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MECHANICAL GENERAL NOTES M1. ENVIRONMENTAL AIR EXHAUST SHALL HAVE A 3' MIN. CLEARANCE FROM PROPERTY LINES & BUILDING OPENINGS INCLUDING THOSE FROM BATHROOM, KITCHEN RANGE, WATER HEATER AND LAUNDRY. M2. ALL VENTILATION SHALL COMPLY W/ THE 2019 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL & NONRESIDENTIAL M3. LOCAL EXHAUST TO KITCHEN SHALL BE ACCOMPLISHED BY VENTING A MIN. 400 CFM RATED HOOD TO OUTSIDE W/ 6" DUCT. M4. HVAC CONTRACTOR SHALL COVER ALL DUCT OPENINGS IMMEDIATELY UPON INSTALLATION AND TO BE OPENED UPON COMPLETION OF

ELECTRICAL GENERAL NOTES E1. ALL LIGHT SWITCH, OUTLET & COVERPLATE SHALL BE LUTRON CLARO OR AS VERIFIED BY OWNER. E2. FIELD VERIFY ALL SWITCH LOCATION AND GROUPINGS W/ OWNER. INSTALL SWITCHES TO HAVE TO OF COVERPLATE AT 44" A.F.F. INSTALL OUTLETS TO HAVE TOP OF COVERPLATE AT 18" A.F.F. U.O.N. DRAWINGS SHOW APPROXIMATE LOCATIONS BUT DO NOT CONSIDER POTENTIAL E3. ELECTRICIAN TO PROVIDE BOTH CODE REQUIRED OUTLET QUANTITY/LOCATIONS AND THOSE REQUIRED BY APPLIANCES AND OTHER MEP SYSTEMS; NEITHER OF WHICH ARE NECESSARILY INDICATED IN THE MEP PLANS. ELECTRICIAN SHALL PROVIDE ADDITIONAL OUTLETS AS SHOWN IN

E4. ELECTRICIAN TO PROVIDE DATA, PHONE/CABLE, AND AUDIO/VIDEO WIRING AS SHOWN IN PLANS OR AS VERIFIED BY OWNER. E5. FIELD VERIFY ALL LIGHT LOCATIONS W/ OWNER. DRAWINGS SHOW DESIGN INTENT BUT DO NOT CONSIDER POTENTIAL FRAMING OR OTHER E6. OUTLETS SHALL BE WITHIN 6' OF ANY OPENING AND NOT EXCEED 12' APART. ANY ISOLATED WALL 2' OR WIDER SHALL HAVE OUTLETS. AT

KITCHEN COUNTER, GFCI OUTLETS SHALL BE WITHIN 2' OF EDGE OF ALL COUNTERS, SINKS, STOVES, ETC. AND ARE NOT TO EXCEED 4' APART. GFCI OUTLETS ARE REQUIRED AT ALL KITCHEN ISLANDS AND PENINSULAS AND WITHIN 6' RADIUS OF SINK E7. LUMINAIRES RECESSED INTO INSULATED CEILINGS SHALL BE LISTED FOR ZERO CLEARANCE INSULATION CONTACT AND BE SEALED WITH A GASKET OR CAULK BETWEEN THE LUMINAIRE HOUSING AND CEILING. E8. ALL LIGHTING SHALL COMPLY W/ THE 2019 TITLE 24 REQUIREMENTS INCLUDING:

ALL INSTALLED LUMINAIRES SHALL BE HIGH-EFFICACY IN ACCORDANCE WITH TABLE 150.0-A IN BATHROOMS, GARAGES, LAUNDRY ROOMS, AND UTILITY ROOMS, AT LEAST ONE LUMINAIRE IN EACH OF THESE SPACES SHALL BE CONTROLLED BY A VACANCY SENSOR. UNDER CABINET LIGHTING SHALL BE SWITCHED SEPARATELY FROM OTHER LIGHTING SYSTEMS. E9. ALL NÉW 120-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS. PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY ROOMS OR SIMILAR ROOMS OR

AREA SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE, INSTALLED TO PROVIDE PROTECTIONS OF THE E10. KITCHEN NOTE: ALL 15 & 20 AMP, 125 VOLT RECEPTACLES, INCLUDING THE GARBAGE DISPOSER RECEPTACLE, WITHIN 6' OF THE KITCHEN SINK E11. ALL EXTERIOR LIGHTING SHALL BE SHIELDED TO PREVENT GLARE ONTO NEIGHBORING PROPERTIES. E12. ALL 15 OR 20 AMP, 125 OR 250 VOLT RECEPTACLES INSTALLED OUTDOORS IN WET LOCATIONS MUST BE A LISTED, "EXTRA DUTY", THAT IS

WEATHER PROOF WHETHER OR NOT THE PLUG IS INSERTED PER CEC 406.9(B) E13. ALL OUTDOOR LIGHTING SHALL BE CONTROLLED BY A MANUAL ON AND OFF SWITCH THAT DOES NOT OVERRIDE TO ON AND ONE OF THE FOLLOWING: CONTROLLED BY PHOTOCELL AND MOTION SENSOR, PHOTO CONTROL AND AUTOMATIC SWITCH CONTROL, ASTRONOMICAL TIME CLOCK,

PLUMBING GENERAL NOTES P1. FLOW RATES OF ALL NEW PLUMBING FIXTURES SHALL MEET THE FOLLOWING 2019 CGBG 4.303.1 REQUIREMENTS: WATER CLOSETS: <1.28 GALLONS/FLUSH

WATER CLOSETS: <1.28 GALLONS/FLOSH SINGLE SHOWERHEADS: <1.8 GPM @ 80 PSI MULTIPLE SHOWERHEADS: COMBINED FLOW RATE OF ALL SHOWERHEADS AND.OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GPM @ 80 PSI OR ONLY ONE SHOWER OUTLET IS TO BE IN OPERATION AT A TIME. RESIDENTIAL LAVORATORY FAUCETS: <1.2 GPM @ 90 PSI KITCHEN FAUCETS: <1.8 GPM @ 60 PSI; TEMPORARY INCREASE TO 2.2 GPM ALLOWED BUT SHALL DEFAULT TO 1.8 GPM P2. IF THE WATER HEATER INPUT RATING EXCEEDS 6.8BTU/h, THEY SHALL HAVE ISOLATION VALVES ON BOTH THE COLD WATER SUPPLY AND HOT WATER PIPE LEAVING THE WATER HEATER, AND HOSE BIBS OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING THE WATER WHEN THE VALVES ARE P3. ALL HOT WATER SUPPLY PIPING 3/4" AND GREATER SHALL BE INSULTED PER CEC SECTION 150.0(J)2III. ALL HOT WATER SUPPLY PIPING FROM THE HEATING SOURCE TO THE KITCHEN FIXTURES SHALL BE INSULATED PER CEC SECTION 150.0

GENERAL NOTES G1. CONSTRUCTION LIABILITY: THE GENERAL CONTRACTOR AND SUBCONTRACTORS AGREE THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE GENERAL CONTRACTOR AND SUBCONTRACTORS WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, AND THAT THIS REQUIREMENT SHALL BE MADE TO APPLY TO CONTINUOUSLY AND NOT LIMITED TO NORMAL WORKING HOURS. THE GENERAL CONTRACTOR AND SUBCONTRACTORS FURTHER AGREE TO DEFEND, INDEMNIFY, AND HOLD THE DESIGN PROFESSIONAL HARMLESS FROM ALL LIABILITY. REAL OR ALLEGED. IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE

