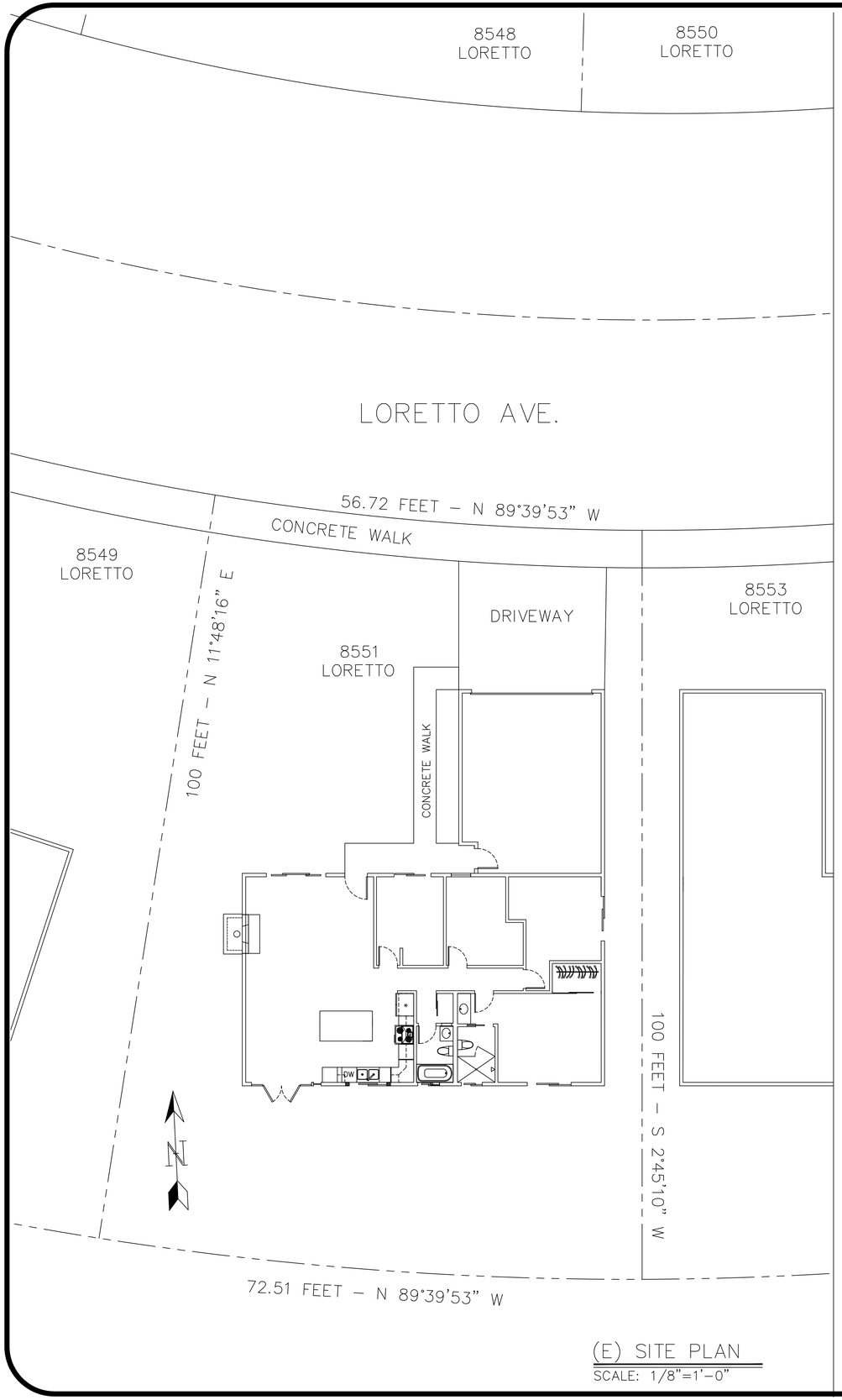
8551 LORETTO AVE REMODEL

ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
CALIFORNIA BUILDING CODE, 2019 EDITION
CALIFORNIA RESIDENTIAL CODE, 2019 EDITION
CALIFORNIA PLUMBING CODE, 2019 EDITION
CALIFORNIA MECHANICAL CODE, 2019 EDITION
CALIFORNIA ELECTRICAL CODE, 2019 EDITION
2019 CALIFORNIA REFERENCED STANDARDS CODE
2019 CALIFORNIA ENERGY CODE
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
CITY OF COTATI MUNICIPAL CODE
COUNTY OF SONOMA CODES AND ORDINANCES

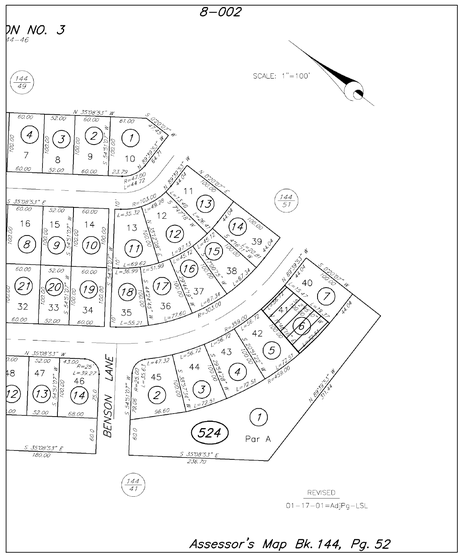
ALL TRADES MUST FOLLOW MANDATORY CAL GREEN REQUIREMENTS AS DETAILED IN THE INCLUDED "G" SHEETS – NO EXCEPTIONS OR EXCLUSIONS ACCEPTED

CONTRACTOR MUST RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 65 PERCENT OF THE NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE IN ACCORDANCE WITH EITHER SECTION 4.408.2, 4.408.3 OR 4.408.4 FOUND ON SHEET G1.0, OR MEET A MORE STRINGENT CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT ORDINANCE PERSCRIBED BY THE CITY OF COTATI OR COUNTY OF SONOMA.

DESCRIPTION OF WORK:
REMOVE UNSAFE UPPER PORTION OF BRICK CHIMNEY. INSTALL NEW FIREPLACE INSERT. INSTALL NEW ROOF TO TOP OF REMAINING PORTION OF CHIMNEY AND EXTEND NEW FLUE ABOVE ROOF AS REQUIRED FOR CODE. REMOVE PORTION OF WALL @ KITCHEN & REMODEL KITCHEN. UPDATE FINISHES THROUGHOUT HOUSE, INSTALL NEW LED RECESSED LIGHTING AND FLOOR FINISHES



(E) SITE PLAN
SCALE: 1/8"=1'-0"



Assessor's Map Bk. 144, Pg. 52

ASSESSORS PARCEL MAP

OWNER:
WENDY WILLIAMS
8551 LORETTO AVE
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707.364.2049

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ENGINEERING CONSULTANT:
WM STRUCTURAL
ERIK McGREGOR
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OAKLAND, CA 94611
510.995.6428

CONTRACTOR:
GREEN BAY REMODELING
ZACK ILINETSKY
1015 2ND ST, SUITE B
SAN RAFAEL, CA 94901
855.889.9963

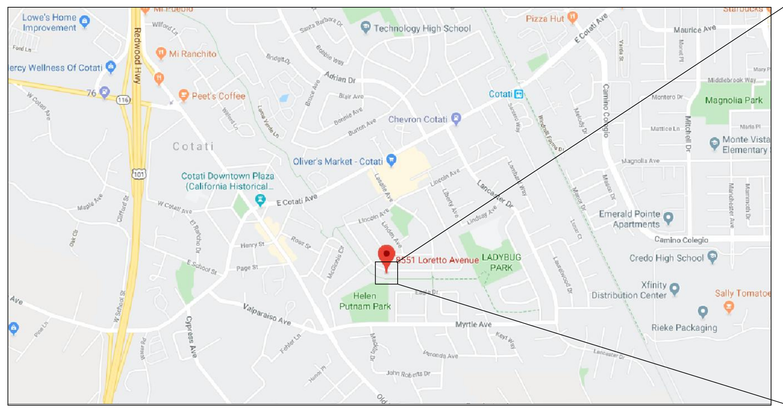
ENERGY CONSULTANT:
NA

PROJECT DATA:

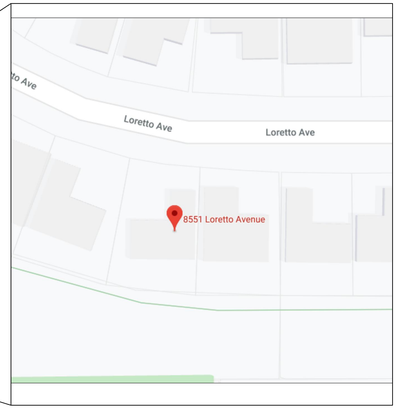
COUNTY: SONOMA
APN#: 144-524-006-000
YEAR BUILT: 1973
ZONING: NL
OCCUPANCY: R-3
CLIMATE ZONE: 2
TYPE OF CONSTRUCTION: V-B
SEISMIC CATEGORY "D"
SPRINKLERS: NO
STORIES: 1
BEDROOMS: (E) 4 (N) 4
BATHROOMS: (E) 2 (N) 2

