## BUILDING CODE NOTES:

1. THE CONSTRUCTION SHALL NOT RESTRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULL-BOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, ETC.) OR TO THE LOCATION OF THE HOOK-UP. THE CONSTRUCTION SHALL NOT BE WITHIN TEN FEET OF ANY POWER LINES-WHETHER OR NOT THE LINES ARE LOCATED ON THE PROPERTY. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND/OR ADDITIONAL EXPENSES.
2. AN APPROVED SEISMIC GAS SHUTOFF VALVE WILL BE INSTALLED ON THE FUEL GAS LINE ON THE DOWNSTREAM SIDE OF THE UTILITY METER AND BE RIGIDLY CONNECTED TO THE EXTERIOR OF THE BUILDING OR STRUCTURE CONTAINING THE FUEL GAS PIPING. (PER ORDINANCE 170,158) (SEPARATE PLUMBING PERMIT IS REQUIRED).
3. PLUMBING FIXTURES ARE REQUIRED TO BE CONNECTED TO A SANITARY SEWER OR TO AN APPROVED SEWAGE DISPOSAL SYSTEM (R306.3).
4. KITCHEN SINKS, LAVATORIES, BATHTUBS, SHOWERS, BIDETS, LAUNDRY TUBS AND WASHING MACHINE OUTLETS SHALL BE PROVIDED WITH HOT AND COLD WATER AND CONNECTED TO AN APPROVED WATER SUPPLY (R306.4).
5. BATHTUB AND SHOWER FLOORS, WALLS ABOVE BATHTUBS WITH A SHOWERHEAD, AND SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR (R307.2).
6. PROVIDE ULTRA-LOW FLUSH WATER CLOSETS FOR ALL NEW CONSTRUCTION. EXISTING SHOWER HEADS AND TOILETS MUST BE ADAPTED FOR LOW WATER CONSUMPTION. UNIT SKYLIGHTS SHALL BE LABELED BY A LA CITY APPROVED LABELING AGENCY. SUCH LABEL SHALL STATE THE APPROVED LABELING AGENCY NAME, PRODUCT DESIGNATION AND PERFORMANCE GRADE RATING. (RESEARCH REPORT NOT REQUIRED). (R308.6.9)
7. WATER HEATER MUST BE STRAPPED TO WALL. (SEC. 507.3, LAPC)
8. FOR EXISTING POOL ON SITE, PROVIDE AN ALARM FOR DOORS TO THE DWELLING THAT FORM A PART OF THE POOL ENCLOSURE. THE ALARM SHALL SOUND CONTINUOUSLY FOR A MIN. OF 30 SECONDS WHEN THE DOOR IS OPENED. IT SHALL AUTOMATICALLY RESET AND BE EQUIPPED WITH A MANUAL MEANS TO DEACTIVATE (FOR 15 SECS. MAX.) FOR A SINGLE OPENING. THE DEACTIVATION SWITCH SHALL BE AT LEAST 54" ABOVE THE FLOOR. (6109 OF LABC)
9. FOR EXISTING POOL ON SITE, PROVIDE ANTI-ENTRAPMENT COVER MEETING THE CURRENT ASTM OR ASME FOR THE SUCTION OUTLETS OF THE SWIMMING POOL, TODDLER POOL AND SPA FOR SINGLE FAMILY DWELLINGS PER ASSEMBLY BILL (AB) NO. 2977. (3162B)
10. AUTOMATIC GARAGE DOOR OPENERS, IF PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325. (R309.4)
11. SMOKE DETECTORS SHALL BE PROVIDED FOR ALL DWELLING UNITS INTENDED FOR HUMAN OCCUPANCY, UPON THE OWNER'S APPLICATION FOR A PERMIT FOR ALTERATIONS, REPAIRS, OR ADDITIONS, EXCEEDING ONE THOUSAND DOLLARS ($1,000). (R314.6.2)
12. WHERE A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING ONE THOUSAND DOLLARS ($1,000), EXISTING DWELLINGS OR SLEEPING UNITS THAT HAVE ATTACHED GARAGES OR FUEL-BURNING APPLIANCES SHALL BE PROVIDED WITH A CARBON MONOXIDE ALARM IN ACCORDANCE WITH SECTION R315.2. CARBON MONOXIDE ALARMS SHALL ONLY BE REQUIRED IN THE SPECIFIC DWELLING UNIT OR SLEEPING UNIT FOR WHICH THE PERMIT WAS OBTAINED. R315.2.2)
13. EVERY SPACE INTENDED FOR HUMAN OCCUPANCY SHALL BE PROVIDED WITH NATURAL LIGHT BY MEANS OF EXTERIOR GLAZED OPENINGS IN ACCORDANCE WITH SECTION R303.1 OR SHALL BE PROVIDED WITH ARTIFICIAL LIGHT THAT IS ADEQUATE TO PROVIDE AN AVERAGE ILLUMINATION OF 6 FOOT-CANDLES OVER THE AREA OF THE ROOM AT A HEIGHT OF 30 INCHES ABOVE THE FLOOR LEVEL. (R303.1)
14. A COPY OF THE EVALUATION REPORT AND/OR CONDITIONS OF LISTING SHALL BE MADE AVAILABLE AT THE JOB SITE

## SITE PLAN NOTES:

1. ALL PORTIONS OF REQUIRED FRONT YARD NOT USED FOR NECESSARY DRIVEWAYS AND WALKWAYS, INCLUDING DECORATIVE WALKWAYS SHALL BE USED FOR PLANTING AND SHALL NOT BE PAVED.
2. AUTOMATIC IRRIGATION SYSTEM CONTROLLERS TO BE WEATHER- OR SOIL-BASED CONTROLLERS.
3. FOR PROJECTS THAT INCLUDE LANDSCAPE WORK, THE LANDSCAPE CERTIFICATION, FORM GRN12, SHALL BE COMPLETED PRIOR TO FINAL INSPECTION APPROVAL.
4. ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS, OR OTHER OPENINGS IN THE BUILDING'S ENVELOPE AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OF RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR METAL PLATES. PIPING PRONE TO CORROSION SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 313.0 OF THE LOS ANGELES PLUMBING CODE.
5. MATERIALS DELIVERED TO THE CONSTRUCTION SITE SHALL BE PROTECTED FROM RAIN OR OTHER SOURCES OF MOISTURE.
6. CONSTRUCTION WASTE SHALL BE REDUCED BY 50%. CONSTRUCTION WASTE SHALL BE HANDLED BY CITY OF LOS ANGELES CERTIFIED HAULER.
7. AN OPERATION AND MAINTENANCE MANUAL INCLUDING, AT A MINIMUM, THE ITEMS LISTED IN SECTION 4.410.1 SHALL BE COMPLETED AND PLACE IN THE BUILDING AT THE TIME OF FINAL INSPECTION. FORM GRN 6
8. LOT SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS WITH A MINIMUM FALL OF 6" WITHIN THE FIRST 10 FEET
9. ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT.
10. THE VOC CONTENT VERIFICATION CHECKLIST, FORM GRN 2, SHALL BE COMPLETED AND VERIFIED PRIOR TO FINAL INSPECTION APPROVAL. THE MANUFACTURER'S SPECIFICATIONS SHOWING VOC CONTENT FOR ALL APPLICABLE PRODUCTS SHALL BE READILY AVAILABLE AT THE JOB SITE AND BE PROVIDED TO THE FIELD INSPECTOR FOR VERIFICATION. (4.504.2.4, 9.504.2.4)
11. ARCHITECTURAL PAINTS AND COATINGS, ADHESIVES, CAULKS AND SEALANTS SHALL COMPLY WITH THE VOLATILE ORGANIC COMPOUND (VOC) LIMITS.
12. ALL NEW CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE FOLLOWING:
    A. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM
    B. CALIFORNIA DEPARTMENT OF PUBLIC HEALTH'S SPECIFICATION 01350
    C. NSF/ANSI 140 AT THE GOLD LEVEL
    D. SCIENTIFIC CERTIFICATIONS SYSTEMS INDOOR ADVANTAGE ™ GOLD
13. ALL NEW CARPET CUSHION INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE GREEN LABEL PROGRAM.
14. 80% OF THE TOTAL AREA RECEIVING RESILIENT FLOORING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING:
    A. VOC EMISSION LIMITS DEFINED IN THE CHPS HIGH PERFORMANCE PRODUCTS DATABASE
    B. PRODUCTS COMPLIANT WITH THE CHPS CRITERIA CERTIFIED UNDER THE GREENGUARD CHILDREN & SCHOOLS PROGRAM
    C. CERTIFICATION UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSCORE PROGRAM
    D. MEET THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH'S SPECIFICATION
15. NEW HARDWOOD PLYWOOD, PARTICLE BOARD, AND MEDIUM DENSITY FIBERBOARD COMPOSITE WOOD PRODUCTS USED IN THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE FORMALDEHYDE LIMITS LISTED IN TABLE 4.504.5/ TABLE 9.504.5. (4.504.5, 9.504.5)
16. THE FORMALDEHYDE EMISSIONS VERIFICATION CHECKLIST, FORM GRN 3, SHALL BE COMPLETED PRIOR TO FINAL INSPECTION APPROVAL. THE MANUFACTURER'S SPECIFICATIONS SHOWING FORMALDEHYDE CONTENT FOR ALL APPLICABLE WOOD PRODUCTS SHALL BE READILY AVAILABLE AT THE JOB SITE AND BE PROVIDED TO THE FIELD INSPECTOR FOR VERIFICATION.(4.504.5.1, 9.504.5.1)
17. BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED. THE BUILDING INSPECTOR SHALL NOT ENCLOSE WALL AND FLOOR FRAMING UNTIL IT IS INSPECTED AND FOUND TO BE SATISFACTORY.
18. THE HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE SIZED AND DESIGNED USING ANSI/ACCA MANUAL J-2004, ANSI/ACCA 29-D-2009 OR ASHRAE HANDBOOKS AND HAVE THEIR EQUIPMENT SELECTED IN ACCORDANCE WITH ANSI/ACCA 36-S MANUAL S-
19. PROVIDE MINIMUM 1" (INSIDE DIAMETER) LISTED RACEWAY INSTALLED FOR EACH UNIT TO ACCOMMODATE A DEDICATED 208 /240 VOLT BRUNCH CIRCUIT. THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR A SUBPANEL AND TERMINATE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF THE CHARGING SYSTEM INTO A LISTED CABINET, BOX OR ENCLOSURE. SUFFICIENT CONDUCTOR SIZING AND SERVICE CAPACITY TO INSTALL LEVEL 2 EVSE SHALL BE PROVIDED. A LABEL STATING 'EV CAPABLE' SHALL BE POSTED IN CONSPICUOUS PLACE AT THE SERVICE PANEL OR SUBPANEL AND NEXT TO THE RACE WAY TERMINATION POINT.
20. THE MAIN ELECTRICAL SERVICE PANEL SHALL HAVE A RESERVED SPACE TO ALLOW FOR INSTALLATION OF A DOUBLE POLE CIRCUIT BREAKER FOR A FUTURE SOLAR ELECTRICAL INSTALLATION. THE RESERVED SPACE SHALL BE POSITIONED AT THE OPPOSITE (LOAD) END FROM THE INPUT FEEDER LOCATION OR MAIN CIRCUIT LOCATION AND SHALL BE PERMANENTLY MARKED AS "FOR FUTURE SOLAR ELECTRIC"
21. BUILDINGS SHALL HAVE APPROVED ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION PLACE IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY.
22. PROTECTION OF WOOD AND WOOD BASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE LOCATIONS SPECIFIED PER SECTION R317.1 BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1 FOR THE SPECIES, PRODUCE, PRESERVATIVE AND END USE. PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA U1.
23. PROVIDE ANTI-GRAFFITI FINISH WITHIN THE FIRST 9 FEET, MEASURED FROM GRADE, AT EXTERIOR WALLS AND DOORS.
24. APPLICATIONS FOR WHICH NO PERMIT IS ISSUED WITHIN 180 DAYS FOLLOWING THE DATE OF APPLICATION SHALL AUTOMATICALLY EXPIRE. (R105.3.2 CRC)
25. EVERY PERMIT ISSUED SHALL BECOME INVALID UNLESS WORK AUTHORIZED IS COMMENCED WITHIN 180 DAYS OR IF THE WORK AUTHORIZED IS SUSPENDED OR ABANDON FOR A PERIOD OF 180 DAYS. A SUCCESSFUL INSPECTION MUST BE OBTAINED WITHIN 180 DAYS. A PERMIT MAY BE EXTENDED IF A WRITTEN REQUEST STATING JUSTIFICATION FOR EXTENSION AND AN EXTENSION FEE IS RECEIVED PRIOR TO EXPIRATION OF THE PERMIT AND GRANTED BY THE BUILDING OFFICIAL. NO MORE THAN ONE (1) EXTENSION MAY BE GRANTED. PERMITS WHICH HAVE BECOME INVALID SHALL PAY A REACTIVATION FEE OF APPROXIMATELY 50% OF THE ORIGINAL PERMIT FEE AMOUNT WHEN THE PERMIT HAS BEEN EXPIRED FOR UP TO SIX (6) MONTHS. WHEN A PERMIT HAS BEEN EXPIRED FOR A PERIOD IN EXCESS OF ONE (1) YEAR, THE REACTIVATION FEE SHALL BE APPROXIMATELY 100% OF THE ORIGINAL PERMIT FEE. (R105.5 CRC).
26. EFFECTIVE JAN 1, 2014, SB 407 REQUIRES REPLACEMENT OF ALL NONCOMPLIANT PLUMBING FIXTURES IN PROPERTIES BUILT ON OR BEFORE JAN 1, 1994 WITH WATER-CONSERVING PLUMBING FIXTURES.
27. THE PANEL 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.
28. THE SERVECE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS EV CAPBLE. THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENT AND VISIBLY MARKED EV CAPABLE.
29. EARTH IMPORT AND EXPORT ACTIVITIES MAY TAKE PLACE ONLY BETWEEN THE HOURS OF 9:00A.M. AND 3:00 P.M., MONDAY THROUGH FRIDAY
30. MIN. 1" (INSIDE DIAMETER) LISTED RACEWAY IS INSTALLED FOR EACH UNIT TO ACCOMODATE A DEDICATED 108/240 VOLT BRANCH CIRCUIT. THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR A SUBPANEL AND TERMINATE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF THE CHARGING SYSTEM INTO A LISTED CABINET, BOX OR ENCLOSURE.
31. THE PANEL OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MIN. DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF BRANCH CIRQUIT OVERCURRENT PROTECTIVE DEVICE.
32. 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 PERMANENT AND VISIBLY MARKED EV CAPABLE.

## VICINITY MAP

## TRANSIT BUS

## ADU DESIGN VARIATIONS:

OPTION 1 (T)
TRADITIONAL STYLE, GABLE ROOF, SHINGLES, SMOOTH STUCCO, SIDING COMBINATION

OPTION 1 (S)
SPANISH COLONIAL STYLE, GABLE TILE ROOF, STUCCO

OPTION 2 (S)
SPANISH COLONIAL STYLE, FLAT ROOF WITH PARAPET, STUCCO

LAYOUT OF EACH OPTION CAN BE REVERSED/MIRRORED ON THE LOT

## SHEET INDEX



## AREA SUMMARY

LOT AREA:

BUILDING CODE FLOOR AREA:
- NEW ADU: 450.0 S.F.

ZONING CODE FLOOR AREA:
- NEW ADU: 450.0 S.F.

SCHOOL FEES FLOOR AREA:
- NEW ADU: 497.0 S.F.

FLOOR AREA RATIO:
LOT COVERAGE:
LANDSCAPING:

## APPLICABLE CODES:

2023 CALIFORNIA BUILDING CODE
2023 CALIFORNIA RESIDENTIAL CODE
2023 CALIFORNIA GREEN BUILDING STANDARDS CODE
2023 CALIFORNIA MECHANICAL CODE
2023 CALIFORNIA ELECTRICAL CODE
2023 CALIFORNIA PLUMBING CODE
2023 CALIFORNIA FIRE CODE
2023 CALIFORNIA ENERGY CODE

## PROJECT DESCRIPTION

NEW 1 STORY DETACHED ADU

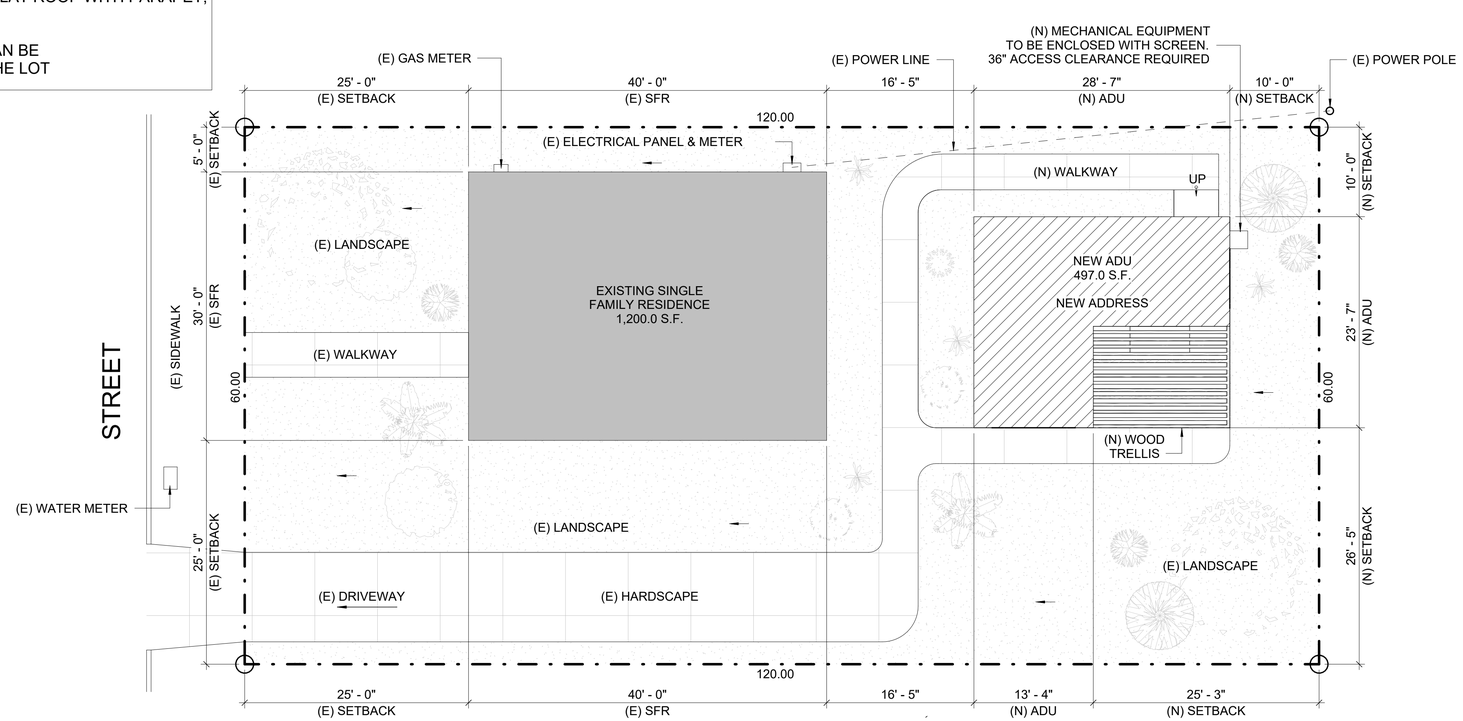
## LOT/PARCEL INFORMATION

**ADDRESS:**
- (E) HOUSE ADDRESS
- (N) ADU ADDRESS

**APN:**
**LEGAL DESCRIPTION:**
**TYPE OF CONSTRUCTION:** TYPE VB
**ZONE:**
**LOT:**
**PARKING INFORMATION:**
**FIRE SPRINKLERS (ADU):**

**EXISTING STRUCTURE INFORMATION:**
- USE
- FLOOR AREA
- TYPE OF CONSTRUCTION
- FIRE SPRINKLERS (EXISTING)

| OWNER INFO | APPLICANT INFO |
|---|---|
| **NAME:** | **NAME:** YAKOV DESIGN |
| **ADDRESS:** | **ADDRESS:** 8055 W MANCHESTER AVE #510, LOS ANGELES, CA 90293 |
| **PHONE:** | **PHONE:** (323)922-2211 |
| **E-MAIL:** | **E-MAIL:** INFO@YAKOVDESIGN.COM |




1 SAMPLE SITE PLAN (N)
1/8" = 1'-0"

Yakov Design
Drafting service
(323)922-2211
info@yakovdesign.com

ADDRESS

SAMPLE SITE PLAN

NOTES:

SCALE: 1/8" = 1'-0"

DATE: 05.08.2024

0.1

# GENERAL NOTES:

1. THE CONSTRUCTION SHALL NOT RESTRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULL-BOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, ETC.) OR TO THE LOCATION OF THE HOOK-UP. THE CONSTRUCTION SHALL NOT BE WITHIN TEN FEET OF ANY POWER LINES- WHETHER OR NOT THE LINES ARE LOCATED ON THE PROPERTY. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND /OR ADDITIONAL EXPENSES.
2. AN APPROVED SEISMIC GAS SHUTOFF VALVE WILL BE INSTALLED ON THE FUEL GAS LINE ON THE DOWN STREAM SIDE OF THE UTILITY METER AND BE RIGIDLY CONNECTED TO THE EXTERIOR OF THE BUILDING OR STRUCTURE CONTAINING THE FUEL GAS PIPING . (PER ORDINANCE 170,158). SEPARATE PLUMBING PERMIT IS REQUIRED.
3. PLUMBING FIXTURES ARE REQUIRED TO BE CONNECTED TO A SANITARY SEWER OR TO AN (APPROVED SEWAGE DISPOSAL SYSTEM. (R306.3).
4. KITCHEN SINKS, LAVATORIES, BATHTUBS, SHOWERS, BIDETS, LAUNDRY TUBS AND WASHING MACHINE OUTLETS SHALL BE PROVIDED WITH HOT AND COLD WATER AND CONNECTED TO AN APPROVED WATER SUPPLY (R306.4).
5. BATHTUB AND SHOWER FLOORS, WALLS ABOVE BATHTUBS WITH A SHOWERHEAD, AND SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR (R307.2).
6. PROVIDE ULTRA-LOW FLUSH WATER CLOSETS FOR ALL NEW CONSTRUCTION. EXISTING SHOWER HEADS AND TOILETS MUST BE ADAPTED FOR LOW WATER CONSUMPTION.
7. PROVIDE ULTRA-LOW FLUSH WATER CLOSETS FOR ALL NEW CONSTRUCTIONS. EXISTING SHOWER HEADS AND TOILETS MUST BE ADAPTED FOR LOW WATER CONSUMPTION.
8. PROVIDE 72" HIGH NON-ABSORBENT WALL ADJACENT TO SHOWER AND APPROVED SHATTER-RESISTANT MATERIALS FOR SHOWER ENCLOSURE.
9. WATER HEATER MUST BE STRAPPED TO WALL.
10. SMOKE DETECTORS SHALL BE PROVIDED FOR ALL DWELLING UNITS INTENDED FOR HUMAN OCCUPANCY, UPON THE OWNER'S APPLICATION FOR A PERMIT FOR ALTERATIONS, REPAIRS, OR ADDITIONS, EXCEEDING ONE THOUSAND DOLLARS ($1,000). (R314.6.2)
11. WHERE A PERMIT IS REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS EXCEEDING ONE THOUSAND DOLLARS ($1,000), EXISTING DWELLINGS OR SLEEPING UNITS THAT HAVE ATTACHED GARAGES OR FUEL-BURNING APPLIANCES SHALL BE PROVIDED WITH A CARBON MONOXIDE ALARM IN ACCORDANCE WITH SECTION R315.2. CARBON MONOXIDE ALARMS SHALL ONLY BE REQUIRED IN THE SPECIFIC DWELLING UNIT OR SLEEPING UNIT FOR WHICH THE PERMIT WAS OBTAINED. (R315.2.2)
12. EVERY SPACE INTENDED FOR HUMAN OCCUPANCY SHALL BE PROVIDED WITH NATURAL LIGHT BY MEANS OF EXTERIOR GLAZED OPENINGS IN ACCORDANCE WITH SECTION R303.1 OR SHALL BE PROVIDED WITH ARTIFICIAL LIGHT THAT IS ADEQUATE TO PROVIDE AN AVERAGE ILLUMINATION OF 6 FOOT-CANDLES OVER THE AREA OF THE ROOM AT A HEIGHT OF 30 INCHES ABOVE THE FLOOR LEVEL. (R303.1)
13. A COPY OF THE EVALUATION REPORT AND/OR CONDITIONS OF LISTING SHALL BE MADE AVAILABLE AT THE JOB SITE
14. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS WITH A MINIMUM FALL OF 6 INCHES WITHIN THE FIRST 10 FEET (R401.3)
15. DUCTS PENETRATING THE WALLS OR CEILINGS SEPARATING THE DWELLING FROM THE GARAGE SHALL BE CONSTRUCTED OF A MINIMUM NO. 26 GAGE SHEET STEEL OR OTHER APPROVED MATERIAL AND SHALL NOT HAVE OPENINGS INTO L' THE GARAGE (R302.5.2).
16. OTHER PENETRATIONS OF GARAGE/DWELLING CEILINGS AND WALLS SHALL BE PROTECTED AS REQUIRED BY SECTION R302.11, ITEM 4 (R302.5.3).
17. THROUGH PENETRATIONS OF FIRE-RESISTANCE-RATED WALL OR FLOOR ASSEMBLIES SHALL COMPLY WITH SECTION R302.4.1.1 OR R302.4.1.2.
18. MEMBRANE PENETRATIONS SHALL COMPLY WITH SECTION R302.4.1 WHERE WALLS ARE REQUIRED TO HAVE A FIRE-RESISTANCE RATING, RECESSED FIXTURES SHALL BE INSTALLED SO THAT THE REQUIRED FIRE-RESISTANCE RATING WILL NOT BE REDUCED.
19. IN COMBUSTIBLE CONSTRUCTION, FIRE BLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. (R302.1 1)
20. IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR/CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1,000 SQUARE FEET. DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS. (R302.12)
21. THE BUILDING SHALL BE EQUIPPED WITH AN AUTOMATIC \' RESIDENTIAL FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION R313.3 OR NFPA13D. (R313, 12.21A17(D))
22. THE SPRINKLER SYSTEM SHALL BE APPROVED BY PLUMBING DIVISION PRIOR TO INSTALLATION.
23. AN APPROVED SMOKE ALARM SHALL BE INSTALLED IN EACH SLEEPING ROOM & HALLWAY OR AREA GIVING ACCESS TO A SLEEPING ROOM, AND ON EACH STORY AND BASEMENT FOR DWELLINGS WITH MORE THAN ONE STORY. SMOKE ALARMS SHALL BE INTERCONNECTED SO THAT ACTUATION OF ONE ALARM WILL ACTIVATE ALL THE ALARMS WITHIN THE INDIVIDUAL DWELLING UNIT. IN NEW CONSTRUCTION SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER SOURCE FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH BATTERY BACK-UP AND LOW BATTERY SIGNAL. (R314)
24. AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL-BURNING APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES. CARBON MONOXIDE ALARM SHALL BE PROVIDED OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S) AND ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. (R315)
25. HEATER SHALL BE CAPABLE OF MAINTAINING A MINIMUM ROOM TEMPERATURE OF 68°F AT A POINT 3 FEET ABOVE THE FLOOR AND 2 FEET FROM EXTERIOR WALLS IN ALL HABITABLE ROOMS AT THE DESIGN TEMPERATURE. (R303.9)
26. BUILDINGS SHALL HAVE APPROVED ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. (R319.1)
27. PROTECTION OF WOOD AND WOOD BASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE LOCATIONS SPECIFIED PER SECTION R317.1 BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA UI FOR THE SPECIES, PRODUCT, PRESERVATIVE AND END USE. PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA UI.
28. PROVIDE ANTI-GRAFFITI FINISH WITHIN THE FIRST 9 FEET, MEASURED FROM GRADE, AT EXTERIOR WALLS AND DOORS. EXCEPTION: MAINTENANCE OF BUILDING AFFIDAVIT IS RECORDED BY THE OWNER TO COVENANT AND AGREE WITH THE CITY OF LOS ANGELES TO REMOVE ANY GRAFFITI WITHIN 7-DAYS OF THE GRAFFITI BEING APPLIED. (9306)
29. PROVIDE MIN. 1/4 INCH PER FOOT ROOF/DECK SLOPE FOR DRAINEGE (R806.3)
30. FORM GRN16 AND AN OPERATION AND MAINTENANCE MANUAL, INCLUDING, AT A MINIMUM, THE ITEMS LISTED IN SECTION 4.410.1, SHALL BE COMPLETED AND PLACED IN THE BUILDING AT THE TIME OF FINAL INSPECTION.
31. COMPLIANCE INFORMATION: THE BUILDER SHALL LEAVE IN THE BUILDING, COPIES OF THE COMPLETED, SIGNED AND SUBMITTED COMPLIANCE DOCUMENTS FOR THE BUILDING OWNER AT OCCUPANCY. FOR LOW-RISE RESIDENTIAL BUILDINGS, SUCH INFORMATION SHALL AT A MINIMUM, INCLUDE COPIES OF ALL CERTIFICATE OF COMPLIANCE, CERTIFICATE OF INSTALLATION, AND CERTIFICATE OF VERIFICATION DOCUMENTATION SUBMITTED. 10-103(B)1
32. OPERATING INFORMATION: THE BUILDER SHALL PROVIDE THE BUILDING OWNER AT OCCUPANCY, OPERATING INFORMATION FOR ALL APPLICABLE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING. OPERATING INFORMATION SHALL INCLUDE INSTRUCTIONS ON HOW TO OPERATE THE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES CORRECTLY AND EFFICIENTLY. THE INSTRUCTIONS SHALL BE CONSISTENT WITH SPECIFICATIONS SET FORTH BY THE EXECUTIVE DIRECTOR
    A. FOR RESIDENTIAL BUILDINGS, SUCH INFORMATION SHALL BECONTAINED IN A FOLDER OR MANUAL WHICH PROVIDES ALL CERTIFICATE OF COMPLIANCE, CERTIFICATE OF INSTALLATION, AND CERTIFICATE OF VERIFICATION DOCUMENTATIONS. THIS OPERATING INFORMATION SHALL BE IN PAPER OR ELECTRONIC FORMAT. 10-103(B)2
33. MAINTENANCE INFORMATION: THE BUILDER SHALL PROVIDE TO THE BUILDING OWNER AT OCCUPANCY, MAINTENANCE INFORMATION FOR ALL FEATURES, MATERIALS, COMPONENTS, AND MANUFACTURED DEVICES THAT REQUIRE ROUTINE MAINTENANCE FOR PROPER OPERATION AND MAINTENANCE. INSTRUCTIONS SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING, BY TITLE AND/OR PUBLICATION NUMBER, THE OPERATION AND MAINTENANCE MANUAL FOR THAT PARTICULAR MODEL AND TYPE OF FEATURE, MATERIAL, COMPONENT OR MANUFACTURED DEVICE. 10-103(B)3
34. VENTILATION INFORMATION: THE BUILDER SHALL PROVIDE TO THE BUILDING OWNER AT OCCUPANCY, A DESCRIPTION OF THE QUANTITIES OF OUTDOOR AIR THAT THE VENTILATION SYSTEM(S) ARE DESIGNED TO PROVIDE TO THE BUILDING 'S CONDITIONED SPACE, AND INSTRUCTIONS FOR PROPER OPERATION AND MAINTENANCE OF THE VENTILATION SYSTEM. 10-103(B)4
35. ALL SYSTEMS, EQUIPMENT, APPLIANCES AND BUILDING COMPONENTS SHALL COMPLY WITH THE APPLICABLE MANUFACTURING, CONSTRUCTION, AND INSTALLATION PROVISIONS OF SECTIONS 110.0 THROUGH 110.11 FOR NEWLY CONSTRUCTED BUILDINGS.
36. ANY APPLIANCE REGULATED BY THE APPLIANCE EFFICIENCY REGULATIONS, TITLE 20 CALIFORNIA CODE OF REGULATIONS, SECTION 1601 ET SEQ., MAY BE INSTALLED ONLY IF THE APPLIANCE FULLY COMPLIES WITH SECTION 1608(A) OF THOSE REGULATIONS. 110.1(A)
37. SERVICE WATER-HEATING SYSTEMS SHALL BE EQUIPPED WITH AUTOMATIC TEMPERATURE CONTROLS CAPABLE OF ADJUSTMENT FROM THE LOWEST TO THE HIGHEST ACCEPTABLE TEMPERATURE SETTINGS FOR THE INTENDED USE AS LISTED IN TABLE 3, CHAPTER 50 OF THE ASHRAE HANDBOOK, HVAC APPLICATIONS VOLUME. 110.3(A)1
38. ON SYSTEMS THAT HAVE A TOTAL CAPACITY GREATER THAN 167,000 TU/HR, OUTLETS THAT REQUIRE HIGHER THAN SERVICE WATER TEMPERATURES AS LISTED IN THE ASHRAE HANDBOOK, APPLICATIONS VOLUME, SHALL HAVE SEPARATE REMOTE HEATERS, HEAT EXCHANGERS, OR BOOSTERS TO SUPPLY THE OUTLET WITH THE HIGHER TEMPERATURE. 110.3(C)1
39. SERVICE HOT WATER SYSTEMS WITH CIRCULATING PUMPS OR WITH ELECTRICAL HEAT TRACE SYSTEMS SHALL BE CAPABLE OF AUTOMATICALLY TURNING OFF THE SYSTEM. 110.3(C)2
40. CONTROLS FOR SERVICE WATER-HEATING SYSTEMS SHALL LIMIT THE OUTLET TEMPERATURE AT PUBLIC LAVATORIES TO 110°F. 110.3(C)3
41. UNFIRED SERVICE WATER-HEATER STORAGE TANKS AND BACKUP TANKS FOR SOLAR WATER-HEATING SYSTEMS SHALL HAVE:
    A. EXTERNAL INSULATION WITH AN INSTALLED R-VALUE OF AT LEAST R-12, OR
    B. INTERNAL AND EXTERNAL INSULATION WITH A COMBINED R-VALUE OF AT LEAST R-16, OR
    C. THE HEAT LOSS OF THE TANK SURFACE BASED ON AN 80°F WATER-AIR TEMPERATURE DIFFERENCE SHALL BE LESS THAN 6.5 BTU/HR PER SQUARE FOOT. 110.3 (C)4
42. CONTINUOUSLY BURNING PILOT LIGHT SHALL BE PROHIBITED FOR THE FOLLOWING NATURAL GAS SYSTEM OR EQUIPMENT LISTED BELOW: 110.5
    A. FAN-TYPE CENTRAL FURNACES
    B. HOUSEHOLD COOKING APPLIANCES, EXCEPT FOR HOUSEHOLD COOKING APPLIANCES WITHOUT AN ELECTRICAL SUPPLY VOLTAGE CONNECTION AND IN WHICH EACH PILOT CONSUMES LESS THAN 150 BTU/HR
    C. POOL HEATERS
    D. SPA HEATERS
    E. INDOOR AND OUTDOOR FIREPLACES
43. MANUFACTURED FENESTRATION PRODUCTS AND EXTERIOR DOORS SHALL HAVE AIR INFILTRATION RATES NOT EXCEEDING 0.3 CFM/FT2 OF WINDOW AREA, 0.3 CFM/FT2 OF DOOR AREA FOR RESIDENTIAL DOORS, 0.3 CFM/FT2 OF NONRESIDENTIAL SINGLE DOOR AREA, AND 1.0 CFM/FT2 OF NONRESIDENTIAL DOUBLE DOOR AREA. 110.6(A)1
44. 16. FENESTRATION PRODUCTS SHALL BE RATED IN ACCORDANCE WITH NFRC 100 FOR U-FACTOR. NFRC 200 FOR SHGC, AND VT OR USE THE APPLICABLE DEFAULT VALUE. FENESTRATION PRODUCTS SHALL HAVE A TEMPORARY LABEL, FOR MANUFACTURED FENESTRATION PRODUCTS AND EXTERIOR DOORS, A TEMPORARY LABEL CERTIFICATE APPROVED BY THE SUPERVISORY ENTITY (NFRC) MEETS THE REQUIREMENTS OF THIS SECTION. WHEN COMPONENT MODELING APPROACH IS USED AND FOR SITE-BUILT FENESTRATION PRODUCTS, A LABEL CERTIFICATE APPROVED BY THE SUPERVISORY ENTITY (NFRC) MEETS THE REQUIREMENTS OF THIS SECTION 10-111(A)1. 110.6(A)2. 110.6(A)3. 110.6(A)4. 110.6(A)5
45. FIELD-FABRICATED FENESTRATION PRODUCTS AND EXTERIOR DOORS, OTHER THAN UNFRAMED GLASS DOORS AND FIRE DOORS, SHALL BE CAULKED BETWEEN THE FENESTRATION PRODUCTS OR EXTERIOR DOOR AND THE BUILDING, AND SHALL BE WEATHERSTRIPPED. 110.6(B)
46. JOINTS, PENETRATIONS AND OTHER OPENINGS IN THE BUILDING ENVELOPE THAT ARE POTENTIAL SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHER STRIPPED, OR OTHERWISE SEALED TO LIMIT INFILTRATION AND EXFILTRATION. 110.7
47. INSULATION SHALL BE CERTIFIED BY DEPARTMENT OF CONSUMER AFFAIRS, BUREAU OF ELECTRONIC AND APPLIANCE REPAIR, HOME FURNISHING AND THERMAL INSULATION THAT THE INSULATION CONDUCTIVE PERFORMANCE IS APPROVED PURSUANT TO THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 12, CHAPTER 12-13, ARTICLE 3, "STANDARDS FOR INSULATING MATERIAL." 110.8(A)
48. UREA FORMALDEHYDE FOAM INSULATION MAY ONLY BE USED IN EXTERIOR SIDE WALLS, AND REQUIRES A FOUR-MIL-THICK PLASTIC POLYETHYLENE VAPOR BARRIER BETWEEN THE UREA FORMALDEHYDE FOAM INSULATION AND THE INTERIOR SPACE IN ALL APPLICATIONS. 110.8(B)
49. INSULATING MATERIAL SHALL BE INSTALLED IN COMPLIANCE WITH THE FLAME SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF THE CBC. 110.8(C)
50. INSULATION INSTALLED ON AN EXISTING SPACE CONDITIONING DUCT, IT SHALL COMPLY WITH SECTION 604.0 OF THE CMC. 110.8(D)3
51. EXTERNAL INSULATION INSTALLED ON AN EXISTING UNFIRED WATER STORAGE TANK OR ON AN EXISTING BACK-UP TANK FOR A SOLAR WATERHEATING SYSTEM, IT SHALL HAVE AN R-VALUE OF AT LEAST R-12, OR THE HEAT LOSS OF THE TANK SURFACE BASED ON AN 80°F WATER-AIR TEMPERATURE DIFFERENCE SHALL BE LESS THAN 6.5 BTU PER HOUR PER SQUARE FOOT.