G2. CONTRACTOR ACKNOWLEDGES THAT THE OWNER IS THE AUTHOR OF THESE CONSTRUCTION DOCUMENTS AND IS THE OWNER OF THE COPYRIGHT TO THEM. CONTRACTOR IS ENTITLED TO USE THESE CONSTRUCTION DOCUMENTS ONLY FOR THE PROJECT FOR WHICH THEY WERE DESIGNED AND NOT FOR ANY OTHER PURPOSE OR PROJECT. G3. ALL CONSTRUCTION AND MATERIALS SHALL BE AS SPECIFIED BY THE DRAWINGS OR AS VERIFIED BY THE OWNER, AND/OR AS REQUIRED BY THE ADOPTED EDITION OF THE UNIFORM BUILDING CODE AND ALL LOCAL CODES AND AUTHORITIES. G4. ALL FLOOR PLAN DIMENSIONS ARE TO FACE OF FINISH OR UNLESS OTHERWISE NOTED. CONFIRM DIMENSIONAL QUESTIONS WITH OWNER, DO

G5. EGRESS WINDOWS TO HAVE MIN. CLR. OPENING OF 20" WIDE, 24" TALL AND 5.7 SQUARE FEET W/ A SILL HEIGHT NO HIGHER THAN 44" ABOVE FINISHED FLOOR. THE NET CLR. OPENING DIMENSIONS SHALL BE THE RESULT OF NORMAL OPERATION OF THE OPENING AND REQUIRE NO SPECIAL G6. FOR ALL DOORS AND WINDOWS, CONTRACTOR SHALL VERIFY ROUGH OPENINGS, SIZES, FUNCTION & MANUFACTURER W/ OWNER PRIOR TO

ORDERING. ADDITIONALLY CONTRACTOR SHALL VERIFY INSTALLATION INSTRUCTIONS & DETAILS W/ OWNER AND/OR MANUF. PRIOR TO G7. HANDRAILS TO BE 1 1/2" SQ. WOOD W/ METAL BRACKET @ 1-1/2" MIN. FROM WALL & 36" ABOVE STAIR NOSING, SEE PLANS & DETAILS. G8: PER CALGREEN 2019, ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS OR OTHER OPENINGS IN SOLE/BOTTOM PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST INTRUSION OF RODENTS. G9: PER CALGREEN 2019, FINISH MATERIALS, ADHESIVES, SEALANTS, CAULKS, PAINTS, AND COATINGS SHALL COMPLY WITH SECTION 4.504 4.504.2.1 ADHESIVES, SEALANTS AND CAULKS SHALL BE COMPLIANT WITH VOC AND OTHER TOXIC COMPOUND LIMITS.

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1. MANUFACTURER'S PRODUCT SPECIFICATION. 2. FIELD VERIFICATION OF ON-SITE PRODUCT CONTAINERS 4.504.4 RESILIENT FLOORING SYSTEMS

4.504.5 PARTICLEBOARD, MEDIUM DENSITY FIBERBOARD (MDF), AND HARDWOOD PLYWOOD USED IN INTERIOR FINISH SYSTEMS SHALL COMPLY WITH LOW FORMALDEHYDE EMISSION STANDARDS. G10:PER CALGREEN 2019 CONCRETE SLAB FOUNDATIONS SHALL COMPLY WITH SECTION 4.505.2 WITH RESPECT TO VAPOR RETARDERS AND

G11: BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED PER CALGREEN 2019 SECTION 4505.3. G12: THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) SHALL BE IMPLEMENTED AS PART OF CONSTRUCTION TO REDUCE EROSION, SEDIMENTATION, AND WATER QUALITY IMPACTS DURING CONSTRUCTION PROVIDE FILTERS AT NEARBY CATCH BASINS TO PREVENT DEBRIS AND DIRT FROM FLOWING INTO THE CITY'S STORM DRAIN SYSTEM AND CREEKS. SEDIMENT BERMS SHALL BE USED AT THE PERIMETER OF THE SITE DURING GRADING TO PREVENT RUN OFF FROM THE SITE. IF SEDIMENT BERMS ARE INSUFFICIENT FOR SEDIMENT CONTROL, MORE SUBSTANTIAL SEDIMENT CONTROL MEASURES SUCH AS CHECK DAMS AND INTERCEPTOR DITCHES SHALL BE IMPLEMENTED. NO GRADING SHALL OCCUR DURING WET WEATHER. IF WET WEATHER IS ANTICIPATED, ANY OPEN GRADED AREAS OR BARE SOIL

GENERAL NOTES

	⊨₽	110 VAC DUPLEX OUTLET, FIELD VERIFY LOCATIONS, HEIGHT AND QUANTITIES W/ OWNER
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	S	COMBO SMOKE / CO DETECTOR, INTERCONNECTED, HARDWIRED & W/ BATTERY BACK-UP
	ŀ₩G	GAS BIB FOR LAUNDRY, RANGE, FURNACE, WATER HEATER & FIREPLACE
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	⊢+ D	DOORBELL, VERIFY REQ'TS W/ OWNER
	⊦+ ⊺	THERMOSTAT, FIELD VERIFY LOCATION W/ OWNER
		CEILING/ WALL REGISTER FOR HVAC
1	\square	EXTERIOR EXHAUST VENT, VERIFY STYLE AND FINISH AND FIELD VERIFY LOCATION W/ OWNER
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WALL SWITCH, FIELD VERIFY LOCATIONS AND GROUPING W

LOCATION W/ OWNER ELECTRICAL PANEL OR AV HOMERUN PANEL

SYMBOL/WALL LEGEND & GENERAL NOTES

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ISSUED FOR: **BUILDING PERMIT**

DATE: 03/28/22

DRAWING TITLE

COVER PAGE

SHEET NUMBER

A1.0



EXISTING MAIN RESIDENCE PHOTOS

(1/ A1.1) EXISTING PLAN SCALE: 1/4" = 1'-0"

<u>/IECHANICAL GENERAL NOTES</u> /1. ENVIRONMENTAL AIR EXHAUST SHALL HAVE A 3' MIN. CLEARANCE FROM PROPERTY LINES & BUILDING OPENINGS INCLUDING THOSE FROM BATHROOM, KITCHEN RANGE, WATER HEATER AND LAUNDRY. M2. ALL VENTILATION SHALL COMPLY W/ THE 2019 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL & NONRESIDENTIAL BUILDINGS, TITLE 24, PART 6. M3. LOCAL EXHAUST TO KITCHEN SHALL BE ACCOMPLISHED BY VENTING A MIN. 400 CFM RATED HOOD TO OUTSIDE W/ 6" DUCT. M4. HVAC CONTRACTOR SHALL COVER ALL DUCT OPENINGS IMMEDIATELY UPON INSTALLATION AND TO BE OPENED UPON COMPLETION OF

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CONSTRUCTION.

CONFLICTS.

INSTALLATION.

POLLUTANT CONTROL.