(E) RESIDENCE:	1,344 SQ FT
RESIDENCE ADDITION:	0 SQ FT
(N) LIVING AREA:	1,344 SQ FT
(E) GARAGE	464 SQ FT
GARAGE ADDITION:	0 SQ FT
(N) GARAGE AREA	464 SQ FT
(E) BUILDING TOTAL S.F.:	1,808 SQ FT
(N) BUILDING TOTAL S.F.:	1,808 SQ FT
LOT SF:	6,500 SQ FT

SHEET INDEX:



VICINTY MAP



LOCAL MAP

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

REMODEL & ADDITION

OWNER:

Drawing By:
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Peter Christopher Klimen
DIGITALLY SIGNED BY PETER CHRISTOPHER KLIMEN
EMAIL=KLIMEN@ATT.NET DATE: 00/00/00

SITE DATA
SHEET INDEX
SITE PLAN

A0.1

ABBREVIATIONS

&	AND
?	ANGLE
@	AT
?	CENTERLINE
?	DIAMETER
(E)	EXISTING
(N)	NEW
⊥	PERPENDICULAR
#	POUND
ABV.	ABOVE
AB	ANCHOR BOLT
ACOUS.	ACOUSTICAL
A.D.	AREA DRAIN
ADJ.	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AGGR	AGGREGATE
AL./ALUM.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECT
ARCH'L	ARCHITECTURAL
ASPH.	ASPHALT
AWG.	AWNING
BM.	BEAM
BITUM.	BITUMINOUS
BLK.	BLOCK
BLKG.	BLOCKING
BD.	BOARD
BLT.	BOLT
BOT.	BOTTOM
BLDG.	BUILDING
CAB.	CABINET
C.O.	CASED OPENING
C.B.	CATCH BASIN
CPT	CARPET
CAS	CASEMENT
CHLK.	CHAIN LINK
C.I.	CAST IRON
CLKG.	CAULKING
C.J.	CEILING JOISTS
CLG.	CEILING
CEM.	CEMENT
CTR.	CENTER
CER.	CERAMIC
C.T.	CERAMIC TILE
CLR.	CLEAR
CLO.	CLOSET
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CVT.	COMPOSITION VINYL TILE
CONC./C.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CORR.	CORRIDOR
CG	CORNER GAURD
CTSK	COUNTERSINK
DEPT.	DEPARTMENT
DET.	DETAIL
D.F.	DOUGLAS FIR
D/F	DRINKING FOUNTAIN
DIA.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DR.	DOOR
D.O.	DOOR OPENING
DBL.	DOUBLE
DH.	DOUBLE HUNG
DN.	DOWN
DS.	DOWN SPOUT
D.S.P.	DRY STAND PIPE
DWR.	DRAWER
DWG'S	DRAWINGS
E.	EAST
EA.	EACH
E.I.F.S.	EXTERIOR INSULATED FINISH SYSTEM
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
EP.	ELECTRICAL PANELBOARD
EL./ELEV	ELEVATION
ELEV	ELEVATOR
EMER.	EMERGENCY
ENCL.	ENCLOSURE
EQ.	EQUAL
EQUIPT.	EQUIPMENT
E.W.C.	ELECTRICAL WATER COOLER
EXST.	EXISTING
EXP.	EXPANSION
EXPO.	EXPOSED
EXT.	EXTERIOR
F.C.	FACE OF CONCRETE
F.B.	FACE OF CONCRETE BLOCK
F.O.M.	FACE OF MULLION
F.D.	FLOOR DRAIN
F.O.F.	FACE OF FINISH
F.O.S.	FACE OF STUDS
F.F.	FALSE FRONT/FINISH FLOOR
FIN.	FINISH
FG	FINISH GRADE
F.A.	FIRE ALARM
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CAB.
F.H.C.	FIRE HOSE CABINET
FPRF.	FIREPROOF
FIX.	FIXED
FLASH.	FLASHING
F.B.	FLAT BAR
F.H.W.S.	FLAT HEAD WOOD SCREW
FL.	FLOOR
F.D.	FLOOR DRAIN
F.J.	FLOOR JOISTS
FLUOR.	FLUORESCENT
FT.	FOOT OR FEET
FTG.	FOOTING
FAU.	FORCED AIR UNIT
FDN.	FOUNDATION
FRAM'G	FRAMING
FLS./FS	FULL SIZE
FURR.	FURRING
FUT.	FUTURE
GALV.	GALVANIZED
G.I.	GALVANIZED IRON
G.S.M.	GALVANIZED SHEET METAL
GA.	GAUGE
GL.	GLASS
G.B.	GRAB BAR
GR.	GRADE
GND.	GROUND
GFI.	GROUND FAULT INTERRUPTER
GYP.	GYPSUM
GYP.BD.	GYPSUM BOARD
H/C	HANDICAP
H.D.C.P.	HANDICAP/HANDICAPPED
HDWE.	HARDWARE
HDWD.	HARDWOOD
HGT./HT.	HEIGHT
H.C.	HOLLOW CORE
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
H.B.	HOSE BIB
H.P.	HIGH POINT
HR.	HOUR
H.V.A.C.	HEATING, VENTING & AIR CONDITIONING
I.D.	INSIDE DIAMETER
INSUL.	INSULATION
INT.	INTERIOR
I.C.B.O.	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
JAN.	JANITOR
JT.	JOINT
K.D.	KILN DRIED
KIT.	KITCHEN
LAB	LABORATORY
LAM	LAMINATE
LAV.	LAVATORY
LT.	LIGHT
LKR.	LOCKER
MB	MACHINE BOLT
MFR.	MANUFACTURER
MFG	MANUFACTURING
MAX.	MAXIMUM
MECH.	MECHANICAL
M.C.	MEDICINE CABINET
MEMB.	MEMBRANE
MET.	METAL
MH.	MAN HOLE
MIN.	MINIMUM
MIR.	MIRROR
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MTD.	MOUNTED
MUL.	MULLION
N.	NORTH
NOM.	NOMINAL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO or #	NUMBER
OBS.	OBSCURE
O.F.E.	OWNER FURNISHED EQUIPMENT
OFF.	OFFICE
O.C.	ON CENTER
OPNG.	OPENING
OPP.	OPPOSITE
O.H.	OPPOSITE HAND
O.D.	OUTSIDE DIAMETER (Dia)
O/	OVER
O.A.	OVERALL
OH.	OVER HANG/OVERHEAD
PR	PAIR
PTD	PAINTED
PNL	PANEL
P.T.D.	PAPER TOWEL DISPENSER
P.T.D/R	PAPER TOWEL DISPENSER AND RECEPTACLE COMBO
PTR.	PAPER TOWEL RECEPTACLE
PTN.	PARTITION
P.D.	PLANTER DRAIN
PLAS.	PLASTER
P.LAM.	PLASTIC LAMINATE
PL.	PLATE
PLUMB	PLUMBING
PLYWD/PLY	PLYWOOD
PT.	POINT/PRESSURE TREATED
P.I.P.	POURED IN PLACE
PREFAB	PREFABRICATED
P/L	PROPERTY LINE
PRCST.	PRE-CAST
QT	QUARRY TILE
R.W.L.	RAIN WATER LEADER
RWD.	REDWOOD
RGTR	REGISTER
REINF	REINFORCE
REF	REFERENCE
REFG.	REFRIGERATOR
REQ.	REQUIRED
RESIL.	RESILIENT
RDWD.	REDWOOD
REV	REVERSE
R.	RISER/ RADIUS
RM.	ROOM
R.O.	ROUGH OPENING
S.N.D.	SANITARY NAPKIN DISPENSER
S.N.R.	SANITARY NAPKIN RECEPTACLE
SCHED.	SCHEDULE
S.C.D.	SEAT COVER DISPENSER
SECT.	SECTION
S.C.E.D.	SEE CIVIL ENGINEER DRAWINGS
S.E.D.	SEE ELECTRICAL DRAWINGS
S.L.D.	SEE LANDSCAPE DRAWINGS
S.M.D.	SEE MECHANICAL DRAWINGS
S.P.D.	SEE PLUMBING DRAWINGS
S.S.D.	SEE STRUCTURAL DRAWINGS
S.S.K.	SERVICE SINK
SW.	SHEAR WALL
SHT.	SHEET
SHR.	SHOWER
SIM.	SIMILAR
SH	SINGLE HUNG/SHELF
S.	SINK
SKYLT	SKYLIGHT
SL.	SLIDING/ SLOPE
SD.	SMOKE DETECTOR
S.D.	SOAP DISPENSER
S.C.	SOLID CORE
S.	SOUTH
SP	SPACE
SPEC.	SPECIFICATION
SQ.	SQUARE
SQ.FT.	SQUARE FOOT
SQ.IN.	SQUARE INCH
SST	STAINLESS STEEL
STD.	STANDARD
STA.	STATION
STL.	STEEL
STOR.	STORAGE
STRL.	STRUCTURAL
STRUCT	STRUCTURE
SUSP.	SUSPENDED
SYM.	SYMMETRICAL
TEL.	TELEPHONE
T.V.	TELEVISION
TEMP.	TEMPERED/TEMPORARY
TERR.	TERRAZZO
THK./TK	THICK
TL	TILE
T.P.D.	TOILET PAPER DISPENSER
T.G.	TONGUE AND GROOVE
T.O.C.	TOP OF CURB
T.O.P.	TOP OF PAVEMENT
T.O.S.	TOP OF SUBFLOOR/SLAB
T.O.SHTG.	TOP OF SHEATHING
T.O.P.	TOP OF PLATE
T.O.W.	TOP OF WALL/WINDOW
T.B.	TOWEL BAR
TRD. /T.	TREAD
TYP.	TYPICAL
U.L.	UNDERWRITERS LABORATORY
UNF.	UNFINISHED
UBC	UNIFORM BUILDING CODE W/ CALIFORNIA AMENDMENTS
U.O.N.	UNLESS OTHERWISE NOTED
UR.	URINAL
V.I.F.	VERIFY IN FIELD
VERT.	VERTICAL
V.G.	VERTICAL GRAIN
VEST.	VESTIBULE
VNL./V	VINYL
VCT	VINYL COMPOSITION TILE
W.	WEST/WAX
WSCT	WAINSCOT
W.C.	WATER CLOSET
WH.	WATER HEATER
WP	WATERPROOF
WT.	WEIGHT
W/	WITH
W./O.	WITHOUT
WD.	WOOD