# PERFORMANCE PLATINUM™

The new degree of comfort.®

## PERFORMANCE PLATINUM™ Hybrid Electric is the most efficient water heater available

**Efficiency**
- High 3.75 - 4.07 UEF reduces operating cost
- ENERGY STAR® rated

**Performance**
- Delivers hot water faster than most standard electric water heaters – 60-87 gallons first-hour delivery, depending on model
- Ambient operating range: 37-145° F is widest in class, offering more days of HP operation annually; designed to meet Northern Climate Spec (Tier 4)

**Easy Installation**
- Easy access side connections
- Quick access to electrical junction box
- Easily replaces a standard electric water heater

**Integration**
- Electronic control for easy temperature adjustment and mode management
- Audible alarm for service alerts

EcoNet®
- Integrated EcoNet® WiFi-connected* technology (2.4 GHz only) and free mobile app gives users control over water systems, allowing for customizable temperature, vacation settings, energy savings and system monitoring at home or away. Visit Rheem.com/EcoNetConnect
- Demand Response Ready – CTA-2045 Port easily connects to utility programs

**Operation Modes**
- Energy Saver
- Heat Pump
- High Demand
- Electric
- Vacation/Away: 2-28 days (or placed on hold indefinitely)

**Plus…**
- Premium grade anode rod with resistor extends the life of the tank
- 3/4" NPT water inlet and outlet; 3/4" condensate drain connections
- Incoloy stainless steel resistor elements
- Dry-fire protection
- Easy access, top mounted washable air filter
- 2" Non-CFC foam insulation
- Enhanced flow brass drain valve
- Temperature and pressure relief valve installed
- Design certified to NSF/ANSI 372 (Lead Content)

**Warranty**
- 10-Year limited warranty for tank and parts, 1-year full in-home labor warranty
  See Residential Warranty Certificate for complete information

Units meet or exceed ANSI requirements and have been tested according to D.O.E. procedures. Units meet or exceed the energy efficiency requirements of NAECA, ASHRAE standard 90, ICC Code and all state energy efficiency performance criteria.

* WiFi broadband internet connection required


PERFORMANCE **PLATINUM Hybrid**
40, 50, 65 and 80-Gallon Capacities
208-240 Volt / 1 PH
Electric

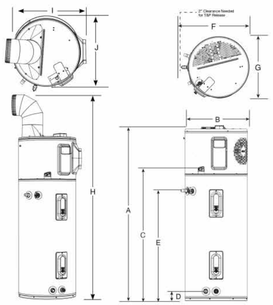
LEED Points = 3

**See specifications chart on back.**

12/22 FORM NO. THD-PPEHS-30 Rev. 5

# PERFORMANCE PLATINUM™ Hybrid Specifications

| Fuel Type | Desc. | Nominal Gallon Cap. | Rated Gallon Cap. | Model Number | Electric Breaker Size | Uniform Energy Factor (UEF) | Estimated Yearly Energy Cost | Element Wattage | Compressor Btu/H | First Hr. Rating (Gallons) 90° F Rise | Recovery in G.P.H. 90° F Rise | Tank Height A | Diam. B | Ht. to Cold Inlet & Drain Valve | Ht. to Hot Outlet & T&P | Unit Wt. (LBS.) | Approx. Ship Wt. (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 AMPS | | | | | | | | | | | | | | | | | |
| Electric | Tall | 40 | 36 | XE40T10H45U0 | 30 | 3.83 | $119 | 4,500 | 4200 | 60 | 27 | 63" | 20-1/4" | 3-5/8" | 39-5/8" | 157 | 174 |
| Electric | Tall | 50 | 45 | XE50T10H45U0 | 30 | 3.88 | $117 | 4,500 | 4200 | 67 | 27 | 62" | 22-1/4" | 3-5/8" | 39-5/8" | 178 | 218 |
| Electric | Tall | 65 | 59 | XE65T10H45U0 | 30 | 4.05 | $171 | 4,500 | 4200 | 75 | 27 | 65" | 24-1/4" | 3-7/8" | 42-3/8" | 225 | 262 |
| Electric | Tall | 80 | 72 | XE80T10H45U0 | 30 | 4.07 | $171 | 4,500 | 4200 | 87 | 27 | 75" | 24-1/4" | 3-7/8" | 42-3/8" | 244 | 281 |




| DESCRIPTION | DIMENSIONS (SHOWN IN INCHES) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NOMINAL GALLON CAPACITY | MODEL NUMBER | A | B | C | D | E | F | G | H | I | J |
| 40 | XE40T10H45U0 | 62-5/16 | 20-1/4 | 47 | 3-5/8 | 39-5/8 | 23-3/8 | 20-1/2 | 7-7/8 | 22-3/8 | 23-1/4 |
| 50 | XE50T10H45U0 | 61-3/4 | 22-1/4 | 47 | 3-5/8 | 39-5/8 | 25-3/8 | 22-1/2 | 7-7/8 | 24-3/8 | 25-9/16 |
| 65 | XE65T10H45U0 | 64-3/16 | 24-1/4 | 49 | 3-7/8 | 42-3/8 | 27-1/2 | 24-5/8 | 8-1/8 | 26-1/2 | 27-3/8 |
| 80 | XE80T10H45U0 | 74-3/16 | 24-1/4 | 59 | 3-7/8 | 42-3/8 | 27-1/2 | 24-5/8 | 91 | 26-1/2 | 27-3/8 |

# PERFORMANCE PLATINUM™ High Efficiency Condensing Tankless Gas Water Heaters are designed to provide continuous hot water

**Efficiency**
- .93 UEF with stainless steel condensing heat exchanger

**Easy Installation and Service**
- **NEW! 2" venting connections**
- **NEW! Vent up to 150 ft with 3" PVC and 60 ft with 2" PVC**
- Built-in condensate neutralizer
- 1/2" Gas line compatibility up to 24 ft.[1]
- **NEW! Includes easy to install hanging bracket for time savings** (indoor models only)
- **Exclusive! Maintenance Notice Setting** – Alerts homeowner, after 500 hours of use, to call for service (optional)
- Self-diagnostic system for easy installation and service
- High-altitude capability – up to 8,400 ft. elevation above sea level[2]
- Digital remote control **now pre-wired!** 10 ft. of thermostat wire included – shows temperature setting and service codes
- Requires 120V power supply

**Performance**
- **Industry Leading! Low Flow Activation** – Minimum flow rate of .26 GPM and minimum activation flow rate of .04 GPM ensures hot water even in low demand situations
- **Recirculation Pump Kit-Ready** – Providing faster hot water at the tap and savings of up to 12,000 gallons water/year[3]
- **Exclusive! Hot Start Programming** – Minimizes cold water bursts by staying in ready-fire state for back-to-back hot water needs

**Technology**
- **EcoNet® Enabled** – all Tankless products from 2010 to present can connect to EcoNet mobile app via Tankless EcoNet Accessory Kit (REWRA630TWH)
- For higher demand applications, easily link multiple tankless units to operate as one system (20 units max. additional accessories required)

**Environmentally Friendly**
- **Low Emissions** – Ultra low NOx burner meets SCAQMD rule 1146.2 requirements
- **Exclusive! Water Savings Setting** – Save up to 1,100 gallons water/year[4] by reducing flow at the tap until set temperature is achieved (optional)

**Safety**
- **Exclusive! Overheat film wrap** – prevents dangerous temperatures and provides industry best side-to-side clearance of 1/2 inch
- Maximum water temperature is 140°F. For higher temperature applications, upgrade kits are available

**Warranty**
- 12-Year heat exchanger – residential, 5-year heat exchanger – commercial, 5-year parts and 1-year labor

See Warranty Certificate for complete information

Indoor Direct Vent Outdoor

PERFORMANCE **PLATINUM High Efficiency Condensing Tankless**
11,000-199,900 BTU/h

LEED Points = 2

EcoNet® PERFORMANCE **PLATINUM Tankless Water Heater with EcoNet® WiFi Included**

**ECOH200DVLN-2**
Indoor Direct Vent with EcoNet®
11,000-199,900 BTU/h Only
(Outdoor model also available)

***Shares all efficiency, performance, technology, warranty and safety values as standard models, with added WiFi capability.***

**Smart Home Features**
- Water leak detection alert and system shut off (indoor models only) – may qualify for insurance discounts
- Mobile alerts for notifications/maintenance reminders
- Mobile gas and water usage reports
- Integration with NEST & WINK smart home systems

**Product Includes**
- Factory-installed translator
- Leak detection cable (for indoor models)
- Wi-Fi Module, connection cable and power cord

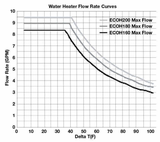
*App available free in App Store and Google Play for Android*

GET IT ON Google play | Available on the App Store

12/20 FORM NO. THD-3197 Rev. 2

| Model Number | Temperature Rise (° F) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 35° | 45° | 50° | 60° | 67° | 70° | 80° | 90° | 100° |
| ECOH200 Water Flow (GPM) | 9.5 | 8.5 | 7.7 | 6.4 | 5.7 | 5.5 | 4.8 | 4.3 | 3.8 |
| ECOH180 Water Flow (GPM) | 9.0 | 7.7 | 6.9 | 5.8 | 5.2 | 4.9 | 4.3 | 3.8 | 3.5 |
| ECOH160 Water Flow (GPM) | 8.4 | 6.7 | 6.0 | 5.0 | 4.6 | 4.3 | 3.8 | 3.3 | 3.0 |

Above estimates are for sizing purposes only.

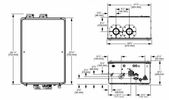



**Maximum Vent Length (intake/outlet):**

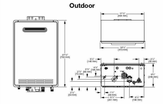
| NUMBER OF 90° ELBOWS | MAXIMUM LENGTH ALLOWED STRAIGHT PIPE* | MAXIMUM LENGTH ALLOWED STRAIGHT PIPE |
|---|---|---|
| 0 | 60 ft. | 150.0 ft. |
| 1 | 57 ft. | 148.5 ft. |
| 2 | 54 ft. | 147.0 ft. |
| 3 | 51 ft. | 145.5 ft. |
| 4 | 48 ft. | 144.0 ft. |
| 5 | 45 ft. | 142.5 ft. |
| 6 | 42 ft. | 141.0 ft. |

*Dip switch setting change required to achieve 60 ft. maximum vent length on 2" straight pipe. Max length for 2" straight pipe is 22 ft. with factory default settings.

**Indoor Direct Vent**



**Outdoor**



## Parts and Accessories

Venting & terminations – 2" or 3" PVC, recess boxes, pipe covers, extra remote controls, EZ-Link™ cable, manifolds and cables, service valve kits, service parts, flush kits, recirculation pump kits and AllClear™ water treatment system. For more information on Tankless parts and accessories, see the Parts and Accessories Catalog or call 866-720-2076.

*In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.*

Rheem Water Heating • 1115 Northmeadow Parkway, Suite 100
Roswell, Georgia 30076 • www.rheem.com

12/20 FORM NO. THD-3197 Rev. 2

Job Name:
Tag#

DAIKIN

**Submittal Data Sheet** | FTXB18AXVJU / RXB18AXVJU
1.5-Ton Wall Mounted Heat Pump System


Complete warranty details available from your local dealer or at www.daikincomfort.com. To receive the 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec. *If product is installed in a commercial application, limited warranty period is 5 years.*

**Efficiency**

| Cooling | | Heating | |
|---|---|---|---|
| SEER | 17 | HSPF | 9 |
| EER | 10.5 | COP | 3.3 |

**Performance**

| Cooling (Btu/hr) | |
|---|---|
| Rated (Min/Max) | 18,000 (4,300 – 21,200) |
| Sensible @ AHRI | 12,864 |
| Operating Range | -10°F – 115°F |
| Rated Cooling Conditions: | Indoor: 80°F DB/67°F WB<br>Outdoor: 95°F DB/75°F WB |

| Heating (Btu/hr) | |
|---|---|
| 1: @ 47° Rated (Min/Max) | 17,900 (4,000 – 22,500) |
| 2: @ 17° Rated | 10,200 |
| 3: @ 5° | 8,765 |
| Operating Range | -25°F – 65°F |
| 1: Rated Heating Conditions: | Indoor: 70°F DB/62°F WB<br>Outdoor: 47°F DB/43°F WB |
| 2: Rated Heating Conditions: | Indoor: 70°F DB/60°F WB<br>Outdoor: 17°F DB/15°F WB |
| 3: Heating Conditions: | Indoor: 69.8°F DB<br>Outdoor: 5°F WB |

**Indoor Specifications**

| | Cooling | | Heating | |
|---|---|---|---|---|
| | H | M | H | M |
| Airflow Rate (cfm) | 430 | 374 | 435 | 374 |
| | L | | L | |
| | 318 | | 318 | |
| Sound (dBA) H / M / L | 40 / 37 / 35 | | 40 / 37 / 35 | |
| Dimensions (H × W × D) (in) | 12-5/8 × 46-1/8 × 9-1/2 | | | |
| Weight (Lbs) | 31 | | | |

**Outdoor Specifications**

| | | | | |
|---|---|---|---|---|
| Compressor | Hermetically Sealed Swing Type | | | |
| Refrigerant | R-410A | | | |
| Factory Charge (Lbs) | 2.75 | | | |
| Refrigerant Oil | PVE (FVC50K) | | | |
| Airflow Rate (cfm) | Cooling | | Heating | |
| | H | 1690 | H | 1690 |
| Sound Pressure Level (dBA) | 53 | | | |
| Dimensions (H × W × D) (in) | 25-11/16 × 33-11/16 × 12-15/16 | | | |
| Weight (Lbs) | 82 | | | |

**Electrical**

| | 208/60/1 | 230/60/1 |
|---|---|---|
| System MCA | 16.2 | 16.2 |
| System MFA | 20 | 20 |
| Compressor RLA | 16 | 16 |
| Outdoor fan motor FLA | .50 | .50 |
| Outdoor fan motor W | 61 | 61 |
| Indoor fan motor FLA | .24 | .24 |
| Indoor fan motor W | 40 | 40 |

MFA: Max. fuse amps MCA: Min. circuit amps (A) RLA: Full load amps (A)
RLA: Rated load amps (A) W: Fan motor rated output (W)

**Piping**

| | |
|---|---|
| Liquid (in) | 1/4 |
| Gas (in) | 1/2 |
| Drain (in) | 3/4 |
| Max. Interunit Piping Length (ft) | 98.4 |
| Max. Interunit Height Difference (ft) | 32.8 |
| Chargeless (ft) | 24.6 |
| Additional Charge of Refrigerant (oz/ft) | .21 |

Daikin North America LLC San Felipe, Suite 500 Houston, TX 77056
(Daikin's products are subject to continuous improvements. Daikin reserves the right to modify product design, specifications and information in this data sheet without notice and without incurring any obligations)

Submittal Revision Date: March 2021.



FTXB18AXVJU / RXB18AXVJU Performance Tables

DAIKIN

**Cooling Mode**

| AFR (CFM) | EWB | EDB | Outdoor temperature | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 65.0°F | | 77.0°F | | 85.0°F | | 95.0°F | | 105.0°F | | 115.0°F | |
| | | | TC | SC | PI | TC | SC | PI | TC | SC | PI | TC | SC | PI |
| 518 | 61.0°F | 69.2°F | 18671 | 13320 | 1.02 | 18671 | 13054 | 1.05 | 18783

US Tile
Clay Roofing Products

Westlake
Royal Roofing Solutions™

# PRODUCT INFORMATION

| | |
|---|---|
| Product Name: | **2-Piece Mission - Red** |
| SKU Number: | **1UADU7025-1UBDU7025** |
| Product Type: | **Standard Weight** |
| Color: | **Red** |

Available Regions:

Nationwide

**Cool Rated Product**

| | |
|---|---|
| Reflectivity: | **0.31** |
| Aged Ref. (3 yr): | **Pending** |
| Emmisivity: | **0.86** |
| Aged Em. (3 yr): | **Pending** |
| SRI: | **32** |
| Aged SRI (3 yr): | **Pending** |
| CRRC ID#: | **0224** |
| Seller ID#: | **0942** |

**Tile Specifications:**

| | |
|---|---|
| Size: | **18 x 7-8.5 in** |
| Coverage: | **172** |
| Approx. Installed Weight: | **1000 lbs** |
| Pieces per Pallet: | **360** |
| Squares per Pallet: | **2.09** |
| Approx. Weight per Pallet: | **2150 lbs** |

*Calculated Aged Value.
The printed color shown here may vary from actual available tile color and should not be used to color match. Please contact your local Sales Representative for actual tile samples.

1.800.669.TILE (8453)
www.WestlakeRoyalRoofing.com

CRRC COOL ROOF RATING COUNCIL

| | Initial | Weathered |
|---|---|---|
| **Solar Reflectance** | **0.31** | **Pending** |
| **Thermal Emittance** | **0.86** | **Pending** |

| | |
|---|---|
| Rated Product ID Number | **0224** |
| Licensed Seller ID Number | **0942** |
| Classification | **Production Line** |

Cool Roof Rating Council ratings are determined for a fixed set of conditions, and may not be appropriate for determining seasonal energy performance. The actual effect of solar reflectance and thermal emittance on building performance may vary. Manufacturer of product stipulates that these ratings were determined in accordance with the applicable Cool Roof Rating Council procedures.

GAF

# TRI-PLY®

## APP Granule Membrane

(Formerly Tri-Ply® TP-4G)


**Description**
Tri-Ply® APP Granule Membrane is a granule-surfaced modified bitumen membrane manufactured to stringent GAF specifications. Its core is a strong, resilient, non-woven polyester mat that is coated with weather-resistant APP polymer-modified asphalt.

**Uses**
Tri-Ply® APP Granule Membrane is designed for new roofing and reroofing applications, as well as flashings. It is also ideal for repair of built-up roofing membranes or other modified bitumen systems.

**Advantages**
- Lightweight... installed roof designs weigh less than 2 pounds per square foot (9.8 kg per square meter).

**Advantages** (Continued)
- Resilient... polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- Durable... specially formulated modified asphalt for lasting performance.

| Applicable Standards |
|---|
| Meets ASTM D6222, Type I, Grade G |
| FM Approved |
| Miami-Dade County Product Control Approved |
| UL Listed |

| Nominal Specifications | |
|---|---|
| Roll Size | 1 square roll<br>106.4 gross sq. ft. (9.89 m²) |
| Roll Length | 32.25' (9.83 m) |
| Roll Width | 39.6" (1 m) |
| Roll Weight | 99 lb. (44.9 kg) |



gaf.com • 1-800ROOF-411

RENOGY

# RNG-100MB

## Premium 100W Monocrystalline Solar Panel

**Key Features**
Sleek design and a durable frame, the Renogy Premium 100 Watt 12 Volt Monocrystalline Panel provides you with the highest efficiency per area and is the perfect item for off-grid applications.

- High module conversion efficiency
- Top ranked PTC rating
- Quick and inexpensive mounting
- 100% EL testing on all Renogy modules
- No hot spots guaranteed

**Potential Uses**
The Renogy 100 Watt Monocrystalline Panel can be used in various off-grid applications that include 12 and 24 volts arrays, water pumping systems, signaling systems and other off-grid applications.

25 Years — Power Output Warranty

5 Years — Material and Workmanship Warranty

Renogy | www.renogy.com | techsupport@renogy.com | T: 800-330-8678
2775 E. Philadelphia St., Ontario, CA 91761

# RNG-100MB

## Premium 100W Monocrystalline Solar Panel

### Electrical Data

| | |
|---|---|
| Maximum Power at STC* | 100 W |
| Optimum Operating Voltage ($V_{mp}$) | 17.7 V |
| Optimum Operating Current ($I_{mp}$) | 5.70 A |
| Open Circuit Voltage ($V_{oc}$) | 21.2 V |
| Short Circuit Voltage ($I_{sc}$) | 6.10 A |
| Cell Efficiency | 22% |
| Maximum System Voltage | 600 VDC UL |
| Maximum Series Fuse Rating | 10 A |

### Mechanical Data

| | |
|---|---|
| Solar Cell Type | Monocrystalline (4.92 x 4.92 in) |
| Number of Cells | 32 (4 x 8) |
| Dimensions | 40.9 x 21.0 x 1.4 in (1038 x 533 x 35 mm) |
| Weight | 15 lbs (6.8 kg) |
| Front Glass | Tempered Glass 0.13 in (3.2 mm) |
| Frame | Black Anodized Aluminium Alloy |
| Connectors | MC4 Connectors |
| Fire Rating | Class C |

### Thermal Characteristics

| | |
|---|---|
| Operating Module Temperature | -40°C to +80°C |
| Nominal Operating Cell Temerature (NOCT) | 47±2°C |
| Temperature Coefficient of Pmax | -0.38%/°C |
| Temperature Coefficient of Voc | -0.28%/°C |
| Temperature Coefficient of Isc | 0.06%/°C |

### MC4 Connectors

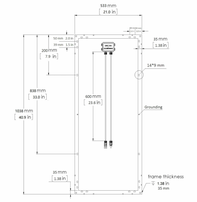
| | |
|---|---|
| Rated Current | 30A |
| Maximum Voltage | 1000VDC |
| Maximum AWG Size Range | 10 AWG |
| Temperature Range | -40°F to 194°F |
| IP Rating | IP 67 |

### Junction Box

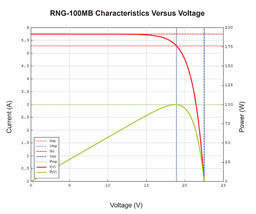
| | |
|---|---|
| IP Rating | IP 65 |
| Diode Type | HY 10SQ050 |
| Number of Diodes | 2 Diode(s) |
| Output Cables | 12 AWG (2.00 ft long) |

### Certifications

### Module Diagram




### IV-Curve




*All specifications and data described in this data sheet are tested under Standard Test Conditions (STC - Irradiance: 1000W/m², Temperature: 25°C, Air Mass: 1.5) and may deviate marginally from actual values. Renogy and any of its affiliates has reserved the right to make any modifications to the information on this data sheet without notice. It is our goal to supply our customers with the most recent information regarding our products. These data sheets can be found in the downloads section of our website, www.renogy.com

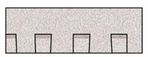
Renogy | www.renogy.com | techsupport@renogy.com | T: 800-330-8678
2775 E. Philadelphia St., Ontario, CA 91761

CertainTeed
SAINT-GOBAIN

# Technical Data Sheet

## Landmark Solaris®

**PRODUCT INFORMATION**



Landmark Solaris® innovative technology produces a shingle that reflects solar energy in a traditional color palette. All colors are rated by Cool Roof Rating Council (CRRC) and meet California's Title 24 requirements for cool steep slope roofing. Landmark Solaris shingles are manufactured using the same high standards as all CertainTeed roofing products and are covered by the same superior warranty protection. These shingles are available in "Metric" dimensions 13 1/4" x 38 3/4". This product also features CertainTeed's NailTrak® that offers a wider nailing area.