CAPILLARY BREAKS

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GENERAL NOTES

HQ O FIELD VERIFY LOCATION W/ OWNER

DOWNSPOUT

OWNER

FIRE ALARM BELL

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EXTERIOR WINDOWS & DOORS, SEE EXTERIOR

WINDOW&DOOR SCHEDULE D# INTERIOR DOOR, SEE INTERIOR DOOR SCHEDULE

•	NEW STUD WALL TO BE 2X4 (INTERIOR) OR 2X6 (EXTERIOR), S.S.D.	⊨∎	110 VAC DUPLEX OUTLET, FIELD VERIFY LOCATIONS, HEIGHT AND QUANTITIES W/ OWNER
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DOWNSF	POUT	⊢+ □	DOORBELL, VERIFY REQ'TS W/ OWNER
SPRINKL	ER HEAD, SEE SPRINKLER DRAWINGS	⊢∔ ⊺	THERMOSTAT, FIELD VERIFY LOCATION W/ OWNER
FIRE ALA	RM BELL		CEILING/ WALL REGISTER FOR HVAC
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HAONAN JIA, DESIGNER/DRAFTER 5905 BAYVIEW AVE RICHMOND CITY, CA 94804 (415)528-9534

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ISSUED FOR: BUILDING PERMIT

DATE: 03/28/22

DRAWING TITLE

EXISTING CONDITIONS

SHEET NUMBER

A1.1

SYMBOL/WALL LEGEND & GENERAL NOTES





LEGEND:

CONC CONCRETE

- FF FINISHED FLOOR
- MT METAL THRESHOLD
- FOUND CITY OF ALBANY MONUMENT
- ➡ FOUND CROSS

NOTES:

MONUMENT AT KEY ROUTE BOULEVARD

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235.70' (235.64')

ALL DIMENSIONS ARE IN FEET AND DECIMALS THEREOF. NO TITLE REPORT WAS PROVIDED, EASEMENTS MAY EXIST. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988.



BUILDING LOCATION SURVEY

LOT 60 AND THE NORTHERN 15 FEET OF LOT 59 BLOCK 6, MAP NO. 4 REGENTS PARK (21 M 51) LOCATED AT 936 MASONIC AVENUE ALBANY, ALAMEDA COUNTY, CALIFORNIA

AUGUST 20, 2021 SCALE: 1" = 8'

MONUMENTAL LAND SURVEYING 171 MAYHEW WAY, SUITE 207, PLEASANT HILL, CA 94523

(925) 300-3695 MONUMENTAL-LS.COM PROJECT#21081



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DATE: **ISSUED FOR:** 10/13/21 BUILDING PERMIT

SHEET NUMBER

FLOOR PLANS & ELEVATIONS, SECTIONS



DRAWING TITLE



HAONAN JIA, DESIGNER/DRAFTER 5905 BAYVIEW AVE RICHMOND CITY, CA 94804 (415)528-9534

BUILDING ADU AVE SONIC T SET 265 936 MAS PERMIT ALBANY, 0 APN: 65-26

ISSUED FOR: DATE: BUILDING PERMIT 10/13/21

DRAWING TITLE

ATTIC & ROOF PLANS

SHEET NUMBER A2.1





<u>STEP 4</u>

A INSTALL 12" WIDE STRIP OF SHEET MEMBRANE @ HEAD, LAP OVER HEAD FLASHING AND EXTEND 12" BEYOND SIDES OF ROUGH OPENING.

(B) INSTALL BLDG. PAPER @ HEAD

HAONAN JIA, DESIGNER/DRAFTER 5905 BAYVIEW AVE RICHMOND CITY, CA 94804 (415)528-9534

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BUILDING

ISSUED FOR: DATE: BUILDING PERMIT 10/13/21

DRAWING TITLE

WINDOW & DOOR INSTALLATION

SHEET NUMBER A3.0

GENERAL NOTES

- 1. ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE APPROVED PROJECT DRAWINGS, SPECIFICATIONS, 2019 CALIFORNIA BUILDING CODE AND ALL OTHER APPLICABLE CODES OR REGULATIONS.
- 2. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF ALL OTHER DISCIPLINES, AND IF THERE ARE ANY DISCREPANCIES, CONTRACTOR SHALL CONTACT THE ENGINEER OR ARCHITECT FOR CLARIFICATION PRIOR TO PROCEEDING. WORK DONE WITHOUT VERIFICATION OR CLARIFICATION SHALL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY.
- 3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SELECTION OF CONSTRUCTION METHODS AND PROCEDURES, FOR THE SAFETY AND PRESERVATION OF THE BUILDING AND ITS CONTENTS DURING CONSTRUCTION, AND FOR PROVIDING A SAFE PLACE TO WORK
- 4.DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT ARE OF A SIMILAR CHARACTER TO THOSE WHICH ARE SHOWN OR NOTED, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED TO THOSE SHOWN AND/OR NOTED, SUBJECT TO APPROVAL BY THE ENGINEER.
- 5. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST AVAILABLE KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE JOB SITE AND NOTIFY THE ENGINEER AND OR ARCHITECT OF ANY DISCREPANCIES.

6.DO NOT SCALE DRAWINGS.

FOUNDATION

1. ALL FOUNDATIONS SHALL BEAR ON APPROVED, FIRM AND UNDISTURBED NATIVE SOILS OR ENGINEERED FILLS AT DEPTHS SHOWN ON THE DRAWINGS. CONTACT ENGINEER PRIOR TO PROCEEDING IF SOIL ENCOUNTERED IS INADEQUATE OR QUESTIONABLE.

2. SILL BOLTS (A-307) SHALL EXTEND 7" MINIMUM INTO CONCRETE.

3.HOLDOWN ANCHORS SHALL EXTEND INTO CONCRETE THE DEPTH SPECIFIED BY THE MANUFACTURER, U.N.O.

CONCRETE

- 1. CONCRETE SHALL MEET THE FOLLOWING REQUIREMENTS AT 28 DAYS: • FOUNDATIONS: 3000 PSI N.W.C. *
- SLABS: 3000 PSI N.W.C. * * NOTE: SPECIAL INSPECTION NOT REQUIRED SINCE F'C =2500 PSI IS USED IN THE DESIGN.
- 2. ALL CEMENT SHALL CONFORM TO ASTM C-150, TYPE I.
- 3. AGGREGATE SHALL CONFORM TO ASTM C-33.

4. ALL REBAR, ANCHOR BOLTS, INSERTS, ETC. SHALL BE SECURELY TIED AND FIXED BEFORE POUR. 5. PIPE MAY PASS THROUGH STRUCTURAL CONCRETE IN SLEEVES, BUT MAY NOT BE EMBEDDED THEREIN

REINFORCING STEEL

1. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, (INCLUDING SUPPLEMENT S-1), GRADE 60 FOR No.5 BARS AND LARGER AND GRADE 40 FOR No.4 BARS AND SMALLER.

- 2. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT
 - SURFACE POURED AGAINST GROUND
 - FORMED SURFACES BELOW GRADE

 SURFACES EXPOSED TO WEATHEER 3. ALL REINFORCEMENT SHALL BE BENT COLD. NO.5 OR LARGER REINFORCING BARS SHALL NOT BE RE-BENT

WITHOUT APPROVAL BY THE PROJECT ENGINEER. 4.REINFORCING BARS SHOWN OR NOTED AS CONTINUOUS SHALL RUN IN LENGTHS AS LONG AS PRACTICAL.