GENERAL NOTES:

1. THESE PLANS ARE FOR GENERAL CONSTRUCTION PURPOSES ONLY. THEY ARE NOT EXHAUSTIVELY DETAILED NOR FULLY SPECIFIED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY DIMENSIONS, CONDITIONS, MATERIALS, EQUIPMENT, SELECTIONS, AND TITLE 24 COMPLIANCE.
2. THE CONTRACTOR SHALL VERIFY ALL SITE GRADES, EXISTING IMPROVEMENTS, PROPERTY LINES, EASEMENTS, SETBACKS, AND UTILITIES, AND REPORT WHERE DISCREPANCIES OCCUR.
3. DO NOT SCALE THE DRAWINGS. DIMENSIONS ARE TO FACE OF FINISH AND ACTUAL DOOR OPENING WIDTH UNLESS OTHERWISE NOTED (U.O.N.). ALL DIMENSIONS NOTED "CLEAR" OR "CLR" ARE FOR EQUIPMENT CLEARANCES AND MUST BE STRICTLY MAINTAINED. ALL DIMENSIONS NOTED "VERIFY" OR V. I. F. ARE TO BE CHECKED BY CONTRACTOR PRIOR TO AND DURING CONSTRUCTION. DIMENSIONS TAKE PRECEDENCE OVER SCALE OF THE DRAWING; DO NOT SCALE DRAWINGS.
4. MANUFACTURER'S MATERIALS, EQUIPMENT, ETC., SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS (U.O.N.). THE CONTRACTOR ACKNOWLEDGES THAT THE DRAFTER SHALL NOT SUPERVISE, DIRECT, OR HAVE CONTROL OVER THE WORK NOR SHALL THE DRAFTER HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES SELECTED BY THE CONTRACTOR NOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR PROGRAMS IN CONNECTION WITH THE WORK. THESE RIGHTS AND RESPONSIBILITIES ARE SOLELY THOSE OF THE CONTRACTOR IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS.
5. INSTALLATION INSTRUCTIONS FOR ALL LISTED EQUIPMENT SHALL BE PROVIDED TO THE FIELD INSPECTOR AT TIME OF INSPECTION.
6. EXTERIOR WINDOWS AND DOORS SHALL MEET THE DESIGN PRESSURE RATING REQUIREMENTS OF CBC §1714.5.
7. DOORS AND WINDOWS TO THE EXTERIOR SHALL BE FULLY WEATHER STRIPPED.
8. LANDINGS SHALL NOT BE MORE THAN 7-3/4" LOWER THAN THRESHOLD AND MAINTAIN ¼" INCH PER FOOT SLOPE AWAY FROM BUILDING FOR DRAINAGE.
9. SLOPE ALL GRADES AWAY FROM NEW CONSTRUCTION AT 6" FOR EVERY 5'.
10. ALL NEW CONSTRUCTION TO BLEND/MATCH EXISTING.
11. ALL WOOD TO BE DOUGLAS FIR #2 OR BETTER, U.O.N.
12. ALL CONCRETE TO BE 2,500 P.S.I. @ 28 DAYS U.O.N.
13. PROVIDE FIRE DEPARTMENT ACCESS AT ALL TIMES DURING CONSTRUCTION.
14. CONTRACTOR IS TO PROVIDE AND INSTALL ALL WORK SHOWN ON DRAWINGS, SUBJECT TO THE LIMITATIONS OF SCOPE OF THE BASE BID, LISTED ABOVE. THE CONTRACTOR SHALL PROVIDE MISCELLANEOUS FASTENERS, BLOCKING AND SEALANTS INCIDENTAL TO COMPLETE THE CONTRACTED WORK. THIS SHALL INCLUDE SUPPLYING AND INSTALLING NECESSARY BACKING INSIDE WALLS FOR THE INSTALLATION OF WALL HANGING ACCESSORIES WHERE INDICATED. ALL WORK SHALL BE INSTALLED AS SHOWN ON DRAWINGS, PLUMB, AND LEVEL, TRUE TO LINE AND SECURELY FASTENED OR ANCHORED.
15. CONTRACTOR SHALL REVIEW ALL PLANS AND SPECIFICATIONS TO COORDINATE WITH EXISTING BUILDING CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY FIELD OBSERVED CODE VIOLATIONS, OR INCORRECT EXISTING CONSTRUCTION INCLUDING APPARENT CONFLICTS BETWEEN THE EXISTING CONSTRUCTION AND THE CONTRACT DRAWINGS TO THE IMMEDIATE ATTENTION OF THE DESIGNER. DO NOT SCALE DRAWINGS, CONTACT DESIGNER FOR CLARIFICATION OF DIMENSIONS.
16. CONTRACTOR SHALL MAKE EVERY REASONABLE EFFORT TO PROTECT THE POSSESSIONS OF THE OWNER THAT REMAIN IN OR ADJACENT TO THE WORK ARE FROM LOSS OR DAMAGE. ANY PORTION OF THE PROPERTY DAMAGED BY THE CONTRACTOR OR SUBCONTRACTOR DURING THE COURSE OF THE WORK MUST BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER. THE TERM "DAMAGES" SHALL INCLUDE, BUT NOT BE LIMITED TO ANY DAMAGE CAUSED BY CONTRACT OPERATION OR WORKERS DURING CONSTRUCTION TO THE OWNER'S RESIDENCE, FURNISHINGS, CLOTHING, FENCES, ADJOINING PROPERTIES OR TO PUBLIC SPACES.
17. A MINIMUM OF 3'-0" CLEARANCE IS REQUIRED BETWEEN THE COUNTER FRONTS AND APPLIANCES, OR COUNTER FRONTS AND WALLS.

PLUMBING NOTES:

1. SHOWER HEADS SHALL HAVE A MAXIMUM FLOW RATE OF 1.8 GPM MEASURED AT 80 PSI AND MUST COMPLY WITH DIVISION 4.3 OF THE CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN) PER CPC SECTION 408.2.
2. SHOWER TO BE PROVIDED WITH PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE CONTROLS
3. THE SIZE OF WATER CLOSETS TO BE MAXIMUM 1.28 GALLONS PER FLUSH.
4. FAUCETS AT LAVATORIES SHALL HAVE A MAXIMUM WATER SUPPLY FLOW RATE OF 1.2 GPM.
5. KITCHEN SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF 1.8 GPM.
6. PROVIDE 1-1/2" DRAIN LINE MINIMUM FROM KITCHEN. CPC 420.3
7. PROVIDE A LISTED AIR GAP FOR DISHWASHER. CPC 414.3
8. PROVIDE A DEDICATED GAS LINE FROM THE METER TO THE APPLIANCE.
9. PROVIDE NON-REMOVABLE BACKFLOW PREVENTION DEVICE ON ALL EXTERIOR HOSE BIBS.
10. MINIMUM OF ¼" PER FOOT (2%) SLOPE FOR ALL HORIZONTAL DRAINAGE PIPING.
11. SEISMIC STRAPPING FOR HOT WATER HEATER REQUIRED PER CPC SECTION 508.2.
12. THE HOT WATER HEATER TEMPERATURE/PRESSURE RELIEF VALVE SHALL HAVE ATTACHED TO IT A PIPE WHICH WILL RUN OUTSIDE THE BUILDING WITH THE END OF THE PIPE BETWEEN 6 & 24 INCHES ABOVE GRADE & POINTED DOWN
13. ALL NEW GAS PIPING SHALL BE SIZED TO SUPPLY SUFFICIENT GAS TO THE APPLIANCES. THE GAS PIPING SHALL BE TESTED WITH 10 LBS. OF PRESSURE FOR A MINIMUM OF 15 MINUTES.
14. HOT WATER PIPING ¾" AND GREATER SERVING A KITCHEN SHALL BE INSULATED WITH MINIMUM 1" WALL THICKNESS INSULATION.
15. ALL OVEN AND STOVE GAS VALVES SHALL BE READILY ACCESSIBLE AND BE WITHIN 3'-0" OF THE APPLIANCE. CONNECTORS MAY NOT BE CONCEALED OR PASS THROUGH ANY FLOOR, WALL PARTITION, CEILING, OR APPLIANCE HOUSING CABINET.
16. A 2" ACCESSIBLE PLUMBING CLEANOUT UNDER THE SINK SHALL BE REQUIRED.
17. AN AIR GAP ABOVE THE SINK RIM SHALL BE INSTALLED BETWEEN THE DISHWASHER DRAINPIPE AND THE GARBAGE DISPOSAL INLET.