Landmark Solaris algae-resistant (AR) shingles have the additional attribute of resisting the growth of algae especially in damp regions. AR shingles are not available in all regions.

**Colors:** Please refer to product brochure or CertainTeed website for the colors available in your region.

| Color | Solar Radiative Properties | | | | | | | Energy Star Certified? |
|---|---|---|---|---|---|---|---|---|
| | CRRC Product ID# | Solar Reflectance | | Thermal Emittance | | Solar Reflective Index | | |
| | | Initial | Aged | Initial | Aged | Initial | Aged | |
| Aged Cedar ** | 0668-0055 | 0.26 | 0.24 | 0.92 | 0.90 | 28 | 24 | Yes |
| Birchwood | 0668-0084 | 0.21 | 0.21 | 0.92 | 0.83 | 21 | 17 | No |
| Burnt Sienna ** | 0668-0153 | 0.20 | Pending | 0.92 | Pending | 20 | 20 * | No |
| Crystal Gray ** | 0668-0058 | 0.27 | 0.26 | 0.93 | 0.90 | 29 | 27 | Yes |
| Georgetown Gray ** | 0668-0116 | 0.20 | 0.20 | 0.91 | 0.92 | 19 | 20 | No |
| Graphite ** | 0668-0155 | 0.21 | Pending | 0.91 | Pending | 21 | 21 * | No |
| Heather Blend ** | 0668-0117 | 0.20 | 0.20 | 0.91 | 0.92 | 19 | 20 | No |
| Mist White ** | 0668-0071 | 0.26 | 0.28 | 0.92 | 0.90 | 28 | 29 | Yes |
| Moiré Black | 0668-0129 | 0.19 | 0.18 | 0.91 | 0.92 | 18 | 17 | No |
| Mojave Tan | 0668-0115 | 0.19 | 0.20 | 0.88 | 0.90 | 17 | 19 | No |
| Resawn Shake ** | 0668-0118 | 0.19 | 0.20 | 0.92 | 0.93 | 19 | 20 | No |
| Silver Birch ** | 0668-0072 | 0.26 | 0.27 | 0.90 | 0.89 | 27 | 28 | Yes |
| Weathered Wood ** | 0668-0119 | 0.20 | 0.21 | 0.91 | 0.91 | 19 | 21 | No |

* Aged SRI is calculated using the California Energy Commission's Solar Reflective Index (SRI) Calculation Worksheet.
** Product meets the cool roofing requirements of Green Building Standards Code of Los Angeles County for residential buildings.

**Limitations:** Use on roofs with slopes greater than 2" per foot. Low-slope applications (2:12 to < 4:12) require additional underlayment. In areas prone to snow and ice, apply CertainTeed WinterGuard® Waterproofing Shingle Underlayment, or its equivalent along the eaves, according to application instructions provided with the product and on the shingle package.

**Product Composition:** Landmark Solaris shingles are composed of a fiber glass mat base. Ceramic-coated mineral granules with high solar reflectance are tightly embedded in carefully refined, water-resistant asphalt. Two pieces of the shingle are firmly laminated together in special tough asphaltic cement. All Landmark Solaris shingles have self-sealing adhesive strips.



**Applicable Standards:**
ASTM E108 Class A Fire Resistance
UL 790 Class A Fire Resistance
ASTM D3462
ASTM D3018 Type I
ASTM D3161 Class F Wind Resistance
Miami-Dade County Product Control Approved
Meets TDI Windstorm Requirements
ASTM D7158 Class H Wind Resistance
CSA Standard A123.5
ICC-ES ESR-1389 & ESR-3537
Florida Product Approval # FL5444
Can be used to comply with California Title 24, Part 6 (Steep Slope)

**Technical Data:**

| | |
|---|---|
| Weight/Square (approx.) | 216 lb |
| Shingles/Square (approx.) | 66 * |
| Dimensions (overall) | 13 1/4" x 38 3/4" |
| Weather Exposure | 5 5/8" |

*Based on 100 sq. ft. of exposed area.

**INSTALLATION**
Detailed installation instructions are supplied on each bundle of shingles and must be followed. Separate application sheets may also be obtained from CertainTeed.

**Hips and Ridges:** Use CertainTeed Shadow Ridge® or Mountain Ridge® shingles of a like color for capping hips and ridges.

**MAINTENANCE**
These shingles do not require maintenance when installed according to manufacturer's application instructions. However, to protect the investment, any roof should be routinely inspected at least once a year. Older roofs should be looked at more frequently.

**WARRANTY**
Landmark Solaris shingles carry a Lifetime Limited Warranty and 10-year SureStart™ protection when applied to stated CertainTeed application instructions for this product. Landmark Solaris AR shingles carry a 10-year algae resistance warranty. For specific warranty details and limitations, refer to the warranty itself (available from the local supplier, roofing contractor or on-line at www.certainteed.com).

**FOR MORE INFORMATION**
Sales Support Group: 800-233-8990
Web site: www.certainteed.com

**CertainTeed**
20 Moores Road
Malvern, PA 19355

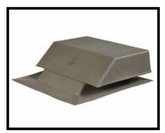


CertainTeed
SAINT-GOBAIN

AIRHAWK®

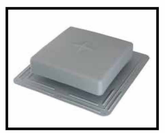
We Know Air Flow

# PLASTIC STATIC VENTS



SLP150 Slant Back Plastic
24" x 24" flashing
NFA: 150 sq. in./pc.
13" square opening

MIAMI-DADE COUNTY APPROVED



RVP61 Square Plastic
17" x 18" flashing
NFA: 61 sq. in./pc.
9" square opening

**STATIC VENT FACTS:**

- Rust-free plastic
- Long lasting
- Durable finish in four color options:
  - Black
  - Brown
  - Gray
  - Weatherwood

SLP61 Slant Back Plastic
16.5" x 19.5" flashing
NFA: 61 sq. in./pc.
9" square opening
CSA approved

SQP Square Plastic
17" x 18" flashing
NFA: 61 sq. in./pc.
Rain diverter throat
9" square opening

B -144 Round Plastic Dome
24" x 24" flashing
NFA: 144 sq. in./pc.
14" round opening
(only available in gray)

## THE BALANCED SYSTEM®


Research has shown that the best way to ventilate an attic is with a system that provides continuous airflow along the entire underside of the roof sheathing. Achieving this desired airflow requires a balanced system of intake ventilation low at the roof's edge or in the soffit/eaves and exhaust ventilation at the ridge. Air Vent offers a variety of high performance intake vents.

AIR VENT INC.
A GIBRALTAR INDUSTRIES COMPANY

4117 Pinnacle Point Dr., Suite 400 Dallas, TX 75211
Customer Service: 800-AIR-VENT (247-8368) • Fax: 1-800-635-7006
www.airvent.com • ventilation@gibraltar1.com



Yakov Design
Drafting service
(323)922-2211
info@yakovdesign.com

ADDRESS

ROOF SPECIFICATIONS

NOTES:

SCALE:

DATE: 05.08.2024

0.3

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
## RESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2024 Supplement)

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

# 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.

The mandatory provision of Section 4.106.4.2 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multifamily buildings. See Section 4.106.4.3 for application.

**Note:** Repairs including, but not limited to, resurfacing, restriping and repairing or maintaining existing lighting fixtures are not considered alterations for the purpose of this section.

**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.

Exceptions:
1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
2. [HCD] For purposes of *CAL*Green, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.

# DIVISION 4.1 PLANNING AND DESIGN

### 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

## 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 Section 4.106.4.1 or 4.106.4.2. Electric vehicle supply equipment (EVSE) shall comply with the *California Electrical Code*.

**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 local utility power supply or the local utility is unable to supply adequate power.
   1.2 Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 4.106.4, may adversely impact the construction cost of the project.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

**4.106.4.1 New one- and two-family dwellings and 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 208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the *California Electrical Code*.

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

**4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities.**
When parking is provided, parking spaces for new multifamily dwellings, hotels and motels shall meet the requirements of Section 4.106.4.2.2. Calculations for spaces shall be rounded up to the nearest whole number. A parking space served by electric vehicle supply equipment or designed as an EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See Vehicle Code Section 22511.2 for further details.

**4.106.4.2.1 Reserved.**

**4.106.4.2.2 Multifamily dwellings, hotels and motels**

**1. EV ready parking spaces with receptacles.**

**a. Hotels and motels.** Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles.

**b. Multifamily parking facilities.** Forty (40) percent of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. EV charging receptacles required by this section shall be located in at least one assigned parking space per dwelling unit where assigned parking is provided but need not exceed forty (40) percent of the total number of assigned parking spaces provided on the site.

**Exception:** Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the *California Building Code*; or parking facilities otherwise incapable of supporting electric vehicle charging.

**c. Receptacle power source**. EV charging receptacles in multifamily parking facilities shall be provided with a dedicated branch circuit connected to the dwelling unit's electrical panel, unless determined as infeasible by the project builder or designer and subject to concurrence of the local enforcing agency.

**Exception:** Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the *California Building Code*; or parking facilities otherwise incapable of supporting electric vehicle charging.

**d. Receptacle configurations.** 208/240V EV charging receptacles shall comply with one of the following configurations:

1. For 20-ampere receptacles, NEMA 6-20R
2. For 30-ampere receptacles, NEMA 14-30R
3. For 50-ampere receptacles, NEMA 14-50R

**2. EV ready parking spaces with EV chargers.**

**a. Hotels and motels.** Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors.

**b. Multifamily parking facilities.** Ten (10) percent of the total number of parking spaces shall be equipped with Level 2 EV chargers. At least fifty (50) percent of the required EV chargers shall be equipped with J1772 connectors. Where common use parking or unassigned parking is provided, EV chargers shall be located in common use or unassigned parking areas and shall be available for use by all residents or guests.

Where low power Level 2 EV charging receptacles or Level 2 EV chargers are installed beyond the minimum required, an automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EV chargers shall have a capacity of not less than 30 amperes.

**4.106.4.2.2.1 Electric vehicle charging stations (EVCS).**
Electric vehicle charging stations required by Section 4.106.4.2.2, Item 2, with EV chargers installed shall comply with Section 4.106.4.2.2.1.1.

**Exception:** Electric vehicle charging stations serving public accommodations, public housing, motels and hotels shall not be required to comply with this section. See *California Building Code*, Chapter 11B, for applicable requirements.

**4.106.4.2.2.1.1 Electric vehicle charging stations (EVCS) spaces with EV chargers installed; dimensions and location.**

EVCS spaces shall be designed to comply with the following:

1. The minimum length of each EVCS space shall be 18 feet (5486 mm).
2. The minimum width of each EVCS space shall be 9 feet (2743 mm).
3. One in every 25 EVCS spaces, but not less than one, shall also 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 EVCS space is 12 feet (3658 mm). Surface slope for this EVCS space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction. These EVCS spaces shall also comply with at least one of the following:

   a. The EVCS 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.
   b. The EVCS space shall be located on an accessible route, as defined in the *California Building Code*, Chapter 2, to the building.
   **Exception:** Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1.

**4.106.4.2.2.1.2 Accessible electric vehicle charging station spaces.**
In addition to the requirements in Section 4.106.4.2.2.1.1, all EV chargers, where installed, shall comply with the accessibility provisions for EV chargers in the *California Building Code*, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with *California Building Code*, Chapter 11A, Section 1109A.

**4.106.4.2.3 Reserved.**

**4.106.4.2.4 Reserved.**

**4.106.4.2.5 Electric vehicle ready space signage.**
Electric vehicle ready spaces shall be identified by signage or pavement markings, in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

**4.106.4.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multi-family buildings.**
Where new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be EV capable spaces to support future Level 2 electric vehicle supply equipment. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE."

**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.

# 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.

**4.303.1.4.5 Pre-rinse spray valves.**
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7) and shall be equipped with an integral automatic shutoff.

**FOR REFERENCE ONLY:** The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations),Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019

| PRODUCT CLASS [spray force in ounce force (ozf)] | MAXIMUM FLOW RATE (gpm) |
|---|---|
| Product Class 1 (≤ 5.0 ozf) | 1.00 |
| Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf) | 1.20 |
| Product Class 3 (> 8.0 ozf) | 1.28 |

Title 20 Section 1605.3 (h)(4)(A): Commercial prerinse spray values manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf)[113 grams-force(gf)]

**4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential/commercial buildings.**
Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the *California Plumbing Code*.

**4.303.3 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.
11. Information from the Department of Forestry and Fire Protection on maintenance of defensible space around residential structures.
12. Information and/or drawings identifying the location of grab bar reinforcements.

**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.

Yakov Design
Drafting service
(323)922-2211
info@yakovdesign.com

ADDRESS

GREEN BUILDING REQUIREMENTS

NOTES:

SCALE:

DATE: 05.08.2024

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
## RESIDENTIAL MANDATORY MEASURES, SHEET 2 (July 2024 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 tricloroethylene), 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 requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

**4.504.3.1 Carpet cushion.** All carpet cushion installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

**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 meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

hhttps://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

**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.

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ADDRESS

GREEN BUILDING REQUIREMENTS

NOTES:

SCALE:

DATE: 05.08.2024

0.5

| GENERAL INFORMATION | | | | | |
|---|---|---|---|---|---|
| 01 | Project Name | Proposed ADU for Standard Plan | | | |
| 02 | Run Title | Title 24 Analysis | | | |
| 03 | Project Location | _ | | | |
| 04 | City | Glendale | 05 | Standards Version | 2022 |
| 06 | Zip code | | 07 | Software Version | EnergyPro 9.2 |
| 08 | Climate Zone | 8 | 09 | Front Orientation (deg/ Cardinal) | 270 |
| 10 | Building Type | Single family | 11 | Number of Dwelling Units | 1 |
| 12 | Project Scope | Newly Constructed | 13 | Number of Bedrooms | 1 |
| 14 | Addition Cond. Floor Area (ft²) | 0 | 15 | Number of Stories | 1 |
| 16 | Existing Cond. Floor Area (ft²) | n/a | 17 | Fenestration Average U-factor | 0.3 |
| 18 | Total Cond. Floor Area (ft²) | 497 | 19 | Glazing Percentage (%) | 18.21% |
| 20 | ADU Bedroom Count | n/a | 21 | ADU Conditioned Floor Area | n/a |
| 22 | Fuel Type | All electric | 23 | No Dwelling Unit: | No |

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





| ENERGY DESIGN RATINGS | | | | | | |
|---|---|---|---|---|---|---|
| | Energy Design Ratings | | | Compliance Margins | | |
| | Source Energy (EDR1) | Efficiency[1] EDR (EDR2efficiency) | Total[2] EDR (EDR2total) | Source Energy (EDR1) | Efficiency[1] EDR (EDR2efficiency) | Total[2] EDR (EDR2total) |
| Standard Design | 29.2 | 38.6 | 26.5 | | | |
| Proposed Design | 27.8 | 32.3 | 22 | 1.4 | 6.3 | 4.5 |
| RESULT[3]: PASS | | | | | | |

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

- Standard Design PV Capacity: 1.64 kWdc
- PV System resized to 1.64 kWdc (a factor of 1.640) to achieve 'Standard Design PV' PV scaling





| ENERGY USE SUMMARY | | | | | | |
|---|---|---|---|---|---|---|
| Energy Use | Standard Design Source Energy (EDR1) (kBtu/ft²-yr) | Standard Design TDV Energy (EDR2) (kTDV/ft²-yr) | Proposed Design Source Energy (EDR1) (kBtu/ft²-yr) | Proposed Design TDV Energy (EDR2) (kTDV/ft²-yr) | Compliance Margin (EDR1) | Compliance Margin (EDR2) |
| Space Heating | 0.11 | 0.57 | 1.34 | 10.16 | -1.23 | -9.59 |
| Space Cooling | 1.66 | 38.29 | 0.74 | 22.55 | 0.92 | 15.74 |
| IAQ Ventilation | 0.46 | 4.87 | 0.46 | 4.87 | 0 | 0 |
| Water Heating | 3.13 | 33.42 | 2.4 | 27.06 | 0.73 | 6.36 |
| Self Utilization/Flexibility Credit | | | | 0 | | 0 |
| Efficiency Compliance Total | **5.36** | **77.15** | **4.94** | **64.64** | **0.42** | **12.51** |
| Photovoltaics | -3.62 | -109.7 | -3.77 | -112.91 | | |
| Battery | | | 0 | 0 | | |
| Flexibility | | | | | | |
| Indoor Lighting | 1.17 | 10.99 | 1.17 | 10.99 | | |
| Appl. & Cooking | 3.97 | 45.53 | 3.87 | 44.51 | | |
| Plug Loads | 7.27 | 73.98 | 7.27 | 73.98 | | |
| Outdoor Lighting | 0.23 | 1.98 | 0.23 | 1.98 | | |
| TOTAL COMPLIANCE | **14.38** | **99.93** | **13.71** | **83.19** | | |





| ENERGY USE INTENSITY | | | | |
|---|---|---|---|---|
| | Standard Design (kBtu/ft² - yr ) | Proposed Design (kBtu/ft² - yr ) | Compliance Margin (kBtu/ft² - yr ) | Margin Percentage |
| Gross EUI[1] | 24.39 | 22.59 | 1.8 | 7.38 |
| Net EUI[2] | 5.99 | 3.42 | 2.57 | 42.9 |

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

| REQUIRED PV SYSTEMS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
| DC System Size (kWdc) | Exception | Module Type | Array Type | Power Electronics | CFI | Azimuth (deg) | Tilt Input | Array Angle (deg) | Tilt: (x in 12) | Inverter Eff. (%) | Annual Solar Access (%) |
| 1.64 | NA | Standard (14-17%) | Fixed | none | true | 150-270 | n/a | n/a | <=7:12 | 96 | 100 |

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

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





| BUILDING - FEATURES INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| Project Name | Conditioned Floor Area (ft²) | Number of Dwelling Units | Number of Bedrooms | Number of Zones | Number of Ventilation Cooling Systems | Number of Water Heating Systems |
| Proposed ADU for Standard Plan | 497 | 1 | 1 | 1 | 0 | 1 |

| ZONE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| Zone Name | Zone Type | HVAC System Name | Zone Floor Area (ft²) | Avg. Ceiling Height | Water Heating System 1 | Status |
| Proposed ADU | Conditioned | ADU Mini Split1 | 497 | 9 | DHW Sys 1 | New |

| OPAQUE SURFACES | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| Name | Zone | Construction | Azimuth | Orientation | Gross Area (ft²) | Window and Door Area (ft2) | Tilt (deg) |
| Front Wall | Proposed ADU | R-15 Wall | 270 | Front | 212.25 | 0 | 90 |
| Left Wall | Proposed ADU | R-15 Wall | 180 | Right | 257.25 | 10.5 | 90 |
| Rear Wall | Proposed ADU | R-15 Wall | 90 | Back | 212.25 | 0 | 90 |
| Right Wall | Proposed ADU | R-15 Wall | 0 | Left | 257.25 | 80 | 90 |

| OPAQUE SURFACES - CATHEDRAL CEILINGS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
| Name | Zone | Construction | Azimuth | Orientation | Area (ft²) | Skylight Area (ft²) | Roof Rise (x in 12) | Roof Reflectance | Roof Emittance | Cool Roof |
| Roof | Proposed ADU | R-30 Roof No Attic | 0 | Left | 497 | 0 | 0.2 | 0.1 | 0.85 | No |





| FENESTRATION / GLAZING | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 |
| Name | Type | Surface | Orientation | Azimuth | Width (ft) | Height (ft) | Mult. | Area (ft²) | U-factor | U-factor Source | SHGC | SHGC Source | Exterior Shading |
| Window | Window | Left Wall | Right | 180 | | | 1 | 10.5 | 0.3 | NFRC | 0.23 | NFRC | Bug Screen |
| Window 2 | Window | Right Wall | Left | 0 | | | 1 | 80 | 0.3 | NFRC | 0.23 | NFRC | Bug Screen |

| SLAB FLOORS | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| Name | Zone | Area (ft²) | Perimeter (ft) | Edge Insul. R-value and Depth | Edge Insul. R-value and Depth | Carpeted Fraction | Heated |
| Slab-on-Grade | Proposed ADU | 497 | 104.33 | none | 0 | 80% | No |

| OPAQUE SURFACE CONSTRUCTIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| Construction Name | Surface Type | Construction Type | Framing | Total Cavity R-value | Interior / Exterior Continuous R-value | U-factor | Assembly Layers |
| R-15 Wall | Exterior Walls | Wood Framed Wall | 2x4 @ 16 in. O. C. | R-15 | 8 / None | 0.05 | Inside Finish: Gypsum Board<br>Sheathing / Insulation: R-8 Sheathing<br>Cavity / Frame: R-15 / 2x4<br>Exterior Finish: 3 Coat Stucco |
| R-30 Roof No Attic | Cathedral Ceilings | Wood Framed Ceiling | 2x12 @ 16 in. O. C. | R-30 | None / None | 0.033 | Roofing: Light Roof (Asphalt Shingle)<br>Roof Deck: Wood<br>Siding/sheathing/decking<br>Radiant Barrier<br>Cavity / Frame: R-30 / 2x12<br>Inside Finish: Gypsum Board |





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

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

| WATER HEATERS - NEEA HEAT PUMP | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
| Name | # of Units | Tank Vol. (gal) | NEEA Heat Pump Brand | NEEA Heat Pump Model | Tank Location | Duct Inlet Air Source | Duct Outlet Air Source |
| DHW Heater 1 | 1 | 40 | Rheem | XE40T10H45U0 (40 gal, JA13) | Outside | Proposed ADU | Proposed ADU |

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





| SPACE CONDITIONING SYSTEMS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
| Name | System Type | Heating Unit Name | Heating Equipment Count | Cooling Unit Name | Cooling Equipment Count | Fan Name | Distribution Name | Required Thermostat Type |
| ADU Mini Split1 | Heat pump heating cooling | Heat Pump System 1 | 1 | Heat Pump System 1 | 1 | n/a | n/a | Setback |

| HVAC - HEAT PUMPS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 |
| | | | Heating | | | | Cooling | | | | | |
| Name | System Type | Number of Units | Heating Efficiency Type | HSPF/HSPF2/COP | Cap 47 | Cap 17 | Cooling Efficiency Type | SEER/SEER2 | EER/EER2/CEER | Zonally Controlled | Compressor Type | HERS Verification |
| Heat Pump System 1 | Ductless MiniSplit HP | 1 | HSPF | 9 | 17900 | 10200 | EERSEER | 17 | 10.5 | Not Zonal | Single Speed | Heat Pump System 1-hers-htpump |

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

| INDOOR AIR QUALITY (IAQ) FANS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
| Dwelling Unit | Airflow (CFM) | Fan Efficacy (W/CFM) | IAQ Fan Type | Includes Heat/Energy Recovery? | IAQ Recovery Effectiveness - SRE/ASRE | Includes Fault Indicator Display? | HERS Verification | Status |
| SFam IAQVentRpt | 30 | 0.35 | Exhaust | No | n/a / n/a | No | Yes | |





| DOCUMENTATION AUTHOR'S DECLARATION STATEMENT | |
|---|---|
| I. I certify that this Certificate of Compliance documentation is accurate and complete. | |
| Documentation Author Name: Martin Blas | Documentation Author Signature: Martin Blas |
| Company: Yakov Design | Signature Date: 04/10/2024 |
| Address: 5535 Westlawn Ave #376 | CEA/ HERS Certification Identification (if applicable): |
| City/State/Zip: Los Angeles, CA 90066 | Phone: 5623228070 |

| RESPONSIBLE PERSON'S DECLARATION STATEMENT | |
|---|---|
| I certify the following under penalty of perjury, under the laws of the State of California:<br>1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.<br>2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.<br>3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. | |
| Responsible Designer Name: Martin Blas | Responsible Designer Signature: Martin Blas |
| Company: Yakov Design | Date Signed: 04/10/2024 |
| Address: 5535 Westlawn Ave #376 | License: |
| City/State/Zip: Los Angeles, CA 90066 | Phone: 5623228070 |

*Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.*



VERDE DEVELOPMENT
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ADU STANDARD PLAN

TITLE 24

SCALE:

DATE: 04.11.2024

T-24.1

## 2022 Single-Family Residential Mandatory Requirements Summary

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

**Building Envelope:**

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

**Fireplaces, Decorative Gas Appliances, and Gas Log:**

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

**Space Conditioning, Water Heating, and Plumbing System:**

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



## 2022 Single-Family Residential Mandatory Requirements Summary

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

**Ducts and Fans:**

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



## 2022 Single-Family Residential Mandatory Requirements Summary

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| § 150.0(m)13: | **Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3. * |

**Ventilation and Indoor Air Quality:**

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

**Pool and Spa Systems and Equipment:**

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

**Lighting:**

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



## 2022 Single-Family Residential Mandatory Requirements Summary

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

**Solar Readiness:**

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

**Electric and Energy Storage Ready:**



## 2022 Single-Family Residential Mandatory Requirements Summary

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

*Exceptions may apply.



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ADU STANDARD PLAN

TITLE 24

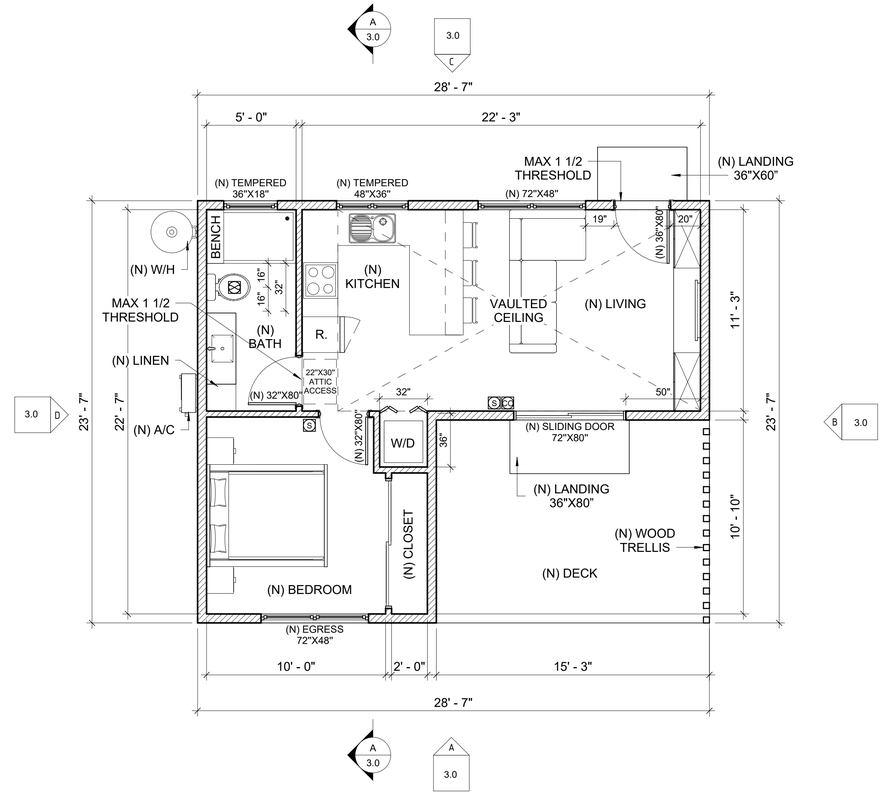
SCALE:

DATE: 04.11.2024

T-24.2

# FLOOR PLAN NOTES:

1. PROVIDE MIN. 24" CLEAR IN FRONT OF THE WATER CLOSET.
2. PROVIDE MIN. 30" CLEAR WIDTH FOR THE WATER CLOSET.
3. HANDRAIL 34"-46" ABOVE THE STAIR NOSING PER APPLICABLE CBC
4. 42" HIGH GUARDRAIL, PER APPLICABLE CBC
5. DRYER. VENT HORIZONTAL TO OUTSIDE W/ BACKDRAFT DAMPER.
6. ROOF ABOVE
7. BASEMENT BELOW
8. 5/8" TYPE "X" GYP. BD. IN THE GARAGE AND UNDER STAIRS AT ENCLOSED USABLE SPACE W/ 6d COOLER NAILS @7" O.C.
9. ULTRA-LOW CONSUMPTION WATER CLOSET (1.28 GAL/FLUSH).
10. PROVIDE COPPER WATER LINE FOR ICE MAKER.
11. PROVIDE WATER AND WASTE FOR WASHER (RECESSED BOX AT INTERIOR LOCATIONS)
12. ELECTRICAL SERVICE PANEL
13. SHOWER DRAIN IN FLOOR BELOW WASHER, CONN. TO 1 1/2" - DIA ABS PIPE W/ 1/4" PER FOOT SLOPED TO EXT.
14. 30" WIDE COOK TOP. BUILT-IN HOOD WITH LIGHT AND VENT TO OUTSIDE AIR.
15. STAIRS:
    - A. STAIRS SHALL HAVE MIN. 7.75" RISE & MIN. 10" RUN
    - B. MIN. 6'-8" HEADROOM CLEARANCE.
    - C. MIN. 30" CLEAR WIDTH
    - D. HANDRAILS 34" TO 38" HIGH ABOVE TREAD NOSING .
    - E. HANDGRIPS PORTION OF HANDRAIL SHALL NOT BE LESS THAN 1.25" AND NO MORE THAN 2" CROSS-SECTIONAL DIMENSION HAVING A SMOOTH SURFACE WITH NO SHARP CORNERS.
    - F. MAX. 4" CLEAR SPADING OPENING BETWEEN RAILS.
16. GLAZING IN HAZARDOUS LOCATIONS SHALL BE TEMPERED. (2406.4)
    - A. PANELS IN SLIDING OR SWINGING DOORS.
    - B. DOORS AND ENCLOSURE FOR HOT TUB, BATHTUB, SHOWERS (ALSO GLAZING IN WALL ENCLOSING THESE COMPARTMENTS WITHIN 5 FT. OF STANDING SURFACE.
    - C. GLAZING IN FIXED OR OPERABLE PANELS TO A DOOR WHERE THE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24 INCH ARC OF VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE WALKING SURFACE.
17. PROVIDE SLIDING FLY SCREEN AT OPENABLE PORTIONS OF SLIDING DOORS. PROVIDE STATIONARY FLY SCREENS AT OPENABLE PORTIONS OF WINDOWS.
18. EACH WATER CLOSET STOOL SHOULD BE LOCATED IN A CLEAR SPACE NOTE LESS THAN 30" IN WIDTH AND HAVE A MINIMUM CLEAR SPACE IN FRONT OF NOT LESS THAN 24" MAXIMUM 1.6 GALLONS/FLUSH FOR ALL TEH WATER CLOSETS.
19. PROVIDE ONLY VENTLESS ON-DEMAND WATER HEATERS.
20. FIRE BLOCKING MUST BE PROVIDED IN ACCORDANCE WITH SECTION 717 IN THE FOLLOWING LOCATIONS:
    - A. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AT THE CEILING AND FLOOR LEVELS..
    - B. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AT 10 FOOT INTERVALS ALONG THE LENGTH OF THE WALL
    - C. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVERED CEILINGS.
    - D. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN AND BETWEEN STUDS ALONG AND IN LINE WITH THE RUN OF STAIRS IF THE WALL UNDER THE STAIRS IS UNFINISHED.
    - E. IN OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS, FIREPLACES AND SIMILAR OPENINGS WHICH AFFORD A PASSAGE FOR FIRE AT CEILING AND FLOOR LEVELS, WITH NONCOMBUSTIBLE MATERIALS. SUCH CLEARANCE SHALL BE MEASURED VERTICALLY FROM A PLANE PARALLEL AND TANGENT TO THE STAIRWAY TREAD NOSING TO THE SOFFIT ABOVE ALL POINTS.
21. PROVIDE 6" INCH CLEARANCES ON THE SIDES, BACK, FRONT AND CEILING OF THE FURNACE.
22. THE CONSTRUCTION SHALL NOT RESTRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULL-BOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, ETC.) OR TO THE LOCATION OF THE HOOK-UP. THE CONSTRUCTION SHALL NOT BE WITHIN TEN FEET OF ANY POWER LINES-WHETHER OR NOT THE LINES ARE LOCATED ON THE PROPERTY. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND /OR ADDITIONAL EXPENSES.
23. AN APPROVED SEISMIC GAS SHUTOFF VALVE WILL BE INSTALLED ON THE FUEL GAS LINE ON THE DOWN STREAM SIDE OF THE UTILITY METER AND BE RIGIDLY CONNECTED TO THE EXTERIOR OF THE BUILDING OR STRUCTURE CONTAINING THE FUEL GAS PIPING . PER ORDINANCE 170,158 INCLUDES COMMERCIAL ADDITIONS AND TI WORK OVER $10,000. SEPARATE PLUMBING PERMIT IS REQUIRED.
24. PROVIDE ULTRA-LOW FLUSH WATER CLOSETS FOR ALL NEW CONSTRUCTIONS. EXISTING SHOWER HEADS AND TOILETS MUST BE ADAPTED FOR LOW WATER CONSUMPTION.
25. PROVIDE 72" HIGH NON-ABSORBENT WALL ADJACENT TO SHOWER AND APPROVED SHATTER-RESISTANT MATERIALS FOR SHOWER ENCLOSURE.
26. WATER HEATER MUST BE STRAPPED TO WALL.
27. UNDER FLOOR VENTILATION OPENINGS IN THE UNDER FLOOR AREA SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
    - A. THE TOP OF THE OPENING SHALL BE LOCATED NOT MORE THAN 12 INCHES BELOW THE BOTTOM OF THE FLOOR JOIST.
    - B. THE OPENINGS SHALL BE DISTRIBUTED APPROXIMATELY EQUALLY AND LOCATED TO PROVIDE CROSS VENTILATION, FOR EXAMPLE, BE LOCATING THE OPENING ALONG THE LENGTH OF AT LEAST TWO OPPOSITE SIDES OF THE BUILDING.
    - C. THE OPENINGS SHALL BE THE LARGER OF: 1.5 SQUARE FEET FOR EACH 25 LINEAR FEET OR FRACTION OF EXTERIOR WALL, OR OPENINGS SHALL BE EQUAL TO 1% OF UNDER FLOOR AREA. THE OPENINGS MAY BE COVERED WITH CORROSION RESISTANT WIRE MESH WITH MESH
28. OPENINGS OF GREATER THAN 1.4 INCH AND LESS THAN 1.2 INCH IN DIMENSION. BUILDINGS WITH NATURAL VENTILATION ARE EXEMPTED FROM THE CONSTRUCTION REQUIREMENTS OF TABLE 71 PROVIDED THEY COMPLY WITH THE FOLLOWING:
    - A. THE UNOBSTRUCTED OPENINGS SHALL EXCHANGE OUTSIDE AIR.
    - B. THE SIZE OF THE UNOBSTRUCTED OPENINGS SHALL BE THE LARGER OF: 25% OF THE TOTAL PERIMETER WALL AREA OF THE LOWEST LEVEL OF THE BUILDING, OR AT LEAST 25% OF THE FLOOR AREA OF THE LOWEST OF THE BUILDING.
    - C. THE UNOBSTRUCTED OPENINGS SHALL BE EVENLY DISTRIBUTED AND LOCATED WITHIN THE UPPER PORTION OF AT LEAST TWO OPPOSITE EXTERIOR WALLS OF THE LOWEST LEVEL OF THE BUILDING. THEY ARE PROVIDED WITH TRENCH DAMS AND CABLE OR CONDUIT SEALS.
29. PLUMBING FIXTURES ARE REQUIRED TO BE CONNECTED TO A SANITARY SEWER OR TO AN APPROVED SEWAGE DISPOSAL SYSTEM.
30. KITCHEN SINKS, LAVATORIES, BATHTUBS, SHOWERS, BIDETS, LAUNDRY TUBS,AND WASHING MACHINE OUTLETS SHALL BE PROVIDED WITH HOT AND COLD WATER AND CONNECTED TO AN APPROVED WATER SUPPLY.
31. THE PANEL 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.
32. THE 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 PERMANENT AND VISIBLY MARKED EV CAPABLE.
33. THE ELECTRICAL SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO SIMULTANEOUSLY CHARGE ALL DESIGNATED EV SPACES AT THE FULL RATED AMPERAGE OF THE EVSE. PLAN DESIGN SHALL BEBASED UPON A 40-AMPERE MIN. BRANCH CIRCUIT. A SEPARATE ELECTRICAL PERMIT IS REQUIRED.
34. THE 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 LOS ANGELES ELECTRICAL CODE.
35. THE FLOW RATES FOR ALL PLUMBING FIXTURES SHALL COMPLY WITH THE MAXIMUM FLOW RATES SPECIFIED IN SECTION 4.303.1.
36. MULTI-FAMILY DWELLINGS NOT EXCEEDING THREE STORIES AND CONTAINING 50 UNITS OR LESS SHALL INSTALL A SEPARATE METER OR SUBMETER WITHIN COMMON AREAS AND WITHIN EACH INDIVIDUAL DWELLING UNIT.
37. FOR PROJECTS THAT INCLUDE LANDSCAPE WORK, THE LANDSCAPE CERTIFICATION, FORM GRN 12, SHALL BE COMPLETED PRIOR TO FINAL INSPECTION APPROVAL.
38. LOCKS SHALL BE INSTALLED ON ALL PUBLICLY ACCESSIBLE EXTERIOR FAUCETS AND HOSE BIBS. (4.304.4)
39. B. FOR ONE- AND TWO-FAMILY DWELLINGS, ANY PERMANENTLY INSTALLED OUTDOOR IN-GROUND SWIMMING POOL OR SPA SHALL BE EQUIPPED WITH A COVER HAVING A MANUAL OR POWER-OPERATED REEL SYSTEM. FOR IRREGULAR-SHAPED POOLS WHERE IT IS INFEASIBLE TO COVER 100 PERCENT OF THE POOL DUE TO ITS IRREGULAR SHAPE, A MINIMUM OF 80 PERCENT OF THE POOL SHALL BE COVERED. (4.304.5)
40. C. FOR SITES WITH OVER 500 SQUARE FEET OF LANDSCAPE AREA, WASTE PIPING SHALL BE ARRANGED TO PERMIT DISCHARGE FROM THE CLOTHES WASHER, BATHTUB, SHOWERS, AND BATHROOM/RESTROOMS WASH BASINS TO BE USED FOR A FUTURE GRAYWATER IRRIGATION SYSTEM. (4.305.1)
41. D. WATER USED IN THE BUILDING FOR WATER CLOSETS, URINALS, FLOOR DRAINS, AND PROCESS COOLING AND HEATING SHALL COME FROM CITY-RECYCLE WATER IF AVAILABLE FOR USE WITHIN 200 FEET OF THE PROPERTY LINE. (4.305.2)
42. E. BUILDING NOT EXCEEDING 25 STORIES SHALL HAVE COOLING TOWERS WITH MINIMUM OF 6 CYCLES OF CONCENTRATION (BLOWDOWN) OR HAVE A MINIMUM OF 50% OF MAKEUP WATER SUPPLY TO COOLING TOWERS COME FROM NON-POTABLE WATER SOURCES. (4.305.3.1)
43. F. BUILDING EXCEEDING 25 STORIES SHALL HAVE COOLING TOWERS WITH MINIMUM OF 6 CYCLES OF CONCENTRATION (BLOWDOWN) AND HAVE A MINIMUM OF 100% OF MAKEUP WATER SUPPLY TO COOLING TOWERS COME FROM NON-POTABLE WATER SOURCES. (4.305.3.2)
44. G. WHERE GROUNDWATER IS BEING EXTRACTED AND DISCHARGED, A SYSTEM FOR ONSITE REUSE OF THE GROUNDWATER SHALL BE DEVELOPED AND CONSTRUCTED IF THE GROUNDWATER WILL NOT BE DISCHARGED TO THE SEWER. (4.305.4)
45. H. THE HOT WATER SYSTEM SHALL NOT ALLOW MORE THAN 0.6 GAL OF WATER TO BE DELIVERED TO ANY FIXTURE BEFORE HOT WATER ARRIVES OR SHALL COMPLY WITH EITHER LOS ANGELES PLUMBING CODE SECTION 610.4.1.2 OR 610.4.1.3.
46. MATERIALS DELIVERED TO THE CONSTRUCTION SHALL BE PROTECTED FROM RAIN OR OTHER SOURCES OF MOISTURE.
47. WOOD BURNING FIREPLACES AND OTHER WOOD BURNING DEVICES ARE PROHIBITED.
48. ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT.
49. ARCHITECTURAL PAINTS AND COATINGS, ADHESIVES, CAULKS AND SEALANTS SHALL COMPLY WITH THE VOLATILE ORGANIC COMPOUND (VOC) LIMITS LISTED IN TABLES 4.504.1- 4.504.3.
50. THE VOC CONTENT VERIFICATION CHECKLIST, FORM GRN 2, SHALL BE COMPLETED AND VERIFIED PRIOR TO FINAL INSPECTION APPROVAL. THE MANUFACTURERS SPECIFICATIONS SHOWING VOC CONTENT FOR ALL APPLICABLE PRODUCTS SHALL BE READILY AVAILABLE AT THE JOB SITE AND BE PROVIDED TO THE FIELD INSPECTOR FOR VERIFICATION. (4.504.2.4)
51. ALL NEW CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE TESTING AND PRODUCT REQUIREMENTS OF ONE OF THE FOLLOWING:
    I. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM
    II. CALIFORNIA DEPARTMENT OF PUBLIC HEALTHS SPECIFICATION 01350
    III. NSF/ANSI 140 AT THE GOLD LEVEL
    IV. SCIENTIFIC CERTIFICATIONS SYSTEMS INDOOR ADVANTAGE™ GOLD (4.504.3)
52. ALL NEW CARPET CUSHION INSTALLED IN THE BUILDING INTERIOR SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE GREEN LABEL PROGRAM. (4.504.3.1)
53. 80% OF THE TOTAL AREA RECEIVING RESILIENT FLOORING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING:
    I. CERTIFIED AS A CHPS LOW-EMITTING MATERIAL IN THE CHPS HIGH PERFORMANCE PRODUCTS DATABASE
    II. CERTIFIED UNDER UL GREENGUARD GOLD
    III. CERTIFIED UNDER THE RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSCORE PROGRAM IV. MEET THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTHS SPECIFICATION 01350 (4.504.4)
54. NEW HARDWOOD PLYWOOD, PARTICLE BOARD, AND MEDIUM DENSITY FIBERBOARD COMPOSITE WOOD PRODUCTS USED IN THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE FORMALDEHYDE LIMITS LISTED IN TABLE 4.504.5. (4.504.5)
55. THE FORMALDEHYDE EMISSIONS VERIFICATION CHECKLIST, FORM GRN 3, SHALL BE COMPLETED PRIOR TO FINAL INSPECTION APPROVAL. THE MANUFACTURERS SPECIFICATIONS SHOWING FORMALDEHYDE CONTENT FOR ALL APPLICABLE WOOD PRODUCTS SHALL BE READILY AVAILABLE AT THE JOB SITE AND BE PROVIDED TO THE FIELD INSPECTOR FOR VERIFICATION.
56. NEW MECHANICALLY VENTILATED BUILDINGS WITHIN 1,000 FEET OF A FREEWAY SHALL PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH A MERV 13 FILTER FOR OUTSIDE AND RETURN AIR. FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.




## 1 PROPOSED ADU FLOOR PLAN (N)

1/4" = 1'-0"

## LEGEND

- NEW WALLS
- 1-HR WALL (REQUIRED IF FIRE SEPARATION DISTANCE IS LESS THAN 5')
- (S) 120v HARD-WIRED SMOKE DETECTOR WITH BATTERY BACK UP
- (CO) CARBON MONOXIDE SENSOR
- EXHAUST FAN CAPABLE OF FIVE AIR CHANGES PER MINUTE ENERGY STAR COMPLIANT W/HUMIDISTAT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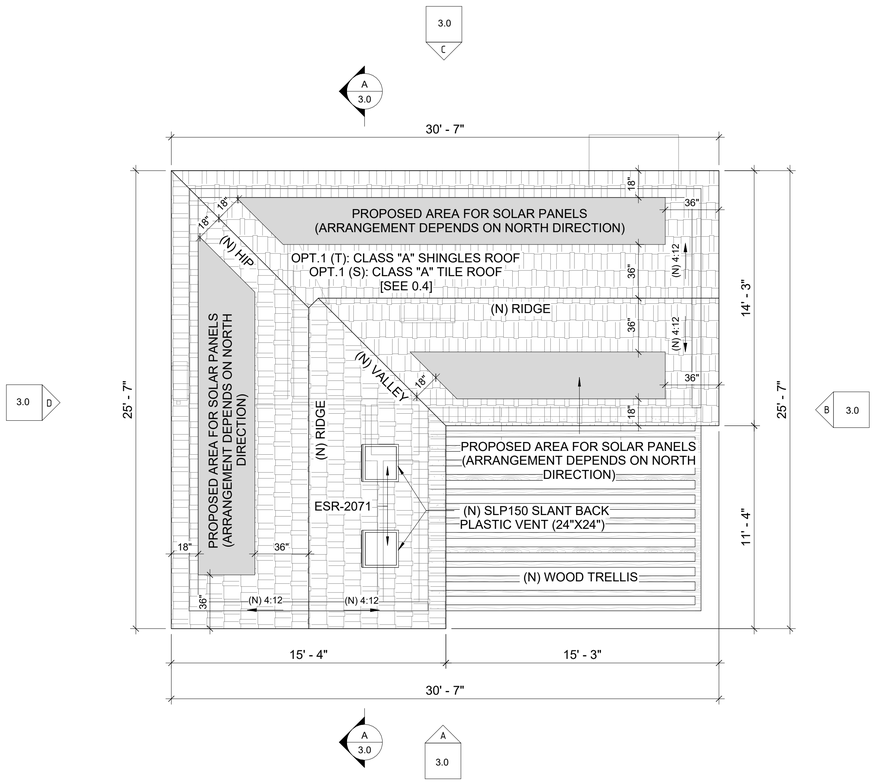
PROPOSED ADU FLOOR PLAN

NOTES:

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

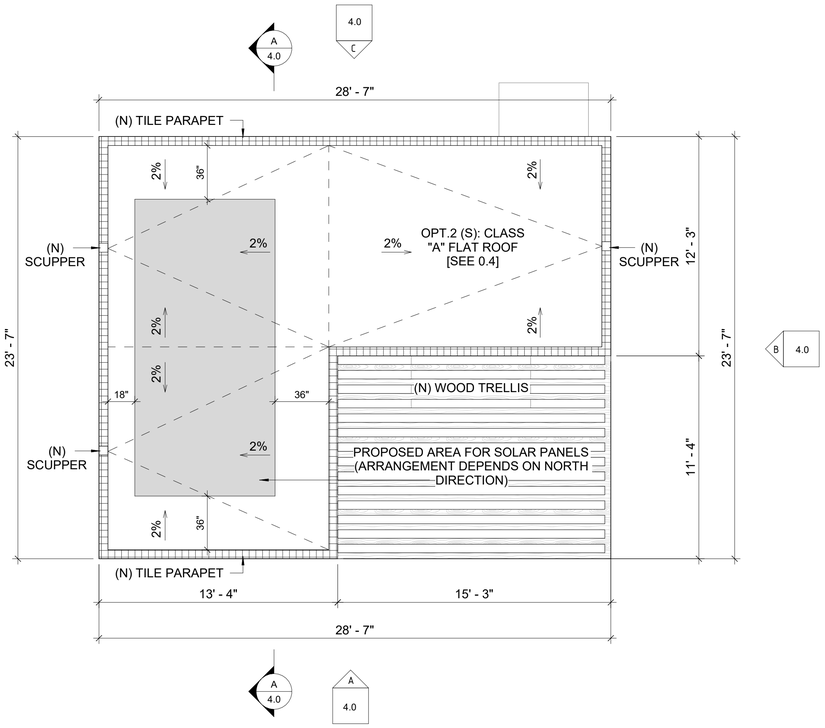
DATE: 05.08.2024

1.0




1 PROPOSED ADU ROOF PLAN (OPTION 1) N

1/4" = 1'-0"




2 PROPOSED ADU ROOF PLAN (OPTION 2) N

1/4" = 1'-0"

## ATTIC VENTILATION:

AREA OF THE NEW ROOF TO BE VENTILATED: 208.0 S.F.
VENTILATION REQUIRED: 208.0 / 150 = 1.40 S.F.
VENTILATION PROVIDED:
PROVIDED 2X SLP150 SLANT BACK PLASTIC VENT
(24"X24") 1.04 S.F.
TOTAL PROVIDED: 1.04 S.F. X 2 = 2.08 S.F

## ROOF AREA:

PROPOSED NEW ROOF AREA: 610.0 S.F.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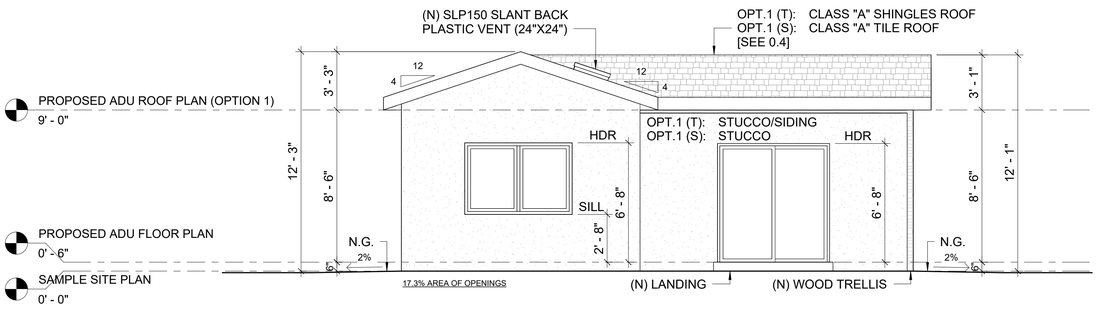
PROPOSED ADU ROOF PLANS

NOTES:

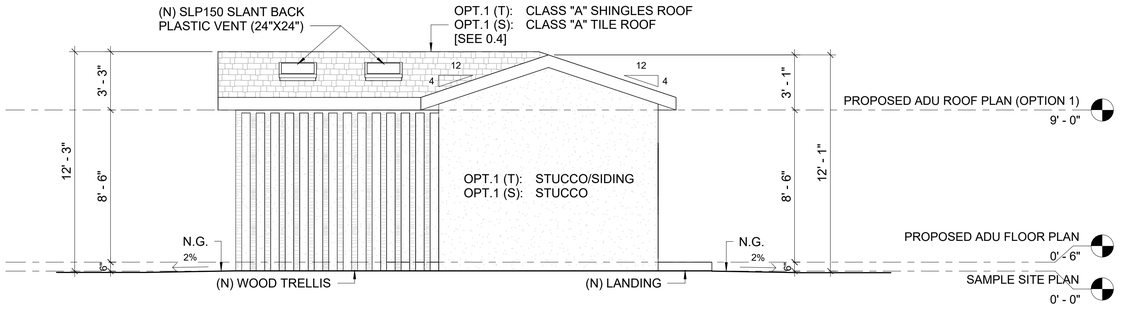
SCALE: 1/4" = 1'-0"

DATE: 05.08.2024




1 ELEVATION A (OPTION 1)

1/4" = 1'-0"




2 ELEVATION B (OPTION 1)

1/4" = 1'-0"



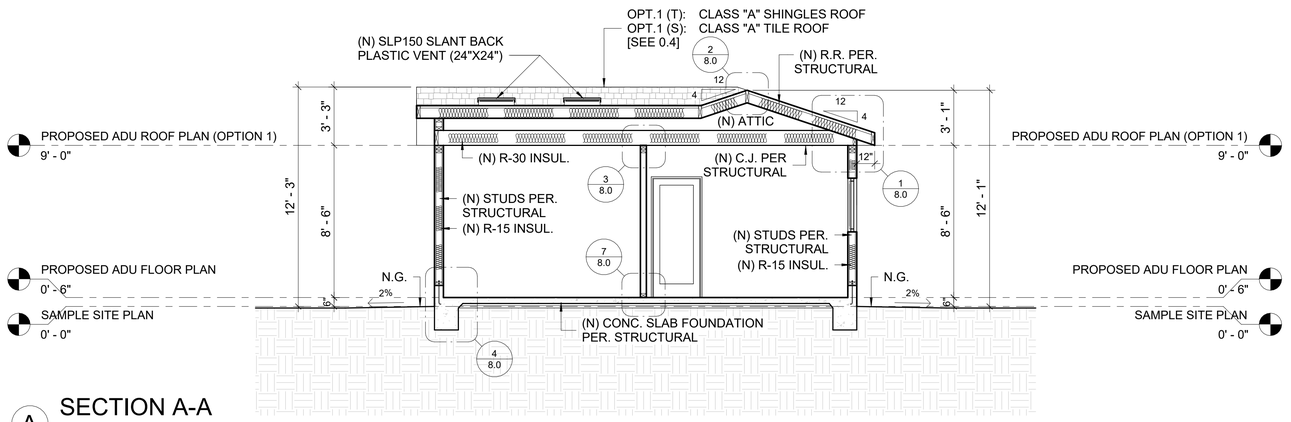

3 ELEVATION C (OPTION 1)

1/4" = 1'-0"




4 ELEVATION D (OPTION 1)

1/4" = 1'-0"




A SECTION A-A

1/4" = 1'-0"

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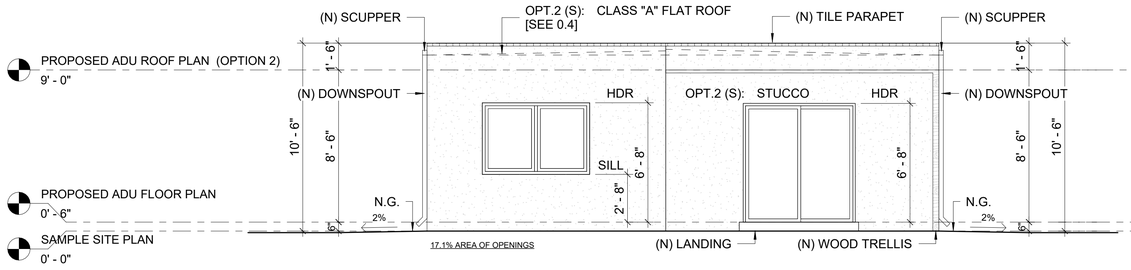
PROPOSED ADU
ELEVATIONS, SECTION A-A
(OPTION 1)

NOTES:

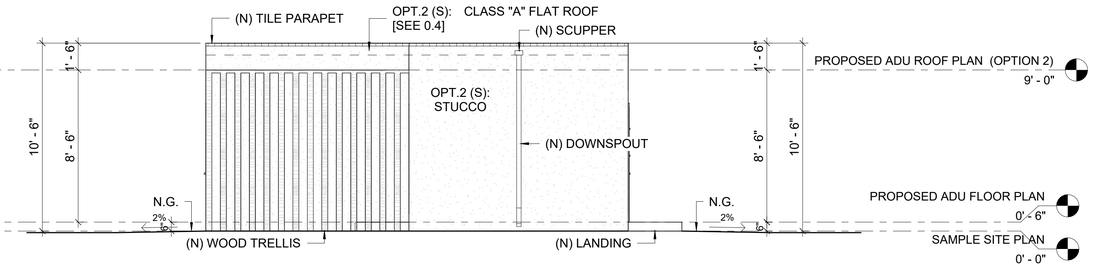
SCALE: 1/4" = 1'-0"

DATE: 05.08.2024




1 ELEVATION A (OPTION 2)

1/4" = 1'-0"




2 ELEVATION B (OPTION 2)

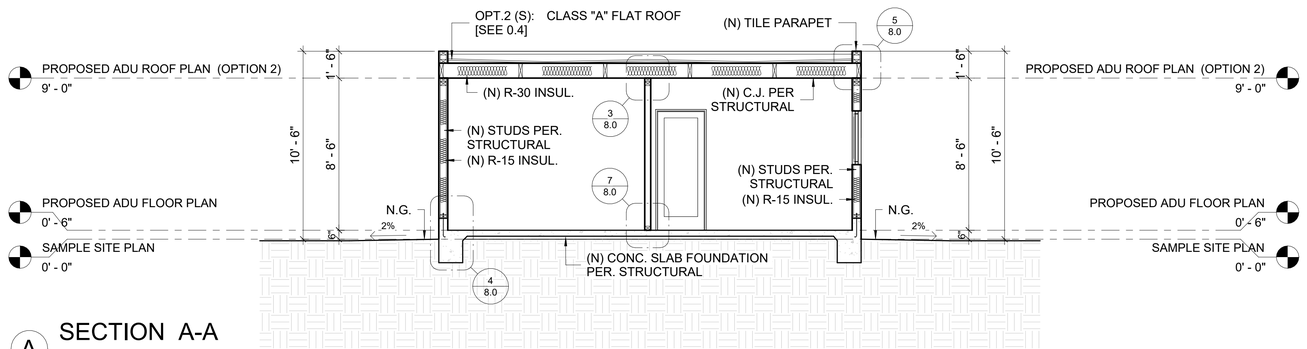
1/4" = 1'-0"


3 ELEVATION C (OPTION 2)

1/4" = 1'-0"


4 ELEVATION D (OPTION 2)

1/4" = 1'-0"




A SECTION A-A

1/4" = 1'-0"

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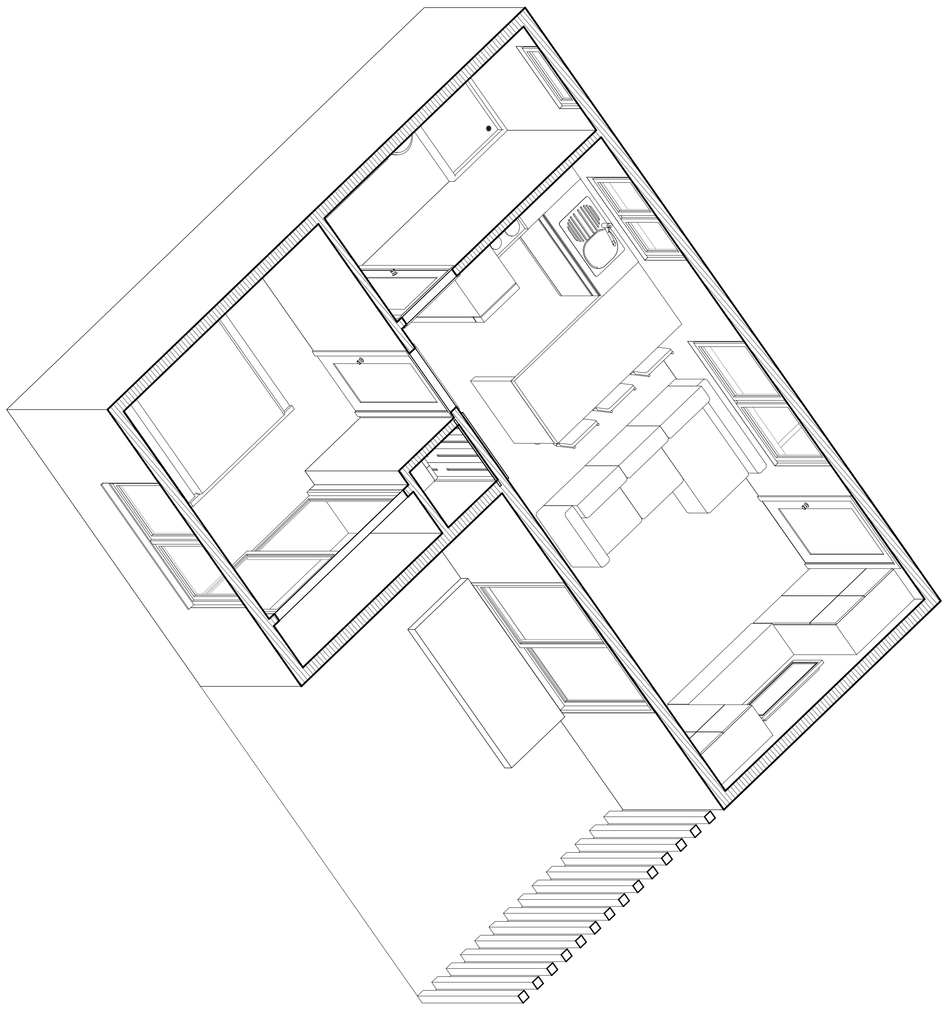
PROPOSED ADU
ELEVATIONS, SECTION A-A
(OPTION 2)