THE FOLLOV	VING SPLICE LENGTHS SH	HALL APPL	Y U.N.O.			
•	BAR SIZE:	#3	#4	#5	#6	#
•	TOP BARS:	28"	38"	48"	56"	8
•	OTHER:	22"	30"	36"	44"	64

LUMBER

1.ALL LUMBER FOR FRAMING MEMBERS SHALL BE DOUGLAS FIR (DF) OF THE FOLLOWING GRADE, U.N.O. (OR EQUIVALENT GRADE OF ANOTHE SPECIES)

•	JOISTS AND RAFTERS	NO. 1 (DF1) OR BETTER
•	BEAMS AND HEADERS	NO. 1 (DF1)
•	POSTS AND MULLIONS	NO. 1 (DF1)
•	STUDS AND PLATES	CONSTRUCTION

BLOCKING, FURRING AND MISC.

2.ALL LUMBER TO BE GRADE STAMPED S-DRY (SURFACE DRY; MOISTURE CONTENT NOT GREATER THAN 19%). 3.STRUCTURAL COMPOSITE LUMBER SHALL BE AS FOLLOWS:

NO. 2 (DF2)

• PSL: 2.0E PARALLAM PARALLEL STRAND LUMBER (E = 2.0 E6 psi, Fb = 2900 psi, Fv = 290 psi) 4.ALL FRAMING EXPOSED TO WEATHERING SHALL BE PRESSURE TREATED OR WOOD OF NATURAL

RESISTANCE TO DECAY, SUCH AS REDWOOD COMMERCIAL LUMBER.

- 5.ALL TIMBER PLACED AGAINST BRICK OR CONCRETE SHALL BE PRESSURE TREATED.
- 6.ALL WOOD FRAMING SHALL BE SET PLUMB AND LEVEL (U.N.O.) TO OBTAIN FULL SOLID BEARING, CUT TO

FIT FOR SLOPED ELEMENTS OR WHERE FRAMED AGAINST. SHIMS SHALL BE AVOIDED, U.N.O. 7. STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, ETC., UNLESS SPECIFICALLY NOTED OR DETAILED. 8. ALL POSTS SHALL HAVE CONNECTORS TOP AND BOTTOM, SUCH AS SIMPSON "CBSQ", "CCQ", OR "BC HALF

BASE", U.N.O. 9. ALL CONNECTORS TO BE SIMPSON STRONG-TIE OR EQUIVALENT.

10.ALL FASTENERS USED ON PRESSURE TREATED WOOD TO BE STAINLESS STEEL OR GALVANIZED.

PLYWOOD

1. PLYWOOD PANELS SHALL BE IDENTIFIED WITH THE APPROPRIATE GRADE, TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION, AND SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE U.S. PRODUCT STANDARD PS-1.

2.FOR PLYWOOD GRADES AND NAILING ON SHEAR WALLS, SEE SHEAR WALL SCHEDULE. 3.PLYWOOD SHEETS AT ROOFS SHALL BE LAID PERPENDICULAR TO RAFTERS, IN STAGGERED PATTERN, AND GLUED TO JOISTS, U.N.O.

4.PLYWOOD SHEETS ON WALLS SHALL BE LAID WITH LONG DIMENSION VERTICAL. BLOCK ALL EDGES.

SPECIAL INSPECTION

THE FOLLOWING WORK REQUIRES SPECIAL INSPECTION:

1. REINFORCING STEEL PLACEMENT

2. ANCHOR BOLT INSTALLATION

3. HOLDOWN INSTALLATION 4. SHEAR WALL AND SHEAR CLIP INSTALLATION

	SHEA	AR WALL	SCHED	ULE ^{(3,4,5}	5,6,7)		
S.W. MARK	SHEAR WALL MATERIAL	EDGE NLG.	FIELD NLG.	SOLE PLATE NLG.	A35 CLIPS AT TOP PL.	ANCHOR BOLTS TO FDN.	DOUBL STUDS NLG.
SW1	15/32" PLYWOOD CDX ⁽¹⁾ AT ONE SIDE (1)	10d @ 5" O.C.	10d @ 12" O.C.	16d @ 5" O.C.	A35 @ 16" O.C.	5/8" A.B. @ 48" O.C.	16d @ 5" O.C.

(1) PLYWOOD SHALL BE APA RATED SHEATHING OR BETTER, EXPOSURE 1. BLOCKING IS REQUIRED AT ALL EDGES. (2) FRAMING AT ADJOINING PANEL EDGES SHALL BE 3x OR WIDER AND NAILS SHALL BE

STAGGERED WHEN 10d NAILS ARE SPACED 4" OR LESS ON CENTER. (3) ANCHOR BOLTS SHALL BE Ø5/8" (A-307) EMBEDDED 7" MIN. INTO CONCRETE WITH 3"x3"x1/4" PLATE WASHERS AT EACH BOLT. PROVIDE MINIMUM TWO BOLTS PER SHEAR WALL.

(4) ALL NAILS SHALL BE COMMON NAILS OR GALVANIZED (HOT DIPPED). (5) 16d NAILS SHALL HAVE 2" MIN. PENETRATION INTO MAIN MEMBERS.

(6) EDGE NAILING TO BE NOT LESS THAN 3/8" FROM PANEL EDGE. NAIL HEADS SHALL NOT PENETRATE PLYWOOD, REMOVE ALL SHINERS AND RE-DRIVE.

(7) REPLACE ALL FRAMING MEMBERS SPLIT BY FASTENERS.

CEILING FRAMING PLAN

associates

engineers

FASTENING SCHEDULE AS PER 2019 CBC, TABLE 2304.10.1

FASTENING	SCHEDU
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ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER a, b, c	LOCATION
		Roof	
1	Blocking between ceiling joists or rafters to top plate	4-8d box (21/2" × 0.113") or 3-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (21/2" × 0.113"); or 3-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions (see Section R802.5.2 and Table R802.5.2)	4-10d box (3" × 0.128"); or 3-16d common (31/2" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) (see Section R802.5.2 and Table R802.5.2)	Table R802.5.2	Face nail
5	Collar tie to rafter, face nail or 11/4" × 20 ga. <u>ridge</u> strap to rafter	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box nails (31/2" × 0.135"); or 3-10d common nails (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or trussi
7	Roof rafters to <u>ridg</u> e, valley or hip rafters or roof rafter	4-16d (31/2" × 0.135"); or 3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
	to minimum 2" <u>ridg</u> e beam	3-16d box 31/2" × 0.135"); or 2-16d common (31/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
		Wall	
8	Stud to stud (not at	16d common (31/2" × 0.162") 10d box (3" × 0.128"): or	24" o.c. face nail
	braced wall panels)	3" × 0.131" nails	16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners	16d box (31/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
	(at braced wall panels)	16d common (31/2" × 0.162")	16" o.c. face nail
10	Built-up header (2" to 2" header with 1/2" spacer)	16d common (31/2" × 0.162") 16d box (31/2" × 0.135")	16" o.c. each edge face nail 12" o.c. each edge face nail
11	Continuos header to stud	5-8d box (21/2" × 0.113"); or 4-8d common (21/2" × 0.131"); or 4-10d box (3" × 0.128")	Toe nail
12	Top plate to top plate	16d common (31/2" × 0.162") 10d box (3" × 0.128"); or 3" × 0.131" nails	16" o.c. face nail 12" o.c. face nail
13	Double top plate splice	8-16d common (31/2" × 0.162"); or 12-16d box (31/2" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
	Bottom plate to joist, rim	16d common (31/2" × 0.162")	16" o.c. face nail
14	joist, band joist or blocking (not at braced wall panels)	16d box (31/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (31/2" × 0.135"); or 2-16d common (31/2" × 0.162"); or 4-3" × 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (21/2" × 0.113"); or 3-16d box (31/2" × 0.135"); or 4-8d common (21/2" × 0.131"); or 4-10d box(3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (31/2" × 0.135"); or 2-16d common (31/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
17	Top plates, laps at corners and intersections	3-10d box (3" × 0.128"); or 2-16d common (31/2" × 0.162"); or 3- 3" × 0.131" nails	Face nail
18	1" brace to each stud and plate	3-8d box (21/2" × 0.113"); or 2-8d common (21/2" × 0.131"); or 2- 10d box (3" × 0.128"); or 2 staples 1 3/4"	Face nail
19	1" x 6" sheathing to each bearing	3-8d box (21/2" × 0.113"); or 2-8d common (21/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 13/4" long	Face nail
20	1" x8" and wider sheathing to each bearing	3-8d box (21/2" × 0.113"); or 3-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3 staples, 1" crown, 16 ga., 13/4"long Wider than 1" × 8" 4-8d box (21/2" × 0.113"); or 3-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 4 staples, 1" crown, 16 ga., 13/4" long	Face nail