MECHANICAL NOTES:

1. PER CMC, SECTION 502.2.1, POINT OF EXHAUST VENT MUST BE A MINIMUM OF 3'-0" FROM A PROPERTY LINE OR OPENINGS INTO THE BUILDINGS SUCH AS DOORS, WINDOWS, OPENING SKYLIGHTS, ATTIC VENTS & 10-FEET FROM A FORCED AIR INLET.
2. PER CMC, SECTION 504.1.1, BACK DRAFT DAMPER ARE REQUIRED ON VENTILATION SYSTEMS EXHAUSTING TO THE EXTERIOR.
3. PROVIDE EXHAUST HOOD OVER RANGE/ COOKTOP, 100 CFM MINIMUM AND IT SHALL TERMINATE OUTSIDE.
4. A VERTICAL MINIMUM CLEARANCE OF 30" IS REQUIRED ABOVE A RANGE TO COMBUSTIBLES MATERIALS, AND A MINIMUM VERTICAL CLEARANCE OF 24" ABOVE THE RANGE TO THE BUILT-IN MICROWAVE OVENS IS REQUIRED. NOTE: LARGER UNITS REQUIRE GREATER CLEARANCES, REFER TO MANUFACTURER REQUIREMENTS.

ELECTRICAL NOTES:

1. ARC FAULT CIRCUIT INTERRUPTER (AFCI) REQUIRED FOR ALL NEW 120-VOLT, SINGLE-PHASE, 15 AND 20 AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN KITCHENS, BATHROOMS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, LAUNDRY ROOMS, GARAGE, HALLWAYS, OR SIMILAR ROOMS OR AREAS.
2. PER CEC 406.12, PROVIDE TAMPER-RESISTANT RECEPTACLES IN AREAS SPECIFIED IN CEC 210.52, SPECIFICALLY ALL 125-VOLT, 15- AND 20-AMPERE RECEPTACLES IN AREAS SUCH AS KITCHENS, BATHROOMS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, SUNROOMS, BEDROOMS, RECREATION ROOMS, LAUNDRY ROOMS, GARAGE, OR SIMILAR ROOMS OR AREAS OF A DWELLING UNIT.
3. RECEPTACLES SHALL BE INSTALLED SUCH THAT NO POINT MEASURED HORIZONTALLY ALONG THE FLOOR LINE OF ANY WALL SPACE IS MORE THAN 6 FEET FROM A RECEPTACLE OUTLET. THIS ALLOWS FOR A MAXIMUM OF 12 FEET BETWEEN RECEPTACLES ON THE SAME WALL.
4. SMOKE ALARM. WHEN A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING $1,000, EXISTING DWELLINGS THAT HAVE ATTACHED GARAGES OR FUEL BURNING APPLIANCES, SMOKE DETECTORS SHALL BE INSTALLED: (A) IN EACH SLEEPING ROOM, (B) OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS, (C) ON EACH STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. NEW SMOKE ALARMS TO BE INTERCONNECTED. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. SMOKE ALARMS WITH INTEGRAL STROBES THAT ARE NOT EQUIPPED WITH BATTERY BACKUP SHALL BE CONNECTED TO AN EMERGENCY ELECTRICAL SYSTEM. SMOKE ALARMS SHALL EMIT A SIGNAL WHEN THE BATTERIES ARE LOW. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION.
5. CARBON MONOXIDE ALARM. WHEN A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING $1,000, EXISTING DWELLINGS THAT HAVE ATTACHED GARAGES OR FUEL BURNING APPLIANCES SHALL BE PROVIDED WITH A CARBON MONOXIDE ALARM IN THE FOLLOWING LOCATIONS: (A) OUTSIDE OF THE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S); (B) ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.
6. ANY SMOKE ALARM WITHIN 20 FEET OF A PERMANENTLY INSTALLED COOKING APPLIANCE SHALL BE THE IONIZATION OR PHOTOELECTRIC ALARM TYPE AND HAVE A MINIMUM SPACING OF 10 FEET AWAY.
7. THE MINIMUM DISCONNECTION MEANS FOR A SINGLE FAMILY DWELLING IS 100 AMPERES, 3-WIRE.
8. PROVIDE ADEQUATE GROUND TO ELECTRICAL SERVICE ENTRY PANEL. VERIFY OR PROVIDE BOND TO METAL GAS AND WATER PIPES.
9. ELECTRICAL SUB PANELS SHALL NOT BE LOCATED IN THE VICINITY OF EASILY IGNITABLE MATERIALS SUCH AS CLOTHES CLOSETS.
10. STAGGER NEW ELECTRICAL OUTLETS BY AT LEAST 24-INCHES ON THE OPPOSITE SIDE OF THE FIRE-WALL (GARAGE/ HOUSE WALL) PER BUILDING CODE SECTION 712.3.2.
11. PROVIDE AND INSTALL RECEPTACLE OUTLETS AT HOUSE EXTERIOR WALLS THAT ARE GFCI PROTECTED, GASKETED-COVER TYPE FOR USE IN WET LOCATIONS.
12. PROVIDE AT LEAST ONE GFCI OUTLET WITHIN 3 FEET OF EACH SINK IN THE BATHROOMS.
13. AT LEAST ONE NEW LUMINAIRE IN EACH BATHROOM SHALL BE CONTROLLED BY A VACANCY SENOR.
14. PER CEC, AT LEAST ONE 20-AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SUPPLY THE BATHROOM RECEPTACLE OUTLETS. THIS CIRCUIT SHALL HAVE NO OTHER OUTLETS.
15. BATHROOM LIGHTING CANNOT BE ON AN OUTLET CIRCUIT.
16. UNDER CABINET LUMINAIRES SHALL BE SEPERATELY SWITCHED
17. A MINIMUM OF (2) 20 AMP GFCI PROTECTED CIRCUITS SHALL SUPPLY ALL KITCHEN COUNTER TOP RECEPTACLES, CEC 210.11 (C)(2), & (C) (3).
18. PROVIDE 20 AMP DEDICATED CIRCUITS FOR THE DISHWASHER, GARBAGE DISPOSAL, REFRIGERATOR, MICROWAVE AND RANGE
19. RECEPTACLE OUTLETS SHALL BE LOCATED NO MORE THAN 20" ABOVE COUNTER TOP AND NO MORE THAN 12" BELOW IF COUNTER DOES NOT EXTEND MORE THAN 6" FROM BASE. PENINSULA COUNTERTOP SPACES 24" LONG OR GREATER AND SHORT DIMENSION 12" OR GREATER SHALL HAVE AT LEAST ONE RECEPTACLE.
20. ALL KITCHEN RECEPTACLES SHALL BE TAMPER-RESISTANT & GFCI PROTECTED. CEC 210(A) 5 & 6.
21. THE KITCHEN COUNTERTOP WALLS SHALL BE NO MORE THAN 24" FROM A GFCI OUTLET. THIS DOES NOT APPLY TO ANY COUNTERTOP WALLS BEHIND SINKS, RANGES OR MOUNTED COOKTOPS.
22. THE UNDERCOUNTER ELECTRICAL OUTLET SERVING THE DISHWASHER SHALL BE GFCI PROTECTED. MULTI-WIRE DUPLEX RECEPTACLES FOR GARBAGE DISPOSALS & DISHWASHERS REQUIRE A COMMON TRIP BREAKER IN THE SERVICE PANELS.
23. THE MAXIMUM LENGTH FOR A GARBAGE DISPOSAL CORD IS 36" AND A DISHWASHER IS 48". ATTACHMENT PLUG AND RECEPTACLE SHALL BE ACCESSIBLE AND LABELED.
24. ISLANDS OR PENINSULAS REQUIRE AT LEAST 1 RECEPTACLE. RECEPTACLES MAY NOT BE MORE THAN 12" BELOW THE COUNTER SURFACE OR BE BELOW A COUNTER THAT EXTENDS MORE THAN 6" BEYOND A CABINETS END.
25. DIMMERS OR VACANCY SENSORS ARE REQUIRED TO CONTROL ALL HIGH-EFFICACY LUMINAIRES, EXCEPT CLOSETS LESS THAN 70 SQ FT & HALLWAYS
26. ALL NEW RECESSED LIGHTING SHALL COMPLY WITH THE REFERENCE JOINT APPENDIX JA8 AND SHALL NOT CONTAIN SCREW BASE SOCKET. CA ENERGY SECTIONS 150.0 (K) 1 C.
27. RECESSED LIGHTING FIXTURES TO BE LISTED FOR ZERO CLEARANCE INSULATION CONTACT (IC) IN ACCORDANCE W/ CEC 150(K)(L)(A).
28. ALL PROPOSED LIGHTING TO BE HIGH EFFICACY IN ACCORDANCE WITH CEC 150, O (K)(L)(A)
37. ALL NEW OUTDOOR LIGHTING, IF ANY, IS TO BE HIGH-EFFICACY, TO BE CONTROLLED BY AN ON/OFF SWITCH AND INCLUDE ONE OF THE FOLLOWING PER CA ENERGY CODE SECTION 150.0 (K) 3A.:

a. PHOTOCELL AND MOTION SENSOR
b. PHOTOCONTROL AND AUTOMATIC TIME SWITCH CONTROL
c. ASTRONOMICAL TIME CLOCK CONTROLD.
d. ENERGY MANAGEMENT CONTROL SYSTEM

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
	1 PLAN REVIEW COMMENTS
	2 PLAN REVIEW COMMENTS

REMODEL & ADDITION

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CODE & CONSTRUCTION NOTES

A0.2
1

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

AIA California

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

Y	N/A	RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

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

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

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

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

SECTION 302 MIXED OCCUPANCY BUILDINGS

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

ABBREVIATION DEFINITIONS:

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

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES
DIVISION 4.1 PLANNING AND DESIGN
SECTION 4.102 DEFINITIONS

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

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

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

4.106 SITE DEVELOPMENT

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

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

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

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

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

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

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

Exception: Additions and alterations not altering the drainage path.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625.