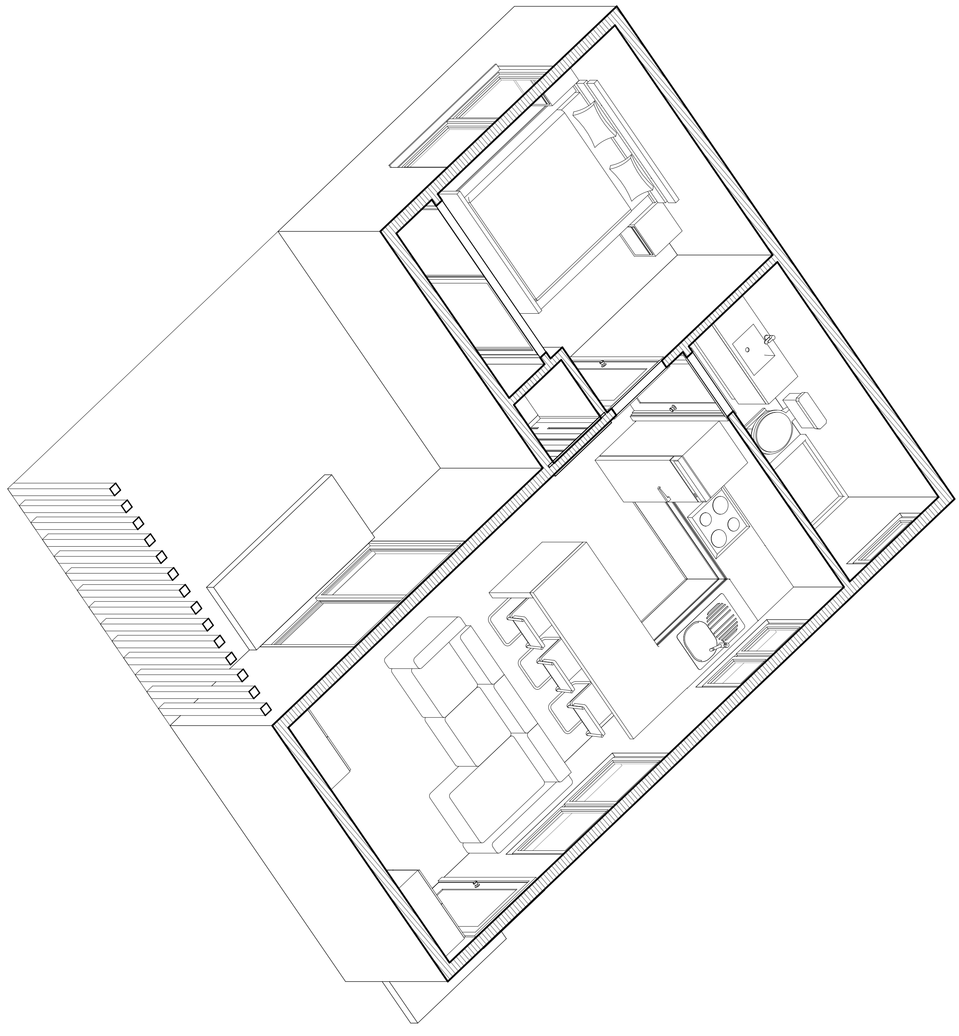
NOTES:

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

DATE: 05.08.2024

4.0





5.0

NOTES:

SCALE:

DATE: 05.08.2024

PROPOSED ADU LAYOUT
3D VIEWS

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# PROPOSED ADU 3D VIEWS (OPTION 1)

NOTES:

SCALE:

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6.0

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# PROPOSED ADU 3D VIEWS (OPTION 2)

NOTES:

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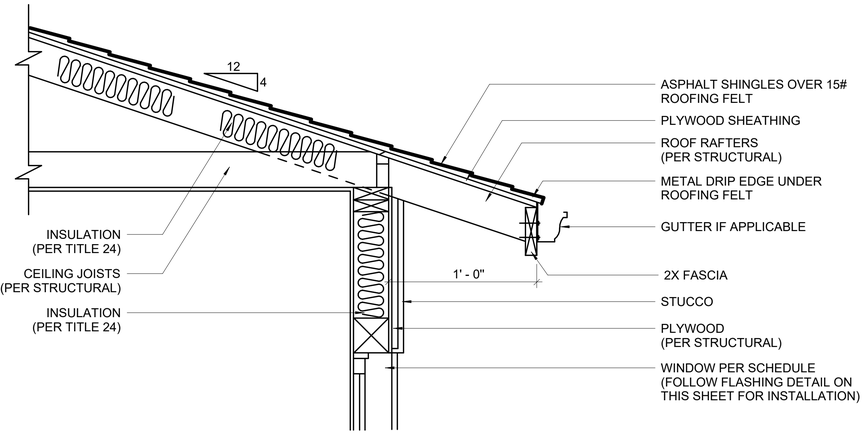
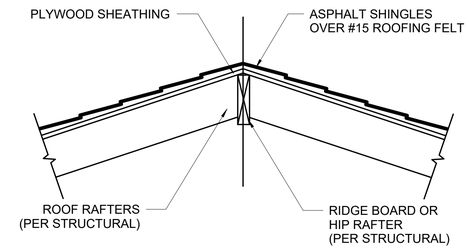
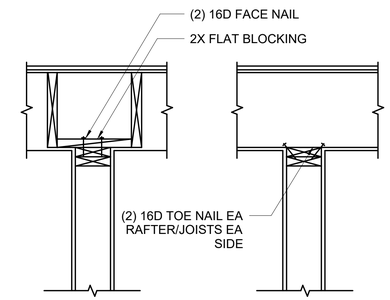


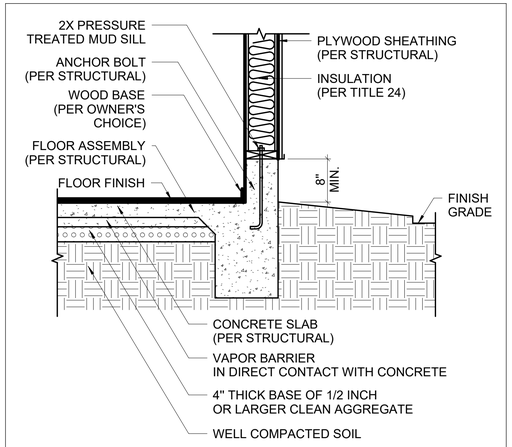

1 EAVE DETAIL



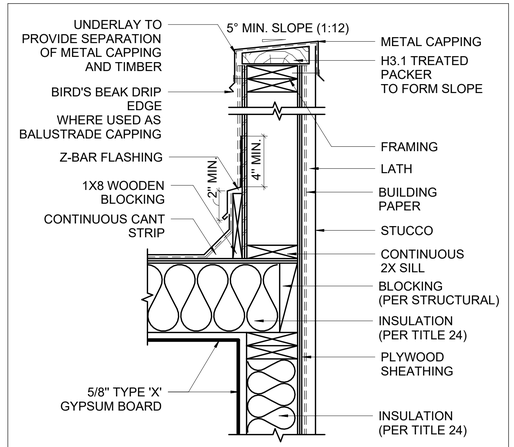

2 RIDGE AND HIP FLASHING



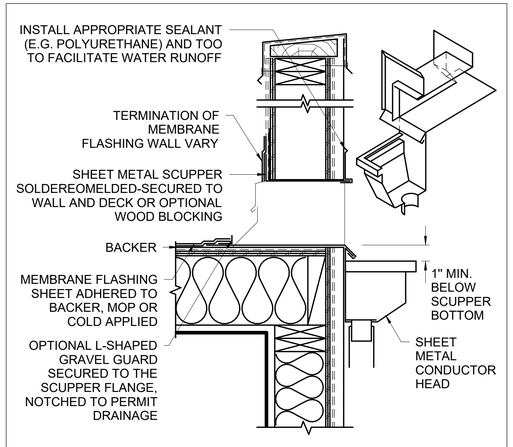

3 INTERIOR PARTITIONS DETAILS (UPPER)



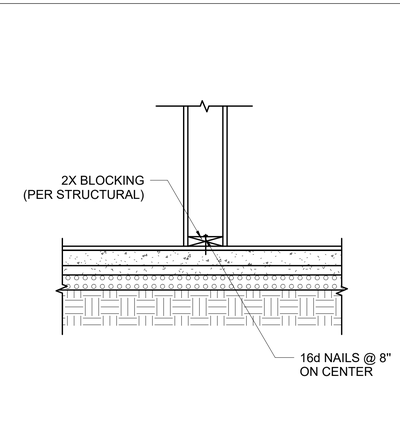

4 EXTERIOR WALL AT FIRST FLOOR



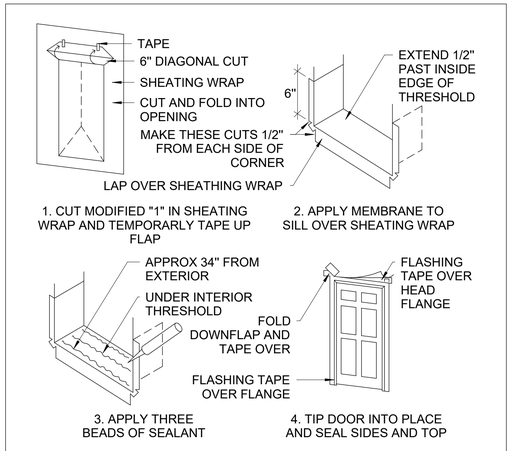

5 PARAPET DETAIL



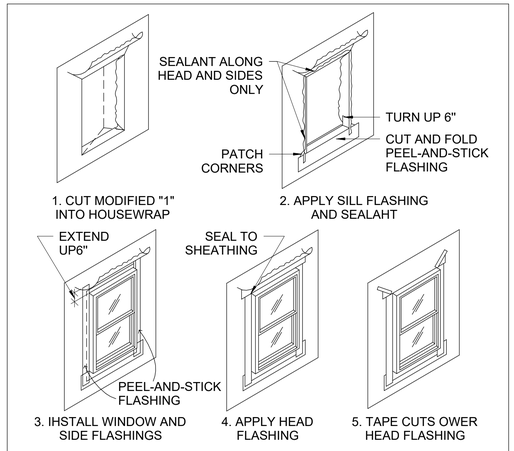

6 SCUPPER DETAIL



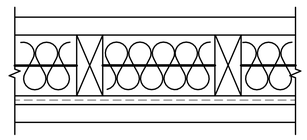

7 INTERIOR PARTITIONS DETAILS (LOWER) FOR CONCRETE SLAB




8 DOOR FLASHING



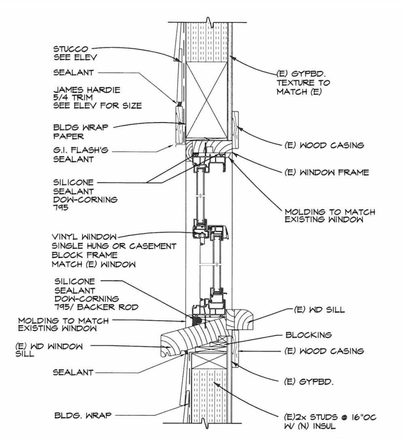

9 WINDOW FLASHING



RESILIENT CHANNELS 24" O. C. ATTACHED AT RIGHT ANGLES TO ONE SIDE OF 2X4 WOOD STUDS 24" O. C. WITH 11/4" TYPE S DRYWALL SCREWS. ONE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLWS TO CHANNELS WITH 1" TYPE S DRYWALL SCREWS 8" O.C. WITHH VERTICAL JOINTS LOCATED MIDWAY BETWEEN STUDS. 3" MINERAL OR GLASS FIBER INSULATION IN STUD SPACE.
OPPOSITE SIDE:
ONE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO STUDS WITH 6D CEMENT COATED NAILS, 17/8" LONG, 0.0915" SHANK, 15/64" HEADS, 7" O. C. VERTICAL JOINTS STAGGERED 24" ON OPPOSITE SIDES. (LOAD-BEARING)

GA FILE NO. WP 3243 50-54 STC SOUND

10 1-HR RATED FIRE WALL DETAIL




11 RECESSED WINDOW DETAIL

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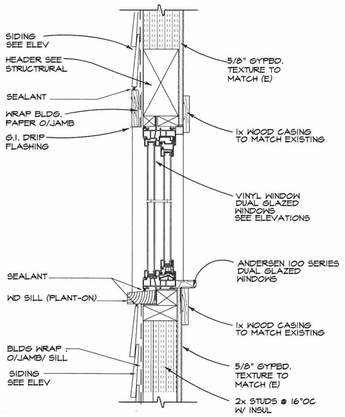
DETAILS

NOTES:

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

DATE: 05.08.2024




12 RECESSED WINDOW DETAIL

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DETAILS

NOTES:

SCALE:

DATE: 05.08.2024

9.0

## ALL TRADES

A. THE FOLLOWING ABBREVIATIONS OR ACRONYMS MAY BE USED IN THESE DRAWINGS:

| | | |
|---|---|---|
| PROJECT | = | NEW ADU |
| ARCHITECT | = | YAKOV DESIGN |
| SAA | = | SAA STRUCTURAL ENGINEERING<br>PRIMARY CONTACT: NICK SIVUSHENKA, P.E. |
| GEOTECHNICAL ENGINEER | = | N/A |
| BUILDING DEPARTMENT | = | THE CITY OF LOS ANGELES<br>DEPARTMENT OF BUILDING AND SAFETY |
| IBC | = | THE INTERNATIONAL BUILDING CODE, 2018 EDITION; SECONDARY BUILDING CODE FOR PROJECT. |
| CBC | = | THE CALIFORNIA BUILDING CODE, 2019 EDITION (CONSISTING OF THE 2018 IBC AS ADOPTED BY THE STATE OF CALIFORNIA); SECONDARY BUILDING CODE FOR PROJECT |
| ICC | = | THE INTERNATIONAL CODE CONFERENCE; AUTHOR OF IBC, SOURCE AUTHORITY FOR GENERAL CODE REQUIREMENTS. |
| ACI | = | THE AMERICAN CONCRETE INSTITUTE; SOURCE AUTHORITY FOR STRUCTURAL CONCRE WORK. |
| AISC | = | THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION; SOURCE AUTHORITY FOR STRUCTURAL STEEL WORK. |
| AISI | = | THE AMERICAN IRON AND STEEL INSTITUTE; SOURCE AUTHORITY FOR LIGHT GAGE STEEL FRAMING. |
| AWS | = | THE AMERICAN WELDING SOCIETY; SOURCE AUTHORITY FOR WELDING. |
| ASTM | = | THE AMERICAN SOCIETY FOR TESTING OF MATERIALS; SOURCE AUTHORITY FOR MATERIAL QUALITY AND TESTING STANDARDS. |
| CRSI | = | THE CONCRETE REINFORCING STEEL INSTITUTE; SOURCE AUTHORITY FOR REINFORCING STEEL FABRICATION AND INSTALLATION STANDARDS. |

| | | |
|---|---|---|
| ABV | = | ABOVE |
| A.B. | = | ANCHOR BOLTS(S) |
| APX | = | APPROXIMATE OR APPROXIMATELY |
| ARCH | = | ARCHITECTURAL |
| BTWN | = | BETWEEN |
| REQD | = | REQUIRED |
| BLW | = | BELOW |
| BOT | = | BOTTOM |
| COL | = | COLUMN |
| CONT | = | CONTINUOUS |
| (E) | = | EXISTING (CONTRACTOR TO FIELD VERIFY) |
| EA | = | EACH |
| EL | = | ELEVATION |
| EMBD | = | EMBEDMENT |
| EQ | = | EQUAL |
| FIN | = | FINISH (SEE ARCHITECTURAL DETAILS) |
| FOF | = | FACE OF FINISH |
| FP | = | FULL PENETRATION (WELD) |
| F.S. | = | FAR SIDE |
| GA | = | GAGE (SHEET METAL OR WIRE AS APPLICABLE) |
| HORZ | = | HORIZONTAL |
| LLH | = | LONG LEG HORIZONTAL (ORIENTATION OF UNEQUAL LEG ANGLE) |
| LLV | = | LONG LEG VERTICAL (ORIENTATION OF UNEQUAL LEG ANGLE) |
| LSH | = | LONG SIDE HORIZONTAL (ORIENTATION OF RECTANGULAR TUBE) |
| LSV | = | LONG SIDE VERTICAL (ORIENTATION OF RECTANGULAR TUBE) |
| MAX | = | MAXIMUM |
| M.B. | = | MACHINE BOLTS OR BOLTS (INDICATED ASTM A307 FASTENERS) |
| MIN | = | MINIMUM |
| (N) | = | NEW |
| NIC | = | NOT IN CONTRACT (WORK EXCLUDED FROM SCOPE) |
| NOM | = | NOMINAL |
| NTS | = | NOT TO SCALE |
| O.C. | = | ON CENTER |
| OP | = | OPPOSITE |
| PC | = | PIECE |
| PP | = | PARTIAL PENETRATION (WELD) |
| PSF | = | POUNDS PER SQUARE FOOT |
| RQD | = | REQUIRED |
| SIM | = | SIMILAR |
| SMS | = | SHEET METAL SCREW (SELD TAPPING UNO) |
| SYM | = | SYMMETRICAL OR STMMETRY |
| STD | = | STANDARD |
| TOC | = | TOP OF CONCRETE |
| TOF | = | TOP OF FINISH |
| TOS | = | TOP OF STEEL (NOT TOP OF SLAB) |
| TYP | = | TYPICAL |
| UNO | = | UNLESS NOTED OTHERWISE |
| VERT | = | VERTICAL |

B. LADBS NOTES:

1. CONTRACTORS RESPONSIBLE FOR THE CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTION SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE LADBS INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH SYSTEM OR COMPONENT PER SEC 1704.4.
2. CONTINUOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, POST-INSTALLED ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLINED TO RESIST SUSTAINED TENSION LOADS, SHOTCRETE PLACEMENT, CONCRETE STRENGTH F=C > 2500 PSI, SPRAYED-ON FIREPROOFING, ENGINEERED MASONRY, HIGH-LIFT GROUTING, HIGH LOAD DIAPHRAGMS, SPECIAL MOMENT-RESISTING CONCRETE FRAMES, AND HELICAL PILE FOUNDATIONS.
3. FOUNDATION SILLS SHALL BE NATURALLY DURABLE OR PRESERVATIVE-TREATED WOOD.
4. SHOP WELDS MUST BE PERFORMED IN A LADBS LICENSED FABRICATOR SHOP
5. LADBS LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL
6. PROVIDE LEAD HOLE 40% - 70% OF THREADED SHANK DIAMETER AND FULL DIAMETER FOR SMOOTH SHANK PORTION.
7. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING TO COMPONENTS OF THE SEISMIC FORCE RESISTING SYSTEM. SPECIAL INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED WHERE THE FASTENER SPACING OF THE SHEATHING IS 4 INCHES ON CENTER OR LESS.
8. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING TO COMPONENTS OF THE SEISMIC FORCE RESISTING SYSTEM. SPECIAL INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED WHERE THE FASTENER SPACING OF THE SHEATHING IS 4 INCHES ON CENTER OR LESS.

C. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS ON THE SITE.

1. THE CONTRACTOR SHALL MAKE A SURVEY FOR GENERAL CONSISTENCY OF FIELD CONDITIONS WITH INFORMATION SHOWN IN THE CONTRACT DOCUMENTS BEFORE STARTING WORK. THIS SURVEY SHALL INCLUDE VERIFICATION OF DIMENSIONS AND ELEVATIONS.
2. SHOULD THE CONTRACTOR BECOME AWARE OF A DISCREPANCY OR INCONSISTENCY BETWEEN FIELD CONDITIONS AND INFORMATION SHOWN IN THE CONTRACT DOCUMENTS AT ANY TIME, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ARCHITECT. IF THE DISCREPANCY OR INCONSISTENCY INVOLVES OR EFFECTS WORK SHOWN IN THE STRUCTURAL DRAWINGS, SAA SHALL ALSO BE NOTIFIED, AND THE CONTRACTOR SHALL OBTAIN DIRECTION FROM SAA BEFORE PROCEEDING WITH AFFECTED WORK.
3. THE CONTRACTOR SHALL CONFIRM AND LIMIT LOADS IMPOSED ON THE STRUCTURE BY NEW MECHANICAL EQUIPMENT OR OTHER NEW NONSTRUCTURAL ITEMS, INCLUDING FRAMES, CURBS OR OTHER SUPPORTS AS OCCUR. WEIGHTS AND OTHER LOADS SHALL BE COMPARED TO AND SHALL NOT EXCEED THOSE SHOWN IN THESE STRUCTURAL DRAWINGS. WHERE WEIGHTS OR LOADS ARE NOT SHOWN, THE CONTRACTOR SHALL DETERMINE AND SUBMIT THEM TO SAA, WHICH SHALL VERIFY COMPATIBILITY WITH STRUCTURAL DESIGN BEFORE INSTALLATION.
4. NO SUBSTITUTION, CHANGE OR OTHER DEVIATION FROM THE REQUIREMENTS OF ANY CONTRACT DOCUMENT SHALL BE MADE WITHOUT THE APPROVAL OF OWNER.
   a. UNAUTHORIZED SUBSTITUTION, CHANGE OR DEVIATION SHALL BE SUFFICIENT CAUSE FOR REJECTION OF THE WORK AND/OR OF PAYMENT REQUESTS.
   b. NO DEVIATION FROM INFORMATION SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM SAA.
5. SHOP DRAWINGS AND OTHER SUBMITTALS PREPARED BY SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION.
   a. ACCEPTANCE OF A SHOP DRAWING SHALL NOT CONSTITUE APPROVAL OF ANY DEVIATION FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS.
   b. REQUESTS FOR APPOROVAL OF PROPOSED ALTERNATE DETAILS, MATERIAL SUBSTITUTIONS OR OTHER DEVIATIONS SHALL BE DIRECTED TO SAA INDEPENDENTLY FROM AND IN ADVANCE OF SUBMISSION OF AFFECTED SHOP DRAWINGS OR START OF AFFECTED PARTS OF THE WORK.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY ON THE PROJECT SITE.

1. SHOULD THE CONTRACTOR BECOME AWARE OF ANY CONDITION WHICH IN HIS OPINION MIGHT CAUSE DISTRESS OF ANY PART OF THE CONSTRUCTION OR ENDANGER STABILITY, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SAA AND TAKE ANY ACTION NECESSARY TO PROTECT LIFE AND PROPERTY PENDING DIRECTION FROM OWNER.
2. MEANS AND METHODS OF CONSTRUCTION SHALL BE SELECTED BY THE CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR BRACING OR SHORING AS REQUIRED TO ASSURE SAFETY AND STABILITY DURING CONSTRUCTION AND TO SATISFY BUILDING DEPARTMENT REQUIREMENTS.

E. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PLAN THE WORK SO AS TO MINIMIZE ITS IMPACT ON THE OPERATIONS OF THE BUILDING'S OCCUPANTS, WHO MAY INTEND TO ATTEMPT TO REMAIN IN OPERATION TO THE GREATEST EXTENT POSSIBLE DURING THE PROJECT.

1. NO PROCEDURE WHICH CAUSES DAMAGE TO THE BUILDING OR ITS CONTENTS OR WHICH AFFECTS OCCUPANT OPERATIONS SHALL BE USED UNLESS NO REASONABLE ALTERNATIVE THAT WOULD REDUCE THE IMPACT IS POSSIBLE.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INFORM THE OWNER OR LANDLORD OF ANY PROCEDURE WHICH MIGHT IMPACT THEIR OPERATIONS WITH AS MUCH ADVANCE NOTICE AS POSSIBLE AND TO MAKE ALL TREASONABLE EFFORTS TO COORDINATE OPERATIONS WITH THE OCCUPANTS SO AS TO MINIMIZE THE DISTURBANCE.

F. THE DESIGN REPRESENTED IN THESE DESIGN DRAWINGS IS BASED ON THE FOLLOWING DESIGN PARAMETERS:

1. GRAVITY LOADS:
   ROOF DEAD LOAD = 7 PSF
   ROOF LIVE LOAD = 20 PSF
   CEILING DEAD LOAD = 6 PSF
   CEILING LIVE LOAD = 10 PSF
2. WIND DESIGN DATA:
   EXPOSURE
   BASIC WIND SPEED = 95 MPH
   RISK CATEGORY = II
3. EARTHQUAKE DESIGN DATA:
   SEISMIC DESIGN CATEGORY = E (WORST CASE ASSUMED)
   OCCUPANCY CATEGORY = II
   IMPORTANCE FACTOR I = 1.0
   EQUIVALENT LATERAL FORCE PROCEDURE:
   LIGHT-FRAME (WOOD) SHEAR WALLS : R = 6.5; Cs = 0.400
   REDUNDANCY FACTOR = 1.3
   (WORST CASE ASSUMED)
4. FOUNDATIONS:
   FOUNDATIONS HAVE BEEN PROPORTIONED BASED ON THE FOLLOWING ALLOWABLE BEARING PRESSURES PER CBC:
   CONTINUOUS FOOTINGS 1500 PSF

## PROJECT SCOPE

THE PROPOSED PROJECT INVOLVES THE CONSTRUCTION OF NEW ADU

## STRUCTURAL OBSERVATION

THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED.

THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT OF THE STRUCTURAL OBSERVATION REPORT FORM FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE STRUCTURAL OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED (WET STAMP) BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THE DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR, AND DEPUTY INSPECTOR. ANY DEFICIENCY NOTED ON THE OBSERVATION REPORT WILL BECOME THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD TO VERIFY ITS COMPLETION BY HIM (HER), OR BY A REGISTERED DEPUTY INSPECTOR AT THE DISCRETION OF THE STRUCTURAL OBSERVER.

A FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND STRUCTURAL SYSTEM GENERALLY CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR (WHEN PROVIDED) AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING INSPECTION.

**STRUCTURAL OBSERVATION/ SIGNIFICANT CONSTRUCTION STAGES**
(Only Checked items are required)

Architect or Engineer of Record for the project to be responsible for the "Structural Observation":
Name: Nick Slvushenka ☐ Licensed Architect ☒ Registered Engineer
Phone: (323) 448-4682 California Registration Number: C-87698

| Construction Stage | Construction Type | Elements/Connections to be observed |
|---|---|---|
| Foundation | ☒ Footing, Stem Walls, Piers<br>☐ Mat Foundation<br>☐ Caisson, Pile, Grade beams<br>☐ Stepping/Retaining Foundation, Hillside Special Anchors<br>☒ Others: slab on grade | Excavations, rebar placement, and anchor bolt templates prior to pouring concrete |
| Wall | ☐ Concrete<br>☐ Masonry<br>☒ Wood<br>☐ Others: | Shear wall framing, sheathing, nailing and hardware (including holdowns) |
| Frame | ☐ Steel Moment Frame<br>☐ Steel Braced Frame<br>☐ Concrete Moment Frame<br>☐ Masonry Moment Frame<br>☐ Others: | |
| Diaphragm | ☐ Concrete<br>☐ Steel Deck<br>☒ Wood<br>☐ Others: | Roof framing, sheathing, nailing, and hardware |
| Others | | |

**DECLARATION BY OWNER OR OWNER'S REPRESENTATIVE**
I, ☐ the owner of the project ☐ the owner's representative, declare that the above listed firm or individual is hired by me to be the Structural Observer.

**Signature** **Date**





## SPECIAL INSPECTIONS

THE OWNER SHALL RETAIN A DEPUTY INSPECTOR LICENSED BY THE CITY OF LOS ANGELES DEPARTMENT OF BUILDING & SAFETY IN ACCORDANCE WITH CHAPTER 17 OF CBC. THE FOLLOWING AREAS OF WORK REQUIRE INSPECTIONS BY A DEPUTY INSPECTOR TO VERIFY COMPLIANCE WITH CBC:

| TRADE | INSPECTION DUTIES | INSPECTION DURATION |
|---|---|---|
| REBAR PLACEMENT | MATERIAL SPEC, REBAR SIZE AND CONFIGURATION | INTERMITTENT |
| INSTALLATION OF HOLDOWN ANCHOR BOLTS PRIOR TO CONCRETE PLACEMENT | VERIFY MATERIAL, SIZE, LOCATION AND INSTALLATION FOR COMPLIANCE WITH DESIGN DRAWINGS | PERIODIC |
| ADHESIVE ANCHORS | INSPECTION OF MATERIALS ND INSTALLATION IN ACCORDANCE WITH ICC APPROVAL | CONTINUOUS |

## ICC/LARR

THE FOLLOWING ARE A LIST OF COMPONENTS USED WITHIN THE PROJECT WITH INTERNATIONAL CODE COUNCIL REPORT NUMBERS AND CITY OF LOS ANGELES RESEARCH REPORT NUMBERS FOR THE CONTRACTOR TO OBTAIN AND FOLLOW PROVISIONS OF. ITEMS WITHOUT AN LARR# REQUIRE ONE TIME APPROVAL FROM CITY OF LOS ANGELES.

| COMPONENT | ICC-ESR / IAPMO # | LARR # (LABC YR) |
|---|---|---|
| SIMPSON SDS WOOD SCREWS | ICC-ESR # 2236 | LARR # 25711 (2011) |
| SIMPSON A35 | ICC-ESR # 2606 | LARR # 25814 (2014) |
| SIMPSON STRAPS | ICC-ESR # 2105 | LARR # 25713 (2014) |
| SIMPSON HOLDOWNS | ICC-ESR # 2330 | LARR # 25720 (2011) |

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NEW ADU

GENERAL NOTES

SAA ENGINEERING
STRUCTURAL
PHONE: 323-448-4682
LICENSED PROFESSIONAL ENGINEER
NIKITA SIVUSHENKA
C 87698
CIVIL
STATE OF CALIFORNIA

SCALE: AS NOTED

DATE: 05/16/2024

S-0.1

## STRUCTURAL LUMBER

A. IN ADDITION TO CODE, THE FOLLOWING SPECIFICATIONS AND STANDARDS APPLY TO STRUCTURAL LUMBER AND RELATED CARPENTRY WORK FOR PROJECT:

B.
1. NFPA NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
2. WCLIB GRADING RULES NO. 16 OR APPLICABLE WWPA GRADING RULES.