ITEM	DESCRIPTION OF BUILDING ELEMENTS	
21	Joist to sill, top plate or girder	
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	
23	1" × 6" subfloor or less to each joist	
24	2" subfloor to joist or girder	
25	2" planks (plank & beam—floor & roof)	
26	Band or rim joist to joist	
	Built-up girders and	
27	beams, 2-inch lumber layers	
28	Ledger strip supporting joists or rafters	
29	Bridging or blocking to joist	
ITEM	DESCRIPTION OF BUILDING ELEMENTS	
	Wood structural panels, s	ub
	[see Table R602.3(3) fo	or v
30	3/8" — 1/2"	
31	19/32" — 1"	
32	11/8" — 11/4"	
33	1/2" structural cellulosic fiberboard sheathing	
34	25/32" structural cellulosic fiberboard sheathing	
35	1/2" gypsum sheathingd	
36	5/8" gypsum sheathingd	
37	Wood structural 3/4" and less	pa
38	7/8" — 1"	
39	11/8" — 11/4"	
For SI: 1	inch = 25.4 mm 1 foot = 304.8 r	nn

- diameters of 0.142 inch or less.

- shall conform to ASTM C208.
- members or solid blocking.
- side of the rafter shall not be required.

JLE AS PER 2019 CBC. TABLE 2304.10.1 cont.

NUMBER AND TYPE OF FASTENER a, b, c	LOCA	TION		
Floor				
4-8d box (21/2" × 0.113"); or 3-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe	nail		
8d box (21/2" × 0.113")	4" o.c. t	oe nail		
8d common (21/2" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails	6" o.c. t	oe nail		
3-8d box (21/2" × 0.113"); or 2-8d common (21/2" × 0.131"); or 3-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 13/4" long	Face	nail		
Floor				
3-16d box (31/2" × 0.135"); or 2-16d common (31/2" × 0.162")	Blind and	face nail		
3-16d box (31/2" × 0.135"); or 2-16d common (31/2" × 0.162")	At each bear	ing, face nail		
3-16d common (31/2" × 0.162") 4-10 box (3" × 0.128"), or 4-3" × 0.131" nails; or 4-3" × 14 ga. staples, 7/16" crown	End r	nail		
20d common (4" × 0.192"); or	Nail each laye 32" o.c. at to and stag	er as follows: o and bottom ggered.		
10d box (3" × 0.128"); or 3" × 0.131" nails	24" o.c. face n bottom stagge opposite sides	ail at top and red on		
And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Face nail at er splic	nds and at each ce		
4-16d box (31/2" × 0.135"); or 3-16d common (31/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	At each joist o nai	or rafter, face		
2-10d box (3" × 0.128"), or 2-8d common (21/2" × 0.131"; or 2-3" × 0.131") nails	Each end	, toe nail		
	SPACING C	OF FASTENERS		
NUMBER AND TYPE OF FASTENER a, b, c	Edges (inches)⊧	Intermediate supportsc, e (inches)		
oor, roof and interior wall sheathing to fr wall sheathing to framing ood structural papel exterior wall sheathi	aming and particle	board		
6d common (2" × 0.113") nail	0 0	-		
(subfloor, wall)i 8d common (21/2" × 0.131") nail	6	12f		
(roof); or RSRS-01 (23/8" ×				
0.113) hall (root)j 8d common nail (21/2" × 0.131"):				
or RSRS-01; (23/8" × 0.113") nail (roof)j	6	12f		
10d common (3" × 0.148") nail; or 8d (21/2" × 0.131") deformed nail	6	12		
Other wall sheathing				
11/2" galvanized roofing nail, 7/16" head diameter, or 11/4" long 16 ga. staple with 7/16" or 1" crown	3	6		
13/4" galvanized roofing nail, 7/16" head <u>diamet</u> er, or 11/2" long 16 ga. staple with 7/16" or 1" crown	3	6		
11/2" galvanized roofing nail; staple galvanized, 11/2" long; 11/4" screws, Type W or S	7	7		
13/4" galvanized roofing nail; staple galvanized, 15/8" long; 15/8" screws, Type W or S	7	7		
els, combination subfloor underlayment	to framing			
od deformed (2" × 0.120") nail; or 8d common (21/2" × 0.131") nail 8d common (21/2" × 0.131") noil:	6	12		
or 8d deformed (21/2" × 0.120") nail	6	12		
10d common (3" × 0.148") nail; or	6	12		

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

a. Nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank

b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.

c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.

d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.

e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).

f. For wood structural panel roof sheathing attached to gable end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 6 inches on center where the ultimate design wind speed is less than 130 mph and shall be spaced 4 inches on center where the ultimate design wind speed is 130 mph or greater but less than 140 mph. 9. Gypsum sheathing shall conform to ASTM C1396 and shall be installed in accordance with GA 253. Fiberboard sheathing

h. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing

i. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite

j. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

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ADU BUILDING 936 MASONIC AVENUE ALBANY, CA
ENGINEER STAMP
REVISIONS AND RELEASES
JOB NO: PJ22021 DATE: 03.07.22 SCALE: 1/4"=1', 1"=1' TITLE TITLE
FASTENING SCHEDULE
DRAWING

Project Name: Masonic ADU

Calculation Date/Time: 2022-04-07T16:17:48-07:00 Input File Name: Building1.ribd19x

CF1R-PRF-01E (Page 1 of 9)