Exceptions:
1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:
   1.1 Where there is no commercial power supply.
   1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than $400.00 per dwelling unit.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

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

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

4.106.4.2 New multifamily dwellings. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

Notes:
1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.

4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS) When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options:

1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the *California Building Code*, Chapter 11A, to allow use of the EV charger from the accessible parking space.
2. The EV space shall be located on an accessible route, as defined in the *California Building Code*, Chapter 2, to the building.

Exception: Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.

Note: Electric Vehicle charging stations serving public housing are required to comply with the *California Building Code*, Chapter 11B.

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV space shall be designed to comply with the following:

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

4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the *California Electrical Code*.

4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.

Notes:

1. Construction documents are intended to demonstrate the project's capability and capacity or facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

TABLE 4.106.4.3.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6 percent of total

4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486mm).
2. The minimum width of each EV space shall be 9 feet (2743mm)

4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.

4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.

4.106.4.3.5 Identification. The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5.

4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for the EV charging stations in the *California Building Code*, Chapter 11B.

DIVISION 4.2 ENERGY EFFICIENCY

4.201 GENERAL

4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

4.303 INDOOR WATER USE

4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

4.303.1.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.

Note: A hand-held shower shall be considered a showerhead.

4.303.1.4 Faucets.

4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.

4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

4.304 OUTDOOR WATER USE

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

NOTES:

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

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

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

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

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

Exceptions:

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

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

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

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

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

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

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

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

Notes:

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

4.410 BUILDING MAINTENANCE AND OPERATION

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

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

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this section.

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL

4.501.1 Scope
The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

SECTION 4.502 DEFINITIONS

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

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

Revision History

	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

REMODEL & ADDITION

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CAL GREEN REQUIREMENTS PAGE 1

G1.0

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

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

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

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

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

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

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

4.503 FIREPLACES

4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504 POLLUTANT CONTROL

4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]

(Less Water and Less Exempt Compounds in Grams per Liter)

ARCHITECTURAL APPLICATIONS	VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

TABLE 4.504.2 - SEALANT VOC LIMIT

(Less Water and Less Exempt Compounds in Grams per Liter)

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

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]

GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS

2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.

3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)

4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product requirements of at least one of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1, February 2010 (also known as Specification 01350).
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantage™ Gold.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed , at least 80% of floor area receiving resilient flooring shall comply with one or more of the following:

1. Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

4.506 INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
   a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment.
   b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Notes:

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
2. Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

4.507 ENVIRONMENTAL COMFORT

4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

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

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

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

Revision History

	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

REMODEL & ADDITION

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CAL GREEN REQUIREMENTS PAGE 2

G1.1

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
	1 PLAN REVIEW COMMENTS
	2 PLAN REVIEW COMMENTS

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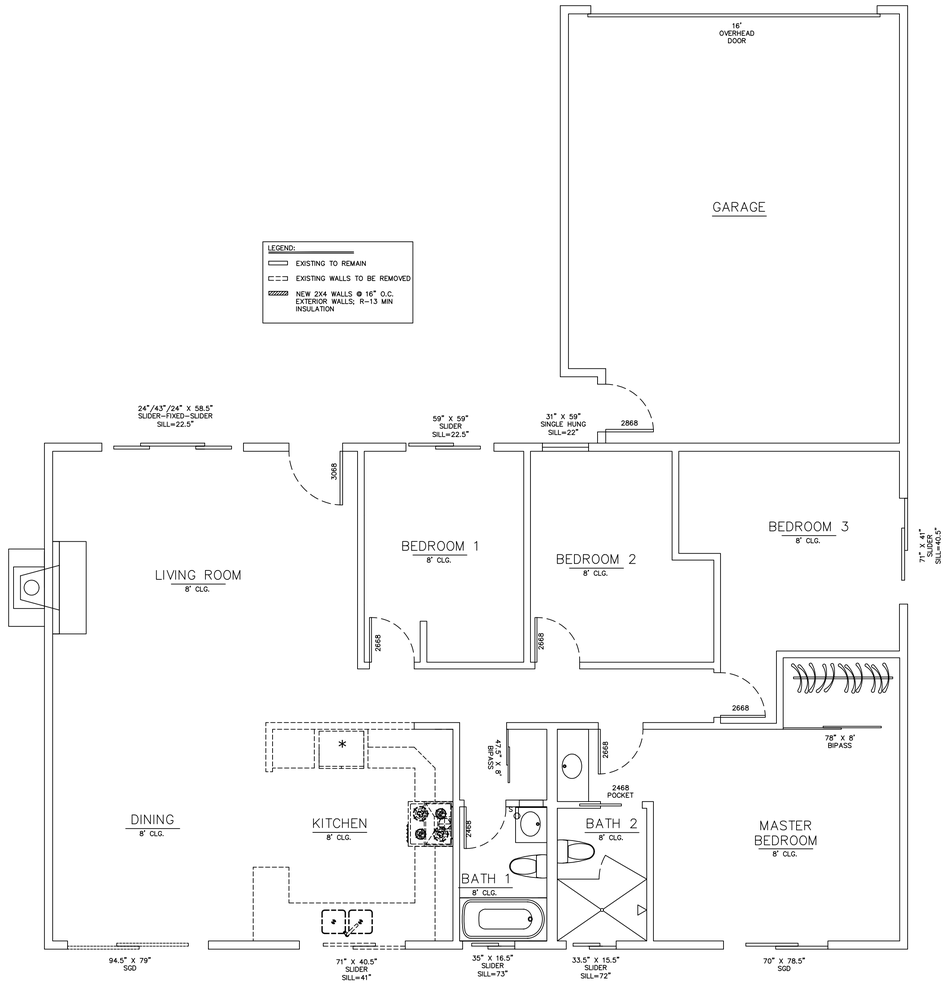
FLOOR PLAN

A2

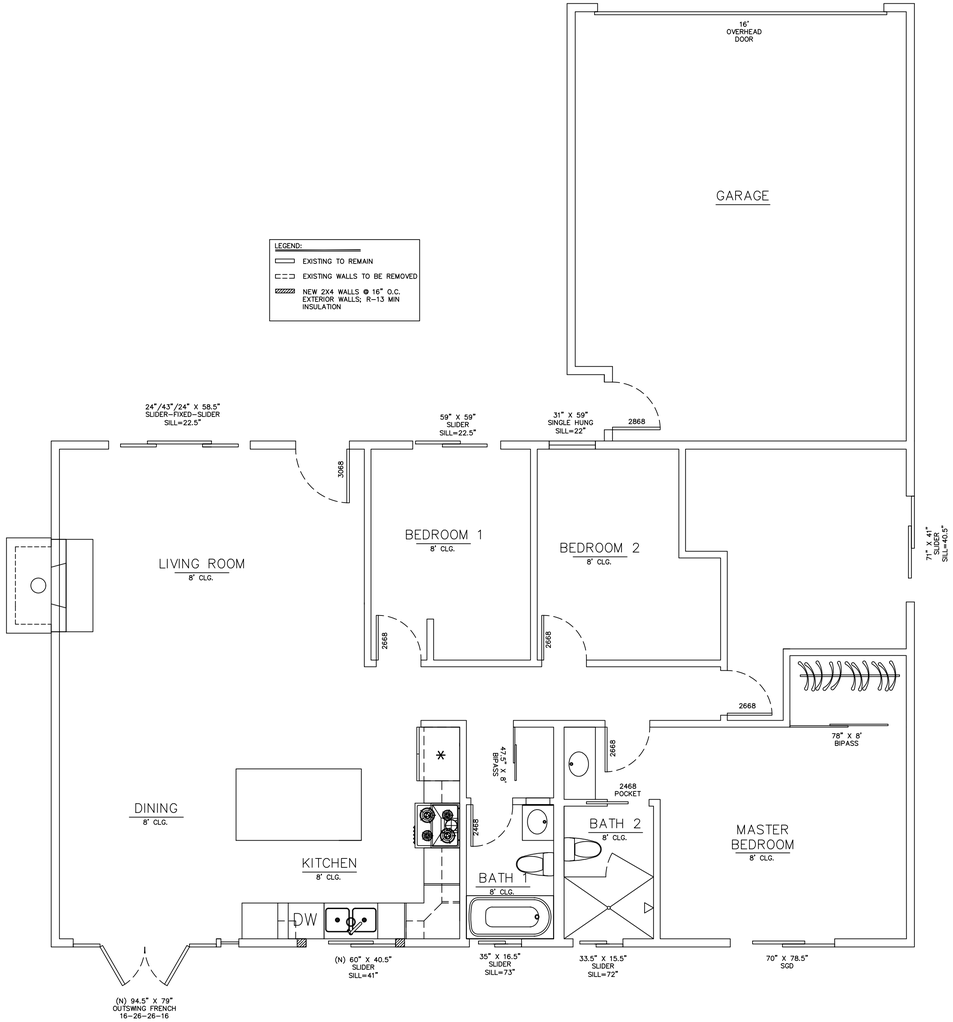
1/A2 (E) FLOOR PLAN– SITE LAYOUT ASSUMING FENCE = PROPERTY LINE

SCALE: 3/16"=1'–0"