B. MATERIAL QUALITY SHALL BE CONSISTENT WITH DESIGN ASSUMPTIONS.

1. STRUCTURAL LUMBER SHALL BE DOUGLAS FIR-LARCH (UNO).
2. MEMBER SIZES SPECIFIED ARE NOMINAL. STRUCTURAL LUMBER SHALL BE FINISHED S4S (UNO).
3. STRUCTURAL LUMBER SHALL BE GRADE MARKED IN ACCORDANCE WITH REFERENCED GRADING STANDARDS (UNO).
4. MINIMUM GRADES SHALL BE AS REQUIRED BY APPLICABLE STANDARDS BUT AT LEAST EQUAL TO THE FOLLOWING:
   a. 2X WALL STUDS ONLY -- CONSTRUCTION GRADE
   b. OTHER STUDS, JOISTS AND RAFTERS -- NO. 2
   c. BEAMS, POSTS AND ALL OTHER STRUCTURAL LUMBER -- NO. 1 OR BETTER
5. HIGHER LUMBER GRADES SHALL BE USED WHERE INDICATED.
6. NAILS SHALL BE COMMON WIRE NAILS (UNO).
7. BOLTS SHALLS BE M.B. WITH STANDARD MALLEABLE IRON OR STEEL PLATE WASHERS UNDER ALL BOLT HEADS AND NUTS BEARING ON WOOD (UNO).
8. CONNECTION HARDWARE SHALL BE AS CALLED FOR. ALTERNATE PRODUCTS SHALL BE SUBSTITUTED ONLY WITH THE APPROVAL OF SAA AND BUILDING DEPARTMENT.
9. MACHINE NAILING SYSTEMS SHALL BE SUBJECT TO SATISFACTORY DEMONSTRATION AND TO THE ACCEPTANCE OF SAA AND BUILDING DEPARTMENT.
   a. THE CONTRACTOR SHALL MAKE APPROPRIATE SUBMISSIONS, INCLUDING TECHNICAL DATA, IN SUPPORT OF ANY PROPOSED MACHINE NAILING SYSTEM ON REQUEST.
   b. HEADS OR TOPS OF NAILS OR OTHER MACHINE DRIVEN FASTENERS SHALL NOT PENETRATE THE SURFACE OF THE WOOD MORE THAN WOULD BE NORMAL FOR HAND DRIVING.
   c. LUMBER DAMAGED BY OVERDRIVING SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
   d. PERSISTANT OVERDRIVING SHALL BE SUFFICIENT CAUSE FOR REJECTION OF A MACHINE NAILING SYSTEM.
   e. EDGE DISTANCES FOR MACHINE DRIVEN FASTENERS SHALL BE AS REQUIRED FOR HAND DRIVING AND BY APPLICABLE CODES AND STANDARDS AND SHALL BE CONSISTENT WITH THE NAILING SYSTEM MANUFACTURER'S RECOMMENDATIONS.
   f. ACCEPTANCE OF A MACHINE NAILING SYSTEM SHALL BE SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE.
   g. MACHINE NAILING SHALL NOT BE USED WITH PLYWOOD LESS THAN 3/8" THICK.

C. APPROPRIATE PRECAUTIONS SHALL BE TAKEN TO ASSURE DURABILITY:

1. WOOD EXPOSED TO MOISTURE OR EARTH SHALL BE TREATED FOR PROTECTION AGAINST DECAY AND TERMITE ATTACK OR SHALL BE FOUNDATION GRADE REDWOOD. THIS REQUIREMENT SHALL APPLY TO:
   a. ANY WOOD EMBEDDED IN OR IN DIRECT CONTACT WITH CONCRETE OR MASONRY.
   b. ANY WOOD OTHER THAN WALL STUDS WITHIN ONE FOOT OF EARTH.
   c. ANY FLOOR JOIST WITHIN 18" OF EARTH.
2. PRESSURE TREATMENT PROCESS SHALL BE APPROVED BY BUILDING DEPARTMENT AND SAA. TREATMENT PROCESSES EFFECTING MATERIAL PROPERTIES SHALL NOT BE USED ON STRUCTURAL LUMBER WITHOUT SAA'S WRITTEN APPROVAL. ADDITIONALLY CUT ENDS OF LUMBERS MUST BE FIELD TREATED WITH AN APPROPRIATE AGENT TO AVOID COMPROMISING DECAY RESISTENCE OF LUMBER.
3. LUMBER USED IN THE WORK SHALL BE KILN DRIED TO AVOID EXCESSIVE SHRINKAGE OR WARPING. "GREEN" LUMBER WITH EXCESSIVE MOISTURE CONTENT SHALL NOT BE USED IN THE WORK.
4. SUBFLOORS, ATTICS, PLENUMS, AND OTHER VOID SPACES SHALL BE APPROPRIATELY VENTILATED.

D. QUALITY FRAMING PRACTICES SHALL BE EMPLOYED IN THE CONSTRUCTION:

1. WOOD COLUMNS AND POSTS SHALL BE SECURED IN POSITION AT TRUE END BEARINGS DESIGNED TO PROTECT AGAINST DECAY OR OTHER DAMAGE.
2. STUDS FOR WALLS AND PARTITIONS SHALL BE AS REQUIRED BY APPLICABLE STANDARDS OR SPECIFIC DETAILS, WHICHEVER ARE MORE RESTRICTIVE, BUT NO LESS THAN:
   a. 2X4 AT 16" o.c. FOR ANY WALL OR PARTITION.
   b. 2X6 AT 16" o.c. FOR STUDS OVER 9'-0" HIGH, CARRYING COMBINED FLOOR LOADS FROM MORE THAN ONE LEVEL OR EXTERIOR WALLS (UNO)
3. DOUBLE TOP PLATES MATCHING STUDS FOR SIZE AND GRADE SHALL BE PROVIDED AT ALL WALLS (UNO). SPLICES IN PLATES, IF USED, SHALL BE STAGGERED NO LESS THAN 4'-0" o.c.
4. 4X6 OR BETTER HEADER BEAMS OR LINTELS SHALL BE PROVIDED AT ALL OPENINGS IN WALLS AND PARTITIONS.
5. CONTINUOUS HORIZONTAL 2X FIRE BLOCKING OF DEPTH TO MATCH STUDS SHALL BE PROVIDED AT FLOORS, CEILINGS, SOFFITS AND AT NO MORE THAN 8'-0" o.c. VERTICALLY IN ALL STUD WALLS.
6. BORED HOLES IN STUDS SHALL BE PERMITTED ONLY WITHIN THE FOLLOWING RESTRICTIONS:
   a. HOLES SHALL NOT APPROACH WITHIN 3/4" OF EITHER EDGE OF THE STUD.
   b. HOLES SHALL NOT OCCUR WIHIN 6" OF ANY OTHER BORED HOLE, CUT, NOTCH, OR END OF THE STUD.
   c. HOLE DIAMETER SHALL BE LIMITED TO 60% OF WIDTH AT NON-BEARING STUDS IN INTERIOR PARTITIONS SUPPORTING ONLY THEIR OWN WEIGHT AND 40% OF WIDTH AT ALL OTHER STUDS.
8. NOTCHING OF STUDS SHALL BE PERMITTED ONLY WITHIN THE FOLLOWING RESTRICTIONS:
   a. NOTCHES SHALL BE NEATLY MADE WITH PREDRILLED CORNERS AND WITHOUT OVERCUTTING.
   b. NOTCHES SHALL NOT OCCUR WITHIN 6" OF ANY OTHER NOTCH, CUT, BORED HOLE, OR END OF THE STUD.
   c. NOTCH DEPTH SHALL BE LIMITED TO 40% OF WIDTH AT NON-BEARING STUDS IN INTERIOR PARTITIONS SUPPORTING ONLY THEIR OWN WEIGHT AND 25% OF WIDTH AT ALL OTHER STUDS.
   d. NOTCH WIDTH SHALL BE LIMITED TO TWICE MAXIMUM PERMITTED DEPTH BUT IN NO CASE MORE THAN SIX INCHES.
9. ALL STUD WALLS SHALL BE BRACED BY ONE OF THE FOLLOWING METHODS:
   a. 1/2" GYPSUM BOARD SHEATHING WITH 5d COOLER NAILS AT 7" o.c. TO ALL STUDS AND TOP AND BOTTOM PLATES AND AT 12" o.c. AT ALL OTHER STUDS. EDGE BLOCKING NOT REQUIRED.
   b. OTHER SHEAR RESISTING FINISH APPROVED BY BUILDING DEPARTMENT FOR EQUAL OR GREATER SHEAR STRENGTH THAN ITEM (a) ABOVE.
   c. 1X6 LET IN DIAGONAL BRACING AT NO MORE THAN 25'-0" o.c. ALONG WALL ANGLED TO CROSS AT LEAST FOUR STUD SPACES IN WALL HEIGHT, WITH 2-8d NAILS AT EACH STUD AND AT TOP AND BOTTOM PLATES.
   d. APPROVED STEEL STRAP BRACING SIMILAR TO ITEM (c) ABOVE.
   e. 5/16" PLYWOOD PANELS AT LEAST 4'-0" WIDE AND EXTENDING FULL HEIGHT OF WALL AT NO MORE THAN 25'-0" o.c. WITH 6d NAILS AT 6" o.c. TO STUDS AT VERTICAL SHEET EDGES AND TO TOP AND BOTTOM PLATES AND AT 12" o.c. AT ALL OTHER STUDS. EDGE BLOCKING NOT REQUIRED.
10. BEAMS OR GIRDERS SUPPORTED BY HANGERS OR STRUCTURAL STEEL SHALL HAVE AT LEAST 3" OF FIRM BEARING IN A DETAIL APPROVED BY SAA (UNO).
11. BEAMS OR GIRDERS SUPPORTED BY CONCRETE OR MASONRY SHALL HAVE AT LEAST 4" OF FIRM BEARING ON SOUND MATERIAL (UNO).
12. BEAMS OR GIRDERS SUPPORTED BY TIMBER SHALL HAVE FULL BEARING ACROSS THE SECTION OF THE POST, GIRDER OR OTHER SUPPORT (UNO).
13. JOISTS OR RAFTERS SUPPORTED BY METAL HANGERS SHALL HAVE AT LEAST 1%%30 1/2" OF FIRM BEARING (UNO).
14. JOISTS OR RAFTERS SUPPORTED BY CONCRETE OR MASONRY SHALL HAVE AT LEAST 3" OF FIRM BEARING ON SOUND MATERIAL (UNO).
15. JOISTS OR RAFTERS SUPPORTED BY TIMBER SHALL HAVE FULL BEARING ACROSS THE WIDTH OF BEAMS OR GIRDERS OR THE TOP PLATES OF STUD WALLS OR SHALL BE ALIGNED WITH AND FACE NAILED TO STUDS AND SUPPORTED BY A 1X4 RIBBON STRIP (UNO).
16. STABILITY BRACING SHALL BE PROVIDED AT NO MORE THAN 10'-0" o.c. FOR RAFTERS AND 8'-0" FOR JOISTS IN ONE OF THE FOLLOWING WAYS:
   a. CONTINUOUS 2X3 CROSS BRIDGING.
   b. CONTINUOUS FULL DEPTH BLOCKING.
   c. APPROVED METAL BRIDGING.
17. STABILITY BRACING SHALL BE PROVIDED FOR JOISTS AND RAFTERS AT ALL SUPPORTS IN ONE OF THE FOLLOWING WAYS:
   a. CONTINUOUS FULL DEPTH BLOCKING.
   b. FULL NAILING OF A HANGER APPROVED FOR ROTATIONAL RESTRAINT.
   c. END NAILING TO A RIM JOIST OR RAFTER.
18. RAFTERS OR JOISTS WITH COMMON INTERIOR BEARINGS SHALL BE LAPPED AT LEAST 4" OVER SUPPORT AND ATTACHED TO ONE ANOTHER WITH 3-16d NAILS.
19. FLOOR JOISTS UNDER PARTITIONS PARALLEL TO THEIR SPAN SHALL BE DOUBLED (UNO).
20. DOUBLED JOISTS OR OTHER VERTICALLY LAMINATED MEMBERS SHALL BE SECURELY INTERCONNECTED ALONG THEIR ENTIRE LENGTH.
   a. FASTENERS SHALL BE PLACED AT TOP AND BOTTOM QUARTER POINTS OF DEPTH AND STAGGERED.
   b. FASTENERS FOR 2X MEMBERS LESS THAN 12" DEEP MAY BE 16d NAILS AT 12" o.c. (UNO).
   c. FASTENERS FOR OTHER MEMBERS SHALL BE 1/2" DIAMETER BOLTS AT 24" o.c. (UNO).
21. STRUCTURAL FRAMING MEMBERS SHALL NOT BE NOTCHED WITHOUT SAA'S SPECIFIC APPROVAL.
22. BORED HOLES IN JOISTS OR RAFTERS SHALL BE PERMITTED ONLY WITHIN THE FOLLOWING RESTRICTIONS:
   a. HOLES SHALL NOT APPROACH WITHIN 2" OF EITHER EDGE OF THE MEMBER.
   b. HOLES SHALL NOT OCCUR WIHIN 12" OF ANY OTHER HOLE OR OF THE END OF THE MEMBER.
   c. HOLE DIAMETER SHALL BE LIMITED TO ONE-THIRD OF DEPTH.
23. END JOINTS IN ADJACENT BOARDS IN LUMBER SHEATHING SHALL BE SEPARATED BY AT LEAST TWO SUPPORT SPACES AND AT LEAST TWO BOARDS SHALL SEPARATE ANY TWO JOINTS ON THE SAME SUPPORT.
24. NAILS DRIVEN PERPENDICULAR TO GRAIN SHALL BE USED IN FAVOR OF TOE NAILS WHENEVER POSSIBLE.
25. WHEN TOE NAILS MUST BE USED, THEY SHALL BE DRIVEN AT AN ANGLE OF APPROXIMATELY THIRTY DEGREES TO THE FACE AND STARTED APPROXIMATELY ONE-THIRD OF THEIR LENGTH FROM THE END OF THE PIECE.
26. IMPROPERLY INSTALLED TOE NAILS SHALL NOT BE CONSIDERED AS HAVING STRUCTURAL VALUE AND MEMBERS DAMAGED BY IMPROPER TOE NAILING SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
27. BOLT HOLES, INCLUDING THOSE AT SILL ANCHORS, SHALL BE NO LESS THAN 1/32" AND NO MORE THAN 1/16" LARGER THAN THE NOMINAL DIAMETER OF THE FASTENER (UNO). OVERSIZE BOLT HOLES SHALL BE SUFFICIENT CAUSE FOR REJECTION OF THE WORK.
28. THE CONTRACTOR SHALL VERIFY AND RETIGHTEN ALL BOLTS PRIOR TO APPLICATION OF FINISH OR TO OTHER CONSTRUCTION WHICH WOULD MADE THEM INACCESSIBLE.
29. NEITHER BOLTS, LAG SCREWS NOR WOOD SCREWS SHALL BE HAMMERED OR OTHERWISE DRIVEN INTO PLACE. DRIVING OF SUCH MEMBERS SHALL BE SUFFICIENT CAUSE FOR REJECTION OF THE FASTENING.
30. FRAMING HARDWARE SHALL BE INSTALLED WITH PROPER SIZE, LOCATION AND NUMBER OF FASTENERS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND CONDITIONS OF RELEVANT APPROVALS.
31. SILL PLATES AT STUD WALLS SHALL BE PROPERLY DETAILED AND ANCHORED:
   a. SILLS SHALL BE 3X MINIMUM (UNO).
   b. SILLS BEARING ON MASONRY OR CONCRETE SHALL BE SECURED IN POSITION WITH NO LESS THAN 5/8" ANCHOR BOLTS AT 48" o.c. MAXIMUM WITH AT LEAST 7" EMBEDMENT INTO SOUND CONCRETE OR MASONRY GROUT.
   c. SILL ANCHOR BOLTS SHALL BE PROVIDED WITHIN 9" OF EACH END OF EACH PIECE AND NO PIECE SHALL HAVE LESS THAN TWO BOLTS.
   d. SILL ANCHOR BOLTS SHALL BE ARRANGED TO AVOID INTERFERENCE WITH FRAMING WHENEVER POSSIBLE.
32. WHERE GYPSUM BOARD, PLYWOOD OR OTHER STRUCTURAL SHEATHING IS SPECIFIED IN THE STRUCTURAL DRAWINGS, JOINTS SHALL NOT BE TAPED OR FINISH APPLIED UNTIL ATTACHMENT TO SUPPORTING FRAMING HAS BEEN INSPECTED AND APPROVED.
33. WHERE PLASTER OR STUCCO IS SPECIFIED IN THE STRUCTURAL DRAWINGS, APPLICATION SHALL NOT BEGIN UNTIL LATH TYPE AND ATTACHMENT TO SUPPORTING FRAMING HAS BEEN INSPECTED AND APPROVED.

## EXCAVATIONS AND FOUNDATIONS

A. FOUNDATION EXCAVATION AND CONSTRUCTION SHALL BE ACCOMPLISHED IN A MANNER CONSISTENT WITH DESIGN ASSUMPTIONS:

1. FOOTINGS SHALL BE FOUNDED NO LESS THAN TWO FEET (2'-0") BELOW LOWEST ADJACENT FINISH GRADE, SLAB OR PAVEMENT AND BE EMBEDDED INTO NATIVE SOIL OR CERTIFIED COMPACTED FILL.

B. ALL EXCAVATION AND GRADING OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH REQUIREMENTS OF GOVERNING AUTHORITIES AND IN A MANNER CONSISTENT WITH QUALITY CONSTRUCTION STANDARDS.

1. EXCAVATIONS SHALL BE LAID BACK OR SHORED AS REQUIRED FOR SAFETY AND STABILITY AT ALL STAGES OF THE WORK.
2. ADEQUATE PROVISIONS FOR DRAINAGE AND REMOVAL OF RAINWATER, AND GROUNDWATER IF PRESENT, SHALL BE INCORPORATED INTO TEMPORARY SLOPES OR GRADED SURFACES IN ORDER TO PRESERVE STABILITY AND PROTECT AGAINST ILLEGAL, DANGEROUS, UNSIGHTLY, OR OTHERWISE INAPPROPRIATE RUN-OFF.
3. BACKFILL WHICH WILL SUPPORT STRUCTURAL LOADS SHALL BE PLACED IN LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY UNDER THE SUPERVISION OF GEOTECHNICAL ENGINEER.
4. BACKFILL SHALL NOT BE PLACED AGAINST NEW RETAINING STRUCTURES UNTIL THEY AND THEIR SUPPORTS HAVE ACHIEVED THEIR DESIGN STRENGTH UNLESS APPROPRIATE TEMPORARY SUPPORTS ARE PROVIDED.
5. COMPACTION METHODS USED FOR BACKFILL BEHIND RETAINING STRUCTURES SHALL TAKE SURCHARGE OF THOSE STRUCTURES INTO CONSIDERATION. APPROPRIATE TEMPORARY SUPPORTS SHALL BE PROVIDED AS NECESSARY.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR TO THE SATISFACTION OF OWNER, LANDLORD, ARCHITECT, BUILDING DEPARTMENT, AND SAA OF ANY DAMAGE TO RETAINING STRUCTURES CAUSED BY PREMATURE BACKFILLING, COMPACTION EFFORTS, OR OTHER CONSTRUCTION SURCHARGE.
7. CONCRETE SHALL NOT BE PLACED IN EXCAVATIONS CONTAINING STANDING WATER WITHOUT PRIOR APPROVAL. REQUESTS FOR SUCH APPROVAL SHALL INCLUDE DETAILED DESCRIPTION OF APPROPRIATE WET PLACEMENT PROCEDURES THAT SHALL BE SUBJECT TO THE APPROVAL OF GEOTECHNICAL ENGINEER, BUILDING DEPARTMENT, AND SAA AND WHICH, IF APPROVED, SHALL BE STRICTLY FOLLOWED.

## STRUCTURAL CONCRETE

A. IN ADDITION TO CODE, THE FOLLOWING SPECIFICATIONS AND STANDARDS APPLY TO STRUCTURAL CONCRETE WORK FOR PROJECT:

1. ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318).
2. ACI CODE OF STANDARD PRACTICE.
3. ASTM C33 FOR AGGREGATE (UNO).
4. ASTM C330 FOR AGGREGATE FOR STRUCTURAL LIGHTWEIGHT CONCRETE (AS SPECIFIED).
5. ASTM C150 TYPE I OR II FOR CEMENT. ALL STRUCTURAL CONCRETE IN CONTACT WITH SOIL SHALL BE MADE WITH TYPE II CEMENT.
6. ASTM C260 FOR AIR ENTRAINING ADMIXTURES WHERE SPECIFIED OR ADDED AT CONTRACTOR'S OPTION.
7. ASTM C494 FOR WATER-REDUCING, RETARDING, ACCELERATING, WATER-REDUCING AND RETARDING OR WATER-REDUCING AND ACCELERATING ADMIXTURES WHERE SPECIFIED OR ADDED AT CONTRACTOR'S OPTION.
8. ASTM C618 FOR FLY ASH OR OTHER POZZOLANIC ADMIXTURES WHERE SPECIFIED OR ADDED AT CONTRACTOR'S OPTION. NO MORE THAN 15% OF THE TOTAL CEMENT CONTENT IN ANY STRUCTURAL CONCRETE MIX SHALL BE SUCH MATERIAL (UNO).
9. ASTM C94 FOR READY-MIXED CONCRETE. ALL STRUCTURAL CONCRETE SHALL BE DELIVERED TO THE SITE READY-MIXED.

B. STRUCTURAL CONCRETE SHALL BE OF SPECIFIED TYPES AND STRENGTHS AND OF QUALITY COMPATIBLE WITH THE REQUIREMENTS OF THE WORK.

1. ALL STRUCTURAL CONCRETE SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF AT LEAST 3,000 PSI AT THE AGE OF 28 DAYS (UNO). STRUCTURAL CONCRETE FOR THIS PROJECT DESIGNED USING 2500 PSI, BUT CONTRACTOR TO PLACE 3000 PSI MATERIAL (NO SPECIAL INSPECTION REQUIRED).
2. ALL STRUCTURAL CONCRETE SHALL BE STONE TYPE WITH A FULLY CURED DENSITY BETWEEN 140 AND 150 PCF (UNO).
3. STRUCTURAL LIGHTWEIGHT CONCRETE, WHERE SPECIFIED, SHALL HAVE A FULLY CURED DENSITY BETWEEN 110 AND 120 PCF (UNO).
4. SLUMPS OF STRUCTURAL CONCRETE SHALL BE AS SMALL AS PRACTICAL FOR THE INTENDED APPLICATION AND SHALL COMPLY WITH RECOMMENDATIONS OF REFERENCED STANDARDS AND LIMITATIONS OF THE MIX DESIGN.
5. NO CONCRETE WITH MEASURED SLUMP GREATERTHAN SIX INCHES SHALL BE USED IN THE WORKWITHOUT THE SPECIFIC WRITTEN APPROVAL OF SAA.SLUMP MAY BE MEASURED AT POINT OF PLACEMENT.

C. GROUT AND DRYPACK SHALL BE TREATED AS STRUCTURAL CONCRETE AND SHALL BE SUBJECT TO ALL APPLICABLE REQUIREMENTS OF THESE NOTES (UNO).

1. GROUT SHALL BE A HIGH-STRENGTH SHRINKAGE-COMPENSATING ("NONSHRINK") CEMENTITIOUS MATERIAL OBTAINING AN ULTIMATE COMPRESSIVE STRENGTH OF AT LEAST 5000 PSI ATTHE AGE OF 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C109.
2. GROUT SHALL BE A PRE-ENGINEERED PRODUCT ACCEPTABLE TO BUILDING DEPARTMENT AND SAA.
3. GROUT SHALL BE DELIVERED TO THE SITE PREMIXED IN MANUFACTURERS ORIGINAL PACKAGING. ONLY WATER SHALL BE ADDED ON SITE. GROUT SHALL BE PREPARED AND PLACED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. GROUT SHALL BE MIXED TO A UNIFORM FLUID CONSISTENCY, POURED INTO FORMS AS REQUIRED, AND CHAINED OR RODDED TO ASSURE THAT ALL VOIDS ARE FILLED.
5. GROUT CONTAINING METALLIC ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF BOTH ARCHITECT AND SAA.
6. DRYPACK, WHERE SPECIFIED, SHALL BE GROUT MIXED TO A STIFF CLAY-LIKE CONSISTENCY. CARE SHALL BE TAKEN TO ASSURE UNIFORMITY PRIOR TO PLACEMENT.
7. EXISTING CONCRETE OR OTHER POROUS SURFACES AGAINST WHICH GROUT OR DRYPACK IS TO BE PLACED SHALL BE MOISTENED TO PREVENT PREMATURE DEHYDRATION OF THE MATERIAL.
8. INSPECTION REQUIREMENTS FOR STRUCTURAL GROUT AND DRYPACK SHALL BE AS FOR STRUCTURAL CONCRETE EXCEPT THAT CUBES RATHER THAN CYLINDERS MAY BE TAKEN FOR COMPRESSIVE STRENGTH TESTING.
9. CONSISTENCY, POURED INTO FORMS AS REQUIRED, AND CHAINED OR RODDED TO ASSURE THAT ALL VOIDS ARE FILLED.
10. GROUT CONTAINING METALLIC ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF BOTH ARCHITECT AND SAA.
11. DRYPACK, WHERE SPECIFIED, SHALL BE GROUT MIXED TO A STIFF CLAY-LIKE CONSISTENCY. CARE SHALL BE TAKEN TO ASSURE UNIFORMITY PRIOR TO PLACEMENT.
12. EXISTING CONCRETE OR OTHER POROUS SURFACES AGAINST WHICH GROUT OR DRYPACK IS TO BE PLACED SHALL BE MOISTENED TO PREVENT PREMATURE DEHYDRATION OF THE MATERIAL.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MIX DESIGNS.

1. MIX DESIGNS FOR CONCRETE WITH SPECIFIED STRENGTH UP TO 2500 PSI MAY BE BY SUPPLIER AND NEED NOT BE SUBMITTED FOR REVIEW PRIOR TO USE.
2. MIX DESIGNS FOR CONCRETE WITH SPECIFIED STRENGTH GREATER THAN 2500 PSI SHALL BE BY A CALIFORNIA LICENSED CIVIL ENGINEER IN THE EMPLOY OF A CERTIFIED INDEPENDENT TESTING LABORATORY ACCEPTABLE TO BUILDING DEPARTMENT AND SAA. COSTS OF SUCH DESIGN SHALL BE BORNE BY THE CONTRACTOR.
3. CALCIUM CHLORIDE OR OTHER ADMIXTURES CONTAINING CHLORIDE OTHER THAN AS AN IMPURITY SHALL NOT BE USED IN STRUCTURAL CONCRETE WITHOUT THE WRITTEN APPROVAL OF SAA.
4. COPIES OF EACH MIX DESIGN, BEARING THE SEAL AND SIGNATURE OF THEIR DESIGNER AND ACCOMPANIED BY CERTIFIED RESULTS OF 7 AND 28 DAY TRIAL BATCH CYLINDER TEST RESULTS, SHALL BE SUBMITTED TO BUILDING DEPARTMENT AND SAA NO LESS THAN TWO WORKING DAYS BEFORE USE.
5. COPIES OF THE MIX DESIGN SHALL BE PRESENT AT BATCH PLANT AND JOB SITE PRIOR TO USE.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING PROPER PREPARATIONS PRIOR TO THE PLACEMENT OF STRUCTURAL CONCRETE.

1. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT COMPETENT FORMS AS REQUIRED AND SHALL BE SOLELY RESPONSIBLE FOR THEIR ADEQUACY.
2. REINFORCEMENT SHALL BE PLACED AS CLOSE TO THE SURFACE OF CONCRETE AS PERMITTED WHILE MAINTAINING MINIMUM COVER AS FOLLOWS (UNO):
   a. AT SURFACES CAST AGAINST EARTH -- THREE INCHES (3").
   b. AT SURFACES EXPOSED TO EARTH OR WEATHER:
      i. FOR #6 OR LARGER BARS -- TWO INCHES (2").
      ii. FOR #5 AND SMALLER -- ONE AND ONE-HALF INCHES (1-1/2").
3. PROJECTING CORNERS OF EXPOSED CONCRETE STRUCTURAL MEMBERS SHALL BE FORMED WITH 3/4" CHAMFER (UNO).
4. REINFORCING STEEL, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN POSITION BEFORE CONCRETE PLACEMENT. SETTING DURING OR AFTER PLACEMENT SHALL NOT BE PERMITTED (UNO).
5. EXCEPT FOR SIMPLE, SYMMETRICAL, UNIFORM CONFIGURATIONS, THE CONTRACTOR SHALL PREPARE REINFORCEMENT PLACEMENT DRAWINGS. COPIES OF THESE DRAWINGS SHALL BE AVAILABLE FOR REFERENCE ON SITE AT LEAST ONE WORKING DAY BEFORE PLACEMENT OF CONCRETE AND BEFORE ANY INSPECTION OF THE REINFORCEMENT OR FORMWORK.
6. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES BEFORE PLACEMENT OF CONCRETE TO ASSURE PROPER INCORPORATION OF REQUIRED SLEEVES, INSERTS, CURBS, DEPRESSIONS AND SIMILAR ITEMS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL COSTS OF CORRECTIVE ACTION IN CASE OF ITEMS IMPROPERLY LOCATED OR OMITTED FROM CONCRETE PLACEMENT.
8. THE CONTRACTOR SHALL SUBMIT SKETCHES SHOWING SIZE AND LOCATION OF ANY REQUIRED SLEEVE, INSERT, DEPRESSION, OR OTHER MODIFICATION TO STRUCTURAL CONCRETE NOT SHOWN IN THESE STRUCTURAL DESIGN DRAWINGS TO SAA FOR REVIEW AND SHALL OBTAIN ITS APPROVAL BEFORE PLACEMENT.

F. CONCRETE SHALL BE PLACED, FINISHED, AND CURED IN ACCORDANCE WITH THE RECOMMENDATIONS OF REFERENCED STANDARDS.

1. STRUCTURAL CONCRETE WITH SPECIFIED STRENGTH GREATER THAN 2500 PSI SHALL BE PLACED UNDER THE CONTINUOUS SUPERVISION OF A DEPUTY INSPECTOR LICENSED BY BUILDING DEPARTMENT. THIS INSPECTOR'S WORK SHALL INCLUDE PRE-PLACEMENT INSPECTION OF FORMWORK, REINFORCEMENT AND EMBEDDED ITEMS.
2. EXISTING CONCRETE AGAINST WHICH NEW CONCRETE IS TO BE PLACED SHALL BE ROUGHENED TO AT LEAST 1/4" AMPLITUDE TO EXPOSE COARSE AGGREGATE, SANDBLASTED OR OTHERWISE THOROUGHLY CLEANED BY AN APPROVED METHOD, MOISTENED AND SCOURED WITH A CEMENT/WATER PASTE IMMEDIATELY PRIOR TO PLACEMENT OF NEW MATERIAL.
3. COLD JOINTS IN STRUCTURAL CONCRETE SHALL BE MADE AT LOCATIONS INDICATED IN DESIGN DRAWINGS OR APPROVED BY SAA. INCORPORATION OF UNAPPROVED JOINTS SHALL BE SUFFICIENT CAUSE FOR REJECTION OF WORK.
4. CURING COMPOUNDS, IF USED, SHALL BE OF APPROVED TYPES. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL OF CURING COMPOUNDS PROPOSED FOR USE ON SURFACES TO RECEIVE FINISH FROM THE FINISH MANUFACTURER PRIOR TO APPLICATION.
5. FORMS SHALL BE KEPT DAMP AND STRUCTURAL CONCRETE SURFACES EXPOSED TO THE ENVIRONMENT SHALL BE MOIST CURED OR OTHERWISE PROTECTED AGAINST PREMATURE DEHYDRATION FOR AT LEAST 72 HOURS AFTER PLACEMENT.