Calculation Description: Title 24 Analysis CONTRAL INFORM

GENER	RAL INFOR	MATION														
01		Projec	t Name	Masoni	c ADI	U										
02		R	un Title	Title 24	Anal	lysis										
03		Project L	ocation	936 Ma	sonic	c Ave				144 - 14	- 1					
04			City	Albany						05			Standards	Version	2019	
06		:	Zip code	94706						07			Software	Version	EnergyPro 8.3	
08 Climate Zone			ite Zone	3						09	Ĵ,	Fro	ont Orientation (deg/ C	ardinal)	90	
10 Building Type			ng Type	Single fa	amily	/				11			Number of Dwellin	ng Units	1	
12 Project Scop			t Scope	Additio	nOnly	У				13			Number of Be	drooms	4	
14 Addition Cond. Floor Area (ft			rea (ft ²)	750						15	Number of Stories				1	
16 Existing Cond. Floor Area (ft			rea (ft ²)	964					17	Fenestration Average U-factor				0.39		
18 Total Cond. Floor Area (f			rea (ft ²)	1714				19								
20	18 Total Cond. Floor Are 20 ADU Bedroom		n Count	2	-	C		-		21		ł.	ADU Conditioned Flo	or Area	750	
22		ls Natural Gas Av	ailable?	Yes	(2				Y			Inc			
								1				1) (
Additio	on Alone P	Project Analysis Parame <mark>ter</mark>	s			HE	R	35	P	R	OV	ľ.	DER			
		01			02				(03			04		05	06
Exist	ting Area (excl. new addition) (ft2)	Additio	on Area (excl.	existing) (1	t2)	9	Total A	rea (ft2)			Existing Bedrooms Add		ition Bedrooms	Total Bedrooms
964			7	750			17	714			2	2		4		
							-17						<i></i>	or s		
COMPL	LIANCE RE	SULTS														
	01	Building Complies with Co	omputer	Perform	ance	•										
	02	This building incorporates	s feature	s that re	quire	e field testi	ng an	d/or veri	ificatio	n by a co	ertified HE	RS r	rater under the supervi	sion of a	CEC-approved HEI	RS provider.
	03	This building incorporates	s one or	more Sp	ecial	Features s	hown	below								

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

TITLE 24 ENERGY COMPLIANCE PAGE 1

CERTIFICATE OF COM Project Name: Mason	PLIANCE nic ADU			Calcul	ation Da	ate/Tim	ne: 2022	-04-07T	16:17:48-0	07:00			CF1R-PRF-01 (Page 4 of 9
FENESTRATION / GLAZI	NG			Input	File Nar	ne: Buil	aing1.ri	bd19x					
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name Type		Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Sourc e	Exterior Shading
Window 3	Window	Right Wall	Right	0			1	10	0.35	NFRC	0.3	NFRC	Bug Screen
Window 4	Window	Right Wall	Right	0			1	20	0.35	NFRC	0.3	NFRC	Bug Screen
Skylight	Skylight	Roof	Right	0			1	8	0.45	NFRC	0.35	NFRC	None
Skylight 2	Skylight	Roof	Right	0			1	8	0.45	NFRC	0.35	NFRC	None
Skylight 3	Skylight	Roof	Right	0			1	8	0.45	NFRC	0.35	NFRC	None
SLAB FLOORS		A											
01	02	03	04		05		06			07		08	
Name	Zone	Area (ft ²)	Perimeter (ft)	e Insul. R-value Edge Insul. R- and Depth and Dep			Insul. R-v nd Depti	ralue 1	Carpeted Fra	eted Fraction		Heated	
Slab-on-Grade	ADU	750	110	none 0 809		80%	% No		No				
OPAQUE SURFACE CON		н	ERS	PR	0	v"t	DI	ER					
01	02	03	04		0	5		06	07			08	
Construction Name	Surface Type	Construction Type	Framing	3	Total (R-va	Cavity Ilue	Interior Cont R-v	/ Exterio inuous alue	r U-facto	U-factor Assembly Laye		ers	
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.		R-15		None / None		0.095	Ins C Ext	Inside Finis Cavity / Fi Exterior Fin		m Board 15 / 2x4 at Stucco
R-30 Roof No Attic	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in	R-30 None / None		0.037	Roofin S Ca Ins	g: Light F Roof iding/sho avity / Fra side Finis	Roof (Asp Deck: Wo eathing/o ame: R-3 h: Gypsu	halt Shingle) ood decking 0 / 2x10 m Board			

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

RTIFICATE OF COMPLIANCE oject Name: Masonic ADU culation Description: Title 24 Analysis		Calculation Date/Time: 2022-(Input File Name: Building1.rib	CF1R-PRF-016 (Page 2 of 9)	
	ENERGY	USE SUMMARY		
Energy Use (kTDV/ft ² -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	28.34	36.83	-8.49	-30
Space Cooling	0	0.58	-0.58	
IAQ Ventilation	5.13	5.13	0	0
Water Heating	42.53	28.91	13.62	32
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	76	71.45	4.55	6
IS FEATURE SUMMARY	eld-verified by a certified HERS Rater	as a condition for meeting the model	ed energy performance for this co	mputer analysis. Additional
Iding-level Verifications: Indoor air quality ventilation Kitchen range hood Ding System Verifications: Minimum Airflow Fan Efficacy Watts/CFM ating System Verifications: Verified heat pump rated heating capacity AC Distribution System Verifications: Duct leakage testing Ducts located entirely in conditioned space confirme mestic Hot Watter System Verifications:	ed by duct leakage testing		: K	

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

CERTIFICATE OF COMPLIANCE Project Name: Masonic ADU

Calculation Description: Title 24 Analysis

ZONE INFORMAT	TION								167				192		10		
01		02			03		04				05			06		07	
Zone Nar	ne	Zone T	Zone Type		HVAC System Name		Zone Floor Area (ft ²)			Avg. (Ceiling H	leight	Water Heating System 1		stem 1	Water Heating System 2	
ADU		Conditio	oned		HVAC1	9		750			9		D	HW Sys 1		N/A	
OPAQUE SURFAC	CES																
01	02		03	6	04	9	05	()6		07		08		09		10
Name	Zon	e	Construc	tion	Azimu	uth	Orientatio	n Gross A	area (ft ²)) Wind	low and Area (ft2	Door 2)	Tilt (deg)	w	/all Excep	tions	Status
Front Wall	AD	U	R-15 W	all	90	0	Front	3	60		125		90		Extensio	on	New
Left Wall	AD	U	R-15 W	all	180)	Left	2	10		0		90		Ex. w/ Sic	ling	New
Rear Wall	AD	U	R-15 W	all	270)	Back	3	60		0		90 E		Ex. w/ Siding		New
Right Wall	AD	U	R-15 W	all	0	10	Right	3	60		30		90 E		Extension		New
	hino - medicine burietta			-	<u> </u>					_	1.0	20	12				
OPAQUE SURFAC	CES - CATHEDE	RAL CEILINGS			-						-			221	T .		22.2
01	02		03	04	1	05	S	06	0	07	5	08		09	1	.0	11
Name	Zone	Const	ruction	Azimut	:h	Orienta	tion	Area (ft ²)	Skyl	ight Area (ft ²)	Rod	of Rise (x 12)	in R Refle	oof ectance	Roof Er	nittance	Cool Roof
Roof	ADU	R-30 F A	Roof No ttic	0		Righ	t	750		24		2	(D.1	0.	85	No
FENESTRATION /	GLAZING																
01		02	1	03			04	05	06	07	08	09	10	11	12	13	14
Nan	ne	Туре		Surface		Or	rientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-facto Source	or e SHG	C Source	Exterior Shading
Doo	r 1	Window		Front Wa	ill		Front	90			1	81	0.4	NFRC	0.3	5 NFRC	Bug Screen
Windo	ow 2	Window		Front Wa	II		Front	90			1	7.5	0.35	NFRC	0.3	NFRC	Bug Screen
Windo	w 2 2	Window		Front Wa	11		Front	90			1	7.5	0.35	NFRC	0.3	NFRC	Bug Screen
Windo	ow 1	Window		Front Wa	11		Front	90			1	29	0.35	NFRC	0.3	NFRC	Bug Screen