(E) FLOOR PLAN & DEMOLITION PLAN

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



(N) FLOOR PLAN

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

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
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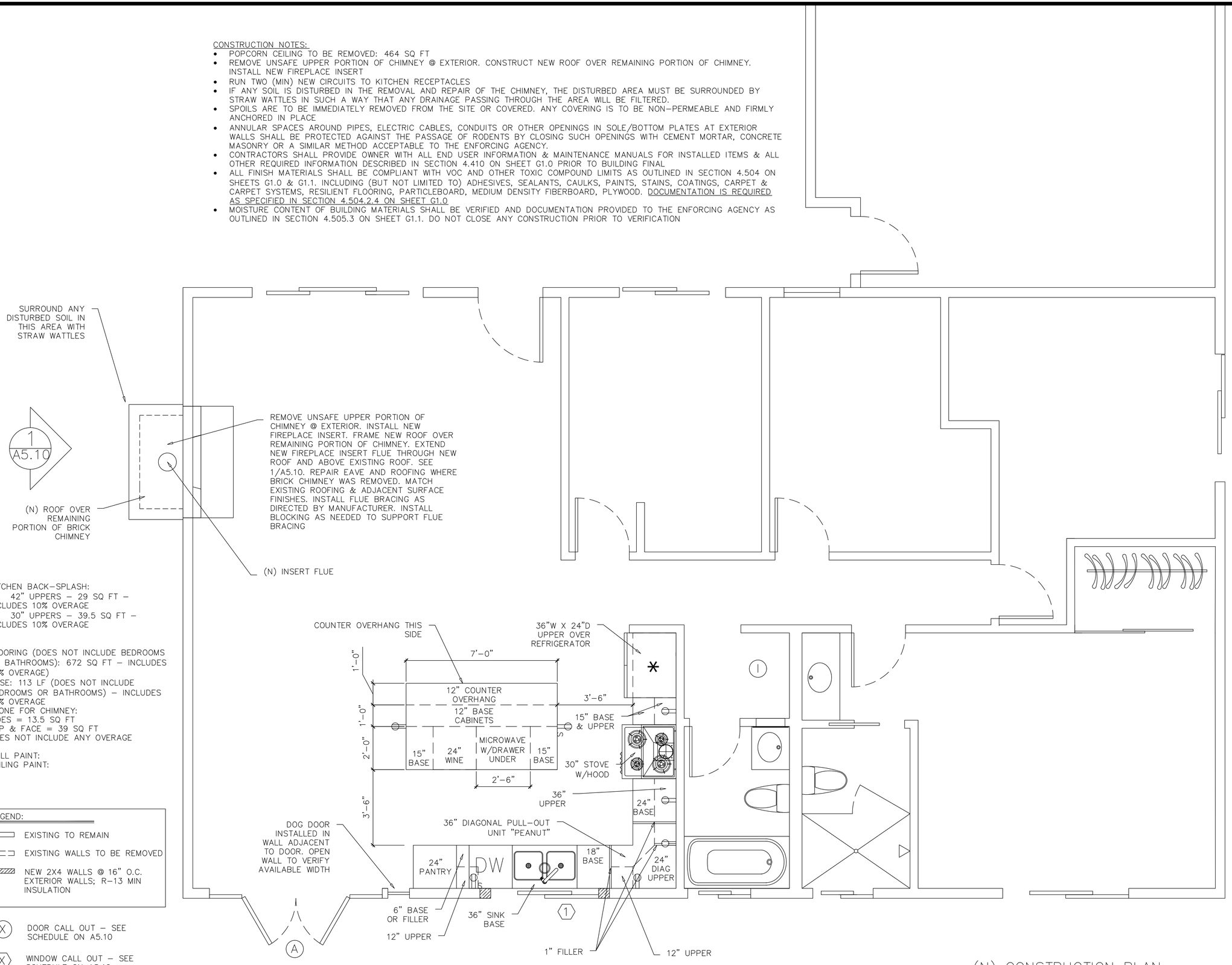
FLOOR PLANS & DEMOLITION PLAN

A1.10

CONSTRUCTION NOTES:

- POPCORN CEILING TO BE REMOVED: 464 SQ FT
- REMOVE UNSAFE UPPER PORTION OF CHIMNEY @ EXTERIOR. CONSTRUCT NEW ROOF OVER REMAINING PORTION OF CHIMNEY. INSTALL NEW FIREPLACE INSERT
- RUN TWO (MIN) NEW CIRCUITS TO KITCHEN RECEPTACLES
- IF ANY SOIL IS DISTURBED IN THE REMOVAL AND REPAIR OF THE CHIMNEY, THE DISTURBED AREA MUST BE SURROUNDED BY STRAW WATTLES IN SUCH A WAY THAT ANY DRAINAGE PASSING THROUGH THE AREA WILL BE FILTERED.
- SPOILS ARE TO BE IMMEDIATELY REMOVED FROM THE SITE OR COVERED. ANY COVERING IS TO BE NON-PERMEABLE AND FIRMLY ANCHORED IN PLACE
- ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS OR OTHER OPENINGS IN SOLE/BOTTOM PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OF RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR A SIMILAR METHOD ACCEPTABLE TO THE ENFORCING AGENCY.
- CONTRACTORS SHALL PROVIDE OWNER WITH ALL END USER INFORMATION & MAINTENANCE MANUALS FOR INSTALLED ITEMS & ALL OTHER REQUIRED INFORMATION DESCRIBED IN SECTION 4.410 ON SHEET G1.0 PRIOR TO BUILDING FINAL
- ALL FINISH MATERIALS SHALL BE COMPLIANT WITH VOC AND OTHER TOXIC COMPOUND LIMITS AS OUTLINED IN SECTION 4.504 ON SHEETS G1.0 & G1.1. INCLUDING (BUT NOT LIMITED TO) ADHESIVES, SEALANTS, CAULKS, PAINTS, STAINS, COATINGS, CARPET & CARPET SYSTEMS, RESILIENT FLOORING, PARTICLEBOARD, MEDIUM DENSITY FIBERBOARD, PLYWOOD. DOCUMENTATION IS REQUIRED AS SPECIFIED IN SECTION 4.504.2.4 ON SHEET G1.0
- MOISTURE CONTENT OF BUILDING MATERIALS SHALL BE VERIFIED AND DOCUMENTATION PROVIDED TO THE ENFORCING AGENCY AS OUTLINED IN SECTION 4.505.3 ON SHEET G1.1. DO NOT CLOSE ANY CONSTRUCTION PRIOR TO VERIFICATION



KITCHEN BACK-SPLASH:
42" UPPERS - 29 SQ FT - INCLUDES 10% OVERAGE
30" UPPERS - 39.5 SQ FT - INCLUDES 10% OVERAGE

FLOORING (DOES NOT INCLUDE BEDROOMS OR BATHROOMS): 672 SQ FT - INCLUDES 10% OVERAGE)
BASE: 113 LF (DOES NOT INCLUDE BEDROOMS OR BATHROOMS) - INCLUDES 10% OVERAGE
STONE FOR CHIMNEY:
SIDES = 13.5 SQ FT
TOP & FACE = 39 SQ FT
DOES NOT INCLUDE ANY OVERAGE

WALL PAINT:
CEILING PAINT:

LEGEND:

- EXISTING TO REMAIN
- EXISTING WALLS TO BE REMOVED
- NEW 2X4 WALLS @ 16" O.C. EXTERIOR WALLS; R-13 MIN INSULATION

(X) DOOR CALL OUT - SEE SCHEDULE ON A5.10

(X) WINDOW CALL OUT - SEE SCHEDULE ON A5.10

(N) CONSTRUCTION PLAN
SCALE: 1/2"=1'-0"

