multifamily Building Central Ventilation Systems.** Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; 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 Measures:	
§ 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.
§ 150.0(k)1B:	**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 must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights, Step Lights, and Path Lights.** Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 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).*
§ 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)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.

2019 Low-Rise Residential Mandatory Measures Summary

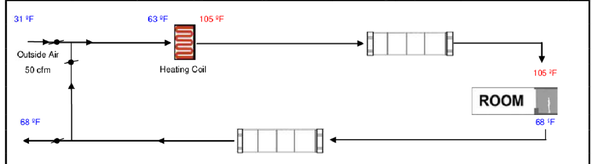
§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(q); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 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 meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site anc any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 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 Sections 110.9, 130.0, 130.1, 130.4, 140.6, anc 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 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) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**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. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees 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 distance, measured in the horizontal plane, 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) through § 110.10(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".

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

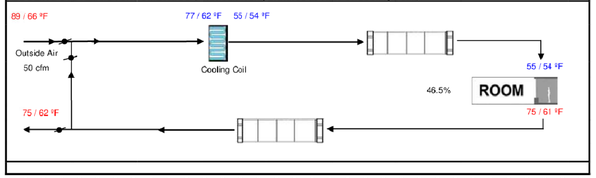
Project Name	Date
Satten, Sara ADU	12/19/2022
System Name	**Floor Area**
HVAC System	800

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	1						
Heating System							
Output per System	12,000	Total Room Loads	396	8,152	298	151	5,951
Total Output (Btuh)	12,000	Return Vented Lighting		0			
Output (Btuh/sq'f)	15.0	Return Air Ducts		87			70
Cooling System		Return Fan		0			0
Output per System	12,000	Ventilation	50	736	-48	50	1,966
Total Output (Btuh)	12,000	Supply Fan		0			0
Total Output (Tons)	1.0	Supply Air Ducts		87			70
Total Output (Btuh/sqft)	15.0						
Total Output (sqft/Ton)	800.0	TOTAL SYSTEM LOAD		9,061	251		8,056
Air System							
CFM per System	0	**HVAC EQUIPMENT SELECTION**					
Airflow (cfm)	0	Ducted Heat Pump		11,443	0		8,539
Airflow (cfm/sqft)	0.00						
Airflow (cfm/Ton)	0.0						
Outside Air (%)	0.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		11,443	0		8,539
Outside Air (cfm/sqft)	0.06						
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)



LICENSED ARCHITECT SCOTT D SMITH C-38879 RENEWAL DATE STATE OF CALIFORNIA

Design By: Scott D Smith
4321 Spring Creek Ct, Fairfield CA
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Sign:

RESIDENTIAL RENOVATION
ACCESSORY DWELLING UNIT
136 ARBOR DRIVE
PIEDMONT, CA

SDS-2022-136

Revisions

3	12/14/22	Plan Chk Cmmts
2	10/10/22	Plan Chk Cmmts
1	8/29/22	Plan Chk Cmmts
0	7/15/22	Issued for Permit
A	2/28/22	Conceptual Design
Rev	Date	Issue

TITLE 24 ENERGY REPORT
SHEET 2 OF 2

DRWN BY: SDS
SCALE: AS NOTED
DATE: 4/18/21

T24-2