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

TITLE 24 ENERGY COMPLIANCE PAGE 2

ERTIFICATE OF COMPLIANCE			CF1R-PRF-01E				
roject Name: Masonic ADU		Calculation Date/Time: 2022-04-07T16:17:48-07:00	(Page 5 of 9)				
alculation Description: Title 24 Analysis		Input File Name: Building1.ribd19x					
UILDING 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

WATER HEAT	ING SYSTEMS	5							12					
01	L	02		0			04			05	06		07	
Nan	ne	System Type	е	Dis	tribution Type	e V	/ater Heater I	Name (#)	Solar Hea	ting System	Compact Distribution	n HERS Verification		
DHW	Sys 1	Domestic Hot Water (DHW)			dard Distributi System	ion	DHW Heater 1 (1)			n/a	None		n/a	
WATER HEAT	ERS	_	Ĵ											
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 Pu Brand or Mo	mp del Tank Location or Ambient Condition	Status	Verified Existing Condition	
DHW Heater 1	Heat Pump	n/a	1	50	NEEA Rated	<= 12 kW	n/a	n/a	n/a	Rheem\PROP T2 RH37515 gal)	150 50 Outside	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	

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Not Required

Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

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n/a

CERTIFICATE OF COMPLIANCE Project Name: Masonic ADU

Calculation Description: Title 24 Analysis

SPACE CONDITIONING	G SYSTEMS			5.		25	25		5			15	
01		02		04	05	06	0)7	08	09	1	0	11
Name	Sy	stem Type	Heating Unit Name	Cooling Un Name	it Fan Name	Distribution Name	n Requ Therr Ty	uired nostat /pe	Status	Verified Existing Condition	Heat Equip Cou	ting ment unt	Cooling Equipment Count
HVAC1	Heat pum	Heat pump heating cooling		Heat Pump System 1	HVAC Fan 1	Air Distribution System 1	n Set	back	New	NA	1		1
01	02	03	04	05	06	07	08		09	1	0		11
HVAC - HEAT PUMPS		Â											
	Curtan Truck	ype Number of Units	Heating			Cool	ing		Zonally	Comp	ressor	UEDC	Marifiantian
Name	System Type		HSPF/COP	Cap 47	Cap 17	SEER	EER/CEE	ĒR	Controlled	ntrolled Ty		HERS VERIfication	
Heat Pump System 1	. Central split HP	1	8.2	18000	10000	14	11.7	C	Not Zonal	Sin Spe	gle ed	Heat F 1-he	Pump System ers-htpump
					DDC		0.0	0					
HVAC HEAT PUMPS -	HERS VERIFICATION		HE	KS	PRC			K	5				
01	02	03	04		05	06			07	80		-	09
Name	Verified Airflow	Airflow Target	Verified	EER	Verified SEER	Verified Refrigerant Charge		Verified HSPF		Verified Heating Cap 47		Ver	ified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	350	Not Requ	uired	Not Required	lot Required No No		No	Yes			Yes	

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

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Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

CF1R-PRF-01E

(Page 3 of 9)

TITLE 24 ENERGY COMPLIANCE PAGE 3

Calculation Date/Time: 2022-04-07T16:17:48-07:00 Input File Name: Building1.ribd19x

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Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

BUILDING ADU AVE 936 MASONIC A PERMIT SET ALBANY, CA 94706 APN: 65-2652-17 90

ISSUED FOR: DATE: BUILDING PERMIT 10/13/21

DRAWING TITLE

SHEET NUMBER T24-1

TITLE 24 ENERGY COMPLIANCE PAGE 6

CERTIFICATE OF COMPLIANCE

CF1R-PRF-01E Calculation Date/Time: 2022-04-07T16:17:48-07:00 Project Name: Masonic ADU (Page 7 of 9) Input File Name: Building1.ribd19x Calculation Description: Title 24 Analysis HVAC - DISTRIBUTION SYSTEMS 03 04 05 06 07 08 09 10 11 12 13 14 15 16 01 02 Duct Ins. R-value Duct Location Surface Area SupplyReturnSupplyReturnSupplyReturnBypassDuctHERSVerificationVerifiedExistingSupplyReturnSupplyReturnBypassDuctLeakageVerificationStatusVerifiedExistingConditionSystem New Ducts Design Type Name Туре 40 ft Air Air R-4.2 R-4.2 R-4.2 Condit Condit ioned n/a n/a n/a Bypass and on System New Zone Zone Zone to the total condition of total c Distributi on System 1 Conditioned Nonn/a n/a n/a space-entirely Verified dist HVAC DISTRIBUTION - HERS VERIFICATION 09 03 04 06 07 08 01 05 02 Low Leakage Verified Duct **Deeply Buried** Duct Leakage Duct Leakage Verified Duct Low-leakage Air **Ducts Entirely in** Name Buried Ducts Location Design Verification Target (%) Ducts Handler Conditioned Space C) F Air Distribution 5.0 Required Not Required Not Required Credit not taken Not Required No Yes System 1-hers-dist HVAC - FAN SYSTEMS 01 02 03 04 Туре Fan Power (Watts/CFM) Name Name HVAC Fan 0.58 HVAC Fan 1 HVAC Fan 1-hers-fan HVAC FAN SYSTEMS - HERS VERIFICATION 01 02 03 Name Verified Fan Watt Draw Required Fan Efficacy (Watts/CFM) HVAC Fan 1-hers-fan Required 0.58

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

TITLE 24 ENERGY COMPLIANCE PAGE 7

CERTIFICATE OF COMPLIANCE

Registration Number:

222-P010067656A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2019 Residential Compliance

Project Name: Masonic ADU Calculation Description: Title 24 Analysis Calculation Date/Time: 2022-04-07T16:17:48-07:00 Input File Name: Building1.ribd19x

CF1R-PRF-01E (Page 8 of 9)

AQ (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	45	0.35	Exhaust	n/a	n/a	Yes	

Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000

Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

TITLE 24 ENERGY COMPLIANCE PAGE 8

CERTIFICATE OF COMPLIANCE Project Name: Masonic ADU Calculation Description: Title 24 Analysis DOCUMENTATION AUTHOR'S DECLARATION STATEM I. I certify that this Certificate of Compliance docume ocumentation Author Name: Ying (John) Tao mpany: Basaltic, Inc. 2615 MacArthur Blvd. City/State/Zip: Oakland, CA 94602 RESPONSIBLE PERSON'S DECLARATION STATEMEN certify the following under penalty of perjury, under the la 1. I am eligible under Division 3 of the Business and I certify that the energy features and performan 3. The building design features or system design features or system design features or system design features of specifications submitted to the system of t esponsible Designer Name: Haonan Jia Company: HN Studio 5905 BAYVIEW AVE City/State/Zip: RICHMOND, CA 94804

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.