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

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CONSTRUCTION PLAN

A1.11
1

2019 CALIFORNIA BUILDING CODE

TABLE 2304.10.1 FASTENING SCHEDULE

	CONNECTION	FASTENING[a,m]	LOCATION
1.	JOIST TO SILL OR GIRDER	3–8d COMMON (2½"x0.131") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	TOENAIL
2.	BRIDGING TO JOIST	2–8d COMMON (2½"x0.131") 2–3"x0.131" NAILS 2–3" 14 GAGE STAPLES	TOENAIL EACH END
3.	1"x6" SUBFLOOR OR LESS TO EACH JOIST	2–8d COMMON (2½"x0.131")	FACE NAIL
4.	WIDER THAN 1"x6" SUBFLOOR TO EA. JOIST	3–8d COMMON (2½"x0.131")	FACE NAIL
5.	2" SUBFLOOR TO JOIST OR GIRDER	2–16d COMMON (3½"x0.162")	BLIND AND FACE NAIL
6.	SOLE PLATE TO JOIST OR BLOCKING	16d (3½"x0.135") AT 16"O.C. 3"x0.131" NAILS AT 8"O.C. 3" 14 GAGE STAPLES AT 12"O.C.	TYPICAL FACE NAIL
	SOLE PLATE TO JOIST OR BLOCKING AT BRACED WALL PANEL	3"–16d (3½"x0.135") AT 16"O.C. 4–3"x0.131" NAILS AT 16"O.C. 4–3" 14 GAGE STAPLES AT 16"O.C.	BRACED WALL PANELS
7.	TOP PLATE TO STUD	2–16d COMMON (3½"x0.162") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	END NAIL
8.	STUD TO SOLE PLATE	4–8d COMMON (2½"x0.131") 4–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	TOENAIL
		2–16d COMMON (3½"x0.162") 3–3"x0.131" 3–3" 14 GAGE STAPLES	END NAIL
9.	DOUBLE STUDS	16d (3½"x0.135") AT 24"O.C. 3"x0.131" NAIL AT 8"O.C. 3" 14 GAGE STAPLE AT 8"O.C.	FACE NAIL
10.	DOUBLE TOP PLATES	16d (3½"x0.135") AT 16"O.C. 3"x0.131" NAIL AT 12"O.C. 3" 14 GAGE STAPLE AT 12"O.C	TYPICAL FACE NAIL
	DOUBLE TOP PLATES	8–16d COMMON (3½"x0.162") 12–3"x0.131" NAILS 12–3" 14 GAGE STAPLES	LAP SPLICE PER SIDE
11.	BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3–8d COMMON (2½"x0.131") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	TOENAIL
12.	RIM JOIST TO TOP PLATE	8d (2½"x0.131") AT 6"O.C. 3"x0.131" NAIL AT 6"O.C. 3" 14 GAGE STAPLE AT 6"O.C.	TOENAIL
13.	TOP PLATES, LAPS AND INTERSECTIONS	2–16d COMMON (3½"x0.162") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	FACE NAIL
14.	CONTINUOUS HEADER, TWO PIECES	16d COMMON (3½"x0.162")	16"O.C. ALONG EDGE
15.	CEILING JOISTS TO PLATE	3–8d COMMON (2½"x0.131") 5–3"x0.131" NAILS 5–3" 14 GAGE ATAPLES	TOENAIL
16.	CONTINUOUS HEADER TO STUD	4–8d COMMON (2 ½"x0.131")	TOENAIL
17.	CEILING JOISTS, LAPS OVER PARTITIONS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3–16d COMMON (3½"x0.162") MINIMUM, TABLE 2308.10.4.1 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	FACE NAIL
18.	CEILING JOISTS TO PARALLEL RAFTERS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3–16d COMMON (3½"x0.162") MINIMUM, TABLE 2308.10.4.1 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	FACE NAIL
19.	RAFTERS TO PLATE (SEE SECTION 2308.10.1, TABLE 2308.10.1)	3–8d COMMON (2½"x0.131") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	TOENAIL

	CONNECTION	FASTENING[a,m]	LOCATION
20.	1" DIAGONAL BRACE TO EACH STUD AND PLATE	2–8d COMMON (2½"x0.131") 2–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	FACE NAIL
21.	1"x8" SHEATHING TO EACH BEARING	3–8d COMMON (2½"x0.131")	FACE NAIL
22.	WIDER THAN 1"x8" SHEATHING TO EACH BEARING	3–8d COMMON (2½"x0.131")	FACE NAIL
23.	BUILT–UP CORNER STUDS	16d COMMON (3½"x0.162") 3"x0.131" NAILS 3" 14 GAGE STAPLES	24"O.C. 16"O.C. 16"O.C.
24.	BUILT–UP GIRDER AND BEAMS	20d COMMON (4"x0.192") 32"O.C. 3"x0.131" NAIL AT 24"O.C. 3" 14 GAGE STAPLE AT 24"O.C.	FACE NAIL AT T&B STAGGERED ON OPPOSITE SIDES
		2–20d COMMON (4"x0.192") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	FACE NAIL AT ENDS AND AT EACH SPLICE
25.	2" PLANKS	16d COMMON (3½"x0.162")	AT EACH BEARING
26.	COLLAR TIE TO RAFTER	3–10d COMMON (3"x0.148") 4–3"x0.131" NAILS 4–3' 14 GAGE STAPLES	FACE NAIL
27.	JACK RAFTER TO HIP	3–10d COMMON (3"x0.148") 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	TOENAIL
		2–16d COMMON (3½"x0.162") 3–3"x0.131" NAILS 3–3" 14 GAGE STAPLES	FACE NAIL
28.	ROOF RAFTER TO 2–BY RIDGE BEAM	2–16d COMMON (3½"x0.162") 3–3"x0.131" NAILS" 3–3" 14 GAGE STAPLES	TOENAIL
		2–16d COMMON (3½"x0.162") 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	FACE NAIL
29.	JOIST TO BAND JOIST	3–16d COMMON (3½"x0.162") 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	FACE NAIL
30.	LEDGER STRIP	3–16d COMMON (3½"x0.162") 4–3"x0.131" NAILS 4–3" 14 GAGE STAPLES	FACE NAIL
31.	WOOD STRUCTURAL PANELS AND PARTICLEBOARD[n] SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING)	½" AND LESS	6d[d,j] 2½"x0.113" NAIL[o] 1¾" 16 GAGE[o]
		19/32" TO ¾"	8d[d] OR 6d[e] 2½"x0.113" NAIL[o] 2" 16 GAGE[o]
		⅜" TO 1" 1⅛" TO 1¼"	8d[c] 10d[d] or 8d[e]
	SINGLE FLOOR (COMBINATION SUBFLOOR–UNDERLAYMENT TO FRAMING)	¾" AND LESS ⅞" TO 1" 1⅛" TO 1¼"	6d[e] 8d[e] 10d[d] or 8d[e]
32.	PANEL SIDING (TO FRAMING)	½" OR LESS ⅝"	6d[f] 8d[f]
33.	FIBERBOARD SHEATHING[g]	½"	NO.11 GAGE ROOFING NAIL[h] 6d COMMON NAIL (2"x0.113") NO.16 GAGE STAPLE[i]
		25/32"	NO.11 GAGE ROOFING NAIL[h] 8d COMMON NAIL (2½"x0.131") NO.16 GAGE STAPLE[i]
34.	INTERIOR PANELING	¼" ⅜"	4d[j] 6d[k]

WINDOW SCHEDULE

MARK	ROOM	WIDTH	HEIGHT	HEAD HEIGHT	R.O. WIDTH	R.O. HEIGHT	JAMB	TYPE SEE KEY	HARDWARE SEE KEY	GLASS	NOTES
1	(N) KITCHEN	60"	40 ½"					SL			KEEP EXISTING SILL HEIGHT OF 41"

DOOR SCHEDULE

MARK	ROOM	WIDTH	HEIGHT	HEAD HEIGHT	R.O. WIDTH	R.O. HEIGHT	JAMB	TYPE SEE KEY	HARDWARE SEE KEY	GLASS	NOTES
A	(N) HALL	94 ½"	79"					FR			OUTSWING FRENCH W/SIDELITES – 1'6"–2'6"–2'6"–1'6"