G. CONCRETE SHALL BE TESTED AND INSPECTED IN ACCORDANCE ACI-318 REQUIREMENTS BY QUALIFIED TECHNICIANS UNDER THE SUPERVISION OF A LICENSED CIVIL ENGINEER.

1. FOUR TEST CYLINDERS FROM EACH 150 YARDS, OR FRACTION THEREOF, POURED IN ANY ONE DAY, SHALL BE SECURED AND TESTED BY AN INDEPENDENT TESTING AGENCY; ONE TO BE TESTED AT 7 DAYS, TWO AT 28 DAYS, AND THE FOURTH HELD IN RESERVE.
2. QUALIFIED FIELD TESTING TECHNICIANS SHALL PERFORM TESTS ON FRESH CONCRETE AT THE JOB SITE, PREPARE SPECIMENS REQUIRED FOR CURING UNDER FIELD CONDITIONS, PREPARE SPECIMENS REQUIRED FOR TESTING IN THE LABORATORY, AND RECORD THE TEMPERATURE OF THE FRESH CONCRETE WHEN PREPARING SPECIMENS FOR STRENGTH TESTS. QUALIFIED LABORATORY TECHNICIANS SHALL PERFORM ALL REQUIRED LABORATORY TESTS.
3. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY CONCRETE WHICH FAILS TO ATTAIN SPECIFIED STRENGTH IN 28 DAYS IF SO DIRECTED BY THE ENGINEER OF RECORD. ANY DEFECTS IN THE HARDENED CONCRETE SHALL BE SATISFACTORILY REPAIRED OR THE HARDENED CONCRETE SHALL BE REPLACED.

## REINFORCING STEEL

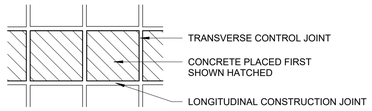
A. IN ADDITION TO CODE, THE FOLLOWING SPECIFICATIONS AND STANDARDS APPLY TO THE MANUFACTURE, FABRICATION AND INSTALLATION OF REINFORCING STEEL IN STRUCTURAL CONCRETE AND/OR MASONRY WORK FOR PROJECT:

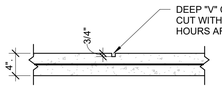
1. CRSI HANDBOOK.
2. ASTM A615 GRADE 60 FOR ALL REINFORCING STEEL (UNO).
3. ASTM A185 FOR COLD DRAWN WELDED WIRE FABRIC (UNO). 4.AWS D1.4 FOR WELDING OF REINFORCING STEEL.

B. QUALITY DETAILING AND CONSTRUCTION STANDARDS SHALL BE OBSERVED.

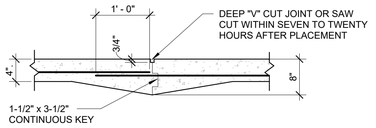
1. REINFORCEMENT SHALL BE TRACEABLE FROM SOURCE TO SITE AND SHALL BE SAMPLED AND TESTED TO CONFIRM PHYSICAL PROPERTIES AS REQUIRED BY BUILDING DEPARTMENT OR OTHERWISE NOTED IN THE PROJECT SPECIFICATION.
2. REINFORCEMENT DELIVERED TO THE SITE SHALL BE ACCOMPANIED BY APPROPRIATE TESTING REPORTS AND CERTIFICATION, INCLUDING EVIDENCE OF CONFORMANCE WITH SPECIAL DUCTILITY REQUIREMENTS SPECIFIED ABOVE.
3. LACK OF CERTIFICATION OR INADEQUATE CERTIFICATION SHALL BE SUFFICIENT CAUSE FOR REJECTION OF MATERIAL. UNCERTIFIED OR INADEQUATELY CERTIFIED MATERIAL SHALL NOT BE STORED AT THE SITE OR USED IN THE WORK AND IF DELIVERED TO THE SITE SHALL BE IMMEDIATELY REMOVED.
4. SUBJECT TO SAA'S WRITTEN APPROVAL, REINFORCEMENT NOT MEETING THE SPECIAL DUCTILITY REQUIREMENTS SPECIFIED ABOVE (NOTE 2) MAY BE PERMITTED IN LOCATIONS NOT SUBJECT TO YIELDING UNDER SEISMIC LOAD.
5. BARS SHALL BE COLD BENT AS DETAILED OR OTHERWISE NECESSARY AROUND PINS OF REQUIRED RADIUS. REBENDING OF BARS SHALL NOT BE PERMITTED (UNO).
6. BENDS SHALL BE MADE IN SHOP WHENEVER POSSIBLE. BENDING OF IN PLACE BARS IN ANY MANNER WHICH MIGHT CAUSE STRESS TO EXISTING CONCRETE SHALL NOT BE PERMITTED (UNO).
7. RUST, GREASE, MILL SCALE OR OTHER MATERIAL WHICH MIGHT EFFECT BOND TO CONCRETE SHALL BE REMOVED IN AN APPROVED MANNER WITHOUT DAMAGE TO THE REINFORCEMENT AND BEFORE PLACEMENT OF CONCRETE.
8. SEE CONCRETE NOTES FOR PLACEMENT DRAWING REQUIREMENTS.

C. WELDING OF REINFORCEMENT IS NOT PERMITTED, UNLESS SPECIFICALLY




CONSTRUCTION JOINT




CONSTRUCTION JOINT

NOTES:

1. SLABS SHALL BE PLACED IN LONGITUDINAL STRIPS OR SECTIONS HAVING A MAXIMUM WIDTH OF 20'-0".
2. SLABS SHALL BE SUBDIVIDED BY CONTROL JOINTS HAVING A MAXIMUM SPACING OF 15'-0".
3. CONTROL JOINTS TO BE PERPENDICULAR TO CONSTRUCTION JOINTS.
4. REINFORCING SHALL BE SECUREDLY PLACED IN MIDDLE OF SLAB.
5. CURING SHALL BE MAINTAINED PER WRITTEN SPECIFICATIONS.

## 2 S-0.3 Typical Slab on Grade Joints

NOT TO SCALE

**HOOKED BAR DEVELOPMENT LENGTH (Ldh)**

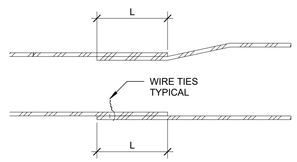
| BAR SIZE | $f_y$ (ksi) | $f'_c$ = 3,000 psi | | $f'_c$ = 4,000 psi | | $f'_c$ = 5,000 psi | | $f'_c$ = 6,000 psi | | $f'_c$ = 7,000 psi | | $f'_c$ = 8,000 psi | | $f'_c$ = 9,000 psi | | $f'_c$ = 10,000 psi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS |
| #3 | 60 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| #4 | 60 | 8 | 9 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| #5 | 60 | 10 | 10 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 |
| #6 | 60 | 12 | 12 | 10 | 10 | 9 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 7 | 7 | 7 | 7 |
| #7 | 60 | 14 | 14 | 12 | 12 | 11 | 11 | 10 | 10 | 9 | 9 | 9 | 9 | 8 | 8 | 8 | 8 |
| #8 | 60 | 16 | 16 | 14 | 14 | 12 | 12 | 11 | 11 | 11 | 11 | 10 | 10 | 9 | 9 | 9 | 9 |
| #9 | 60 | 18 | 18 | 15 | 15 | 14 | 14 | 13 | 13 | 12 | 12 | 11 | 11 | 10 | 10 | 10 | 10 |
| #10 | 60 | 20 | 20 | 17 | 17 | 16 | 16 | 14 | 14 | 13 | 13 | 12 | 12 | 12 | 12 | 11 | 11 |
| #11 | 60 | 22 | 22 | 19 | 19 | 17 | 17 | 16 | 16 | 15 | 15 | 14 | 14 | 13 | 13 | 12 | 12 |
| #11 | 75 | 28 | 28 | 24 | 24 | 21 | 21 | 20 | 20 | 18 | 18 | 17 | 17 | 16 | 16 | 15 | 15 |
| #14 | 60 | 38 | 38 | 33 | 33 | 29 | 29 | 27 | 27 | 25 | 25 | 23 | 23 | 22 | 22 | 21 | 21 |
| #14 | 75 | 47 | 47 | 41 | 41 | 36 | 36 | 33 | 33 | 31 | 31 | 29 | 29 | 27 | 27 | 26 | 26 |

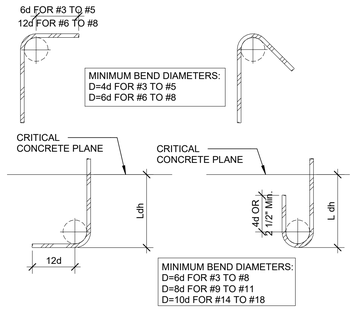
**BAR DEVELOPMENT LENGTH (Ld)**

| BAR SIZE | $f_y$ (ksi) | $f'_c$ = 3,000 psi | | $f'_c$ = 4,000 psi | | $f'_c$ = 5,000 psi | | $f'_c$ = 6,000 psi | | $f'_c$ = 7,000 psi | | $f'_c$ = 8,000 psi | | $f'_c$ = 9,000 psi | | $f'_c$ = 10,000 psi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS |
| #3 | 60 | 33 | 25 | 28 | 22 | 25 | 20 | 23 | 18 | 21 | 17 | 20 | 16 | 19 | 15 | 18 | 14 |
| #4 | 60 | 43 | 33 | 37 | 29 | 34 | 26 | 31 | 24 | 28 | 22 | 27 | 21 | 25 | 19 | 24 | 18 |
| #5 | 60 | 54 | 42 | 47 | 36 | 42 | 32 | 38 | 30 | 35 | 27 | 33 | 26 | 31 | 24 | 30 | 23 |
| #6 | 60 | 65 | 50 | 56 | 43 | 50 | 39 | 46 | 35 | 42 | 33 | 40 | 31 | 37 | 29 | 36 | 27 |
| #7 | 60 | 94 | 72 | 81 | 63 | 73 | 56 | 67 | 51 | 62 | 48 | 58 | 45 | 54 | 42 | 52 | 40 |
| #8 | 60 | 107 | 83 | 93 | 72 | 83 | 64 | 76 | 59 | 70 | 54 | 66 | 51 | 62 | 48 | 59 | 45 |
| #9 | 60 | 121 | 93 | 105 | 81 | 94 | 72 | 86 | 66 | 79 | 61 | 74 | 57 | 70 | 54 | 66 | 51 |
| #10 | 60 | 136 | 105 | 118 | 91 | 106 | 81 | 98 | 74 | 89 | 69 | 84 | 64 | 79 | 61 | 75 | 58 |
| #11 | 60 | 151 | 116 | 131 | 101 | 117 | 90 | 107 | 82 | 99 | 76 | 93 | 71 | 87 | 67 | 83 | 64 |
| #11 | 75 | 189 | 145 | 164 | 126 | 146 | 113 | 134 | 103 | 124 | 95 | 116 | 89 | 109 | 84 | 104 | 80 |
| #14 | 60 | 181 | 140 | 157 | 121 | 141 | 108 | 128 | 99 | 119 | 92 | 111 | 86 | 105 | 81 | 100 | 77 |
| #14 | 75 | 227 | 174 | 196 | 151 | 176 | 135 | 160 | 123 | 148 | 114 | 139 | 107 | 131 | 101 | 124 | 96 |

**BAR LAP SPLICE LENGTH**

| BAR SIZE | $f_y$ (ksi) | $f'_c$ = 3,000 psi | | $f'_c$ = 4,000 psi | | $f'_c$ = 5,000 psi | | $f'_c$ = 6,000 psi | | $f'_c$ = 7,000 psi | | $f'_c$ = 8,000 psi | | $f'_c$ = 9,000 psi | | $f'_c$ = 10,000 psi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS | TOP BARS | OTHER BARS |
| #3 | 60 | 43 | 33 | 36 | 29 | 33 | 26 | 30 | 23 | 27 | 22 | 26 | 21 | 25 | 20 | 23 | 18 |
| #4 | 60 | 56 | 43 | 48 | 38 | 44 | 34 | 40 | 31 | 36 | 29 | 35 | 27 | 33 | 25 | 31 | 23 |
| #5 | 60 | 70 | 55 | 61 | 47 | 55 | 42 | 49 | 39 | 46 | 35 | 43 | 34 | 40 | 31 | 38 | 30 |
| #6 | 60 | 85 | 65 | 73 | 56 | 65 | 51 | 60 | 46 | 55 | 43 | 52 | 40 | 48 | 38 | 47 | 35 |
| #7 | 60 | 122 | 94 | 105 | 82 | 94 | 73 | 87 | 66 | 81 | 62 | 75 | 59 | 70 | 55 | 68 | 52 |
| #8 | 60 | 139 | 108 | 121 | 94 | 108 | 83 | 99 | 77 | 91 | 70 | 86 | 66 | 81 | 62 | 77 | 59 |
| #9 | 60 | 157 | 121 | 13 | 105 | 122 | 94 | 112 | 86 | 103 | 79 | 96 | 74 | 91 | 70 | 86 | 66 |
| #10 | 60 | 177 | 137 | 153 | 118 | 138 | 105 | 125 | 96 | 116 | 90 | 109 | 83 | 103 | 79 | 98 | 75 |
| #11 | 60 | 196 | 151 | 170 | 131 | 152 | 117 | 139 | 107 | 129 | 99 | 121 | 92 | 113 | 87 | 108 | 83 |
| #11 | 75 | 246 | 189 | 213 | 164 | 190 | 147 | 174 | 134 | 161 | 124 | 151 | 116 | 142 | 109 | 135 | 104 |
| #14 | USE MECHANICAL SPLICE | | | | | | | | | | | | | | | | |



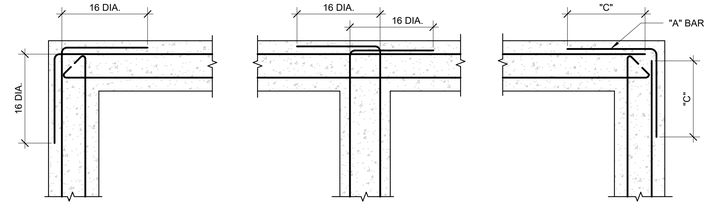




NOTES:

1. TABULATED VALUES IN INCHES FOR NORMAL CONCRETE AND UNCOATED REINFORCING STEEL, FOR LIGHTWEIGHT CONCRETE INCREASE LENGTHS BY 30% FOR EPOXY COATED INCREASE LENGTHS BY 50%.
2. TABULATED LAP SPLICE LENGTHS ARE FOR CLASS "B" SPLICES AS DEFINED IN ACI 318.9 FOR CLASS A SPLICES REDUCE LENGTH BY 30%. CLASS A SPLICES MAY BE USED WHEN SPECIFICALLY CALLED ON DRAWINGS AND IF ONE HALF OR LESS OF THE TOTAL NUMBER OF BARS ARE SPLICED WITHIN THE REQUIRED LAP LENGTH.
3. BAR DEVELOPMENT LENGTHS AND SPLICE LENGTHS OF INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE INCREASED BY 20% FOR A 3-BAR BUNDLE AND 33% FOR A 4-BAR BUNDLE.
4. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BAR.
5. FOR COMPRESSION LAP SPLICE LENGTH (ONLY WHERE INDICATED ON DRAWINGS) USE 30 BAR DIAMETER, NOT LESS THAN 12".
6. MECHANICAL SPLICES MAY BE USED AT CONTRACTOR'S OPTION. MECHANICAL SPLICES SHALL BE TYPE 2 AS DEFINED IN ACI 318 AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH (Fy) OF THE SPLICED BAR.
7. WHERE MECHANICAL SPLICES ARE USED, STAGGER ADJACENT SPLICES BY 24" O.C.
8. THE SMALLER BAR SPLICE LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS.

## 1 S-0.3 Tension Lap Splice & Embedment Length in Concrete

NOT TO SCALE

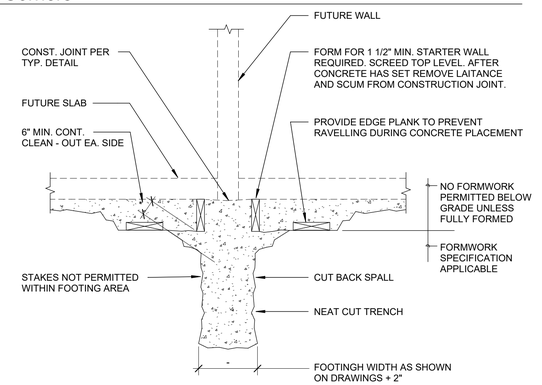



NOTES:

1. IF "A" BAR IS USED, "C" IS BASED UPON ACI CLASS "B" SPLICE PER DETAIL 1, THIS SHEET.
2. WHERE SINGLE LAYER OF REINFORCEMENT OCCURS, BEND BARS AS SHOWN FOR BARS AT OUTSIDE FACE.
3. AT INTERSECTIONS, ALTERNATE BENDS IN EACH DIRECTION.
4. WHERE SPLICES OF DIFFERENCT SIZE BARS OCCUR, CORNER DOWEL SIZE AND LAPS ARE BASED ON LARGER BAR SIZE.

## 5 S-0.3 Concrete Wall Corners

NOT TO SCALE




NOTE:

ALL FOOTINGS POURED AGAINST EARTH ARE SUBJECT TO APPROVAL OF SOIL AND STRUCTURAL ENGINEERS AND MUST BE CONSTRUCTED IN THE MANNER SHOWN UNLESS SPECIFICALLY NOTED OTHERWISE

## 8 S-0.3 Footing Form Against Soil

NOT TO SCALE


Yakov Design
Drafting service
(562)322-80-70
info@yakovdesign.com


NEW ADU

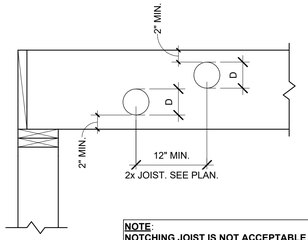
TYPICAL DETAILS


SAA ENGINEERING
STRUCTURAL
PHONE: 323-448-4682
LICENSED PROFESSIONAL ENGINEER
MIKITA SIVIUSHENKA
C 87898
CIVIL
STATE OF CALIFORNIA


SCALE: AS NOTED

DATE: 05/16/2024

S-0.3

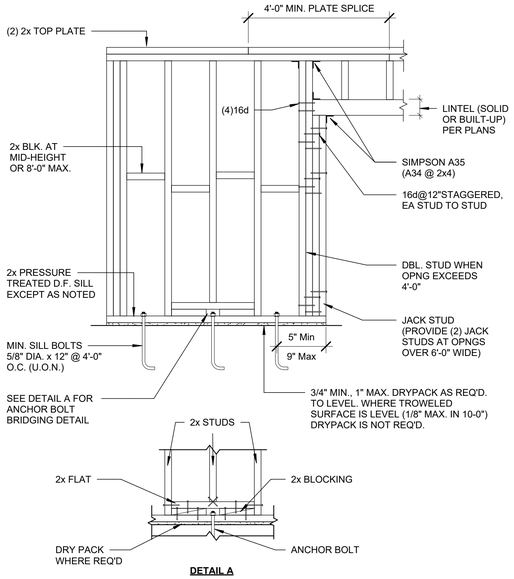



| SIZE | MAX. D |
|---|---|
| 2x6 | 1 3/4" |
| 2x8 | 2 3/8" |
| 2x10 | 3" |
| 2x12 | 3 3/4" |
| 2x14 | 4 3/8" |

**NOTE:**
**NOTCHING JOIST IS NOT ACCEPTABLE WITHOUT STRUCTURAL ENGINEER'S APPROVAL**

## 4 S-0.4 Typical Boring of Joists

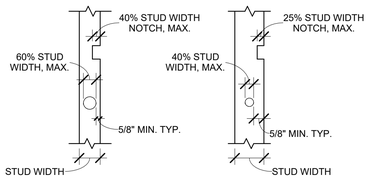
NOT TO SCALE




**DETAIL A**

## 3 S-0.4 Typical Notching & Boring of Studs

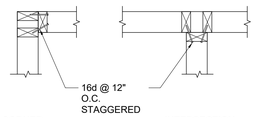
NOT TO SCALE




NON-BRG STUDS EXT. & BRG. STUDS

NOTE:
NOTCH AND BORING NOT TO OCCUR IN SAME STUD SECTION.

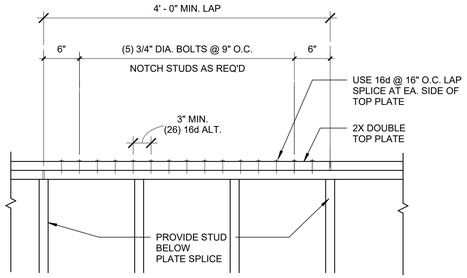
| NOTCH/BORE % OF STUD | 2x4 | 2x6 |
|---|---|---|
| 25% | 7/8" | 1 3/8" |
| 40% | 1 3/8" | 2 1/8" |
| 60% | 2" | 3 1/4" |




**CORNER** **INTERSECTION**

## 8 S-0.4 Typ. Stud Wall Corners & Intersections

NOT TO SCALE




## NAILING SCHEDULE

| | CONNECTION | NAILING [1] |
|---|---|---|
| 1. | JOIST TO SILL OR GIRDER, TOENAIL | 3-8d |
| 2. | BRIDGING TO JOIST, TOENAIL EACH END | 2-8d |
| 3. | 1"x6" SUBFLOOR OR LESS TO EACH JOIST, FACE NAIL | 2-8d |
| 4. | WIDER THAN 1"x6" SUBFLOOR TO EACH JOIST, FACE NAIL | 3-8d |
| 5. | 2" SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL | 2-16d |
| 6. | SOLE PLATE TO JOIST OR BLOCKING, TYPICAL FACE NAIL<br>SOLE PLATE TO JOIST OR BLOCKING, AT BRACED WALL PANELS | 16d AT 16" O.C.<br>3-16d PER 16" |
| 7. | TOP PLATE TO STUD, END NAIL | 2-16d |
| 8. | STUD TO SOLE PLATE | 4-8d TOENAIL OR 2-16d END NAIL |
| 9. | DOUBLE STUDS, FACE NAIL | 16d AT 24" O.C. |
| 10. | DOUBLED TOP PLATES, TYPICAL FACE NAIL<br>DOUBLE TOP PLATES,LAP SPLICE | 16d AT 16" o.c.<br>8-16d |
| 11. | BLOCKING BETWEEN JOIST OR RAFTERS TO TOP PLATE, TOENAIL | 3-8d |
| 12. | RIM JOIST TO TOP PLATE, TOENAIL | 8d AT 6" O.C. |
| 13. | TOP PLATES, LAPS AND INTERSECTIONS | 2-16d |
| 14. | CONTINUOUS HEADER, TWO PIECES | 16d AT 16" O.C. ALONG EA. END |
| 15. | CEILING JOIST TO PLATE, TOENAIL | 3-8d |
| 16. | CONTINUOUS HEADER TO STUD, TOENAIL | 4-8d |
| 17. | CEILING JOIST, LAPS OVER PARTITIONS, FACE NAIL | 3-16d |
| 18. | CEILING JOIST TO PARALLEL RAFTERS, FACE NAIL | 3-16d |
| 19. | RAFTER TO PLATE, TOENAIL | 3-8d |
| 20. | 1" BRACE TO EACH STUD AND PLATE, FACE NAIL | 2-8d |
| 21. | 1"x8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL | 2-8d |
| 22. | WIDER THAN 1"x8" SHEATHING TO EACH BEARING, FACE NAIL | 3-8d |
| 23. | BUILT UP CORNER STUDS | 16d AT 24" O.C. |
| 24. | BUILT UP GIRDER AND BEAMS | 20d AT 32" O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT ENDS AND AT EA. SPLICE |
| 25. | 2" PLANKS | 2 - 16d AT EACH BEARING |
| 26. | COLLAR TIE TO RAFTER, FACE NAIL | 3-10d |
| 27. | JACK RAFTER TO HIP | 3-8d TOENAIL OR 2-16d FACE NAIL |
| 28. | ROOF RAFTER TO 2x RIDGE BEAM | 2-16d TOENAIL OR FACE NAIL |
| 29. | JOIST TO BAND JOIST, FACE NAIL | 3-16d |
| 30. | LEDGER STRIP | 3-16d |
| 31. | WOOD STRUCTURAL PANELS AND PARTICLEBOARD [2] SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING)<br>1/2" AND LESS<br>19/32" TO 3/4"<br>7/8" TO 1"<br>1 1/8" TO 1 1/4"<br><br>SINGLE FLOOR (COMBINATION SUBFLOOR-UNDERLAYMENT TO FRAMING)<br>3/4" AND LESS<br>7/8" TO 1"<br>1 1/8" TO 1 1/4" | <br>6d [3,12]<br>8d [4] OR 6d [5]<br>8d [3]<br>10d OR 8d [5]<br><br><br>6d [5]<br>8d [5]<br>10d OR 8d [5] |
| 32. | PANEL SIDING (TO FRAMING):<br>1/2" OR LESS<br>25/32" | <br>6d [6]<br>8d [6] |
| 33. | FIBERBOARD SHEATHING: [7]<br>1/2"<br><br>25/32" | <br>NO. 11 GA. [8]<br>6d [4]<br>NO. 11 GA. [8]<br>8d [4] |
| 34. | INTERIOR PANELING<br>1/4"<br>3/8" | <br>4d [10]<br>6d [11] |

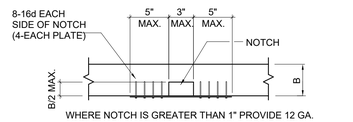
1. COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
2. NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLE BOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO CBC SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
3. COMMON OR DEFORMED SHANK
4. COMMON
5. DEFORMED SHANK
6. CORROSION-RESISTANT SIDING OR CASING NAIL
7. FASTENERS SPACED 3 INCHES ON CENTER AT EXTERIOR EDGES AND 6 INCHES ON CENTER AT INTERMEDIATE SUPPORTS, WHEN USED AS STRUCTURAL SHEATHING. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NON-STRUCTURAL APPLICATIONS.
8. CORROSION-RESISTANT ROOFING NAILS WITH 7/16" DIAMETER HEAD AND 1/2" LENGTH FOR 1/2" SHEATHING AND 1 3/4" LENGTH FOR 25/32" SHEATHING
9. CORROSION RESISTANT STAPLES WITH NOMINAL 7/16" CROWN AND 1 1/8" LENGTH FOR 1/2" SHEATHING AND 1 1/2" LENGTH FOR 25/32" SHEATHING. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
10. CASING OR FINISH NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
11. PANEL SUPPORTS AT 24 INCHES. CASING OR FINISH NAILS AT 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
12. FOR ROOF SHEATHING APPLICATIONS, 8d NAILS ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
13. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16 INCH.
14. FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.
15. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL SHEATHING AND 3 INCHES ON CENTER AT EDGES, 6 INCHES AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING.
16. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.

## 6 S-0.4 Nailing Schedule

NOT TO SCALE

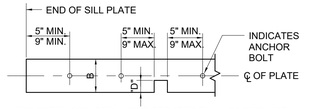
## 5 S-0.4 Notching of Plates

NOT TO SCALE




WHERE NOTCH IS GREATER THAN 1" PROVIDE 12 GA. STRAP WITH WIDTH SAME AS DOUBLE TOP PLATE.

Ⓐ DOUBLE TOP PLATE

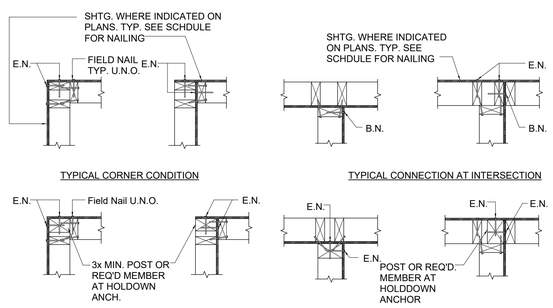



WHERE DEPTH OF NOTCH "D" IS GREATER THAN B/5 PROVIDE ANCHOR BOLT EACH SIDE OF NOTCH AS PER END REQUIREMENT.

Ⓑ SILL PLATE

## 9 S-0.4 Stud Wall Framing

NOT TO SCALE



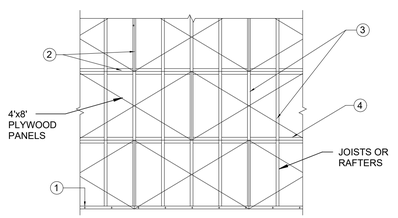

NOTES:
STUDS IN DIRECT CONTACT SHALL BE NAILED TOGETHER WITH 16d @ 12" O.C. (STAGGERED IF POSSIBLE). STUDS SEPARATED BY SHEATHING SHALL BE NAILED WITH 20d @ 12" O.C.
U.N.O. PRE-DRILLED HOLES ARE REQUIRED FOR 20d SPIKES.

## 13 S-0.4 Shear Wall Corners & Intersections

NOT TO SCALE

## 7 S-0.4 Double Top Plate Splice

NOT TO SCALE

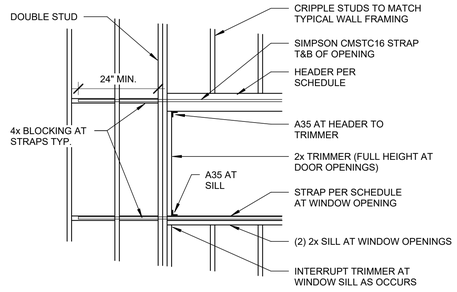



| SYM. | |
|---|---|
| ① | BOUNDARY NAILING |
| ② | EDGE NAILING |
| ③ | INTERMEDIATE NAILING - 10" O.C. AT FLOORS, 12" O.C. AT ROOFS. SAME SIZE AS EDGE NAILS. |
| ④ | 3x4 FLAT BLOCK WHERE REQ'D |

NOTES:
1. PLYWOOD THICKNESS AND NAILING PER PLAN.
2. FACE GRAIN OF PLYWOOD SHALL RUN PERPENDICULAR TO SUPPORTS.
3. NAILS SHALL HAVE MIN. 3/8" EDGE DISTANCE AND SHALL NOT BE OVER-DRIVEN THRU OUTER PLY.
4. CONTINUOUS PANEL EDGES SHALL RECEIVE BOUNDARY NAILING.
5. STAGGER PLYWOOD JOINTS.