Registration Number: 222-P010067656A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

TITLE 24 ENERGY COMPLIANCE PAGE 9

HAONAN JIA, DESIGNER/DRAFTER
5905 BAYVIEW AVE
RICHMOND CITY, CA 94804
(415)528-9534

		CF1R-PRF-01E
	Calculation Date/Time: 2022-04-07T16:17:48-07:00	(Page 9 of 9)
	Input File Name: Building1.ribd19x	
IENT		
entation is accurate and complete.		
	Documentation Author Signature: Ying (John) Tao	
	Signature Date: 2022-04-07 16:21:03	
	CEA/ HERS Certification Identification (If applicable): R19-18-30014	
	Phone: 510-967-1299	
ws of the State of California: d Professions Code to accept responsibilit ce specifications identified on this Certific eatures identified on this Certificate of Cor to the enforcement agency for approval y	y for the building design identified on this Certificate of Compliance. ate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the Californ npliance are consistent with the information provided on other applicable compliance docu vith this building permit application.	nia Code of Regulations. Iments, worksheets,
a Calc	Responsible Designer Signature: Haonan Gia	
HERS	Date Signed: 2022-04-07 16:21:16	
	License: N/A	
	Phone: 415-528-9534	

Registration Date/Time: 2022-04-07 16:21:16 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-04-07 16:18:01

936 MASONIC AVE ADU BUILDING PERMIT SET	ALBANY, CA 94706	APN: 65-2652-17
--	------------------	-----------------

SSUED FOR:	DATE:
UILDING PERMIT	10/13/21

DRAWING TITLE

ENERGY COMPLIANCE

SHEET NUMBER T24-2

2019 Low-Rise Residential Mandatory Measures Summary

<u>NOTE:</u> 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)

01/2020	
Building Envelope	e 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, Decor	ative 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 Conditioni	ng, 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.

PAGE 1

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(a); and meets all other requirements in § 150.0(k)?
§ 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)?
§ 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:	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 and 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, and 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 canable of turning the light fully on and off from all designed paths of ingress and egress.
	so percent. The occupant sensors must be capable of turning the right fully of and on norm an designed paths of nigress and egress.
Solar Ready Buil	dings:
Solar Ready Buil § 110.10(a)1:	dings: 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).
Solar Ready Buil § 110.10(a)1: § 110.10(a)2:	So percent. The occupant sensors must be capable of turning the light fully on and on norm and designed paths of nigress and egress. dings: 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). 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).
Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1:	 dings: 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). 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(c). 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). 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 less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas 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 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 project, and have a total area no less than 15 percent of the total roof area of the building any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.
Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1: § 110.10(b)2:	 dings: 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). 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(c). 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). 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 project, and have a total area no less than 15 percent of the total roof area of the building any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.' Azimuth. All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.
Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1: § 110.10(b)2: § 110.10(b)3A:	 dings: 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). 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(c). 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 less than or equal to 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 15 percent of the total roof area 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 eacled and systight area. The solar zone requirement is applicable to the entire building, including mixed occupancy." Azimuth. All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north. Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment."
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Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1: § 110.10(b)1: § 110.10(b)2: § 110.10(b)3A: § 110.10(b)3B: § 110.10(b)4:	 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). 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(e). 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 56 et 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 building with roof areas less than or equal to 10,000 square feet or no less than 160 square feet and ne 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 project, and have a total area no less than 15 percent of the total roof area of the building any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.' Azimuth. All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north. Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.' Shading. Any obstruction located on the roof or any other parts of the building that p
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Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1: § 110.10(b)2: § 110.10(b)3A: § 110.10(b)3B: § 110.10(b)4: § 110.10(c): § 110.10(d):	 dings: 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(b). 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(c). 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 800 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 150 square feet. For single family residences, 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, or on covered parking installed with the building. The solar zone must not contain any obstructions, including but not limited to: vents, chimeys, architectural features, and roof mounted equipment. Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof dead load and roof live load are no less than 90 sequences. For areas of the roof documents. Shading. Any obstruction located on the roof or any other part of the building that projects above a solar zone must
Solar Ready Buil § 110.10(a)1: § 110.10(a)2: § 110.10(b)1: § 110.10(b)1: § 110.10(b)3A: § 110.10(b)3B: § 110.10(b)3B: § 110.10(c): § 110.10(c): § 110.10(d): § 110.10(e)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(b). 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(c). 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 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 150 percent of the total roof area 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, or no covered parking installed with the building including mixed occupancy.¹ Azimuth. All sections of the solar zone must not contain any obstructions, including but not limited to: vents, chinneys, architectural features, and roof mounted equipment.¹ Shading. The solar zone must not contain any obstructions, including but not limited to: vents, chinneys, architectural features, and roof deal load and roof live load surts be clearly indicated on the construction documents.¹ Shading.

2019 Low-Rise Residential Mandatory Measures Summary

THERE COMMISSION	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						
§ 150.0(j)1:	Storage Tank Insulation. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, m a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the						
§ 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 let 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, an 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 break 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 b 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 I						
§ 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 d 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 \geq 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy \leq 0.45 watts per CFM for gas furnace air handlers and \leq 0.58 watts p CFM for all others. Small duct high velocity systems must provide an airflow \geq 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy \leq 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*						

PAGE 2

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY							
Project Name							1
Masonic ADU						4/	7/2022
System Name HVAC						Floor	Area 750
ENGINEERING CHECKS		SYSTEM LOAD				1	
Number of Systems	1		COIL	COOLING P	PEAK	COIL H	TG. PEAK
Heating System			CFM	Sensible	Latent	CFM	Sensible
Output per System	18,000	Total Room Loads	476	10,136	274	310	12,251
Total Output (Btuh)	18,000	Return Vented Lighting		0			
Output (Btuh/sqft)	24.0	Return Air Ducts		110			150
Cooling System		Return Fan		0			0
Output per System	12,000	Ventilation	0	0	0	0	0
Total Output (Btuh)	12,000	Supply Fan		0			0
Total Output (Tons)	1.0	Supply Air Ducts		110			150
Total Output (Btuh/sqft)	16.0	5.3 ((F)					
Total Output (sqft/Ton)	750.0	TOTAL SYSTEM LOAD		10,356	274		12,551
Air System					10		i
CFM per System	0	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	0	Standard Heat Pump		11,625	0		12,491
Airflow (cfm/sqft)	0.00						
Airflow (cfm/Ton)	0.0						
Outside Air (%)	0.0%	Total Adjusted System Output		11,625	0		12,491
Outside Air (cfm/sqft) 0.0		(Adjusted for Peak Design conditions)					
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)							
30 °F Outside Air 0 cfm	68 °F	105 °F	→		R	DOM	↓ 05 °F
68 °F					12		68 ⁰F
COOLING SYSTEM PSYCHR	OMETRICS	(Airstream Temperatures at Time)	of Cooling	Peak)			
83 / 64 °F Outside Air 0 cfm	75	 → 100 F → 55 / 53 °F → Cooling Coil 	→	45.5%		55 DOM	↓ / 54 ºF
75 / 61 ⁰F ◀		[] ←				75	/ 61 ºF

	2019 Low-Rise Residential Mandatory Measures Summary				
Requirements f	or 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 we 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 P (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 provid 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 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 S	ystems 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, flo rate, piping, filters, and valves.				
Lighting Measu	res:				
§ 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, em more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed to consume the drawer.				
§ 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				

 § 150.0(k)2E:
 comply with § 150.0(k).

 § 150.0(k)2F:
 Interior Switches and Controls. Lighting controls must comply with the applicable requirements of § 110.9.

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DRAWING TITLE

TITLE 24 SUPPLEMENT

SHEET NUMBER T24-3