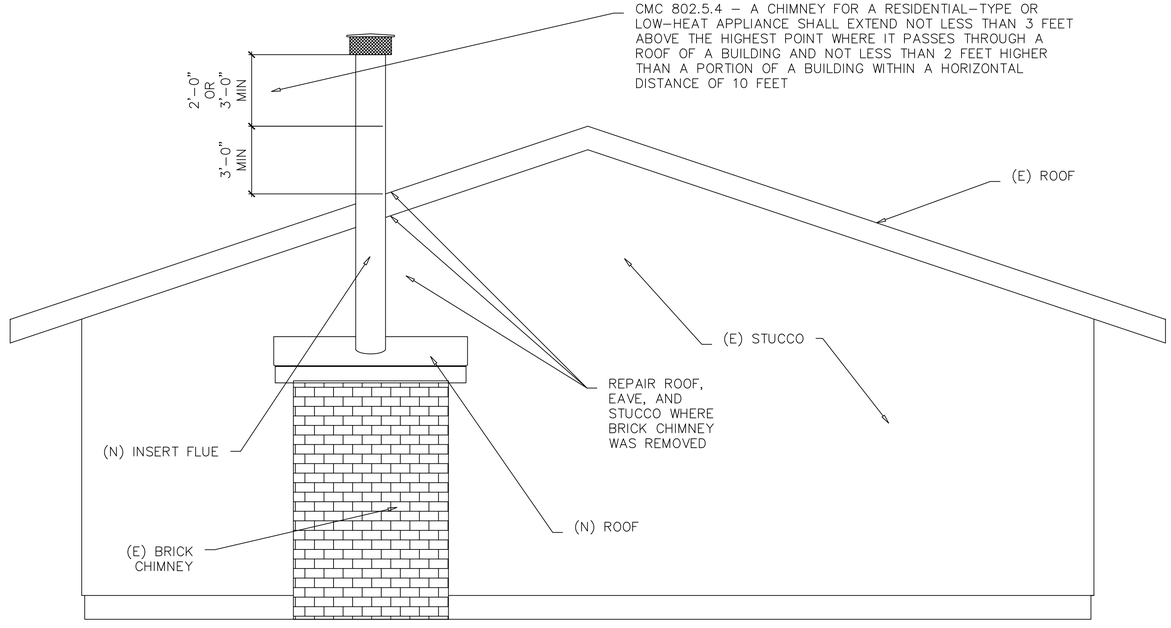
KEY: VERIFY WINDOW & DOOR SIZES BEFORE PLACING ORDER

BP	BI–PASS	T	TEMPERED/SAFETY GLASS	SL	SLIDER
BF	BI–FOLD	OS	OVERHEAD SECTIONAL	SGD	SLIDING GLASS DOOR
SC	SOLID CORE	O	OBSCURE	SH	SINGLE HUNG
HC	HOLLOW CORE	E	EXISTING TO REMAIN	DBLH	DOUBLE HUNG
1HR	1HR RATED FIRE DOOR W/SELF CLOSING HINGES	FR	FRENCH DOOR	AW	AWNING
		SW	SWING	S	SKYLIGHT

F	FIXED
C	CASEMENT
H	HOPPER
VAR	VARIABLE

DOOR & WINDOW SCHEDULE

SCALE: NOT TO SCALE



1 / A5.10 ELEVATION FROM WEST

SCALE: 3/4"=1'–0"

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

REMODEL & ADDITION

OWNER:

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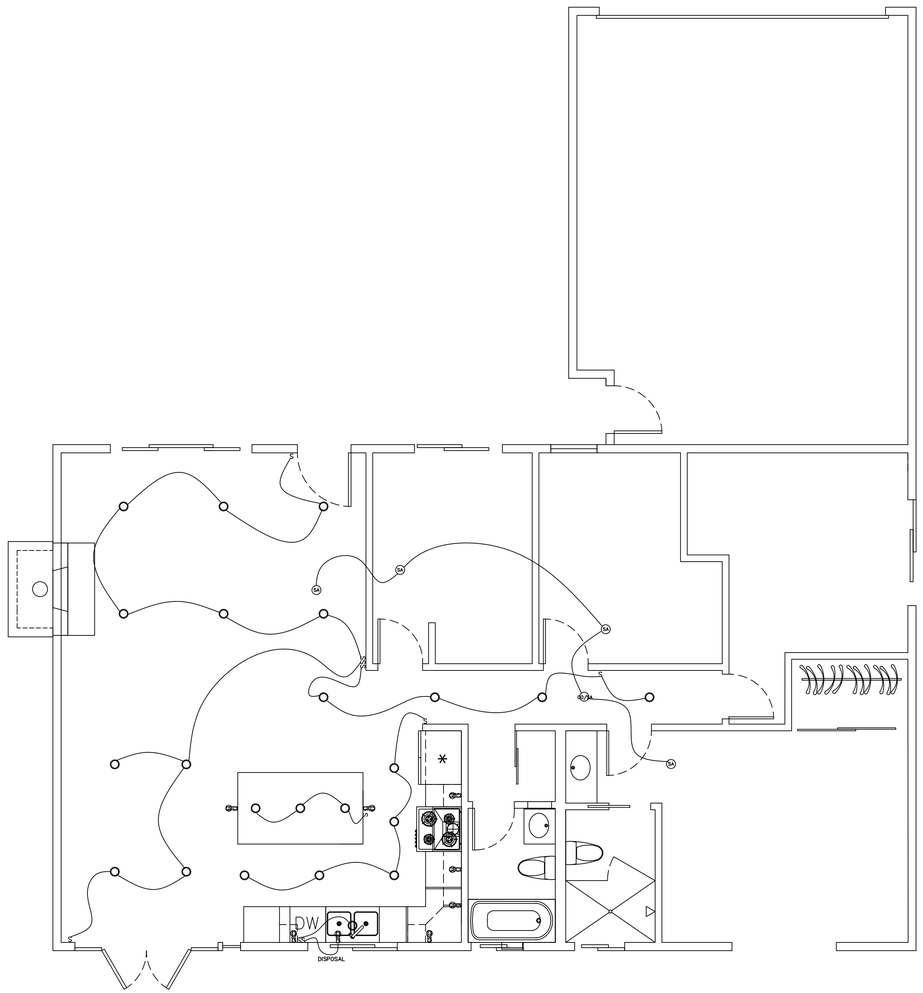
DETAILS

A5.10

1



ELECTRICAL NOTES:

- SEE SHEETS A0.2, G1.0 & G1.1 FOR MANDATORY ELECTRICAL REQUIREMENTS AND SPECIFICATIONS
- UNDER CABINET LUMINAIRES SHALL BE SEPERATELY SWITCHED
- INSTALL SWITCHES @ 45" TO CENTER FROM FINISHED FLOOR U.O.N.
- INSTALL RECEPTACLES @ 13" TO CENTER FROM FINISHED FLOOR U.O.N.
- INSTALL SWITCHES & RECEPTACLES @ COUNTER SURFACES @ 8" TO CENTER FROM SURFACE U.O.N.
- RECEPTACLES ON KITCHEN ISLAND TO BE INSTALLED @ 32" TO CENTER OF RECEPTACLE FROM FINISHED FLOOR
- INSTALL RECEPTACLES BEHIND RANGE, REFRIGERATOR, & UNDER SINK @ MANUFACTURERS SUGGESTED LOCATION & ELEVATION
- RUN 2 (MIN) NEW CIRCUITS TO KITCHEN RECEPTACLES
- WR = WEATHER RESISTANT

O 6" LED RECESSED LIGHTING. USE FIXTURES SUITABLE FOR DAMP LOCATION IN BATHROOM.

(M) (N) SMOKE ALARM. WHEN A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING $1,000, EXISTING DWELLINGS THAT HAVE ATTACHED GARAGES OR FUEL BURNING APPLIANCES, SMOKE DETECTORS SHALL BE INSTALLED: (A) IN EACH SLEEPING ROOM, (B) OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS, (C) ON EACH STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. NEW SMOKE ALARMS TO BE INTERCONNECTED. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. SMOKE ALARMS WITH INTEGRAL STROBES THAT ARE NOT EQUIPPED WITH BATTERY BACKUP SHALL BE CONNECTED TO AN EMERGENCY ELECTRICAL SYSTEM. SMOKE ALARMS SHALL EMIT A SIGNAL WHEN THE BATTERIES ARE LOW. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN AS REQUIRED FOR OVERCURRENT PROTECTION.

(CO) (N) CARBON MONOXIDE ALARM. WHEN A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING $1,000, EXISTING DWELLINGS THAT HAVE ATTACHED GARAGES OR FUEL BURNING APPLIANCES SHALL BE PROVIDED WITH A CARBON MONOXIDE ALARM IN THE FOLLOWING LOCATIONS: (A) OUTSIDE OF THE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S); (B) ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

PLUMBING NOTES:

- SEE SHEETS A0.2, G1.0 & G1.1 FOR MANDATORY PLUMBING REQUIREMENTS AND FIXTURE SPECIFICATIONS
- PER CAL GREEN REQUIREMENTS; ALL NEW & EXISTING PLUMBING FIXTURES MUST MEET WATER CONSERVING FLOW RATES MANDATED ON SHEET G1.0. ALL EXISTING NON-COMPLIANT FIXTURES MUST BE REPLACED. SEE G1.0 AND THE TABLE BELOW FOR REQUIRED FLOW RATES OF NEW FIXTURES

MECHANICAL NOTES:

- SEE SHEETS A0.2, G1.0 & G1.1 FOR MANDATORY MECHANICAL REQUIREMENTS AND SPECIFICATIONS
- ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF WATER, DUST OR DEBRIS WHICH MAY ENTER THE SYSTEM.

CAL GREEN FIXTURE REQUIREMENTS:

TABLE - MAXIMUM FIXTURE WATER USE	
FIXTURE TYPE	**FLOW RATE**
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.25 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

(N) MECHANICAL, ELECTRICAL, & PLUMBING PLANS

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

Revision History

	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
	1 PLAN REVIEW COMMENTS
	2 PLAN REVIEW COMMENTS

REMODEL & ADDITION

OWNER:

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Peter Christopher Klimen
DIGITALLY SIGNED BY PETER CHRISTOPHER KLIMEN
EMAIL=KLIMEN@ATT.NET DATE: 00/00/00

MECHANICAL, ELECTRICAL, & PLUMBING PLANS

MEP1.10

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 vent.

§ 150.0(h)3B: Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.

§ 150.0(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-16 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.

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§ 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(e); 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 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 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. 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(d): Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.

§ 110.10(e)1: 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".

Revision History	
	AS-BUILT
	PRELIMINARY DESIGN
	DESIGN
	PERMIT SET
1	PLAN REVIEW COMMENTS
2	PLAN REVIEW COMMENTS

REMODEL & ADDITION

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TITLE 24 MANDATORY MEASURES

MF-1R

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