## 12 S-0.4 Typical Plywood Layout & Nailing

NOT TO SCALE

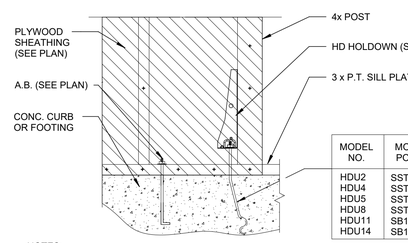



| DOOR AND WINDOW HEADER SCHEDULE | |
|---|---|
| OPNG | HEADER |
| UP TO 3'-0" | 4x4 |
| UP TO 6'-0" | 4x6 |
| UP TO 8'-0" | 4x8 |

NOTES:
1. HEADERS TO BE DF-L NO. 1. HEADER SIZES PER SCHEDULE U.O.N. ON PLANS.
2. STRAPS ARE TO BE INSTALLED OVER PLYWOOD.
3. PROVIDE E.N. TO ALL FRAMING MEMBERS AROUND OPENINGS AND BLOCKING.

## 11 S-0.4 Typical Framed Opening in Shearwall

NOT TO SCALE




| MODEL NO. | MONO POUR | TWO POUR |
|---|---|---|
| HDU2 | SSTB16 | SSTB20 |
| HDU4 | SSTB20 | SSTB24 |
| HDU5 | SSTB24 | SSTB28 |
| HDU8 | SSTB28 | SSTB34 |
| HDU11 | SB1x30 | SB1x30 |
| HDU14 | SB1x30 | SB1x30 |

| MODEL NO. | DIA. | MIN. EMBED |
|---|---|---|
| SSTB20 | 5/8" | 17 |
| SSTB24 | 5/8" | 20 |
| SSTB28 | 7/8" | 25 |
| SSTB34 | 7/8" | 25 |
| SSTB36 | 7/8" | 29 |

NOTES:
1. HOLDOWN HARDWARE SHALL BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION.
2. HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
3. HOLDOWN CONNECTOR BOLTS SHALL BE TIGHTENED PRIOR TO COVERING THE WALL FRAMING.
4. SEE FOUNDATION PLAN FOR LOCATION AND SHEARWALL INFORMATION.

## 10 S-0.4 Typical Detail at Holdown

NOT TO SCALE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TYPICAL DETAILS


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STRUCTURAL
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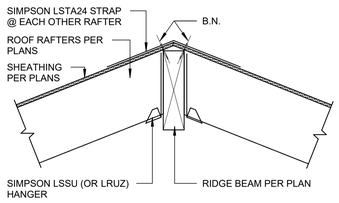
LICENSED PROFESSIONAL ENGINEER MIHRA SIVUSHENKA C 87898 CIVIL STATE OF CALIFORNIA


SCALE: AS NOTED

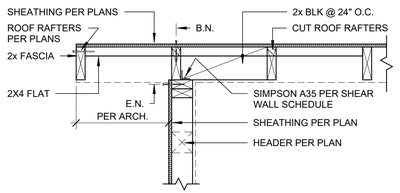
DATE: 05/16/2024

S-0.4



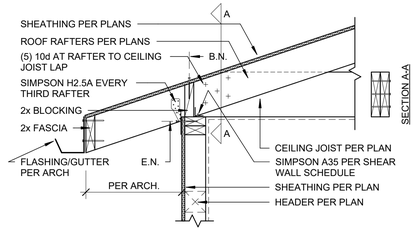

3 S-1.0 **Typical Ridge/Hip Beam Detail**

1" = 1'-0"



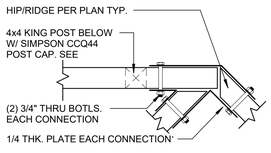

2 S-1.0 **Typical Ext. Shear Transfer at Wall**

1" = 1'-0"



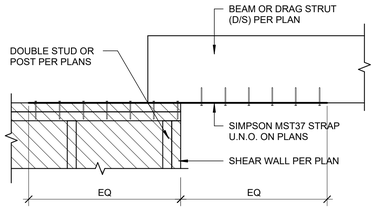

1 S-1.0 **Typical Eave Detail Perp.**

1" = 1'-0"



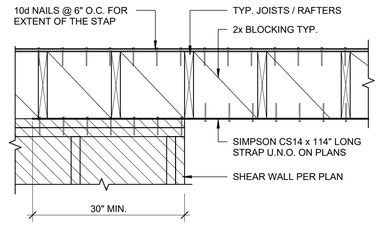

6 S-1.0 **Roof Beams Connection**

1" = 1'-0"




5 S-1.0 **Typ. Drag Strut Detail**

1" = 1'-0"




**NOTE:** USE 4x BLOCKING @ CSMT STRAPS

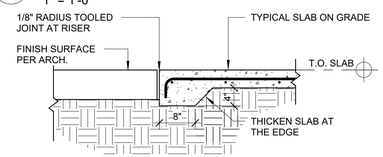
4 S-1.0 **Typ. Drag Strut Detail**

1" = 1'-0"




9 S-1.0 **Bearing, Non-Shear Wall Detail**

1" = 1'-0"




10 S-1.0 **Slab on Grade Edge**

3/4" = 1'-0"



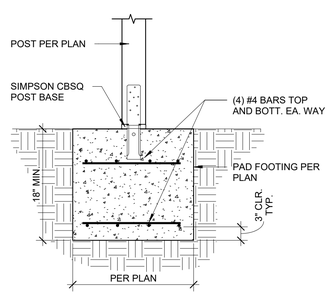

8 S-1.0 **Typ. Non-Bearing Partition Wall Detail**

1" = 1'-0"



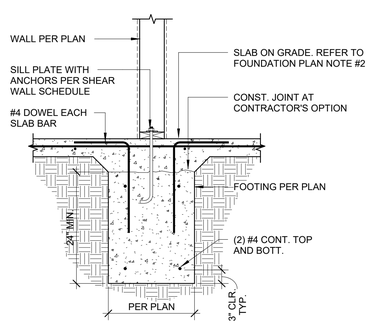

7 S-1.0 **Typical Hip to Top Plate Detail**

1" = 1'-0"



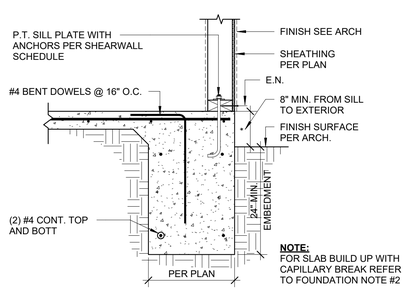

13 S-1.0 **Pad Footing Detail**

3/4" = 1'-0"




12 S-1.0 **Typical Interior Wall Footing Detail**

3/4" = 1'-0"




11 S-1.0 **Typical Exterior Wall Footing Detail**

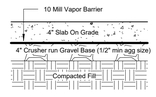
3/4" = 1'-0"

**Foundation Plan Notes**

1. Footings are to be founded a minimum of 2' - 0" below adjacent grade.
2. Slab on grade to be minimum 4" thick with #4@16" o.c. each way chaired at mid thickness. Slab to be underlain by 10 mil vapor barrier/4" crusher-run base compacted by mechanical means. Vapor barrier to be in conformance with ASTM E1643 and installed per manufacturer's recommendations with care taken to seal seams, penetrations and perimeter edges. See slab detail below.
3. Control joints are required for the slab on grade at a maximum spacing of 15' on centers each way. The contractor is required to submit a plan of proposed control joints to the Architect and SAA prior to placing concrete. See Typical Details for additional information.
4. Concrete curbs required along some exterior walls. Coordinate with Arch for extent and configuration of curbs. See structural detail sheets for relevant construction information where curbs required.
5. Foundation sills shall be naturally durable or preservative-treated wood.
6. If adverse soil conditions are encountered, a soils investigation report may be required.

Shear Wall Schedule

| | | | Sill Attachment | | | |
|---|---|---|---|---|---|---|
| ID | Sheathing | Nailing | Concrete | Wood | Top Attachment | Capacity (ASD) |
| 1 | 1/2" CDX | 10d@6,12 | 5/8"@32 | SDS@16 | A35@24 | 310 plf |




| | Holdown Schedule | | | |
|---|---|---|---|---|
| ID | HD | Post | Fasteners | Comments |
| A | HDU2 | 4x4 | (6) SDS | LARR 25720 |
| B | HDU4 | 4x4 | (10) SDS | LARR 25720 |
| C | HDU5 | 4x4 | (14) SDS | LARR 25720 |

**Shear Wall Notes**

1. All exterior walls not otherwise designated as shear wall to be sheathed per item 1 in the Shear Wall Schedule.
2. Sill anchors to concrete to be A307 anchor rods with 7" embedment in foundation. If multiple pours used, specified embedment must be contained within top pour. If not, full embedment must be achieved in lower pour level. All sill anchors to have 2-1/2" square x 1/4" plate washers under nuts. Install sill anchors in centerline of sill plate.
3. Sill attachment to wood to be with Simpson SDS screws 1/4" with 1-1/2" min embed into subfloor or beams/framing below subfloor [LARR 25711].
4. Where sheathing nailing is less than 4" on center or where sheathing is applied to both sides of studs use 3x studs at panel edges or panel joints.
5. Sill and sole plates to be 3x minimum thickness. Use pressure treated material where in contact with concrete. See Structural Lumber section of General Notes for additional information.
6. Contractor responsible for maintaining copies of referenced Los Angeles Research Report and/or conditions of listing shall be made available at the job site.

**Holdown Notes**

1. Post sizes are minimums. Coordinate with wall framing and post sizes indicated on plans.
2. SDS = Simpson SDS25xxx (provide 1-1/2" min embed).
3. Hold-down connector bolts into wood framing require approved plate washers. Hold-downs shall be finger tight and 1/2 wrench turn just prior to covering the wall framing. Connector bolts into wood framing require steel plate washers on the post on the opposite side of the anchorage device. Plate size shall be a minimum of 0.299 inch by 3 inches by 3 inches.
4. Hold-down hardware must be secured in place prior to foundation inspection.
5. Bolts, fasteners and framing hardware in contact with preservative treated lumber to be hot dipped galvanized.

**Framing Plan Notes**

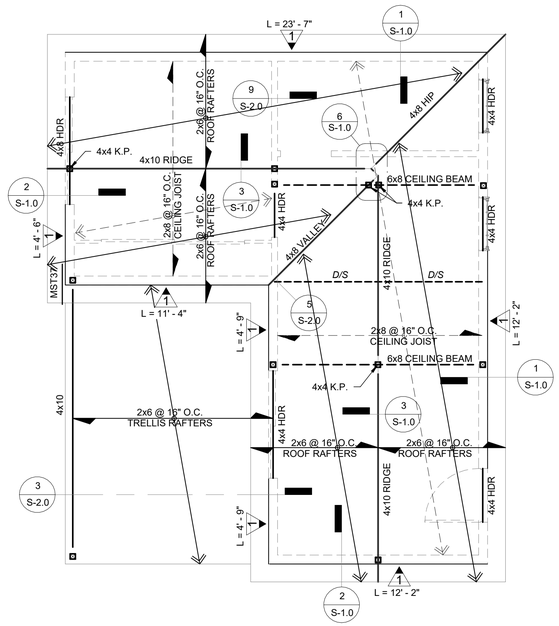
1. Roof sheathing to be 1/2" CD-X (Span Rating 32/16) with face grain perpendicular to framing direction with panel joints staggered. Nail to framing with 10d @ 6, 12.
2. Wall framing to be as follows unless noted otherwise:
   Exterior walls = 2x4 @16
   Interior non-bearing walls = 2x4 @ 16
   Plumbing walls = 2x6 @ 16 (or 2x4 @ 16 with furring to avoid cutting structural framing)
3. All diaphragm to utilize common nails or galvanized box nails.
4. All shearwall nailing shall utilize hot dipped galvanized box nails.
5. All bolt holes shall be drilled 1/32" to 1/6" oversized. For lag bolts provide lead hole 40% to 70% of threaded shank diameter and full diameter at smooth shank portion.
6. Roof diaphragm nailing to be inspected before covering. Face grain of plywood shall be perpendicular to supports. Floor shall have tongue and groove or blocked panel edges. Plywood spans shall conform with 2304.7

**Trellis Notes**

1. All lumber shall be a naturally durable species (such as Redwood or Western Cedars with 90 percent or more of the width of each side is heartwood); or be preservatively treated with an *approved* process in accordance with American Wood Protection Association standards.
2. All screws, bolts, washers, nuts, and nails for use with preservative treated wood shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. Hot-dipped galvanized fasteners shall meet the requirements of *ASTM A 153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*, Class D for fasteners 3/8" diameter and smaller or Class C for fasteners with diameters over 3/8".
3. All connectors (joist hangers, etc.) shall be galvanized or shall be stainless steel. Hardware to be hot-dipped prior to fabrication shall meet *ASTM A 653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*, G-185 coating. Hardware to be hot-dipped galvanized after fabrication shall meet *ASTM A 123, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products*.

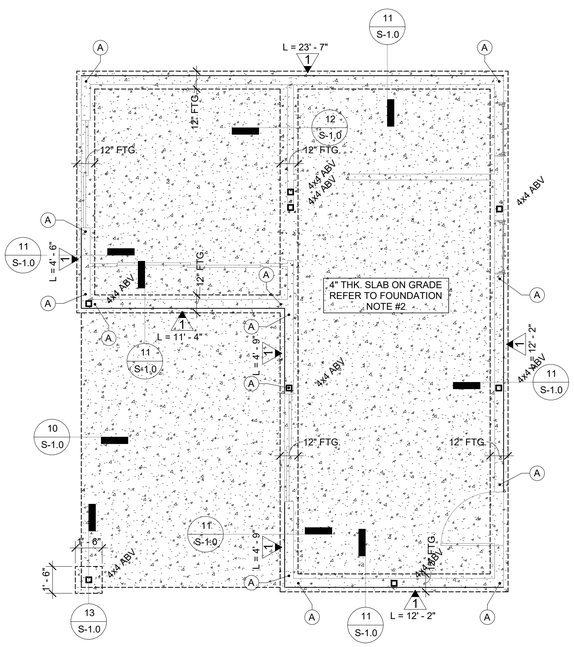
**Legend:**




B S-1.0 **Roof Framing Plan**

1/4" = 1'-0"




A S-1.0 **Foundation Plan**

1/4" = 1'-0"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FTG. & FRAMING PLANS, DETAILS (OPTION 1)


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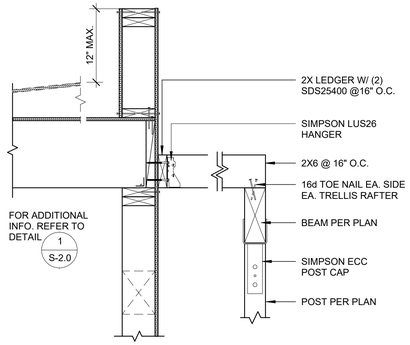
SCALE: AS NOTED

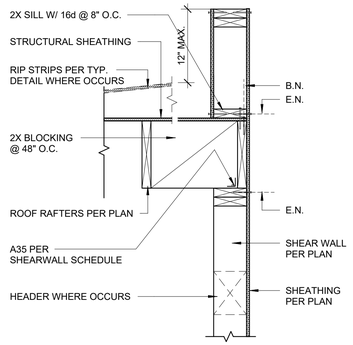
DATE: 05/16/2024

S-1.0



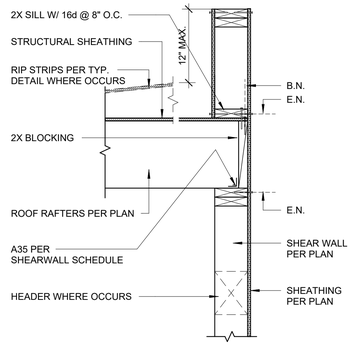

3 S-2.0 **Trellis Attachment Detail**

1" = 1'-0"



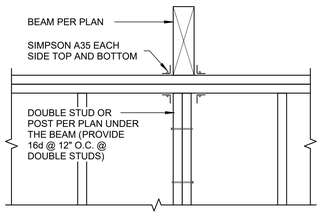

2 S-2.0 **Roof Framing Detail (Parallel)**

1" = 1'-0"



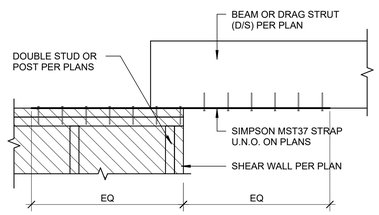

1 S-2.0 **Roof Framing Detail (Perpend).**

1" = 1'-0"



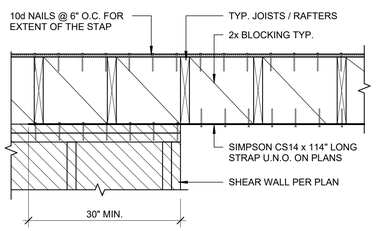

6 S-2.0 **Typical Beam to Stud Wall Detail**

1" = 1'-0"




5 S-2.0 **Typ. Drag Strut Detail**

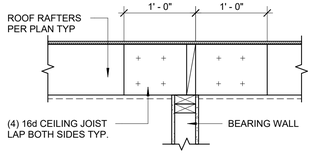
1" = 1'-0"




**NOTE:** USE 4x BLOCKING @ CSMT STRAPS

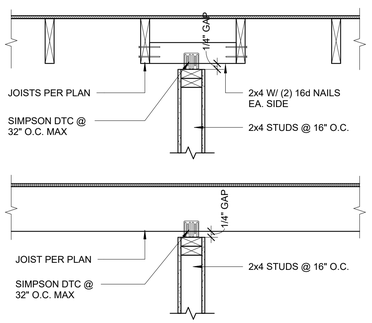
4 S-2.0 **Typ. Drag Strut Detail**

1" = 1'-0"



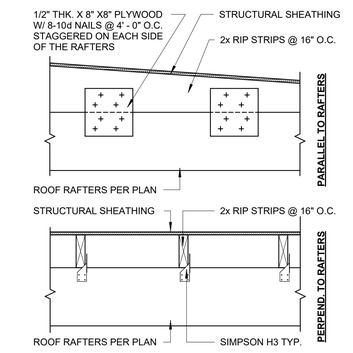

9 S-2.0 **Bearing, Non-Shear Wall Detail**

1" = 1'-0"



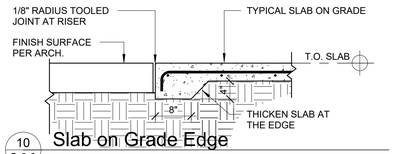

8 S-2.0 **Typ. Non-Bearing Partition Wall Detail**

1" = 1'-0"



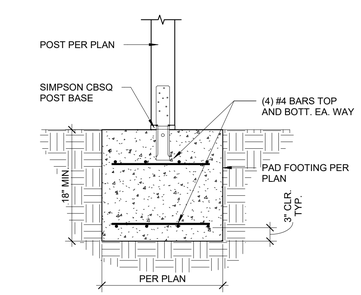

7 S-2.0 **Typ. Rip Strips Detail**

1" = 1'-0"



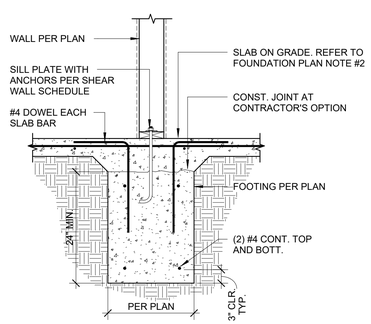

10 S-2.0 **Slab on Grade Edge**

3/4" = 1'-0"



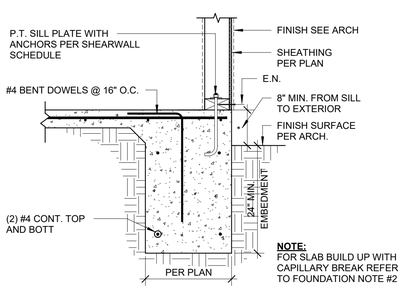

13 S-2.0 **Pad Footing Detail**

3/4" = 1'-0"




12 S-2.0 **Typical Interior Wall Footing Detail**

3/4" = 1'-0"




**NOTE:**
FOR SLAB BUILD UP WITH CAPILLARY BREAK REFER TO FOUNDATION NOTE #2

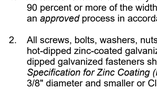
11 S-2.0 **Typical Exterior Wall Footing Detail**

3/4" = 1'-0"

**Foundation Plan Notes**

1. Footings are to be founded a minimum of 2' - 0" below adjacent grade.
2. Slab on grade to be minimum 4" thick with #4@16" o.c. each way chaired at mid thickness. Slab to be underlain by 10 mil vapor barrier/4" crusher-run base compacted by mechanical means. Vapor barrier to be in conformance with ASTM E1643 and installed per manufacturer's recommendations with care taken to seal seams, penetrations and perimeter edges. See slab detail below.
3. Control joints are required for the slab on grade at a maximum spacing of 15' on centers each way. The contractor is required to submit a plan of proposed control joints to the Architect and SAA prior to placing concrete. See Typical Details for additional information.
4. Concrete curbs required along some exterior walls. Coordinate with Arch for extent and configuration of curbs. See structural detail sheets for relevant construction information where curbs required.
5. Foundation sills shall be naturally durable or preservative-treated wood.
6. If adverse soil conditions are encountered, a soils investigation report may be required.

| Shear Wall Schedule | | | | | | |
|---|---|---|---|---|---|---|
| | | | Sill Attachment | | | |
| ID | Sheathing | Nailing | Concrete | Wood | Top Attachment | Capacity (ASD) |
| 1 | 1/2" CDX | 10d@6,12 | 5/8"@32 | SDS@16 | A35@24 | 310 plf |




| Holdown Schedule | | | | |
|---|---|---|---|---|
| ID | HD | Post | Fasteners | Comments |
| A | HDU2 | 4x4 | (6) SDS | LARR 25720 |
| B | HDU4 | 4x4 | (10) SDS | LARR 25720 |
| C | HDU5 | 4x4 | (14) SDS | LARR 25720 |

**Shear Wall Notes**

1. All exterior walls not otherwise designated as shear wall to be sheathed per item 1 in the Shear Wall Schedule.
2. Sill anchors to concrete to be A307 anchor rods with 7" embedment in foundation. If multiple pours used, specified embedment must be contained within top pour. If not, full embedment must be achieved in lower pour level. All sill anchors to have 2-1/2" square x 1/4" plate washers under nuts. Install sill anchors in centerline of sill plate.
3. Sill attachment to wood to be with Simpson SDS screws 1/4" with 1-1/2" min embed into subfloor or beams/framing below subfloor [LARR 25711].
4. Where sheathing nailing is less than 4" on center or where sheathing is applied to both sides of studs use 3x studs at panel edges or panel joints.
5. Sill and sole plates to be 3x minimum thickness. Use pressure treated material where in contact with concrete. See Structural Lumber section of General Notes for additional information.
6. Contractor responsible for maintaining copies of referenced Los Angeles Research Report and/or conditions of listing shall be made available at the job site.

**Holdown Notes**

1. Post sizes are minimums. Coordinate with wall framing and post sizes indicated on plans.
2. SDS = Simpson SDS25xxx (provide 1-1/2" min embed).
3. Hold-down connector bolts into wood framing require approved plate washers. Hold-downs shall be finger tight and 1/2 wrench turn just prior to covering the wall framing. Connector bolts into wood framing require steel plate washers on the post on the opposite side of the anchorage device. Plate size shall be a minimum of 0.299 inch by 3 inches by 3 inches.
4. Hold-down hardware must be secured in place prior to foundation inspection.
5. Bolts, fasteners and framing hardware in contact with preservative treated lumber to be hot dipped galvanized.

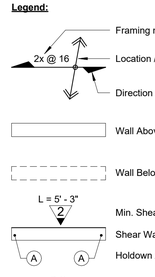
**Framing Plan Notes**

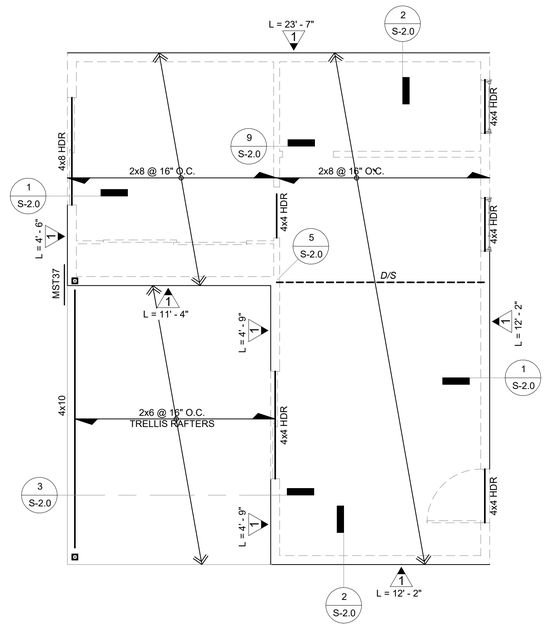
1. Roof sheathing to be 1/2" CD-X (Span Rating 32/16) with face grain perpendicular to framing direction with panel joints staggered. Nail to framing with 10d @ 6, 12.
2. Wall framing to be as follows unless noted otherwise:
   Exterior walls = 2x4 @16
   Interior non-bearing walls = 2x4 @ 16
   Plumbing walls = 2x6 @ 16 (or 2x4 @ 16 with furring to avoid cutting structural framing)
3. All diaphragm to utilize common nails or galvanized box nails.
4. All shearwall nailing shall utilize hot dipped galvanized box nails.
5. All bolt holes shall be drilled 1/32" to 1/16" oversized. For lag bolts provide lead hole 40% to 70% of threaded shank diameter and full diameter at smooth shank portion.
6. Roof diaphragm nailing to be inspected before covering. Face grain of plywood shall be perpendicular to supports. Floor shall have tongue and groove or blocked panel edges. Plywood spans shall conform with 2304.7

**Trellis Notes**

1. All lumber shall be a naturally durable species (such as Redwood or Western Cedars with 90 percent or more of the width of each side is heartwood); or be preservatively treated with an *approved* process in accordance with American Wood Protection Association standards.
2. All screws, bolts, washers, nuts, and nails for use with preservative treated wood shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. Hot-dipped galvanized fasteners shall meet the requirements of *ASTM A 153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware,* Class D for fasteners 3/8" diameter and smaller or Class C for fasteners with diameters over 3/8".
3. All connectors (joist hangers, etc.) shall be galvanized or shall be stainless steel. Hardware to be hot-dipped prior to fabrication shall meet *ASTM A 653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process,* G-185 coating. Hardware to be hot-dipped galvanized after fabrication shall meet *ASTM A 123, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.*

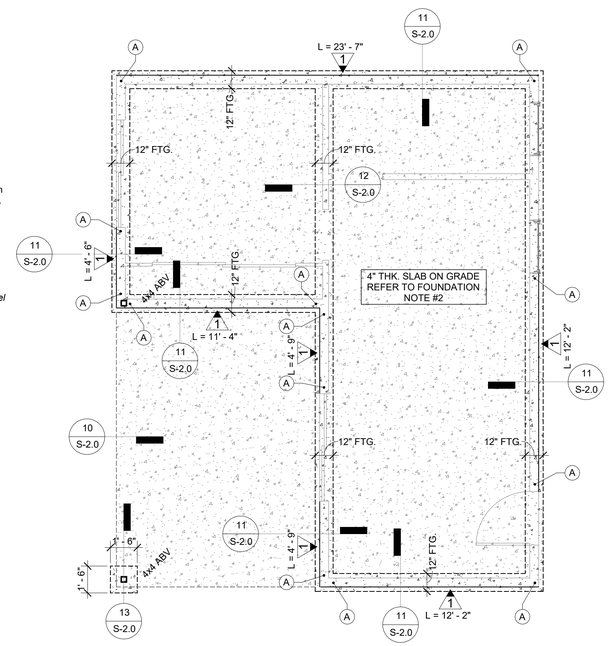
**Legend:**




B S-2.0 **Roof Framing Plan**

1/4" = 1'-0"




A S-2.0 **Foundation Plan**

1/4" = 1'-0"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**NEW ADU**

**FTG. & FRAMING PLANS, DETAILS (OPTION 2)**


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LICENSED PROFESSIONAL ENGINEER MIHTA SIVLISHIANA C 87898 CIVIL STATE OF CALIFORNIA


SCALE: AS NOTED

DATE: 05/16/2024

S-2.0

# Building Materials Color Board

## Project Name: ADU Option 2 (497 S.F.)

### Design Style Option 1 (T): Traditional style, Gable roof, Asphalt shingles, Smooth Stucco, Siding combination

- **Exterior Wall Finish:**
  - Material: Smooth stucco, Board and Batten siding
  - Color: White color
  - Manufacturer: LaHabra Exterior Stucco, CertainTeed Board and Batten siding
  - Spec Sheet Reference Links: Stucco, Siding

- **Roofing:**
  - Material: Asphalt Shingles
  - Color: Graphite
  - Manufacturer: CertainTeed
  - Spec Sheet Reference Links: Shingles

## Design Style Option 1 (S): Spanish Colonial Style, Gable Tile Roof, Smooth Stucco

- **Exterior Wall Finish:**
  - Material: Smooth stucco
  - Color: White color
  - Manufacturer: LaHabra Exterior Stucco
  - Spec Sheet Reference Links: Stucco

- **Roofing:**
  - Material: Clay Tile
  - Color: Red
  - Manufacturer: Westlake Royal Roofing Solutions
  - Spec Sheet Reference Links: Clay Tile

## Design Style Option 2 (S): Spanish Colonial Style, Flat Roof With Parapet, Smooth Stucco

- **Exterior Wall Finish:**
  - Material: Smooth stucco
  - Color: White color
  - Manufacturer: LaHabra Exterior Stucco
  - Spec Sheet Reference Links: Stucco

- **Roofing:**
  - Material: Granule Membrane
  - Color: Gray
  - Manufacturer: GAF
  - Spec Sheet Reference Links: Flat Roof Membrane


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